MP1570A
SONET/SDH/PDH/ATM
Analyzer
Operation Manual
Vol.6
Jitter/Wander Measurement

Eighth Edition

- **For safety and warning information, please read this manual before attempting to use the equipment.**
- **Additional safety and warning information is provided within the MP1570A SONET/SDH/PDH/ATM Analyzer Operation Manual Vol.1 Basic Operation SDH Edition or SONET Edition. Please also refer to this document before using the equipment.**
- **Keep this manual with the equipment.**

ANRITSU CORPORATION

Document No.: M-W1725AE-8.0

Safety Symbols

To prevent the risk of personal injury or loss related to equipment malfunction, Anritsu Corporation uses the following safety symbols to indicate safety-related information. Ensure that you clearly understand the meanings of the symbols BEFORE using the equipment. Some or all of the following symbols may be used on all Anritsu equipment. In addition, there may be other labels attached to products that are not shown in the diagrams in this manual.

Symbols used in manual

DANGER This indicates a very dangerous procedure that could result in serious injury or death if not performed properly.

WARNING This indicates a hazardous procedure that could result in serious injury or death if not performed properly.

CAUTION This indicates a hazardous procedure or danger that could result in light-to-severe injury, or loss related to equipment malfunction, if proper precautions are not taken.

Safety Symbols Used on Equipment and in Manual

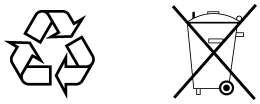
The following safety symbols are used inside or on the equipment near operation locations to provide information about safety items and operation precautions. Ensure that you clearly understand the meanings of the symbols and take the necessary precautions BEFORE using the equipment.

This indicates a prohibited operation. The prohibited operation is indicated symbolically in or near the barred circle.

This indicates an obligatory safety precaution. The obligatory operation is indicated symbolically in or near the circle.

This indicates a warning or caution. The contents are indicated symbolically in or near the triangle.

This indicates a note. The contents are described in the box.



These indicate that the marked part should be recycled.

MP1570A
SONET/SDH/PDH/ATM Analyzer
Operation Manual Vol.6 Jitter/Wander Measurement

10 March 2000 (First Edition)
10 January 2007 (Eighth Edition)

For Safety

WARNING ⚠

1. ALWAYS refer to the operation manual when working near locations at which the alert mark shown on the left is attached. If the advice in the operation manual is not followed there is a risk of personal injury or reduced equipment performance. The alert mark shown on the left may also be used with other marks and descriptions to indicate other dangers.

2. IEC 61010 Standard
   The IEC 61010 standard specifies four categories to ensure that an instrument is used only at locations where it is safe to make measurements. This instrument is designed for measurement category I (CAT I). DO NOT use this instrument at locations specified as category II, III, or IV as defined below.
   Measurement category I (CAT I):
   Secondary circuits of a device that is not directly connected to a power outlet.
   Measurement category II (CAT II):
   Primary circuits of a device that is directly connected to a power outlet, e.g., portable tools or home appliance.
   Measurement category III (CAT III):
   Primary circuits of a device (fixed equipment) to which power is supplied directly from the distribution panel, and circuits running from the distribution panel to power outlet.
   Measurement category IV (CAT IV):
   Building service-line entrance circuits, and circuits running from the service-line entrance to the meter or primary circuit breaker (distribution panel).

For Safety

WARNING ⚠

3. Laser radiation warning
   - NEVER look directly into the cable connector on the equipment nor into the end of a cable connected to the equipment. There is a risk of injury if laser radiation enters the eye.
   - The Laser Safety label is attached to the equipment for safety use as indicated in "Laser Safety" later in this section.

Electric Shock

4. To ensure that the instrument is grounded, always use the supplied 3-pin power cord, and insert the plug into an outlet with a ground terminal. If power is supplied without grounding the equipment, there is a risk of receiving a severe or fatal electric shock.

Repair

WARNING ⚠

5. This equipment cannot be repaired by the operator. DO NOT attempt to remove the equipment covers or unit covers or to disassemble internal components. Only qualified service personnel with a knowledge of electrical fire and shock hazards should service this equipment. There are high-voltage parts in this equipment presenting a risk of severe injury or fatal electric shock to untrained personnel. In addition, there is a risk of damage to precision components.

Calibration

6. The performance-guarantee seal verifies the integrity of the equipment. To ensure the continued integrity of the equipment, only Anritsu service personnel, or service personnel of an Anritsu sales representative, should break this seal to repair or calibrate the equipment. If the performance-guarantee seal is broken by you or a third party, the performance of the equipment cannot be guaranteed.

Falling Over

7. This equipment should always be positioned in the correct manner. If the cabinet is turned on its side, etc., it will be unstable and may be damaged if it falls over as a result of receiving a slight mechanical shock.
   Always set up the equipment in a position where the power switch can be reached without difficulty.

For Safety

WARNING ⚠

Battery Fluid

8. DO NOT short the battery terminals and never attempt to disassemble the battery or dispose of it in a fire. If the battery is damaged by any of these actions, the battery fluid may leak. This fluid is poisonous.
   DO NOT touch the battery fluid, ingest it, or get in your eyes. If it is accidentally ingested, spit it out immediately, rinse your mouth with water and seek medical help. If it enters your eyes accidentally, do not rub your eyes, rinse them with clean running water and seek medical help. If the liquid gets on your skin or clothes, wash it off carefully and thoroughly.

LCD

9. This instrument uses a Liquid Crystal Display (LCD). DO NOT subject the instrument to excessive force or drop it. If the LCD is subjected to strong mechanical shock, it may break and liquid may leak.
   This liquid is very caustic and poisonous.
   DO NOT touch it, ingest it, or get in your eyes. If it is ingested accidentally, spit it out immediately, rinse your mouth with water and seek medical help. If it enters your eyes accidentally, do not rub your eyes, rinse them with clean running water and seek medical help. If the liquid gets on your skin or clothes, wash it off carefully and thoroughly.

For Safety

CAUTION ⚠

Fuse Replacement

CAUTION ⚠

1. Always remove the mains power cable from the power outlet before replacing blown fuses. There is a risk of electric shock if fuses are replaced with the power cable connected. Always use new fuses of the type and rating specified on the rear panel of the instrument. There is a risk of fire if a fuse of a different rating is used.

   F10A indicate a normal fusing type fuse.

Cleaning

2. Keep the power supply and cooling fan free of dust.
   - Clean the power inlet regularly. If dust accumulates around the power pins, there is a risk of fire.
   - Keep the cooling fan clean so that the ventilation holes are not obstructed. If the ventilation is obstructed, the cabinet may overheat and catch fire.

3. The maximum input levels of the optical signal are 0 dBm for MU150002A 10G input, –8 dBm for MU150002A Option 01 2.5G input, and +3 dBm for MU150017A/B input. Excessive input level can damage the internal devices and circuit.

   Before performing a self loop-back test, always install 15 dB (when MP0127A/MP0128A/MP0129A or MU150008A/MU150009A/ MU150010A installed), 10 dB (when MU150002A installed), or 5 dB (when MU150017A/B installed) attenuator between the output connector and the input connector.

Laser radiation caution

4. Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

For Safety

WARNING ⚠

Laser Safety

The laser safety is assured by correct operation of the warning means of the laser output. Before using the optical output, if it is not possible to check the optical emission using the warning means of the laser output at power-on or when the optical output switch is set to on, the laser output may be faulty. Do not use the equipment and call our service department or representative to request repair.

Optical units for the MP1570A SONET/SDH/PDH/ATM Analyzer have Class 1 laser emitting parts as specified in IEC 60825-1, or Class I and IIIb parts as specified in 21CFR 1040.10 (refer to Table 1). Classes are indicated on the label at the top panel of this equipment and the front panel of each unit (refer to Table 2 and Figs 1 to 5).

Do not look directly into the end of any cable connected to the optical output connector of the unit. Laser light can seriously damage the eyes. Operating this unit in a procedure other than that as described above might result in injury or damage from laser emission. Please follow the handling instructions carefully.

Table 1 Class of each unit

Model number	Standard name	
	IEC 60825-1	21CFR 1040.10
MP0111A	Class 1	Class I
MP0112A	Class 1	Class I
MP0113A	Class 1	Class I
MP0122B	Class 1	Class I
MP0127A	Class 1	Class IIIb
MP0128A	Class 1	Class IIIb
MP0129A	Class 1	Class IIIb
MU150001A/B	Class 1	Class IIIb
MU150008A	Class 1	Class IIIb
MU150009A	Class 1	Class IIIb
MU150010A	Class 1	Class IIIb
MU150031A/C	Class 1	Class IIIb
MU150061A/B	Class 1	Class IIIb

For Safety

Class 1 indicates the danger degree of the laser radiation specified below according to IEC 60825-1.

Class 1: Lasers that are safe under reasonably foreseeable conditions of operation, including the use of optical instruments for intrabeam viewing.

And, Class I, IIa, II, IIIa and IIIb indicates the degree of danger of the laser radiation outlined below as defined by 21CFR 1040.10.

Class I: Class I labels of laser radiation are not considered to be hazardous.

Class IIa: Class IIa labels of laser radiation are not considered to be hazardous if viewed for any period of time less than or equal to 1×10^3 seconds but are considered to be a chronic viewing hazard for any period of time greater than 1×10^3 seconds. The wavelength range of laser radiating is in 400 to 710 nm.

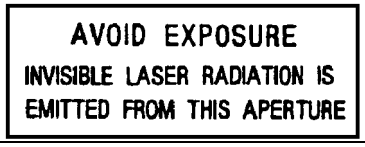
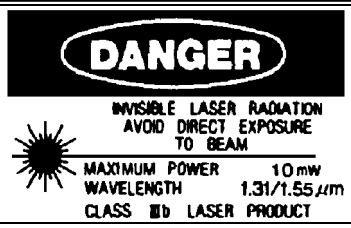
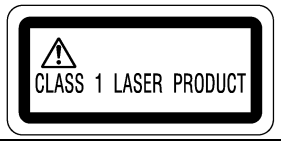
Class II: Class II labels of laser radiation are considered to be a chronic viewing hazard. The wavelength range of laser radiating is in 400 to 710 nm.

Class IIIa: Class IIIa labels of laser radiation are considered to be, depending upon the irradiance, either an acute intrabeam viewing hazard or chronic viewing hazard, and an acute viewing hazard if viewed directly with optical instruments. The wavelength range of laser radiating is in 400 to 710 nm.

Class IIIb: Class IIIb labels of laser radiation are considered to be an acute hazard to skin and eyes from direct radiation.

For Safety

Table 2

No.	Label	Description
[1]		Aperture label (FDA 21CFR 1040.10)
[2]		Explanatory label (FDA 21CFR 1040.10)
[3]		Explanatory label (IEC 60825-1)
[4]		Warning label (IEC 60825-1)
[5]		Certification label (FDA 21CFR 1040.10)
[6]		Identification label (FDA 21CFR 1040.10)

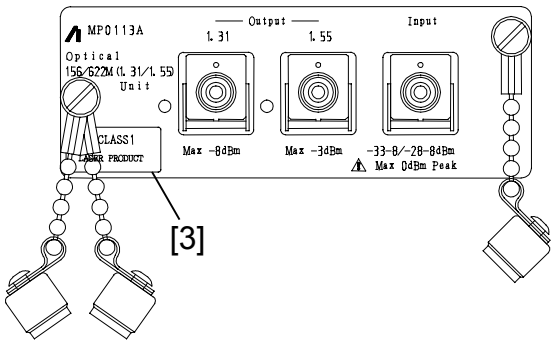


Fig. 1 MP0111A, MP0112A, MP0113A Front Panel of Unit

CAUTION ⚠

When only a Unit is purchased, an adhesive label is supplied with the Unit.
Please, attach it to the place, shown above.

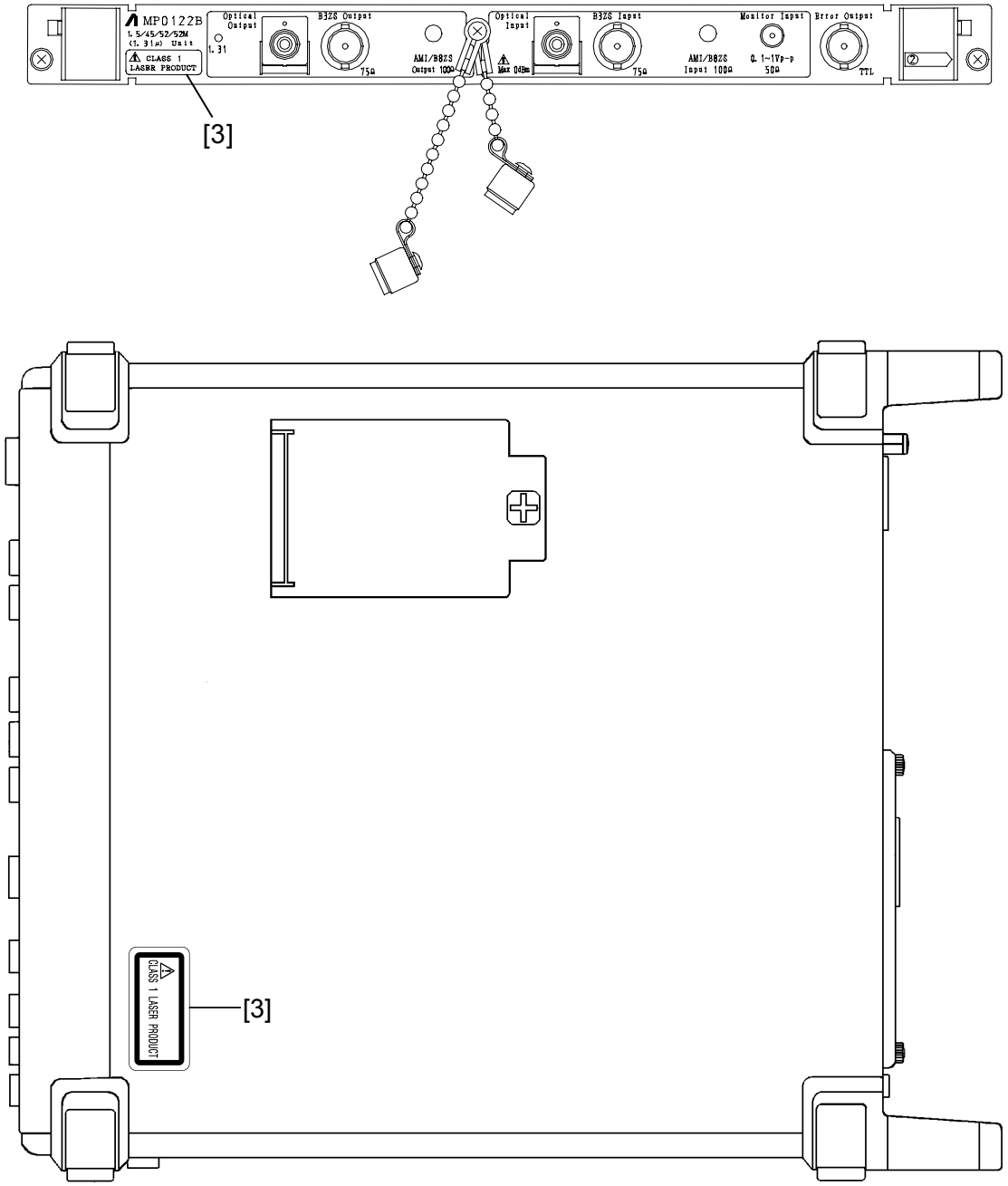


Fig. 2 MP0122B Front Panel of Unit and Top Panel of MP1570A
(Products shipping besides U.S.A.)

CAUTION ⚠

When only a Unit is purchased, an adhesive label is supplied with the Unit.
Please, attach it to the place, shown above.

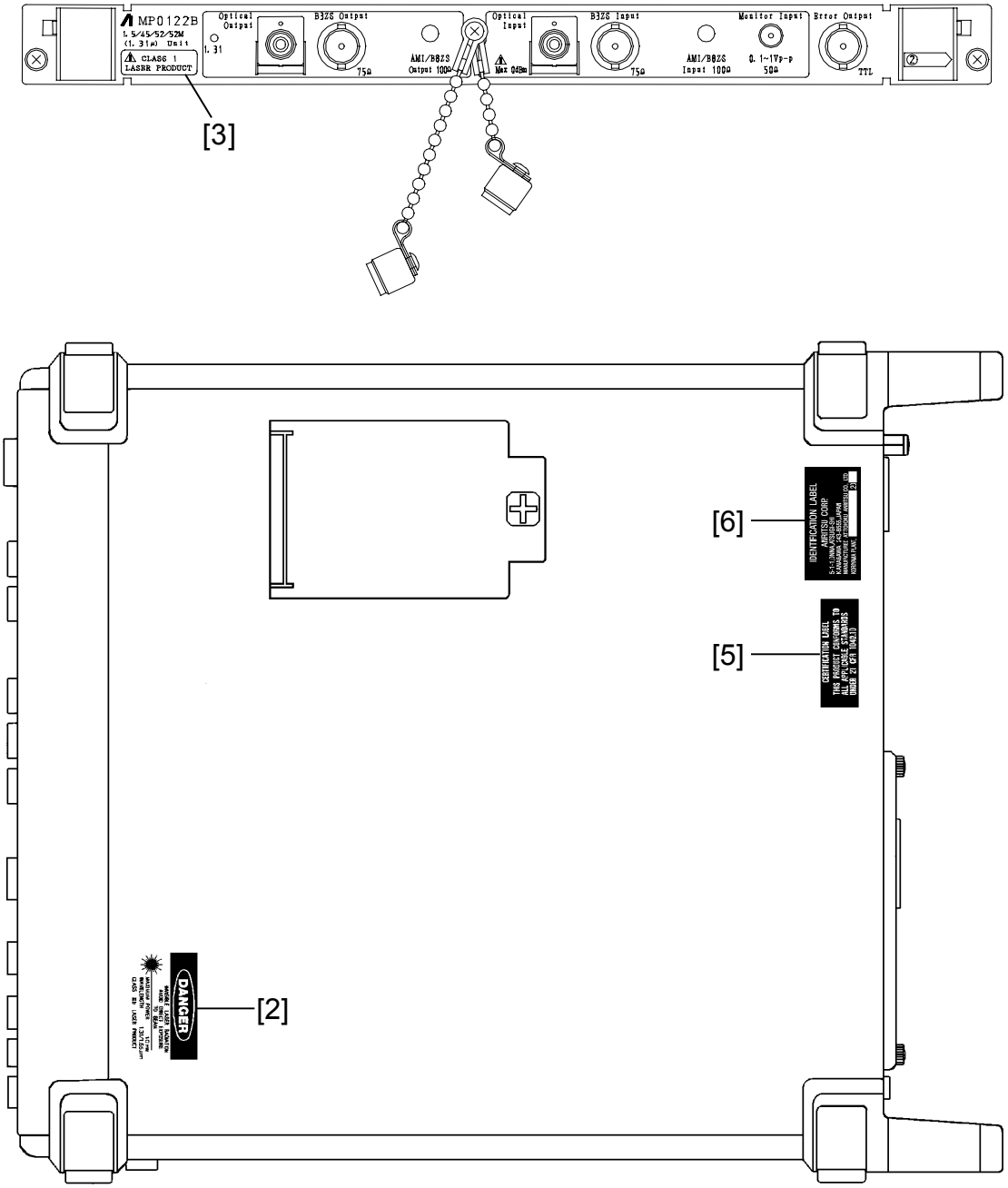


Fig. 3 MP0122B Front Panel of Unit and Top Panel of MP1570A
(Products shipping to U.S.A.)

CAUTION ⚠

When only a Unit is purchased, an adhesive label is supplied with the Unit.
Please, attach it to the place, shown above.

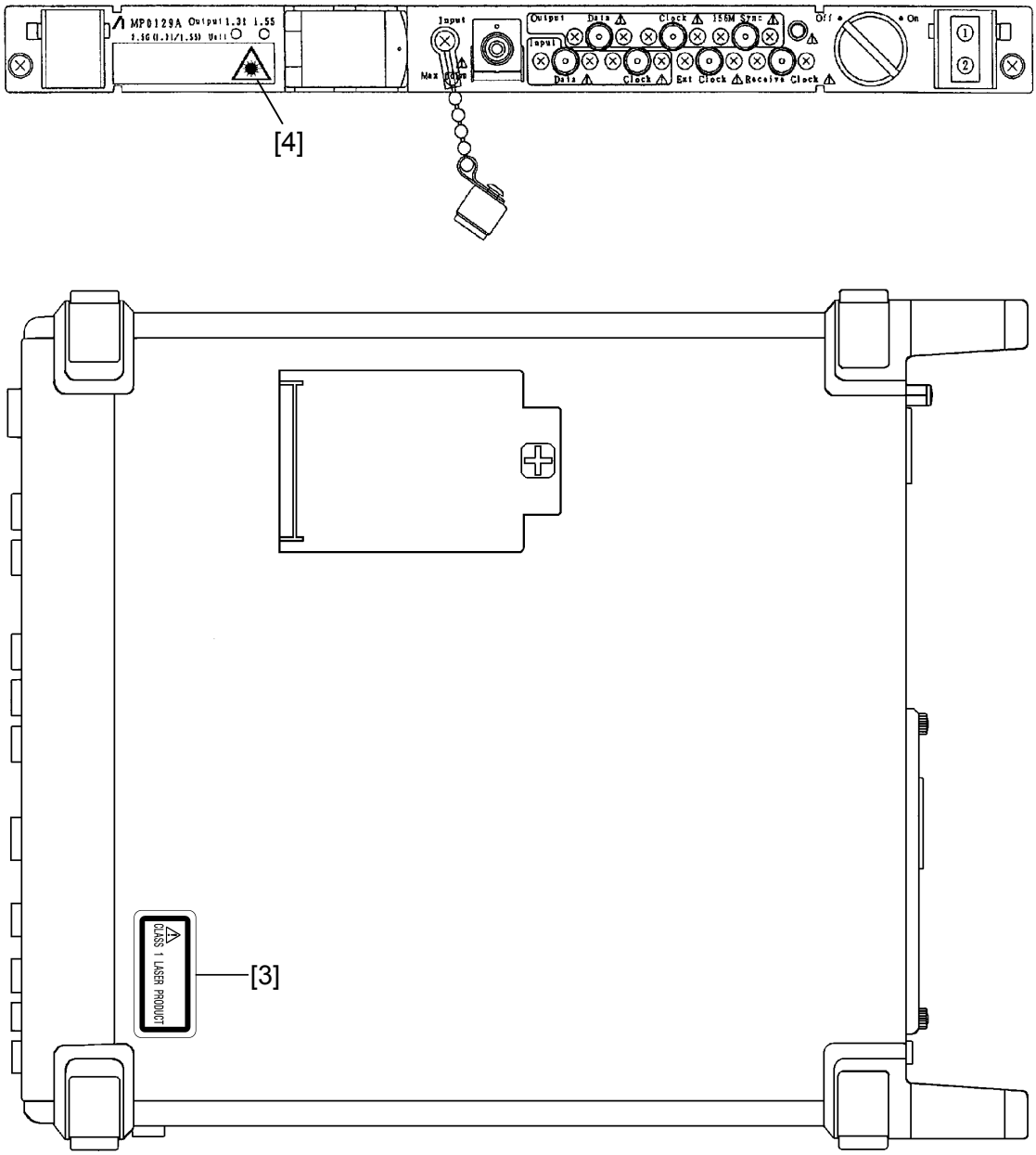


Fig. 4 MP0127A, MP0128A, MP0129A, MU150008A, MU150009A, MU150010A
Front Panel of Unit and Top Panel of MP1570A
(Products shipping besides U.S.A.)

CAUTION ⚠

When only a Unit is purchased, an adhesive label is supplied with the Unit.
Please, attach it to the place, shown above.

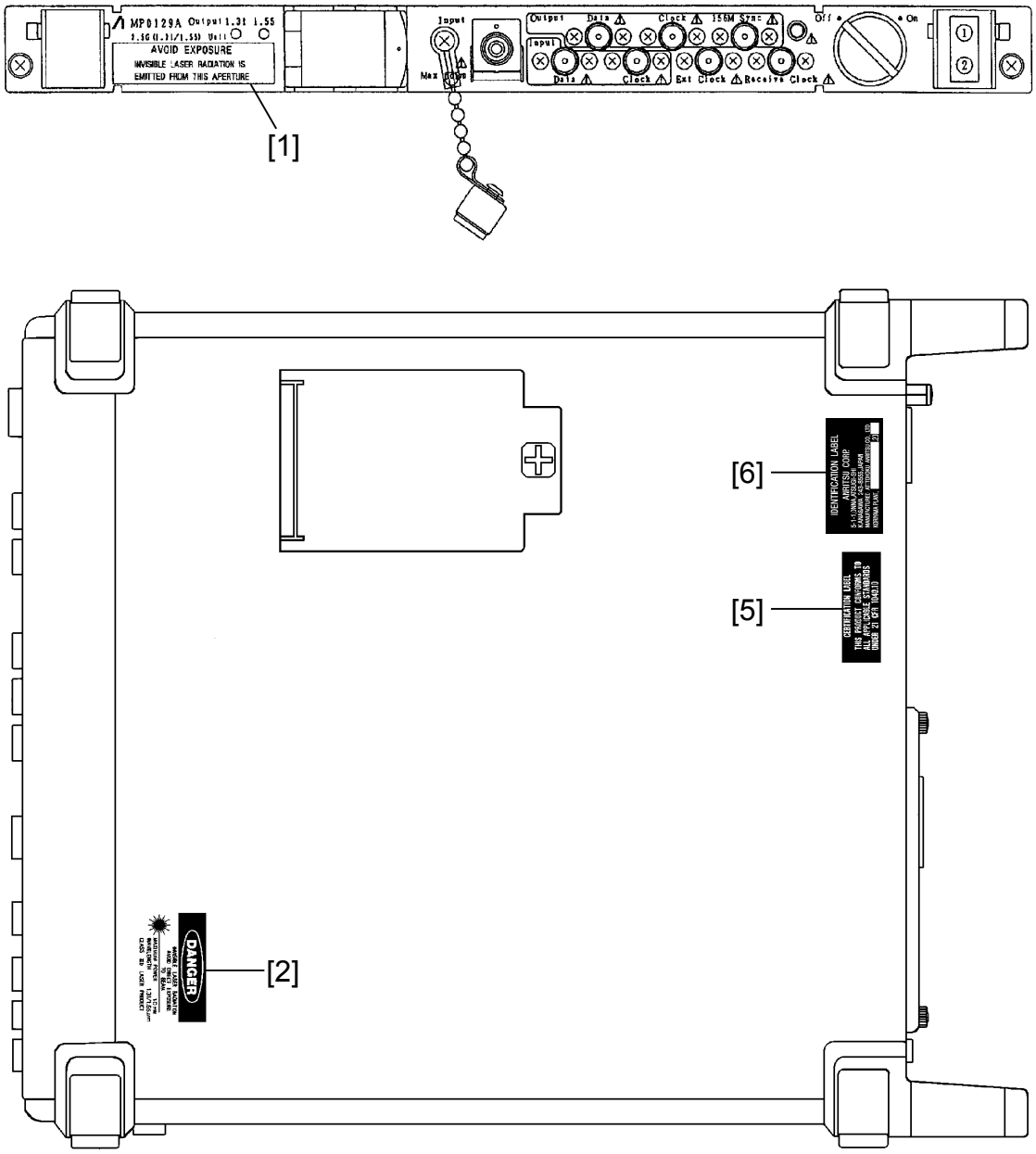


Fig. 5 MP0127A, MP0128A, MP0129A, MU150008A, MU150009A, MU150010A
Front Panel of Unit and Top Panel of MP1570A
(Products shipping to U.S.A.)

CAUTION ⚠

When only a Unit is purchased, an adhesive label is supplied with the Unit.
Please, attach it to the place, shown above.

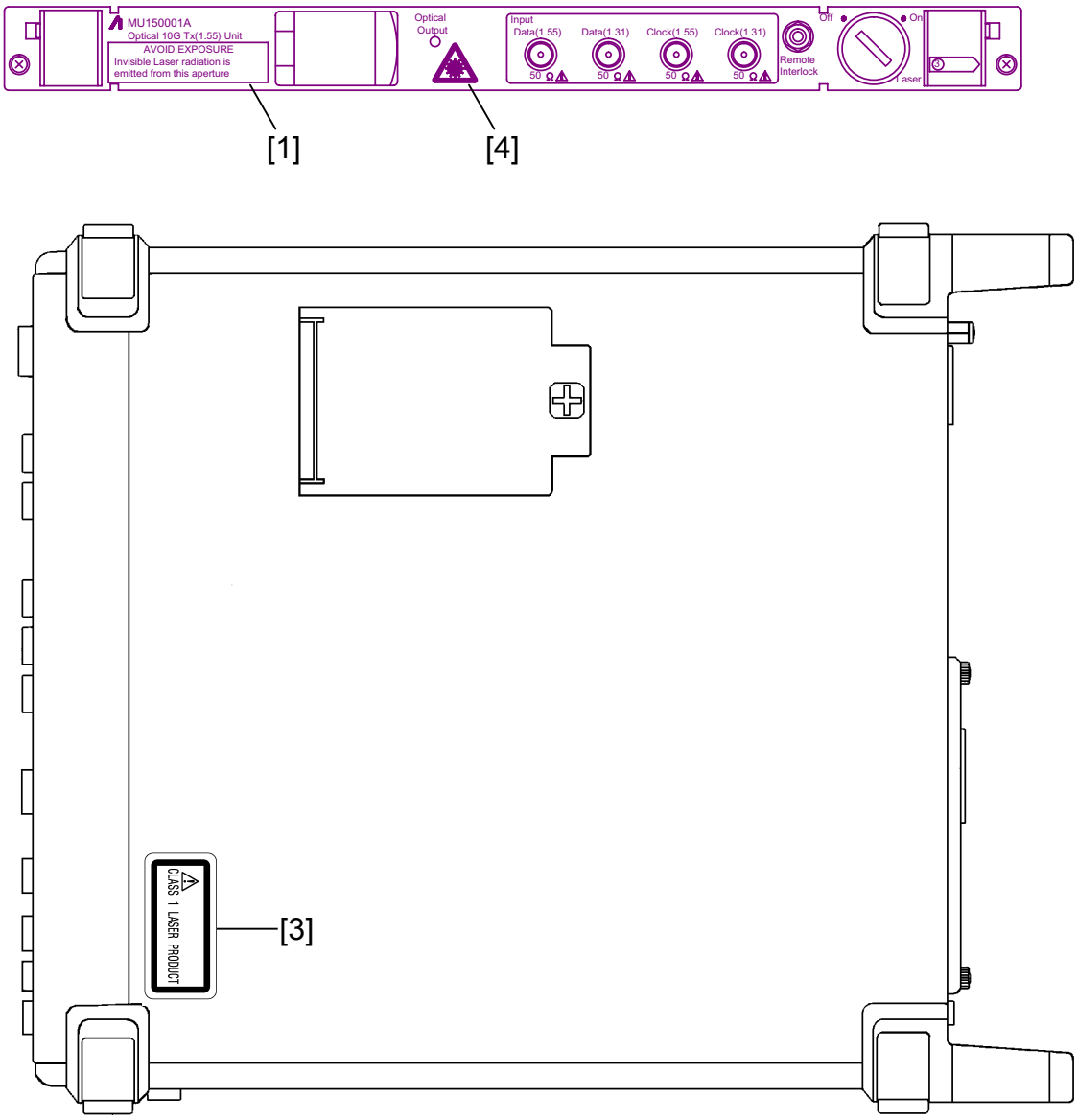


Fig. 6 MU150001A/B, MU150031A/C, MU150061A/B
Front Panel of Unit and Top Panel of MP1570A
(Products shipping besides U.S.A.)

CAUTION ⚠

When only a Unit is purchased, an adhesive label is supplied with the Unit.
Please, attach it to the place, shown above.

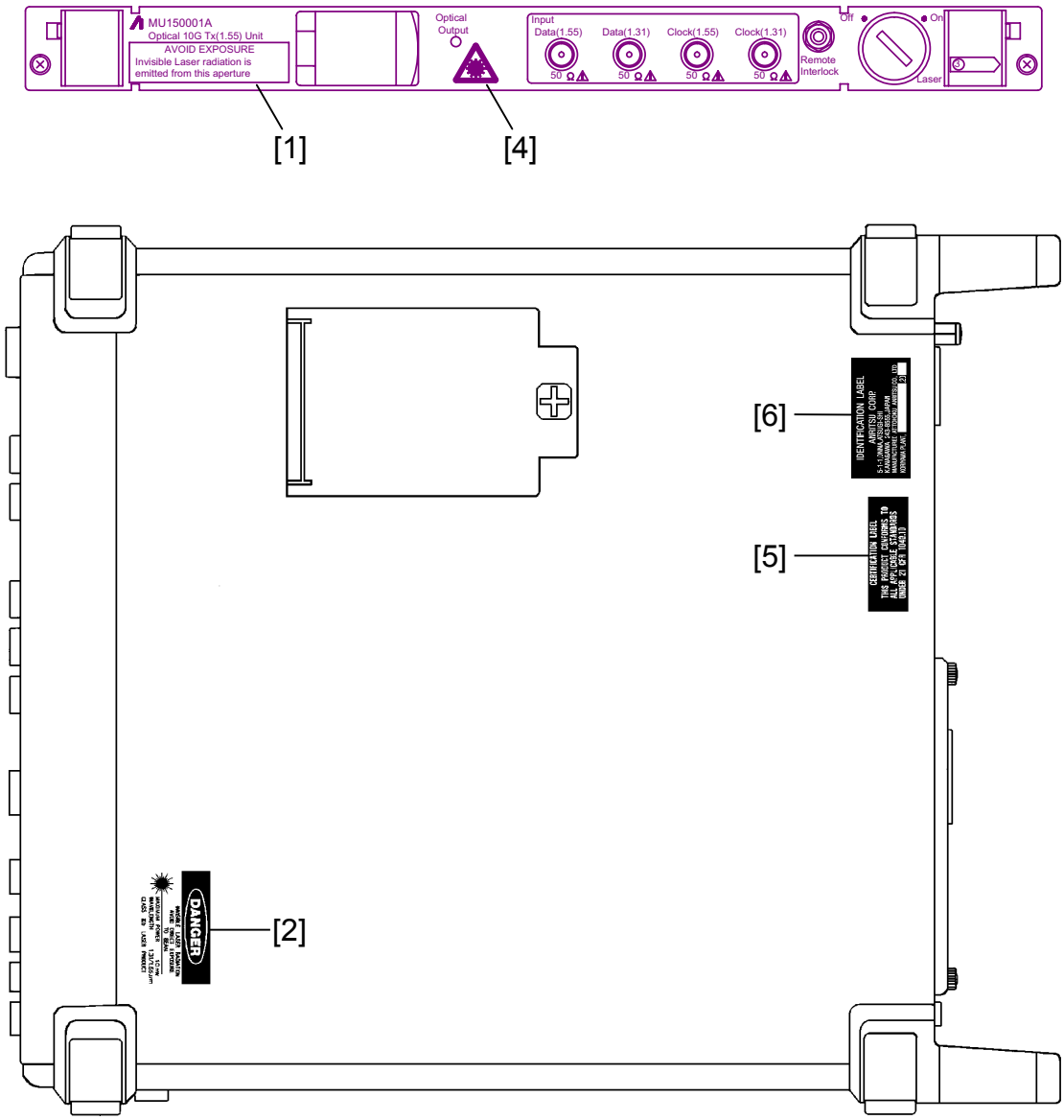


Fig. 7 MU150001A/B, MU150031A/C, MU150061A/B
Front Panel of Unit and Top Panel of MP1570A
(Products shipping to U.S.A.)

CAUTION ⚠

When only a Unit is purchased, an adhesive label is supplied with the Unit.
Please, attach it to the place, shown above.

For Safety

Security Measure Functions

The MP0127A, MP0128A, MP0129A, MU150001A/B, MU150008A, MU150009A, MU150010A, MU150031A/C, MU150061A/B are provided with the following security measure functions to prevent the possibility of infliction bodily injury on operators.

- Laser cut-off

  When the cable is disconnected from the optical output section, the protective cover closes and the laser emission stops.
- Laser output key lock

  The laser output is mainly controlled by the key switch of the laser On/Off. When the switch is set to the OFF position, the key can be removed. In this state, the laser is locked off.
- Remote control using the remote interlock connectors

  To ensure safe control of the laser output from a remote location, the laser output can be controlled using the remote interlock connectors of the Laser Output Remote Interlock section.

  When both the ends of these two connectors (white and black) are connected electrically, the laser can be emitted. When both the ends are disconnected, it is not possible to emit the laser. For the voltage of the open end, the potential is +5 V at the white connector for the black connector. The laser output can be controlled by any equipment with a 0/+5 V interface.
- Laser emission indicators

  These indicators on the optical output light while laser is being emitted.
- Laser output warning

  When the laser is set to ON, the laser emission indicator lights as a warning or 3 to 4 seconds before laser is actually emitted. The laser is not emitted during this period.

Handling

The following safety precautions should be observed when handling the MP0127A, MP0128A, MP0129A, MU150001A/B, MU150008A, MU150009A, MU150010A, MU150031A/C, MU150061A/B.

- Before installing/removing this unit in/from the main frame, always make sure the main frame power switch is set to OFF.
- Before connecting/disconnecting a cable to/from the optical output section of this unit, always be sure to set the Laser On/Off key switch to OFF.

For Safety

CAUTION ⚠

Replacing Memory Back-up Battery

This equipment uses a Poly-carbomonofluoride lithium battery to backup the memory. This battery must be replaced by service personnel when it has reached the end of its useful life; contact the Anritsu sales section or your nearest representative.

Note: The battery used in this equipment has a maximum useful life of 7 years. It should be replaced before this period has elapsed.

Make sure that the output level from the MP0111A, MP0112A, MP0113A, MP0122B, MP0127A, MP0128A, MP0129A, MU150001A, MU150001B, MU150008A, MU150009A, MU150010A, MU150031A/C or MU150061A does not exceed the maximum rated input level when connecting.

The laser output is mainly controlled by the key switch of the laser On/Off. Before turning the equipment on, be sure to set the Laser On/Off key switch to OFF.

Before making the connections, make sure that the input level does not exceed the absolute maximum rating level of the equipment.
The input device may be damaged when the input level exceeds the maximum rating of MP0127A, MP0128A, MP0129A, MU150002A, MU150008A, MU150009A and MU150017A/B in particular. Before performing a self loop-back test, always insert the attached 15-dB optical attenuator between the input and output connectors for the MP0127A, MP0128A, MP0129A, MU150008A, MU150009A and MU150010A. For the MU150002A or MU150017A/B, use the 10-dB or 5-dB attenuator, respectively. The input device will be damaged if the direct output is connected by using the optical cable only.

Floppy Disk

Do not place in a dusty area.
Clean the magnetic head periodically to ensure normal operation.
Refer to the section on cleaning the head later in this manual.

Equipment Certificate

Anritsu Corporation certifies that this equipment was tested before shipment using calibrated measuring instruments with direct traceability to public testing organizations recognized by national research laboratories, including the National Institute of Advanced Industrial Science and Technology, and the National Institute of Information and Communications Technology, and was found to meet the published specifications.

Anritsu Warranty

Anritsu Corporation will repair this equipment free-of-charge if a malfunction occurs within one year after shipment due to a manufacturing fault, under the condition that this warranty is void when:

- The fault is outside the scope of the warranty conditions described in the operation manual.
- The fault is due to mishandling, misuse, or unauthorized modification or repair of the equipment by the customer.
- The fault is due to severe usage clearly exceeding normal usage.
- The fault is due to improper or insufficient maintenance by the customer.
- The fault is due to natural disaster including fire, flooding, earthquake, etc.
- The fault is due to use of non-specified peripheral equipment, peripheral parts, consumables, etc.
- The fault is due to use of a non-specified power supply or in a non-specified installation location.

In addition, this warranty is valid only for the original equipment purchaser. It is not transferable if the equipment is resold.

Anritsu Corporation will not accept liability for equipment faults due to unforeseen and unusual circumstances, nor for faults due to mishandling by the customer.

Anritsu Corporation Contact

In the event that this equipment malfunctions, contact an Anritsu Service and Sales office. Contact information can be found on the last page of the printed version of this manual, and is available in a separate file on the CD version.

Notes On Export Management

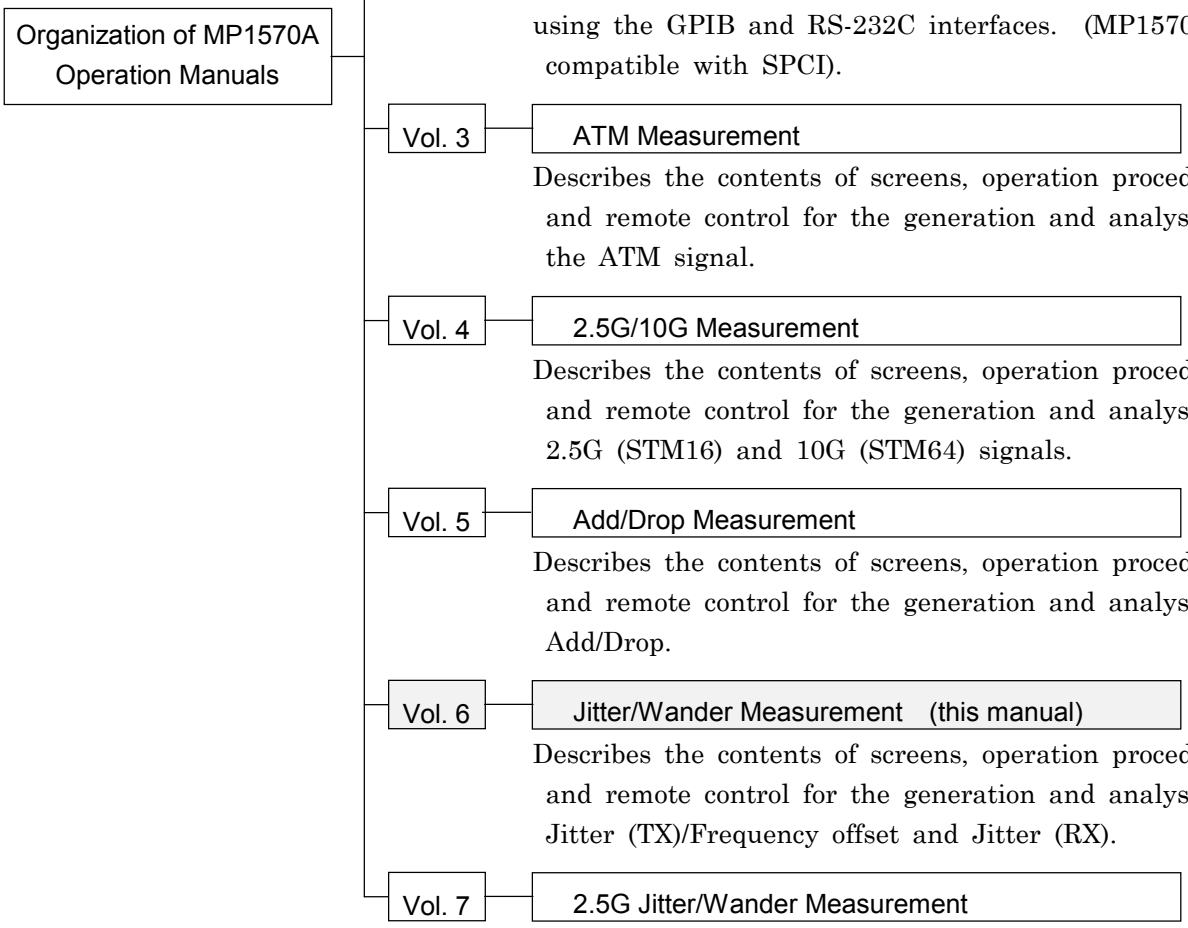
This product and its manuals may require an Export License/Approval by the Government of the product's country of origin for re-export from your country.

Before re-exporting the product or manuals, please contact us to confirm whether they are export-controlled items or not.

When you dispose of export-controlled items, the products/manuals need to be broken/shredded so as not to be unlawfully used for military purpose.

About MP1570A Operation Manuals

MP1570A SONET/SDH/PDH/ATM Analyzer Operation Manuals comprise of the following eight documents. Use them properly according to the usage purpose.



About This Manual

This Operation Manual describes the following.

This manual (MP1570A Operation Manual Vol.6 Jitter/Wander Measurement) mainly describes Jitter and Wander Measurement that can be performed by installing MP0124A, MP0125A, or MP0126A Jitter unit.

Screen Names

MP1570A has 4 major screens, namely, 'Setup', 'Test menu', 'Result', and 'Analyze', and each major screen has its own subscreens. (For details, see ‘Section 4 Screens and Parameter Setting’).

If 'Setup' is selected as the main screen and 'Mapping' as the subscreen, see 'Setup: Mapping’ screen in the manual for the explanation.

CONTENTS

Section 1 General

This section explains the outline of the jitter and wander measurements that can be performed when a jitter unit is installed in MP1570A.

1.1 Product Outline

When jitter/wander unit is installed, the MP1570A SONET/SDH/PDH/ATM analyzer is capable of evaluating jitters and wander of the SDH/PDH signal. The MP0121A 2/8/34/139/156M unit, MP0122A/B 1.5/45/52M unit, or Interface unit is installed depending on the signal to be evaluated.

1.2 Product Features

Jitter generation and variable frequency functions

The unit generates jitters, adequate to estimate the ITU-T recommendations G.823/G.824/G.825/G.958. Further, it can vary transmission frequencies in a range between -999 and +999 ppm in 0.1-ppm steps.

Jitter measurement function

The unit performs jitter and frequency measurement (monitor) adequate to estimate the ITU-T recommendations G.823/G.824/G.825/G.958.

Conforming to SDH/SONET

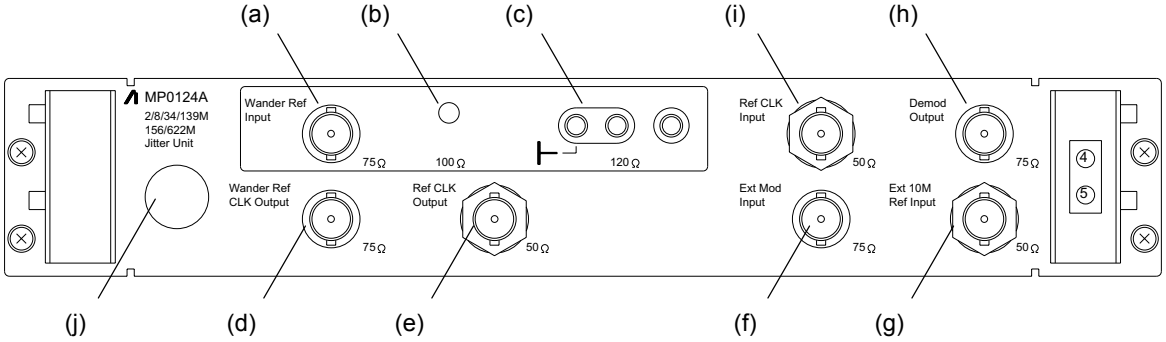
The three types of units are conforming to SDH (2M, 8M, 34M, 139M, 156M, 622M), SONET (1.5M, 45M, 52M, 156M, 622M) and SDH/SONET.
MP0124A 2/8/34/139M 156/622M Jitter Unit (SDH)
MP0125A 1.5/45/52M 156/622M Jitter Unit (SONET)
MP0126A 2/8/34/139M 1.5/45/52M 156/622M Jitter Unit (SDH, SONET)
MU150005A 2/8/34/139M 156/622M Jitter Unit
(SDH, ITU-T O.172)
MU150006A 1.5/45/52M 156/622M Jitter Unit
(SONET, ITU-T O.172)
MU150007A 2/8/34/139M 1.5/45/52M 156/622M Jitter Unit
(SDH, SONET, ITU-T O.172)

Wander measurement function

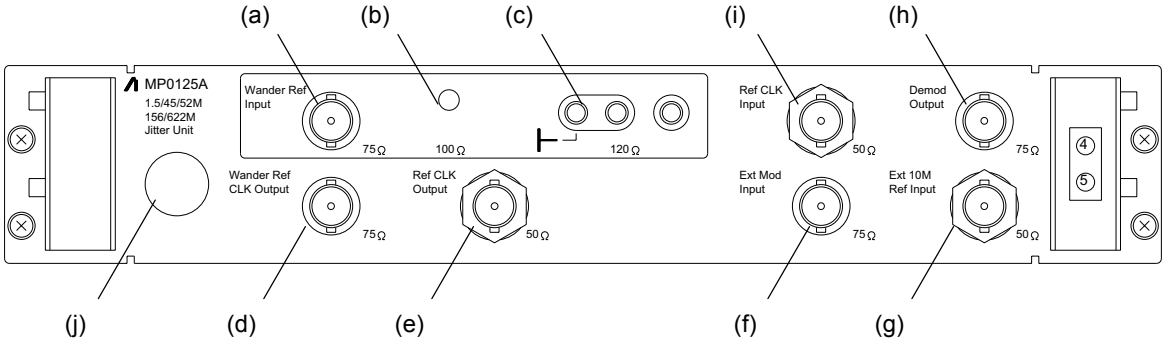
The unit measures wander of all input signals.

1.3 Names and Functions of Various Parts

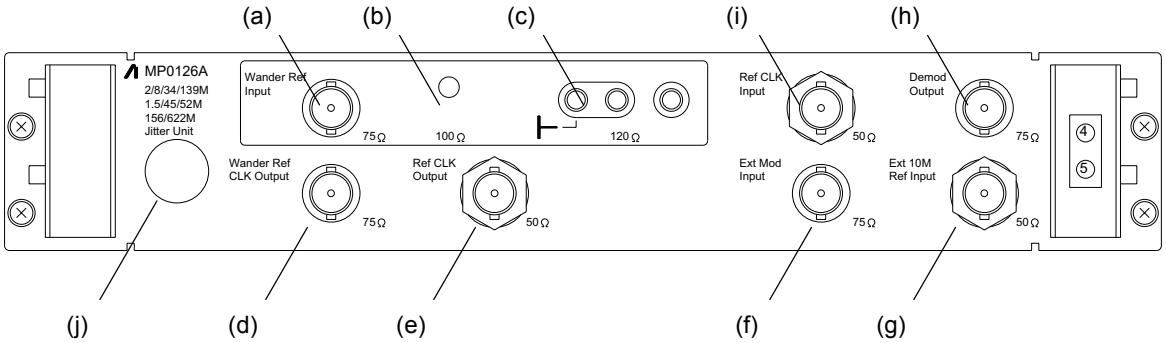
MP0124A



MP0125A

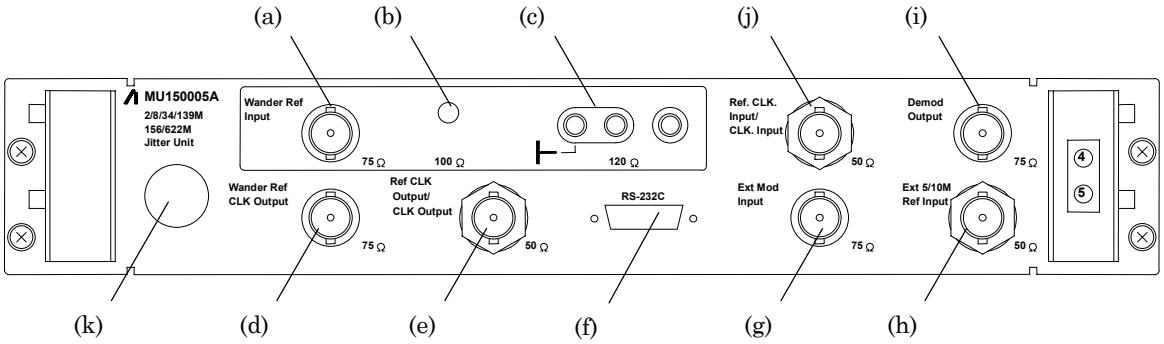


MP0126A

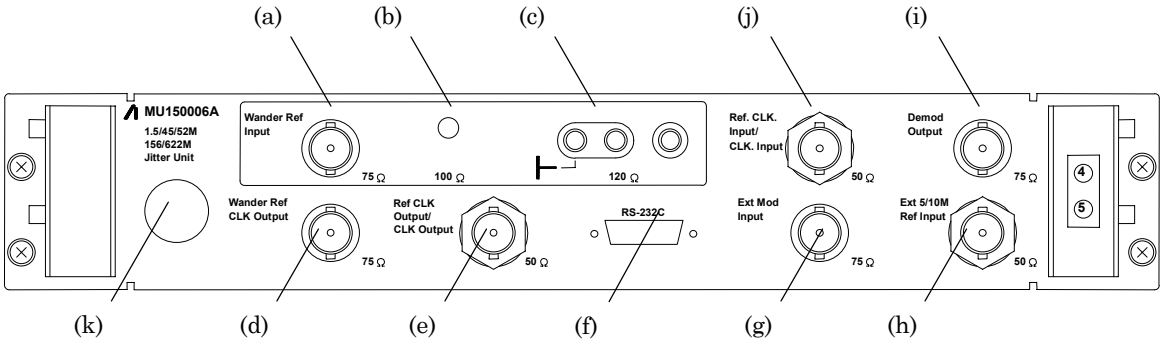


	Name	Description
(a)	Wander Ref Input 75Ω	Connector which inputs a standard signal from the external signal source during wander measurement. Frequency・・ 1.544 MHz, 2.048 MHz (CLOCK); 1.125 Vop ± 34% Level・・・・・・ 2.048 Mbit/s (HDB3); 2.37 Vop ± 10% Connector・・ BNC 75Ω
(b)	Wander Ref Input 100Ω	Connector which inputs a standard signal from the external signal source during wander measurement. Frequency・・ 1.544 Mbit/s Level・・・・・・ 3.0 Vop ±24% Connector・・ Weco310 Compatible 100Ω
(c)	Wander Ref Input 120Ω	Connector which inputs a 2M standard signal from the external signal source during wander measurement. Frequency・・ 2.048 Mbit/s Level・・・・・・ 3.0 Vop ±24% Connector・・ 3-PoleCF 120 Ω
(d)	Wander Ref CLK Output 75Ω	Connector which outputs the standard clock signal to be used for wander measurement during wander measurement. Frequency・・ 1.544 MHz, 2.048 MHz Level・・・・・・ 1.125 Vop±34% Connector・・ BNC 75 Ω
(e)	Ref CLK Output 50Ω	Connector which outputs the standard clock signal (which occurred in MP1570A and has no jitter), or a clock signal (which is input from the Ext Clock Input plug). PDH ・・・・・・ 1.544 MHz, 44.736 MHz, 2.048 MHz, 8.448 MHz, 34.368 MHz, 139.264 MHz SDH ・・・・・・ 155.52 MHz, 622.08 MHz, 51.84 MHz Level・・・・・・ 0.8 ± 0.25 Vp-p (AC) Connector・・ BNC 50 Ω
(f)	Ext Mod Input 75Ω	Connector which inputs a modulation signal from the external device when the jitter generation mode is External. Connector・・ BNC 75 Ω
(g)	Ext 10M Ref Input 50Ω	Connector which inputs a 10 MHz standard signal from an external device when the clock is "Lock (10M)" Frequency・・ 10 MHz Level・・・・・・ 0 to +10 dBm Connector・・ BNC 50 Ω
(h)	Demod Output 75Ω	Connector which outputs analog signal of jitter-measurement phase-detection signal without dc component. Connector・・ BNC 75 Ω
(i)	Ref CLK Input 50Ω	Connector which inputs a standard signal to perform the jitter measurement by an external standard signal, or input an external clock signal to perform jitter measurement. Frequency・・ 1.544 MHz, 44.736 MHz, 51.84 MHz 2.048 MHz, 8.44 MHz, 34.368 MHz, 139.264 MHz, 155.52 MHz, 622.08 MHz Level・・・・・・ 0.8±0.25Vp-p (AC) Connector・・ BNC 50 Ω
(j)	[Adjustment]	Hole which is used to adjust the accuracy of internal clock generator and frequency.

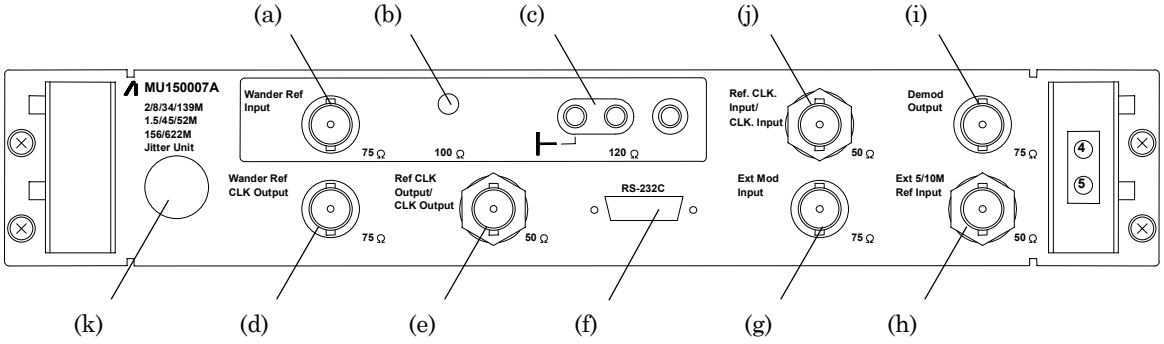
MU150005A



MU150006A



MU150007A



	Name	Description
(a)	Wander Ref Input 75Ω	Connector which inputs a standard signal from the external signal source during wander measurement. 1.544 MHz, 2.048 MHz (CLOCK); 1.125 Vop ± 34% 2.048 Mbit/s (HDB3); 2.37 Vop ± 10% BNC 75Ω
(b)	Wander Ref Input 100Ω	Connector which inputs a standard signal from the external signal source during wander measurement. 1.544 Mbit/s 3.0 Vop ±24% Weco310 Compatible 100Ω
(c)	Wander Ref Input 120Ω	Connector which inputs a 2M standard signal from the external signal source during wander measurement. 2.048 Mbit/s 3.0 Vop ±24% 3-PoleCF 120 Ω
(d)	Wander Ref CLK Output 75Ω	Connector which outputs the standard clock signal to be used for wander measurement during wander measurement. 1.544 MHz, 2.048 MHz 1.125 Vop±34% BNC 75 Ω
(e)	Ref CLK Output/ CLK Output 50Ω	Connector which outputs the standard clock signal (which occurred in MP1570A and has no jitter), or a clock signal (which is input from the Ext Clock Input plug). 1.544 MHz, 44.736 MHz, 2.048 MHz, 8.448 MHz, 34.368 MHz, 139.264 MHz 155.52 MHz, 622.08 MHz, 51.84 MHz 0.8 ± 0.25 Vp-p (AC) BNC 50 Ω
(f)	RS-232C	Connector which outputs the measured TIE data during wander measurement. The wander measurement software (MX15000B) on an external computer can deal with the data. Refer to the following table for pin numbers and signals.
(g)	Ext Mod Input 75Ω	Connector which inputs a modulation signal from the external device when the jitter generation mode is External. BNC 75 Ω
(h)	Ext 5/10M Ref Input 50Ω	Connector which inputs a 10 MHz standard signal from an external device when the clock is "Lock (10M)" 10 MHz 0 to +10 dBm BNC 50 Ω

Pin	Signal	Pin	Signal
1	CD	5	Ground
2	RD	6	DSR
3	TD	7	RTS
4	DTR	8	CTS

	Name	Description
(i)	Demod Output 75Ω	Connector which outputs analog signal of jitter-measurement phase-detection signal without dc component. BNC 75 Ω
(j)	Ref CLK Input 50Ω	Connector which inputs a standard signal to perform the jitter measurement by an external standard signal, or input an external clock signal to perform jitter measurement. 1.544 MHz, 44.736 MHz, 51.84 MHz 2.048 MHz, 8.44 MHz, 34.368 MHz, 139.264 MHz, 155.52 MHz, 622.08 MHz 0.8±0.25Vp-p (AC) BNC 50 Ω
(k)	[Adjustment]	Hole which is used to adjust the accuracy of internal clock generator and frequency.

Section 2 Screen

This section explains the screen composition and screen displays when a jitter unit is installed in MP1570A.

2.1 Screen Composition

Compositions of main screens and subscreens related to jitter measurements when a jitter unit is installed in MP1570A are as listed in the following tables.

Main screen	Subscreen	Major function
Setup	Mapping	Sets interface conditions with respect to the device under test, and items related to measurement.
	Memory	Allows storing and reading of measurement conditions, and graph data on the Analyze main screen.
	Print	Performs settings for automatic printing.
	Jitter tolerance	Check or modify measurement points for jitter tolerance automatic measurement or mask line. • This is displayed when the jitter unit is installed.
	Jitter transfer	Check or modify measurement points for jitter transfer automatic measurement or mask line. • This is displayed when the jitter unit is installed.
	Jitter/Freq.	Confirms and changes the mask line for frequency-offset-to-jitter measurement. • This is displayed when the MU150005A, MU150006A, or MU150007A jitter unit is installed.
	System	Performs setting for the buzzer, clock, screen colors, GPIB and RS-232C.
	Floppy disk	Performs saving and reading of measurement conditions, and graph data on the Analyze main screen.
	Selftest	Performs self-test.
Test menu	Manual	Sets the conditions for manual measurement.
	Jitter tolerance	Sets the conditions for jitter tolerance automatic measurement. • This is displayed when the jitter unit is installed.
	Jitter transfer	Sets the conditions for jitter transfer automatic measurement. • This is displayed when the jitter unit is installed.
	Jitter/Freq.	Sets the conditions for frequency-offset-to-jitter measurement. • This is displayed when the jitter unit is installed.
	Jitter sweep	Sets the conditions for jitter sweep automatic measurement. • This is displayed when the jitter unit is installed.
	Wander	Sets the conditions for wander (TIE) measurement. • This is displayed when the jitter unit and Wander Option 02 is installed.

Main screen	Subscreen	Major function
Result	Jitter/Wander	Indicates jitter/wander measurement results.
	Jitter tolerance	Indicates jitter tolerance automatic measurement results. • This is displayed when the jitter unit is installed.
	Jitter transfer	Indicates jitter transfer automatic measurement results. • This is displayed when the jitter unit is installed.
	Jitter/Freq.	Indicates frequency-offset-to-jitter measurement results. • This is displayed when the jitter unit is installed.
	Jitter sweep	Indicates jitter sweep automatic measurement results.
	Wander	Indicates wander measurement results. • This is displayed when the jitter unit and Wander Option 02 is installed.
Analyze	Freq. monitor	Displays the result of monitoring for frequency.
	Frequency	Displays the frequency histogram.
	Jitter tolerance	Displays a graph for analyzing the jitter tolerance automatic measurement results. • This is displayed when the jitter unit is installed.
	Jitter transfer	Displays a graph for analyzing the jitter transfer automatic measurement results. • This is displayed when the jitter unit is installed.
	Jitter/Freq.	Displays graph for analyzing the frequency-offset-to-jitter measurement results. • This is displayed when the jitter unit is installed.
	Jitter sweep	Displays a graph for analyzing the jitter sweep automatic measurement results.
	Wander	Displays graph for analyzing the wander measurement results. • This is displayed when the jitter unit and Wander Option 02 is installed.
	Recall	Displays the graph data stored in memory or a floppy disk.

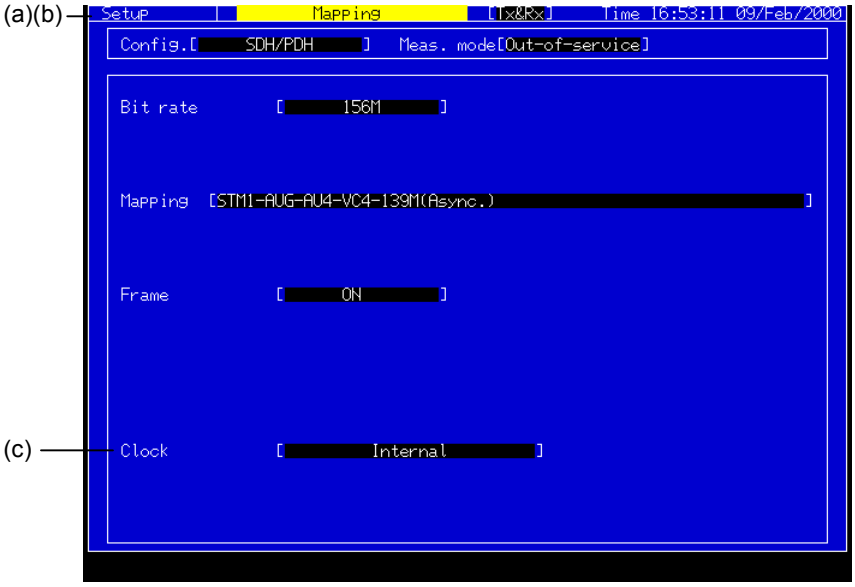
2.2 Setup Main Screen

2.2.1 Mapping Subscreen

Use this screen for determining basic settings of measurements.

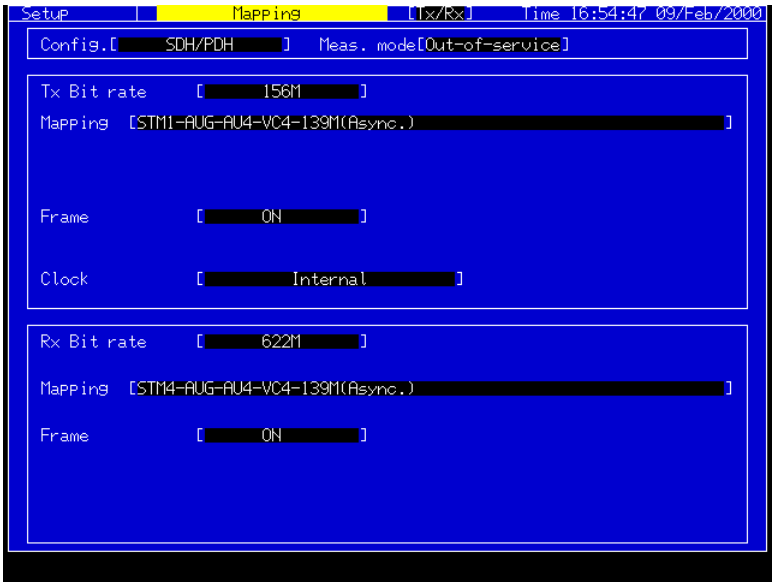
- When parameters of this screen are changed during a measurement, the measurement is restarted.
- Specify Tx&Rx for simultaneous settings of send and receive or Tx/Rx for independent settings of send and receive.

For Tx&Rx



	Display	Description
(a)	[Subscreen selection]	Select a subscreen of Setup main screen. This is also used for selecting desired subscreens of other main screens.
(b)		Select the setting method: Tx&Rx ・・・・ Simultaneous settings for send and receive Tx/Rx ・・・・・ Independent settings for send and receive
(c)	Clock	Sets the reference clock of the send signal.

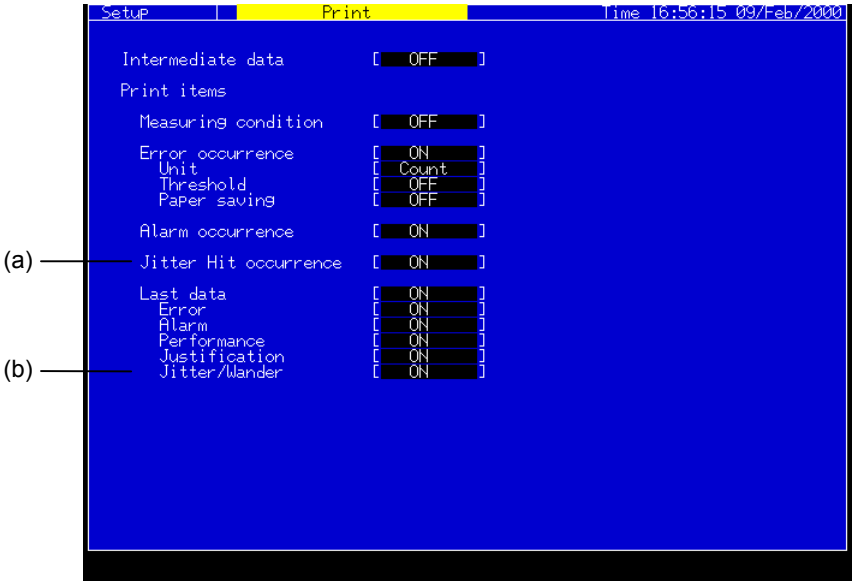
For Tx&Rx



Use the upper half of the screen for settings relating to send and the lower half, for those relating to receive. Contents of items indicated are identical to those of Tx&Rx.

2.2.2 Print Subscreen

Use this screen for settings relating to the automatic printing.

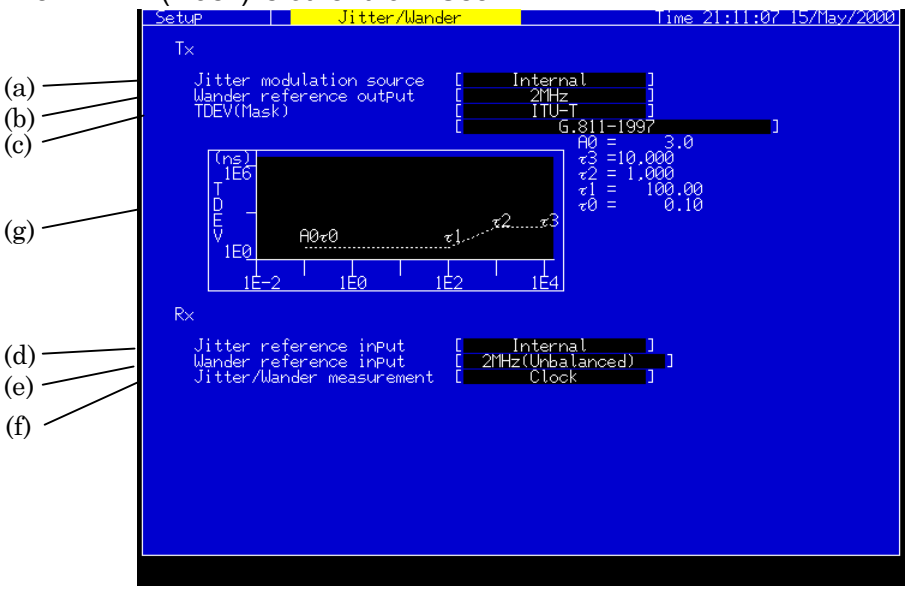


	Display	Description
(a)	Jitter Hit occurence	Jitter hit data can be printed when this is set to ON. • This is displayed when the jitter unit is installed.
(b)	Last data Jitter/Wander	Jitter/Wander measurement results are printed upon completion of measurement when this is set to ON. • This is displayed when the jitter unit is installed.

2.2.3 Jitter/Wander Subscreen

Use this screen for determining basic settings relating to the jitter and wander measurements.

When TDEV (Mask) is other than “User”



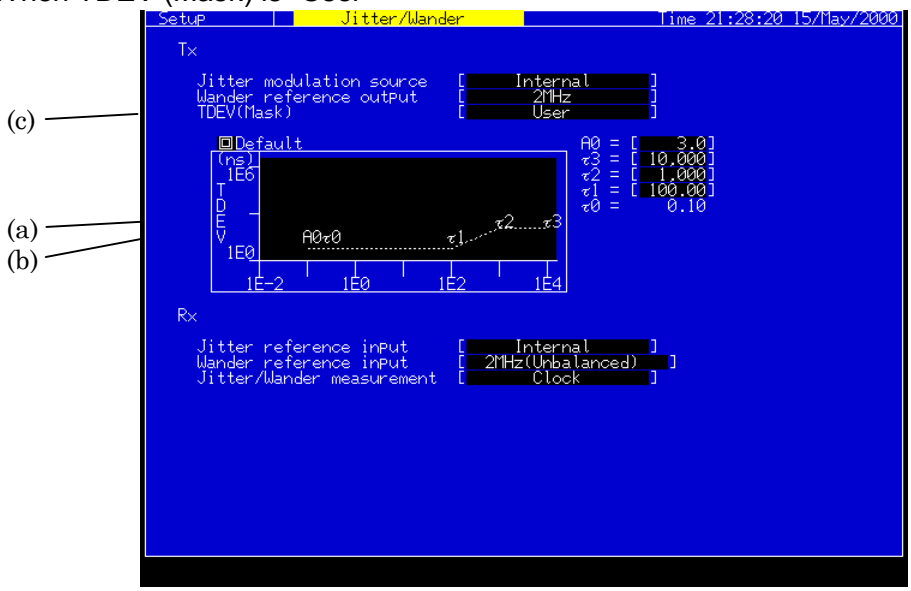
	Display	Description
(a)	Jitter modulation source	Selects a jitter modulation signal source: Internal ····· Selects internal signal source. External ···· Selects external signal source. • If "External" is selected, signals are input from Ext Mod Input connector on the unit panel. • This is displayed when the jitter unit is installed.
(b)	Wander reference output	Selects an output signal for wander measurements. In this case, signals are output to Wander Ref CLK Output connector on the jitter unit panel. • This is displayed when the jitter unit is installed.
(c)	TDEV (Mask)*	Selects the mask line to generate TDEV. • This is displayed when the jitter unit and Wander Option 02 are installed.
(d)	Jitter reference input	Selects a reference signal source for jitter measurements. Internal ····· Selects internal signal source. External ···· Selects external signal source. XThis is displayed when the jitter unit is installed. • If "External" is selected, signals are input from Ref Clock Input connector on the unit panel.
(e)	Wander reference input	Selects an input signal for wander measurements. In this case, signals are input to Wander Ref Input connector on the jitter unit panel. • This is displayed when the jitter unit and Wander Option 02 are installed.

(f)	Jitter/Wonder measurement*	Select a signal to be measured for the jitter measurement and wander measurement. • This is displayed when the jitter unit is installed.
(g)	Peak jitter graph*	Selects whether to display the peak jitter measurement result on the Analyze screen. • This is displayed when the jitter unit is installed.

Notes :

* ... This screen can be displayed when the MU150005A, MU150006A, or MU150007A jitter unit is installed.

When TDEV (Mask) is “User”



	Display	Description
(a)	A0*	Sets the amplitude at the generation start frequency (τ 0). Set the amplitude in the range of value display on the screen. - Valid when TDEV (Mask) “User”. Refer to Appendix E for recommended standarts and values this equipment can generate.
(b)	τ 1, τ 2, τ 3, τ 4*	Sets the amplitude at each point. Set the amplitude in the range of values display on the screen. - Valid when TDEV (Mask) “User”. Refer to Appendix E for recommended standarts and values this equipment can generate.
(c)	TDEV (Mask) Default*	Initializes the values of A0, and τ 1 to τ 4. - Valid when TDEV (Mask) “User”. Refer to Appendix E for recommended standarts and values this equipment can generate.

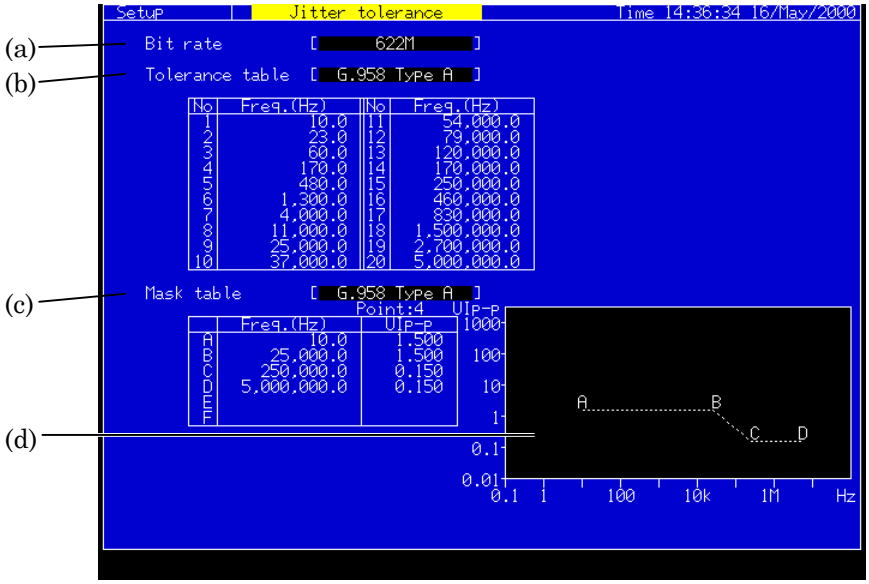
Notes :

* …. This parameter can be displayed when the MU150005A, MU150006A, or MU150007A jitter unit is installed.

2.2.4 Jitter tolerance Subscreen

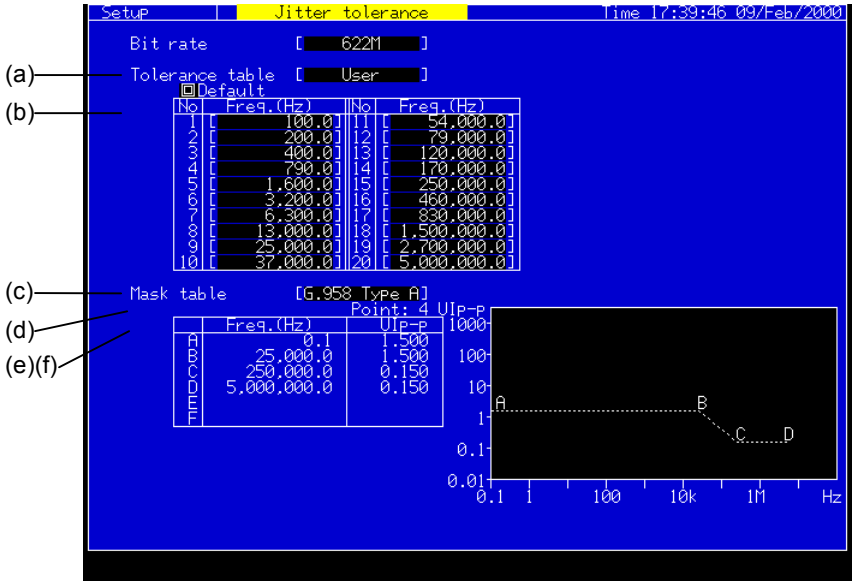
Use this screen for settings relating to the jitter tolerance automatic measurement.

When Tolerance table and Mask table are other than “User”



	Display	Description
(a)	Bit rate	Changes set condition table for an automatic measurement according to bit rate.
(b)	Tolerance table	Select a measurement point type from G.958 Type A, G.958 Type B, G.755, G.813, G.823, G.823 High-Q, G.823 Low-Q, G.824, G.825, G.825o, G.825e, Bell253, Bell499, or User.
(c)	Mask table	Select a mask line type from G.958 Type A, G.958 Type B, G.755, G.813, G.823, G.823 High-Q, G.823 Low-Q, G.824, G.825, G.825o, G.825e, Bell253, Bell499, or User.
(d)	(Graph)	Displays the mask line in a graph. Characters of A to F indicate points in the mask table. The mask line in the graph is updated when: • Bit rate is changed.

When Tolerance and Mask tables are other than “User”



	Display	Description
(a)	Tolerance table Default	Initializes the measurement point. • This is enabled when the Tolerance table is set to "User".
(b)	Tolerance table Freq.	Sets jitter modulation frequency at each measurement point. • This is enabled when the Tolerance table is set to "User".
(c)	Mask table Default	Initializes the mask line. • This is enabled when Mask table is set to "User".
(d)	Mask table Point	Changes point number of mask line. • This is enabled when Mask table is set to "User".
(e)	Mask table Freq.	Sets frequency at each point of mask line. • This is enabled when Mask table is set to "User".
(f)	Mask table UIp-p	Sets jitter amplitude at each point of mask line. • This is enabled when Mask table is set to "User".

Note:

When any item is changed during measurement, the jitter tolerance measurement is restarted.

When any table content on Setup screen is changed during measurement while setting the Tolerance table or Mask table on Test menu screen to "User", the jitter tolerance measurement is restarted.

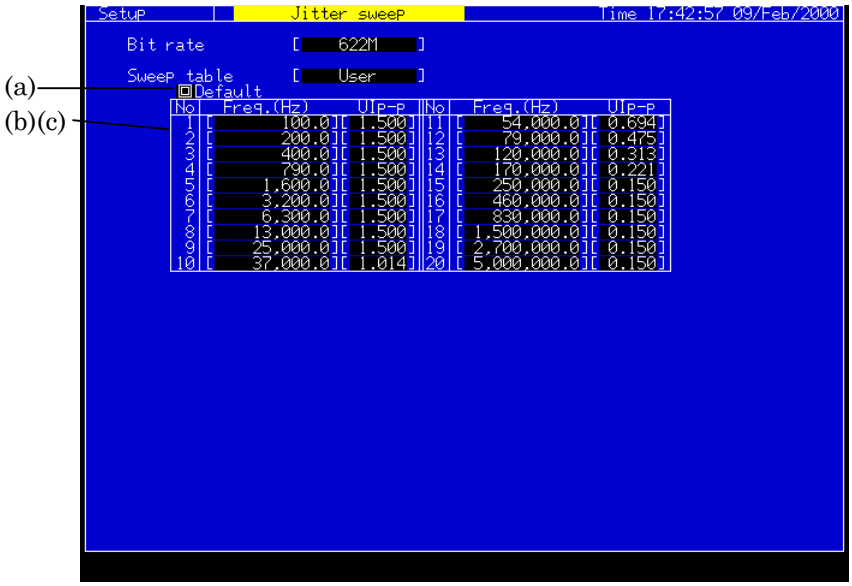
2.2.5 Jitter sweep Subscreen

Use this screen for settings relating to the jitter sweep automatic measurement.

For Sweep table: Other than User

	Display	Description
(a)	Bit rate	Changes set condition table for an automatic measurement according to bit rate.
(b)	Sweep table	Select a measurement point type from G.958 Type A, G.958 Type B, G.755, G.813, G.823, G.823 High-Q, G.823 Low-Q, G.824, G.825, G.825o, G.825e, Bell253, Bell499, or User.

For Sweep table: User



	Display	Description
(a)	Sweep table Default	Initializes the measurement point. • This is enabled when the Sweep mask is set to "User".
(b)	Sweep table Freq.	Sets jitter modulation frequency at each measurement point. • This is enabled when the Sweep mask is set to "User".
(c)	Sweep table UIp-p	Sets transmission jitter amplitude at each measurement point. • This is enabled when the Sweep mask is set to "User".

Notes:

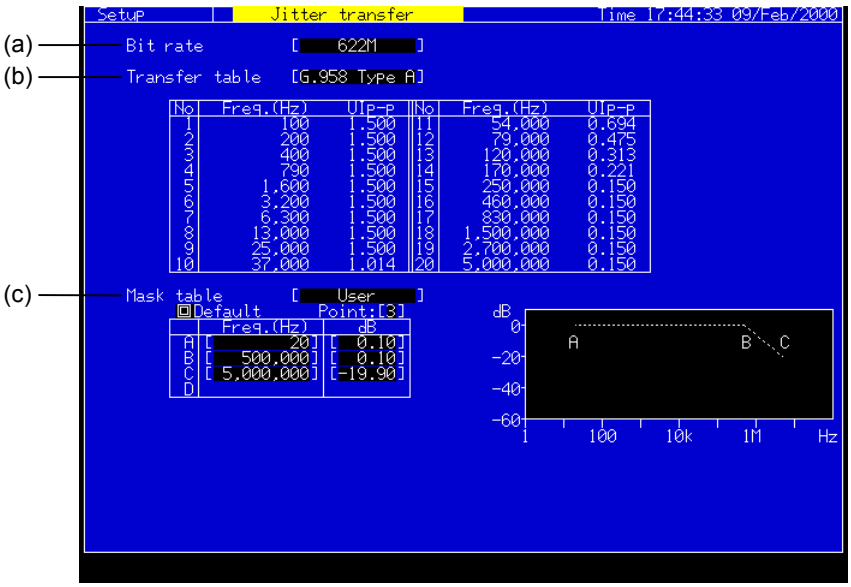
When any item is changed during measurement, the jitter sweep measurement is restarted.

When any table contents on Setup screen is changed during measurement while setting the Sweep table on Test menu screen to "User", the jitter sweep measurement is restarted.

2.2.6 Jitter transfer Subscreen

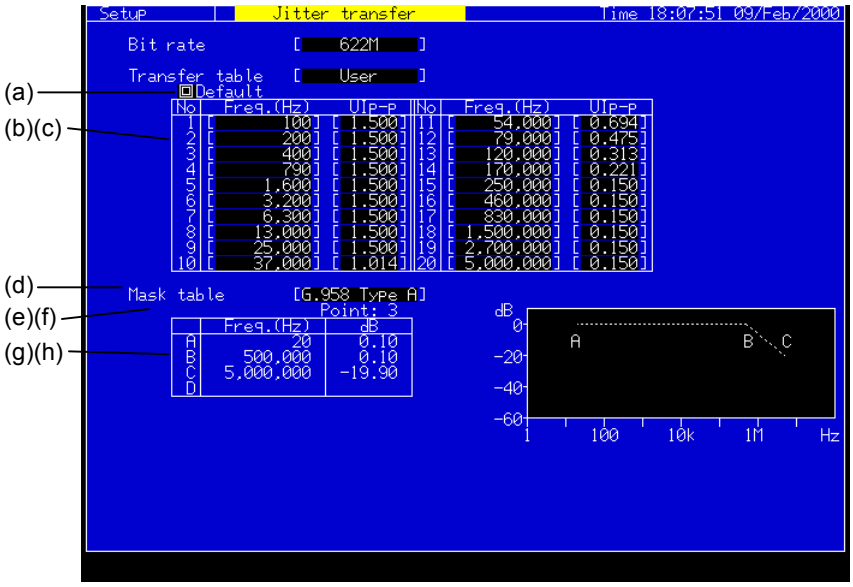
Use this screen for settings relating to the jitter transfer automatic measurement.

When Transfer table and Mask table are other than “User”



	Display	Description
(a)	Bit rate	Changes set condition table for an automatic measurement according to bit rate.
(b)	Transfer table	Select a measurement point type from G.958 Type A, G.958 Type B, G.755, G.813, G.823, G.823 High-Q, G.823 Low-Q, G.824, G.825, G.825o, G.825e, Bell253, Bell499, User, User2, or Tolerance result.
(c)	Mask table	Select the mask line from G.958TypeA, G.958TypeB, G.755, Bell499, Bell253, ANSI. T1. 105. 03, G.751, G.742, G.743, G.739 Fig3, G.739 Fig2 High-Q, G.739 Fig2 Low-Q, G.738 Fig3, G.738 Fig2 High-Q, G.738 Fig2 Low-Q, G.737 Fig3, G.737 Fig2 High-Q, G.737 Fig2 Low-Q, G.736 Fig2, G.736 Fig1 High-Q, G.736 Fig1 Low-Q, G.735 Fig3, G.735 Fig2 High-Q, G.735 Fig2 Low-Q, or User.

When Transfer table and Mask table are “User”



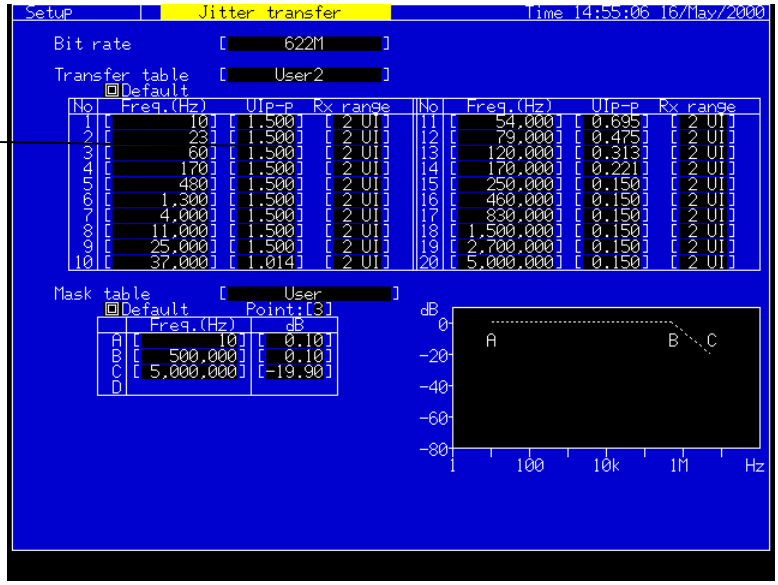
	Display	Description
(a)	Transfer table Default	Initializes the measurement point. • This is enabled when Transfer table is set to "User".
(b)	Transfer table Freq.	Sets jitter frequency at each measurement point. • This is enabled when Transfer table is set to "User".
(c)	Transfer table UIp-p	Sets transmission jitter amplitude at each measurement point. • This is enabled when Transfer table is set to "User".
(d)	Mask table	Select a mask line type from G.958 TypeA, G.958 TypeB, G.751, G.742, G.743, or User.
(e)	Mask table Default	Initializes the mask line. • This is enabled when the Mask table is set to "User".
(f)	Mask Point	Changes the number of measurement points. •This is enabled when the Mask table is set to "User".
(g)	Mask table Freq.	Sets frequency at each point of mask line. • This is enabled when the Mask table is set to "User".
(h)	Mask table dB	Sets jitter gain at each point of mask line. • This is enabled when the Mask table is set to "User".

Notes:

- While setting the Transfer table on Test menu screen to "User", performing the Calibration measurement makes the Cal. data.
  Then, modifying the Transfer table contents on Setup screen displays the following window. When "Yes" is selected, the Cal. data are erased. After the erasure, sure to perform the Calibration measurement at first before performing the measurement.
- When the Mask table on Setup screen is changed during measurement while setting the Mask table on Test menu screen to "User", the measurement is restarted.

When Transfer table is “User2”

(a)



	Diaplsy	Description
(a)	Transfer table Rx range	Sets measurement ranges of each measurement point. •This is enabled when the Mask table is set to "User2".

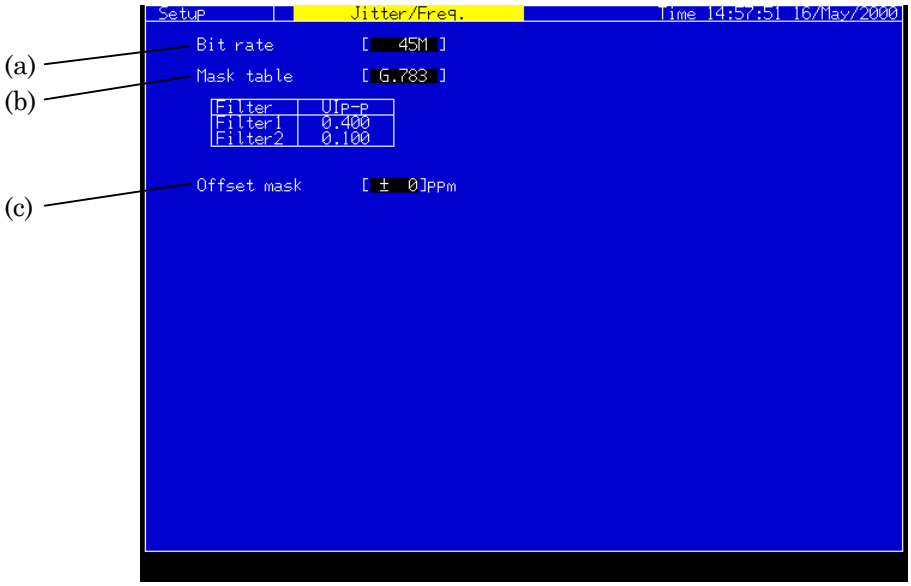
2.2.7 Jitter/Freq. Subscreen

Use this screen for settings relating to frequency offset and jitter measurement.

Notes :

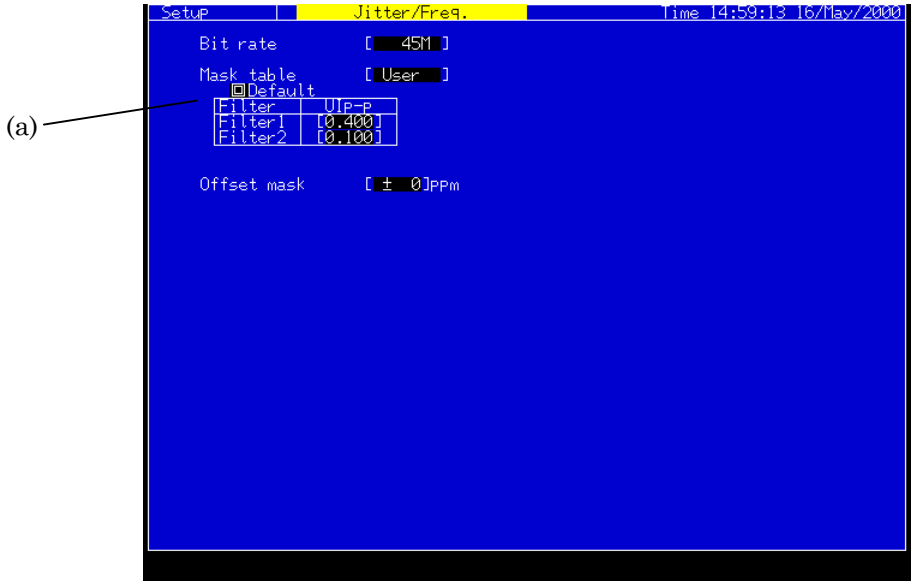
This screen can be displayed when the MU150005A, MU150006A, or MU150007A jitter unit is installed.

Mask table is other than “User”



	Display	Description
(a)	Bit rate	Changes the set condition table for automatic measurements according to the bit rate.
(b)	Mask table	Select the filter specifications from G.783 or User.
(c)	Offset mask	Sets the frequency range to judge the measurement result.

When Mask table is “User”

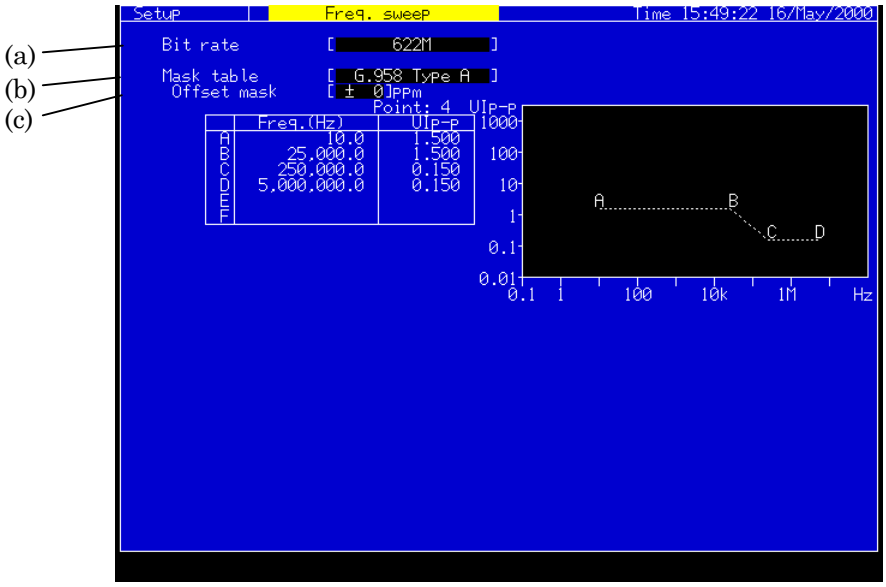


	Display	Description
(a)	Mask table Default	Initializes the filter specification. • This is enable when Mask table is “User”.

2.2.8 Freq. sweep Subscreen

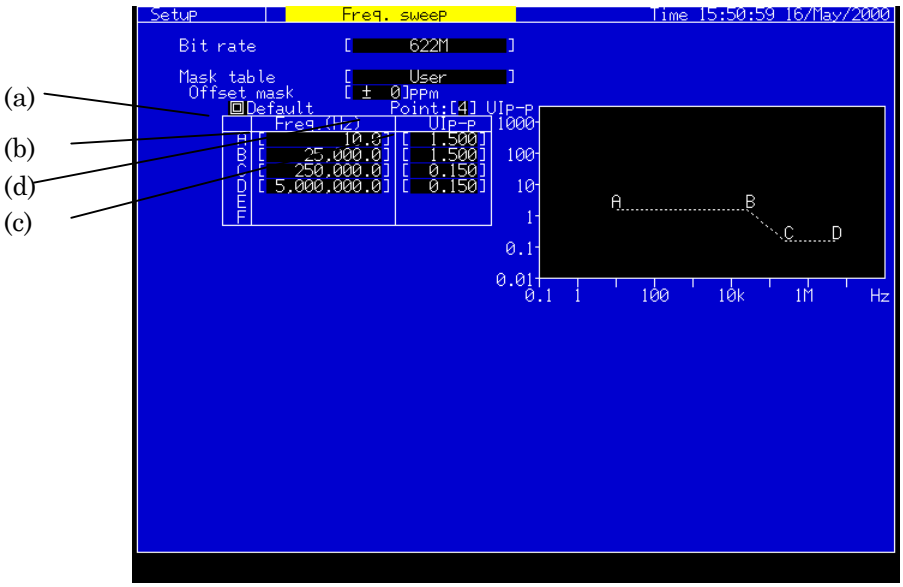
Use this screen for settings relating to the frequency sweep automatic measurement.

When Mask table is other than “User”



	Display	Description
(a)	Bit rate	Changes the set condition table for automatic measurements according to the bit rate.
(b)	Mask table	Select a measurement point.
(c)	Offset mask	Set the value of an offset line to be displayed on the Analyze screen. • This setting does not affect the measurement result.

When Mask table is “User”



	Display	Description
(a)	Mask table Default	Initializes a measurement point. - This is enabled when Sweep table is set to User.
(b)	Mask table Freq.	Sets a jitter frequency at each measurement point. - This is enabled when Sweep table is set to User.
(c)	Mask table UI_{P-P}	Set send jitter amplitude at each measurement point. - This is enabled when Sweep table is set to User
(d)	Mask table Point	- Change the measurement point.

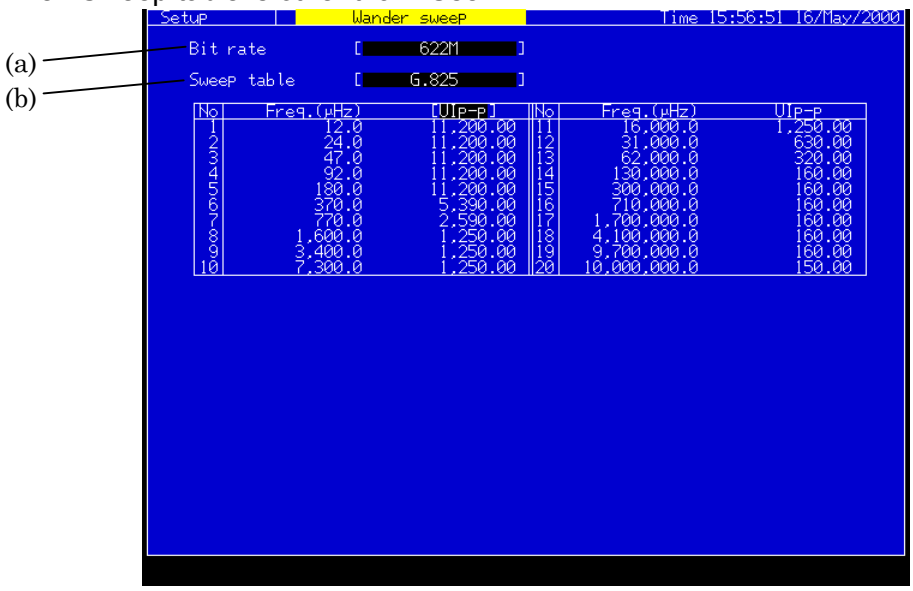
Notes:

- This screen is displayed when a jitter unit (MU150005A, MU150006A, or MU150007A) is installed.
- When an item is changed during a measurement, the frequency sweep measurement is restarted.
- When the contents of the Setup screen are changed during a measurement with Mask table set to User on the Test menu screen.

2.2.9 Wander sweep Subscreen

Use this screen for settings relating to the wander sweep automatic measurement.

When Sweep table is other than “User”



	Display	Description
(a)	Bit rate	Changes the set condition table for automatic measurements according to the bit rate.
(b)	Sweep table	Select a measurement point from G.812 Type 1, G.812 Type 2, G.812 Type 3, G.813, G.823, G.824, G.825, or User.

When Sweep table is “User”

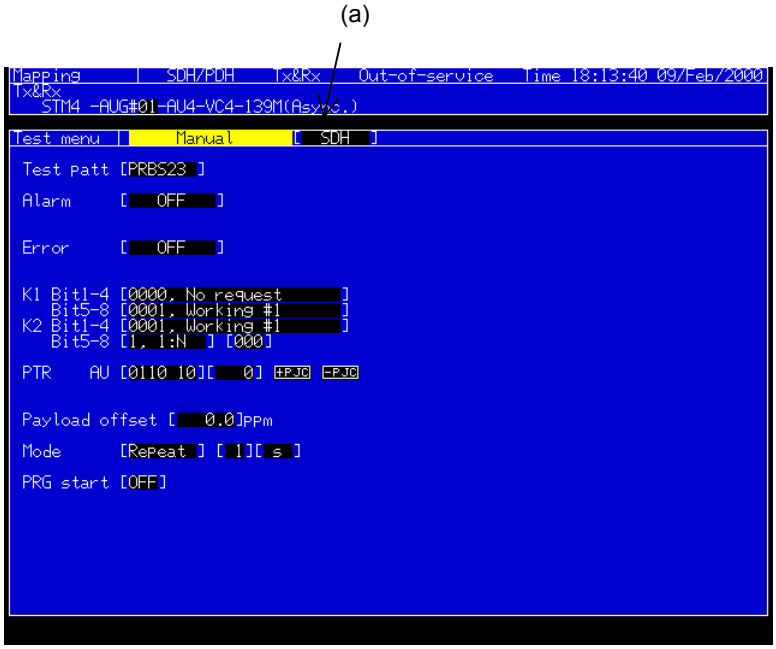
	Display	Description
(a)	Sweep table Default	Initializes a measurement point. - This is enabled when Sweep table is set to User.
(b)	Sweep table Freq.	Set a wander modulation frequency at each measurement point. - This is enabled when Sweep table is set to User.
(c)	Sweep table [UI_{P-P}] [ns]	Set a send wander amplitude at each measurement point. The unit of amplitude is UIp-p or ns. - This is enabled when Sweep table is set to User.

Notes:

- This screen is displayed when a jitter unit (MU150005A, MU150006A, or MU150007A) and the wander measurement option are installed.
- When an item is changed during a measurement, the wander sweep measurement is restarted.
- When the contents of the Setup screen are changed during a measurement with Sweep table set to User on the Test menu screen.

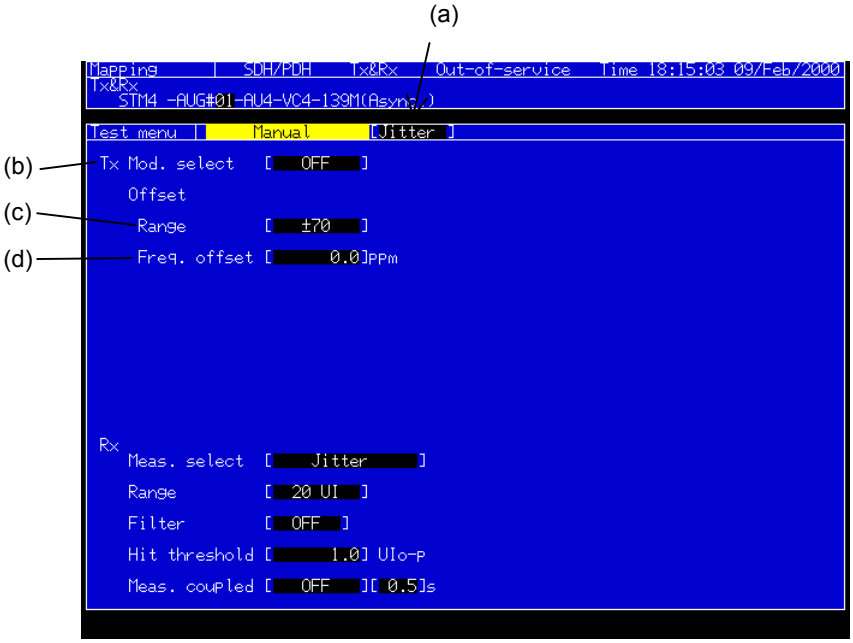
2.3 Test Menu Main Screen

2.3.1 Manual Subscreen



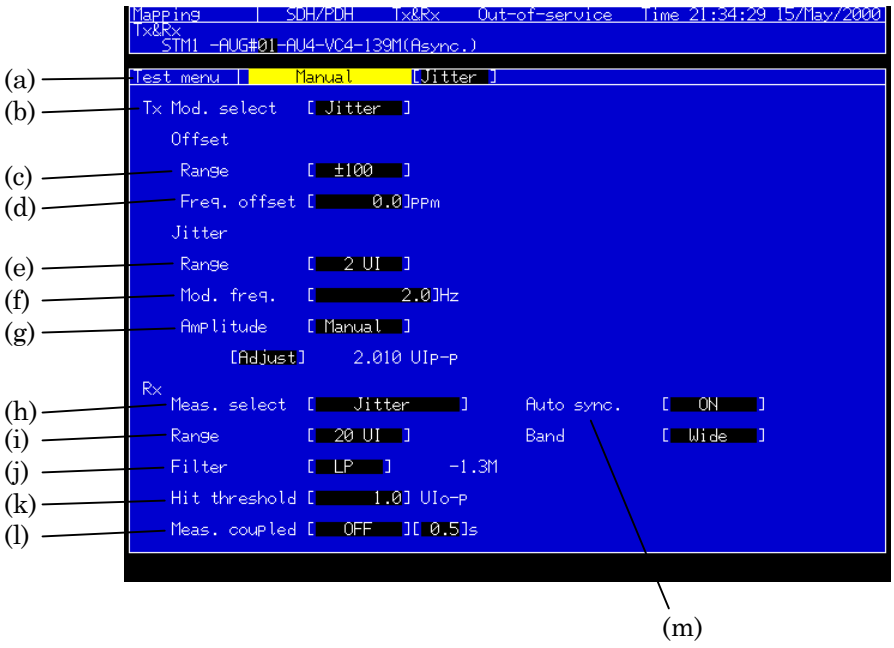
	Display	Description
(a)		Goes to 2nd page of Manual subscreen.

For Tx Mod Select: OFF



	Display	Description
(a)		Goes to 1st page of Manual subscreen.
(b)	Tx Mod. select	Sets On/Off of jitter or wander. Wander can be selected when wander options are installed.
(c)	Range	Sets the frequency offset range.
(d)	Freq. offset	Sets the frequency offset.

For Mod. select: Jitter



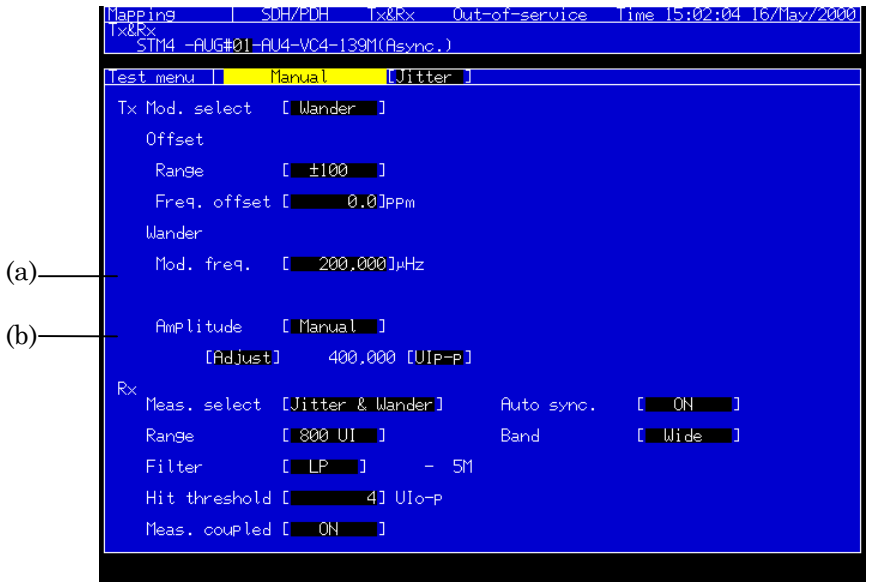
	Display	Description
(a)		Goes to 1st page of Manual subscreen.
(b)	Tx Mod. select	Sets On/Off of jitter or wander. Wander can be selected when wander options are installed.
(c)	Range	Sets the frequency offset range.
(d)	Freq. offset	Sets the frequency offset.
(e)	Tx Range	Switches the range of transmission jitter.
(f)	Mod. freq.	Sets the modulation frequency. This is enabled when Jitter modulation source setting is set to Internal. (See Setup: Jitter/Wander screen.)
(g)	Amplitude	Sets the transmission jitter amplitude. When Amplitude is set to Manual and the MU150005A, MU150006A, or MU150007A jitter unit is installed: - By moving the cursor to "Adjust" and pressing Set, the cursor is moved to "UIp-p" indication. Move the cursor with ∧ ∨, and set a value (transmission jitter amplitude) with ∧ ∨. After inputting the value, press Set to continue other settings. When Amplitude is set to Auto: - The transmission jitter amplitude can be set in the parentheses displayed under item (g). Place the cursor here and press ∧ ∨ to set the transmission jitter amplitude. (This is enabled when Jitter modulation source is set to "Internal". Refer to the Setup : Jitter/Wander screen for the details.)

	Display	Description
(h)	Meas. select	Sets a measurement type. Jitter ・・・・・・・・・・・・ Jitter measurements are conducted. Jitter & Wander ・・・ Jitter and wander measurements are conducted, simultaneously. • This is displayed when wander options are installed.
(i)	Rx Range	Switches the range for measuring receive jitter.
(j)	Filter	Select the filter for measuring receive jitter. The cut-off frequency is displayed on the right.
(k)	Hit threshold	Sets threshold of jitter hit.
(l)	Meas. coupled	Select whether measurement is synchronized with error/alarm measurement. OFF ・・・・・・ Measurement is asynchronous with error/alarm measurement. ON ・・・・・・・ Measurement is synchronous with error/alarm measurement.
(m)	Auto sync.*	Selects whether to display measurement result when the receive section of this equipment is set to "Unlock". ON..... displays the measurement result. OFF ..... displays the measurement result.

Notes:

- This screen is displayed when a jitter unit (MU150005A, MU150006A, or MU150007A) is installed.

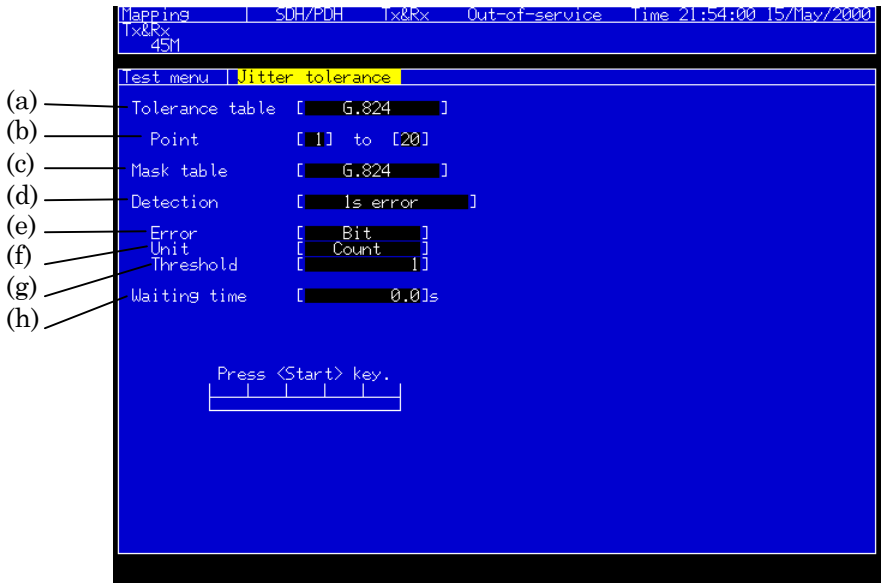
For Mod. select: Wander



	Display	Description
(a)	Mod. freq.	Sets the modulation frequency. • This is enabled when Jitter modulation source setting is set to Internal. (See Setup: Jitter/Wander screen.)
(b)	Amplitude	Sets the transmission wander amplitude. When the MP0124A, MP0125A, or MP0126A is installed. - When the cursor is placed here and [Set] is pressed, the cursor is displayed. Use [∧] [∨] [<] [>] to set the transmission wander amplitude. Press [Set] after setting the amplitude to return the cursor to the original operation. When the MU150005A, MU150006A, or MU150007A is installed. (1) When Amplitude is "Manual" - Move the cursor to "Adjust" and press [Set], and the cursor is moved to UIp-p indication. Move the cursor with [<] [>] and set the transmission wander amplitude with [∧] [∨]. After the setting, press [Set] to continue other settings. (2) When Amplitude is "Auto" - The transmission wander amplitude can be set in the parentheses displayed under item (b). Move the cursor here and press [∧] [∨] to set the transmission wander amplitude. • This is enabled when Jitter modulation source setting is set to Internal. (See Setup:Jitter/Wander screen.)

2.3.2 Jitter tolerance Subscreen

Use this screen for settings relating to the jitter tolerance automatic measurement.



	Display	Description
(a)	Tolerance table **	Select measurement points in the jitter tolerance measurement output table.
(b)	Point **	Sets the start and end measurement points.
(c)	Mask table **	Select a mask line of jitter tolerance measurement.
(d)	Detection **	Sets the detection condition for jitter tolerance measurement.
(e)	Error **	Sets the detection condition. (When Detection is set to “1s error”, “Count”, “Rate”, “Onset of errors”, or “1dB power penalty”.)
(f)	Unit **	Sets the threshold type. (When Detection is set to “1s error”, “Count”, “Rate”, “Onset of errors”, or “1dB power penalty”.)
(g)	Threshold **	Sets the detection range. (When Detection is set to “1s error”, “Count”, “Rate”, “Onset of errors”, or “1dB power penalty”.)
(h)	Waiting time *, **	Sets time to finish the measurement at one point and start it again at the next point.

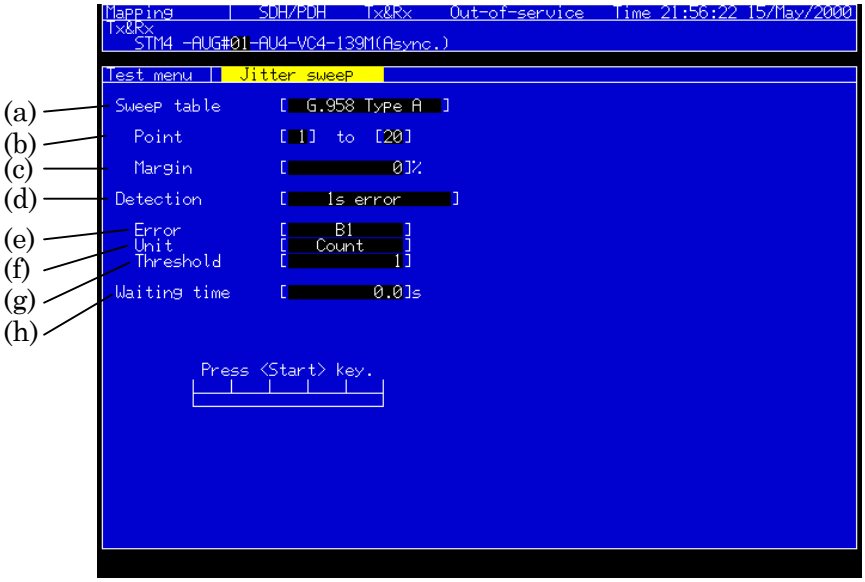
Notes:

* …. This parameter can be displayed when the MU150005A, MU150006A, or MU150007A jitter unit is installed.

**: ….. When any item is changed during measurement, the jitter tolerance measurement is restarted.

2.3.3 Jitter sweep Subscreen

Use this screen for settings relating to the jitter sweep automatic measurement.



	Display	Description
(a)	Sweep table **	Selects measurement points in the jitter sweep measurement output table.
(b)	Point **	Sets the start and end measurement points.
(c)	Margin *, **	Set the margin related to the jitter amplitude set on the Setup screen. Example - If "1.000UIp-p" is set on the Setup screen as the measurement points and "100%" is set for this parameter, "NG" will be displayed when the measurement result exceeds 3.000UIp-p and "OK" will be displayed when it doesn't exceed 3.000UIp-p.
(d)	Detection **	Sets the detection condition for jitter sweep measurement.
(e)	Error **	Sets the detection condition. (When Detection is set to "1s error", "Count", "Rate", "Onset of errors", or "1dB power penalty".)
(f)	Unit **	Sets the threshold type. (When Detection is set to "1s error", "Count", "Rate", "Onset of errors", or "1dB power penalty".)
(g)	Threshold **	Sets the detection range. (When Detection is set to "1s error", "Count", "Rate", "Onset of errors", or "1dB power penalty".)
(h)	Waiting time *, **	Sets time to finish the measurement at one point and start it again at the next point.

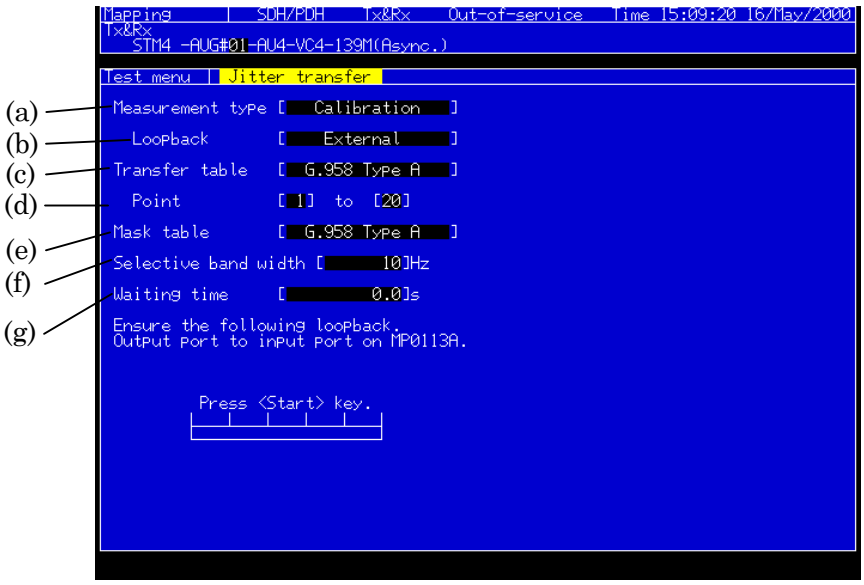
Notes:

* …. This parameter can be displayed when the MU150005A, MU150006A, or MU150007A jitter unit is installed.

** …. When any item is changed during measurement, the jitter sweep measurement is restarted.

2.3.4 Jitter transfer Subscreen

Use this screen for settings relating to the jitter transfer automatic measurement.



	Display	Description
(a)	Measurement type	Select "Calibration" or "Measurement" as the measurement type. Measurement, however, cannot be executed unless Calibration is carried out beforehand.
(b)	Loop back *	When the transmission signal of this equipment is received by the receive section of this equipment, select the receive method. Internal..... The signal is looped back internally. External..... The signal is looped back via an external cable. (When Measurement type is set to “Calibration”.)
(c)	Transfer table	Select measurement points in the jitter transfer measurement output table.
(d)	Point	Sets the start and end measurement points.
(e)	Mask table **	Select a mask line of jitter transfer measurement judge.
(f)	Selective band width *, **	Sets the selective bandwidth.
(g)	Waiting time *, **	Sets time to finish the measurement at one point and start it again at the next point.

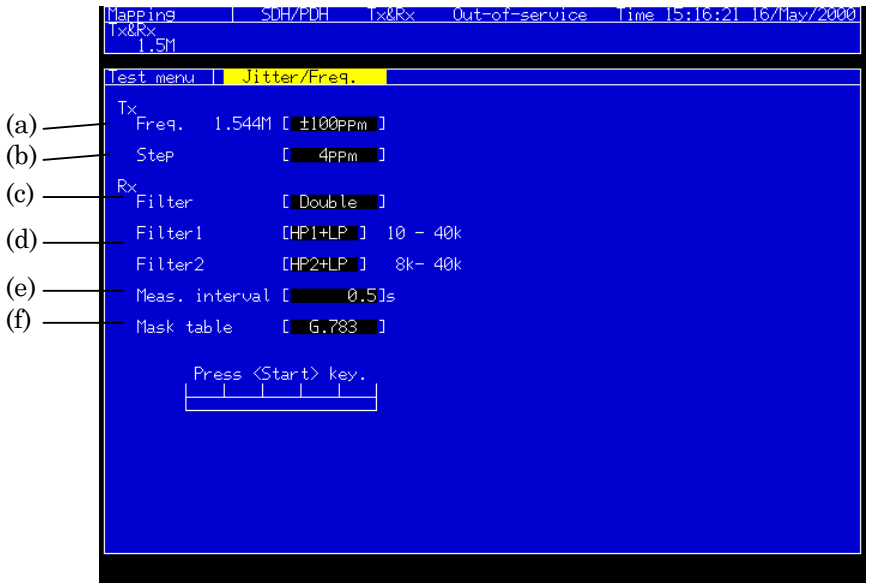
Notes:

* …. This parameter can be displayed when the MU150005A, MU150006A, or MU150007A jitter unit is installed.

** ….. When any item is changed during measurement, the jitter transfer measurement is restarted only when Measurement type is set to "Measurement".

2.3.5 Jitter/Freq. Subscreen

Use this screen to set the jitter/frequency offset measurement setting conditions.



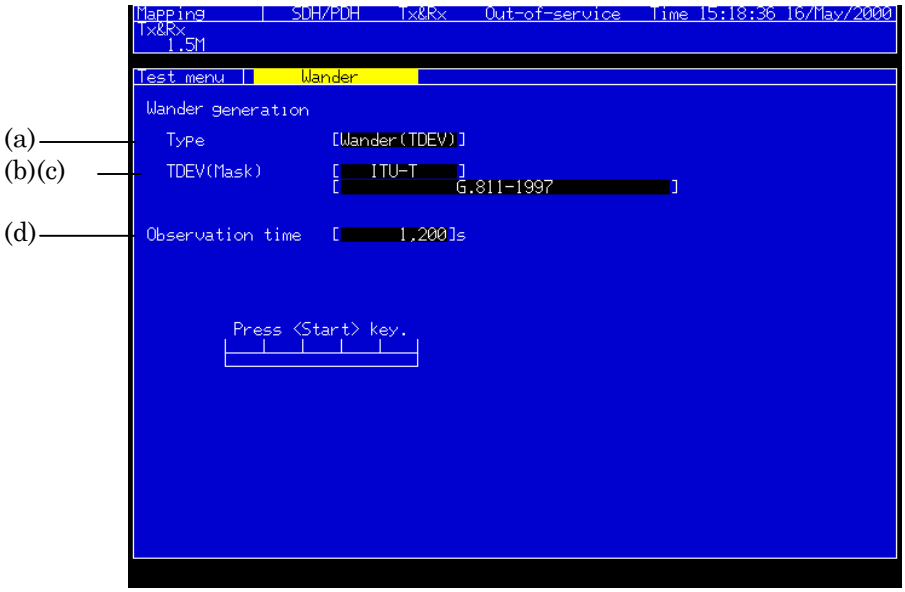
	Display	Description
(a)	Freq. **	Sets the offset value.
(b)	Step **	Sets the offset increment.
(c)	Filter **	Sets the filter for measuring receive jitter. The cut-off frequency value is displayed on the right.
(d)	Filter1 *, ** Filter2 *, **	Sets number of the filter for measuring jitter. The cut-off frequency value is displayed on the right.
(e)	Meas. Interval **	Sets the measurement time for each point.
(f)	Mask table *, **	Selects a mask line for the jitter/frequency offset measurement.

Notes:

* …. This parameter can be displayed when the MU150005A, MU150006A, or MU150007A jitter unit is installed.

** ….. When any item is changed during measurement, the jitter/frequency offset measurement is restarted.

2.3.6 Wander Subscreen



Use this screen for settings related to wander measurement.

- This screen is displayed when wander options are installed.

	Display	Description
(a)	Type *, **	Selects the type of a wander and a noise.
(b)	Mask *, **	Select a mask line to generate TDEV. (When "Type" is set to "Wander (TDEV)".)
(c)	Maximum phase deviation *, **	Set the margin for the transient measurement. (When "Type" is set to "Transient".)
(d)	Observation time **	Sets the observation (measurement) time.

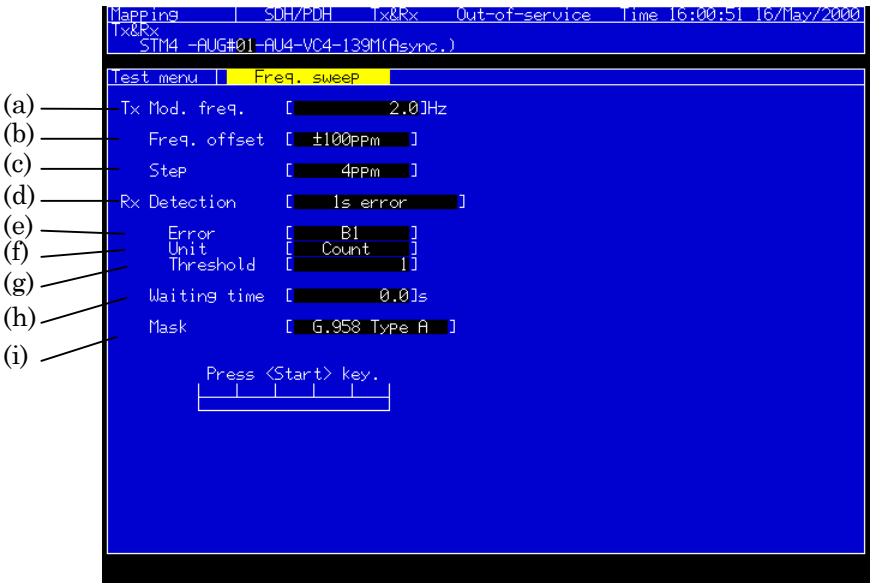
Notes:

* …. This parameter can be displayed when the MU150005A, MU150006A, or MU150007A jitter unit is installed.

** ….. When any item is changed during measurement, the wander measurement is restarted.

2.3.7 Freq. sweep Subscreen

Use this screen for settings relating to the frequency sweep automatic measurement.



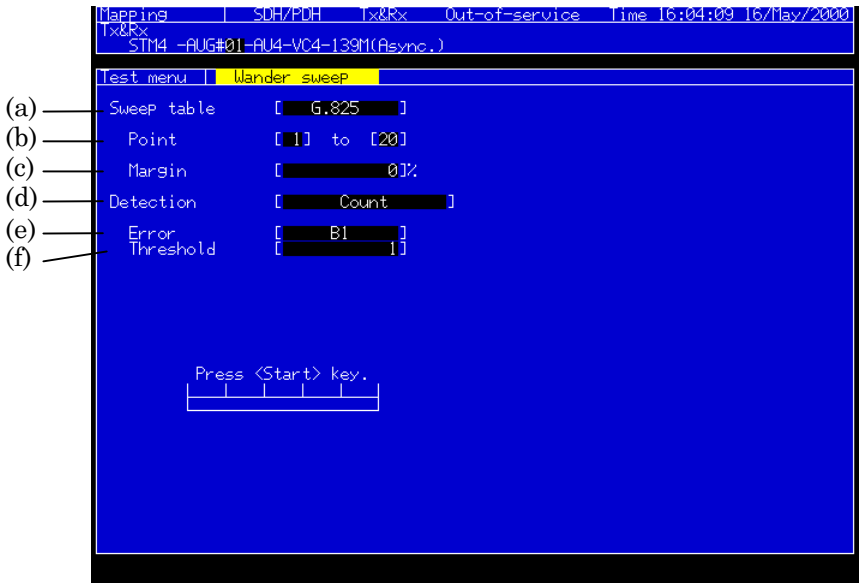
	Display	Description
(a)	Tx Mod.freq.	Sets the modulation frequency.
(b)	Freq. offset	Sets the offset value.
(c)	Step	Set the offset increment.
(d)	Rx Detection	Set the detection condition for frequency sweep measurement.
(e)	Error	Set the detection condition. (When Rx Detection is set to 1s error, Count, Rate, Onset of errors, or 1dB power penalty)
(f)	Unit	Set the threshold type. (When Detection is set to 1s error)
(g)	Threshold	Set the detection range. (When Detection is set to 1s error, Count, or Rate)
(h)	Waiting time	Sets time to finish the measurement at one point and start it again at the next point.
(i)	Mask	Select a mask line for Selects a mask line for the jitter/frequency offset measurement.

Notes:

- This screen is displayed when a jitter unit (MU150005A, MU150006A, or MU150007A) is installed.
- When an item is changed during a measurement, the frequency sweep measurement is restarted.

2.3.8 Wander sweep Subscreen

Use this screen for settings relating to the wander sweep automatic measurement.



	Display	Description
(a)	Sweep table	Select a measurement point for the wander sweep measurement output table.
(b)	Point	Set the measurement start and end points. (1 to 20)
(c)	Margin	Set the margin related to the jitter amplitude set on the Setup screen. Example - If "1.000UIp-p" is set on the Setup screen as the measurement points and "100%" is set for this parameter, "NG" will be displayed when the measurement result exceeds 3.000UIp-p and "OK" will be displayed when it doesn't exceed 3.000UIp-p.
(d)	Detection	Set the detection condition for wander sweep measurement.
(e)	Error	Set the detection condition
(f)	Threshold	Set the detection range.

Notes:

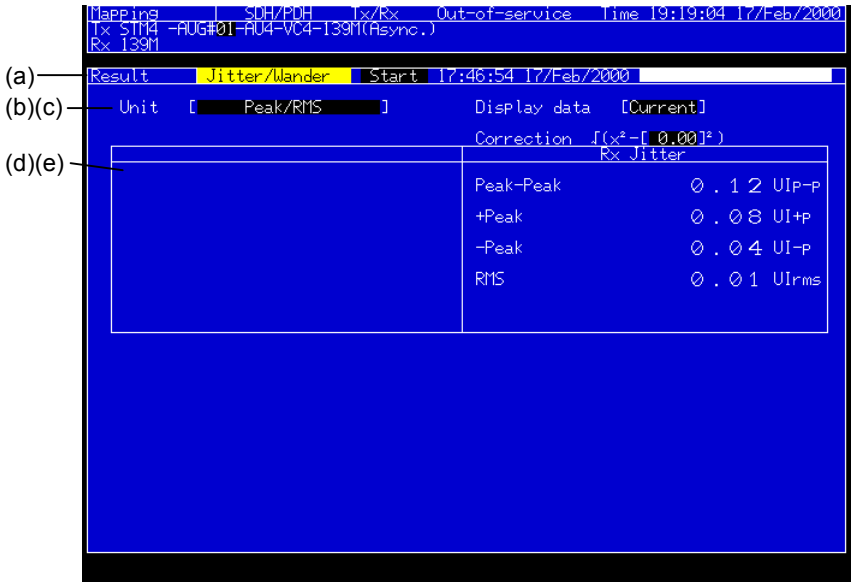
- This screen is displayed when a jitter unit (MU150005A, MU150006A, or MU150007A) and the wander measurement option are installed.
- When an item is changed during a measurement, the wander sweep measurement is restarted.

2.4 Result Main Screen

2.4.1 Jitter/Wander Subscreen

This screen indicates jitter/wander measurement results.

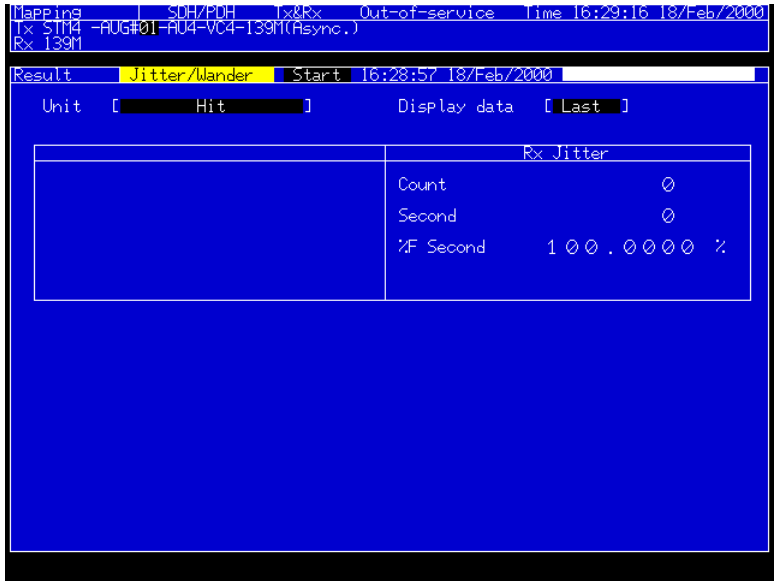
For Unit: Peak



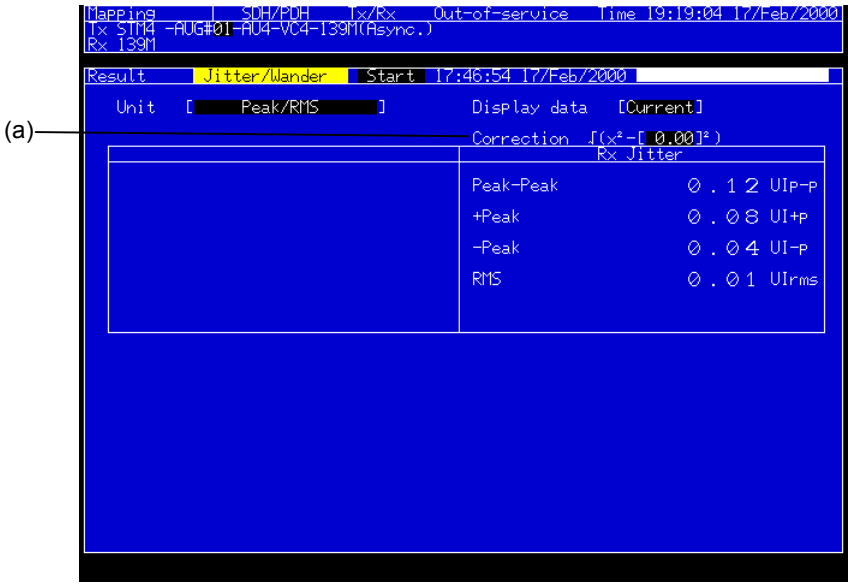
	Display	Description
(a)		Indicates the measurement starting time or measurement time which has elapsed. Start ····· Indicates the measurement starting time. Elapsed···· Indicates the elapsed measurement time. • "Elapsed" can not be selected when measurement interval is set to "0.5" second. • The status of execution related to measurement time is shown in a bar graph.
(b)	Unit	Select a display type for jitter/wander measurement results. Peak ····· Indicates jitter peak-to-peak measurement results. Hit ····· Indicates jitter hit measurement results. Peak/RMS · Indicates jitter peak-to-peak and jitter RMS measurement results. • This item can be selected when RMS options are installed. Wander···· Indicates wander measurement results. • DC-10Hz, DC-0.01Hz* and 0.01Hz-10Hz* can be selected. • * The displays of the measurement results of DC-0.01Hz and 0.01Hz-10Hz start after 120 seconds from the measurement start. • This item can be selected when wander options are installed.

	Display	Description
(c)	Display data	Select a display type for measurement results. Current ···· Indicates results from measurement start to current. Last ····· Indicates results at the end of measurement. This is effective for Repeat measurements at short time. "Last" can not be selected when "Wander" is selected as Unit in item (b).
(d)	Tx Jitter	Indicates monitored value of transmission jitter amplitude.
(e)	Rx Jitter (Rx Wander)	Indicates measured values of receive jitter or receive wander. • This is displayed when wander options are installed.

For Unit: Hit



For Unit: Peak/RMS



	Display	Description
(a)	Correction	Sets the RMS correction. • This is displayed only when "Peak/RMS" is selected as Unit.

For Unit: Wander

2.4.2 Jitter tolerance Subscreen

This screen indicates jitter tolerance automatic measurement results.

	Display	Description
(a)	Start	Indicates the measurement starting time.
(b)	[Result]	Indicates jitter tolerance at each measurement point. When the MP0124A, MP0125A, or MP0126A Jitter Unit is installed. ◎..... indicates that the result is within the mask. ○..... indicates that the result is out of the mask. -- ..... indicates that no mask exists. When the MU150005A, MU150006A, or MU150007A Jitter Unit is installed. OK ..... indicates that the result is within the mask NG ..... indicates that the result is out of the mask. -- ..... indicates that no mask exists.

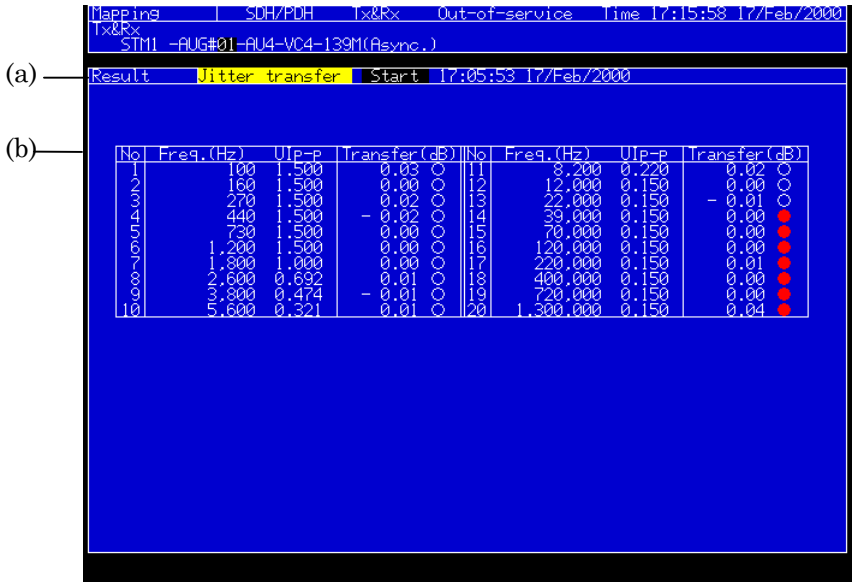
2.4.3 Jitter sweep subscreen

This screen indicates jitter sweep automatic measurement results.

	Display	Description
(a)	Start	Indicates the measurement starting time.
(b)	[Result]	When the MP0124A, MP0125A, or MP0126A Jitter Unit is installed. ○ ..... indicates that the result is within the mask. ◎ ..... indicates that the result is out of the mask. -- ..... indicates that no mask exists. When the MU150005A, MU150006A, or MU150007A Jitter Unit is installed. OK ..... indicates that the result is within the mask NG ..... indicates that the result is out of the mask. -- ..... indicates that no mask exists.

2.4.4 Jitter transfer Subscreen

This screen indicates jitter transfer measurement results.



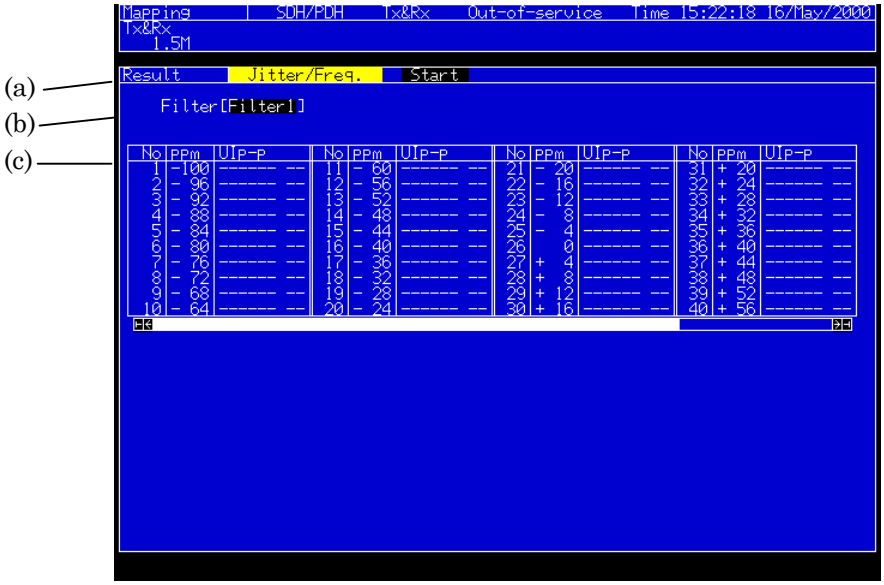
	Display	Description
(a)	Start	Indicates the measurement starting time.
(b)	[Result]	Indicates jitter transfer at each measurement point. When the MP0124A, MP0125A, or MP0126A Jitter Unit is installed. ○.....Indicates that the result is within the mask. ◎.....Indicates that the result is out of the mask. -- .....Indicates that no mask exists. When the MU150005A, MU150006A, or MU150007A Jitter Unit is installed. OK .....indicates that the result is within the mask NG .....indicates that the result is out of the mask. -- .....indicates that no mask exists.

Notes:

- If the lock is pulled out during measurement, occurrence point data flashes until Lock reoccurs. (Measurement of the point continues.)
- If Lock reoccurs before the timeout, measurement continues.
- If Lock does not reoccur, the following is displayed and a next measurement is performed.
  - ● .....Indicates that mask line exists (When the MP0124A, MP0125A, or MP0126A Jitter Unit is installed)..
  - NG .....Indicates that mask line exists (When the MU150005A, MU150006A, or MU150007A Jitter Unit is installed).
  - -- .....Indicates that no mask line exists.

2.4.5 Jitter/Frequency Subscreen

This screen indicates jitter/frequency offset measurement results.



	Display	Description
(a)	Start	Indicates the measurement starting time.
(b)	Offset mask *	Selects the display of the jitter/frequency offset measurement results. Filter1 .....displays the measurement results in the condition of "Filter1" set on the Test menu:Jitter/Freq. Screen. Filter2 .....displays the measurement results in the condition of "Filter2" set on the Test menu:Jitter/Freq. Screen. • When the MU150005A, MU150006A, or MU150007A Jitter Unit is installed the followings are displayed. OK .....indicates that the result is within the mask NG .....indicates that the result is out of the mask. -- .....indicates that no mask exists.
(c)	[Result]	Indicates jitter-to-frequency offset measurement value at each measurement point each time one point is measured.

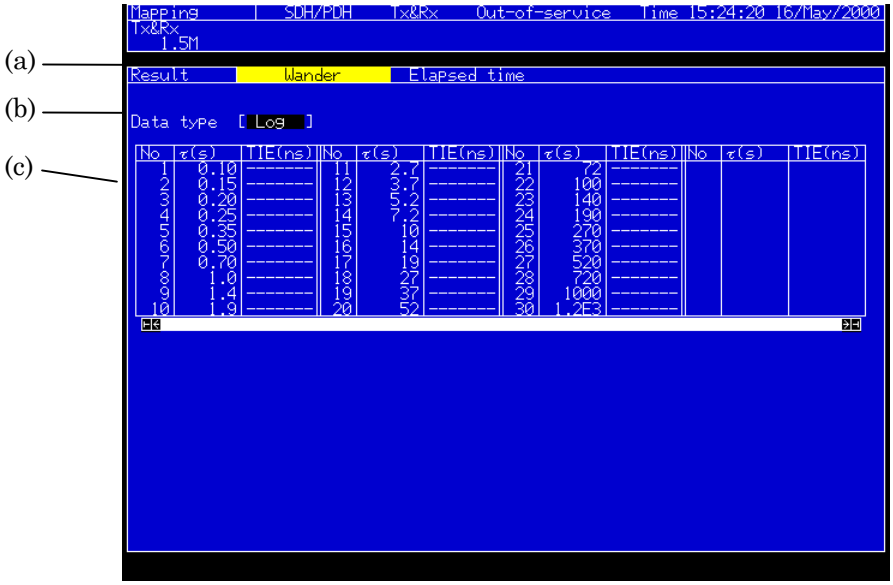
Notes:

- * …. This parameter is displayed when the MU150005A, MU150006A, or MU150007A Jitter Unit is installed
- If the lock is pulled out during measurement, amplitude data (UIp-p) of frequency offset set point flashes until Lock reoccurs. (Measurement of the point continues.)
- If Lock reoccurs before the timeout, measurement continues.
- If Lock does not reoccur, "Unlock" is displayed and a next measurement is performed.

2.4.6 Wander Subscreen

This screen indicates wander measurement results.

- This screen is displayed when wander options are installed.



	Display	Description
(a)	Start	Indicates the measurement starting time.
(b)	Data type *	Selects the measurement results. Linear ..... displays the measurement results in which the measurement points intervals of observation time are equal. Log ..... displays the measurement results in which the measurement points of observation time are thinned out.
(c)	[Result]	Indicates wander measurement value at each measurement point.

Notes:

* ….. This parameter is displayed when the MU150005A, MU150006A, or MU150007A Jitter Unit is installed

2.4.7 Freq. sweep Subscreen

This screen displays the result of automatic frequency sweep measurement.

	Display	Description
(a)	Start	Displays the measurement start time.
(b)	[Result]	Displays the frequency sweep measurement value at each measurement point. OK.....The value is within the specification. NG .....The value is within the specification. -- .....The value is out of the specification.
(c)	[Scroll]	Copies the sentence of Jitter/Freq.

Note:

This screen is displayed when a jitter unit (MU150005A, MU150006A, or MU150007A) is installed.

2.4.8 Wander sweep Subscreen

This screen displays the result of wander sweep automatic measurement.

	Display	Descreption
(a)	Remain time	Displays the time until the wander sweep automatic measurement ends.
(b)	[Result]	Displays the wander sweep measurement value at each measurement point. OK ..... The value is within the specification. NG ..... The value is out of the specification. -- ..... No specified value exists.

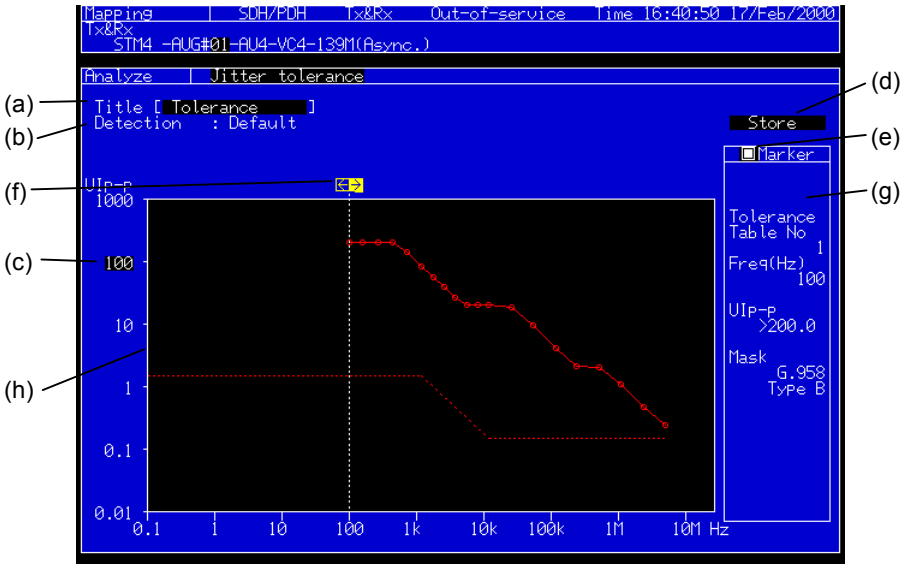
Note:

This screen is displayed when a jitter unit (MU150011A) and the wander measurement option are installed.

2.5 Analyze Main Screen

2.5.1 Jitter tolerance Subscreen

This screen analyzes results of jitter tolerance automatic measurements.



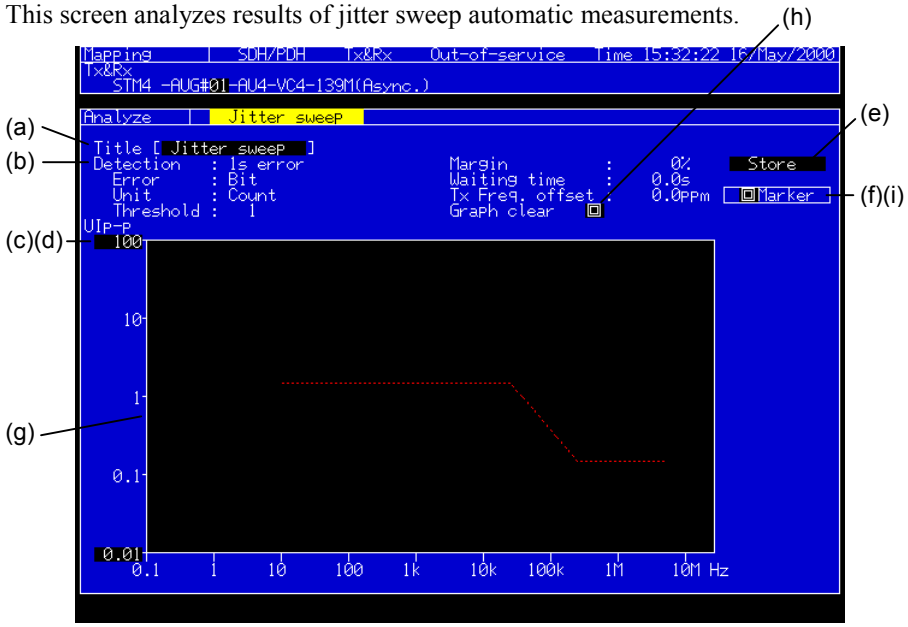
	Display	Description
(a)	Title	A graph title can be entered.
(b)	[Detection] [Error] [Unit] [Threshold] [Waiting time] * [Tx Freq. offset] *	Indicates the detection condition for Test menu: Jitter tolerance screen.
(c)	[Scale]	Switches graphic vertical axis. 100 ····· Indicates range between 0.1 and 1000 UIp-p. 10 ····· Indicates range between 0.01 and 100 UIp-p. 1 ····· Indicates range between 0.001 and 10 UIp-p.
(d)	Store	Saves graphic data to memory. • This is displayed only in the single screen mode.
(e)	Marker	Sets On/Off of the marker. □ ····· Indicates that the marker is set to OFF. Press Set to turn ON. ■ ····· Indicates that the marker is set to ON. Press Set to turn OFF. •This can be set only in the single screen mode.
(f)	Search	Searches the measurement point. ←□ ····· Shifts marker to a measurement point in the forward direction. □→ ····· Shifts marker to a measurement point in the backward direction.
(g)		Indicates detailed data of the measurement point designated by the marker.
(h)	(Graph)	Indicates measurement results and mask line. • Measurement points are plotted by ○ .

Note

* .... These parameters can be displayed when the MU150005A, MU150006A, or MU150007A jitter unit is installed.

2.5.2 Jitter sweep Subscreen

This screen analyzes results of jitter sweep automatic measurements.



	Display	Description
(a)	Title	A graph title can be entered.
(b)	[Detection] [Error] [Unit] [Threshold] [Margin] * [Waiting time] * [Tx Freq. offset] *	Indicates the detection condition for Test menu: Jitter sweep screen.
(c)	[Scale : max] *	Sets the upper limit of the graphic vertical axis.
(d)	[Scale : min] *	Sets the lower limit of the graphic vertical axis.
(e)	Store	Saves graphic data to memory. • This is displayed only in the single screen mode.
(f)	Marker	Sets On/Off of the marker. □ ····· Indicates that the marker is set to OFF. Press Set to turn ON. ■ ····· Indicates that the marker is set to ON. Press Set to turn OFF. •This can be set only in the single screen mode.

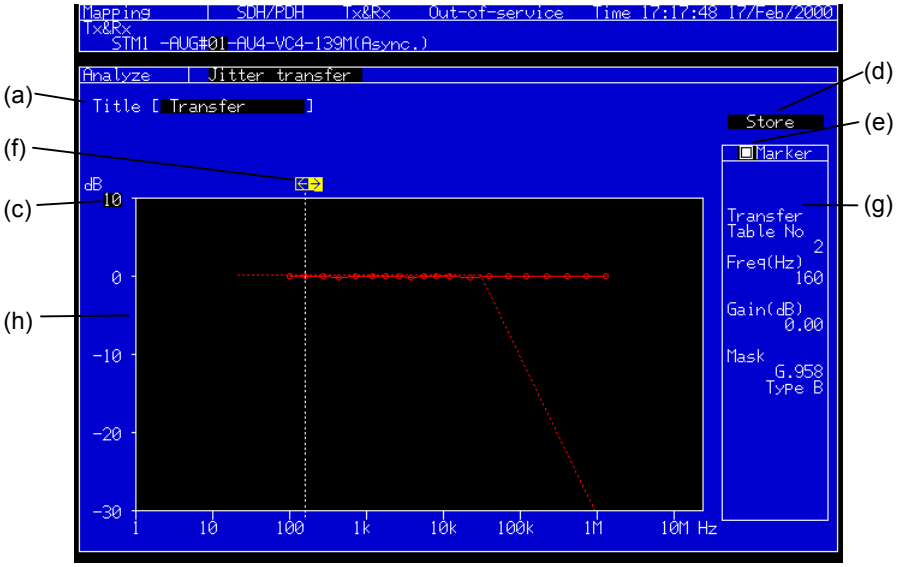
(g)	(Graph)	Indicates measurement results and sweep mask. Measurement points are plotted by ○ .
(h)	Graph clear *	Deletes the graph data and the other measurement results displayed on the screen.
(i)	Margin (1)～(5) *	Selects whether to display each graph data. □ .....indicates that graph data is not being displayed. The data is diaplayed by pressing Set. ■ .....indicates that graph data is being displayed. The data is diaappeared by pressing Set. In this caes, the graph data and the measurement results are not deleted. - This parameter cannot be set when two- or threee-division screen is selected.

Note

* .... These parameters can be displayed when the MU150005A, MU150006A, or MU150007A jitter unit is installed.

2.5.3 Jitter transfer Subscreen

This screen analyzes results of jitter transfer automatic measurements.



	Display	Description
(a)	Title	A graph title can be entered.
(b)	[Selective band width] * [Waiting time] * [Tx Freq. offset] *	Displays the detection condition set on the Test menu:Jitter transfer screen.
(c)	[Scale]	Switches graphic vertical axis. 20 ····· Indicates range between –60 and 20 dB. 10 ····· Indicates range between –30 and 10 dB. 1 ····· Indicates range between –3 and 1 dB.
(d)	Store	Saves graphic data to memory. • This is displayed only in the single screen mode.
(e)	Marker	Sets On/Off of the marker. □ ····· Indicates that the marker is set to OFF. Press [Set] to turn ON. ■ ····· Indicates that the marker is set to ON. Press [Set] to turn OFF. • This can be set only in the single screen mode.
(f)	Search	Searches the measurement point. ←□ ····· Shifts marker to a measurement point in the forward direction. □→ ····· Shifts marker to a measurement point in the backward direction.
(g)		Indicates detailed data of the measurement point designated by the marker.

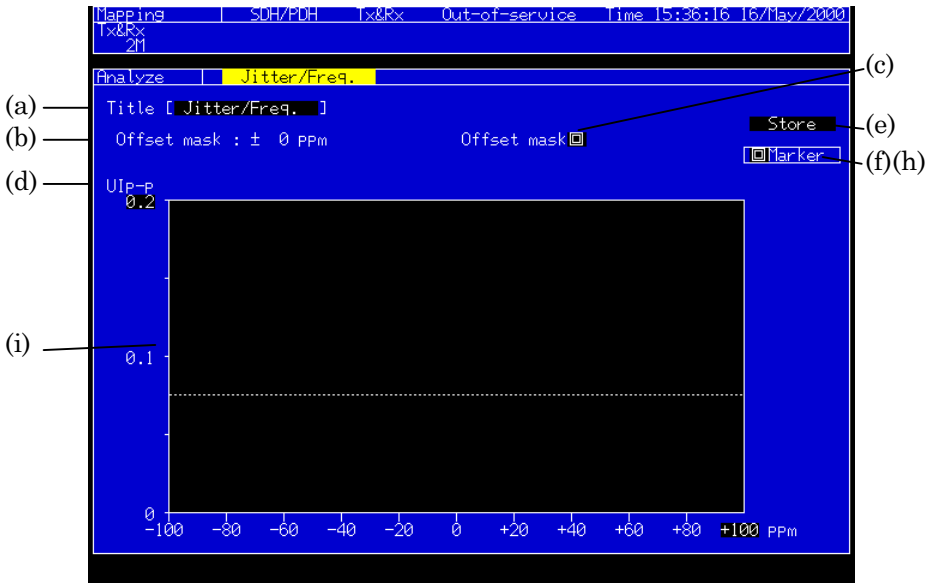
(h)	(Graph)	Indicates measurement results and mask line.
		• Measurement points are plotted by ○ .
		• Measurement results out of scale are plotted by ○ or × . × is plotted in the following cases:
		  • When the unlock time limit is over.
		  • When the result is lower than –60.00, × is plotted as –60.00. When the result is higher than 10.00, × is plotted as 10.00.
		  • When the result is displayed as "***.**", × is plotted as 0.00

Note

* …..These parameters can be displayed when the MU150005A, MU150006A, or MU150007A jitter unit is installed.

2.5.4 Jitter/Freq. Subscreen

This screen analyzes results of jitter/frequency offset automatic measurements.



	Display	Description
(a)	Title	A graph title can be entered.
(b)	[Offset mask] *	Displays the detection condition set on the Testmenu: Jitter/Freq. screen.
(c)	Offset mask *	Sets whether to display an offset mask line. ☐.....indicates that the offset mask line is not being displayed. It is displayed by pressing Set. ■.....indicates that the offset mask line is being displayed. It is disappeared by pressing Set. • This can be set only in the single screen mode.
(d)	[Scale]	Switches graphic vertical axis. 2.0 ····· Indicates range between 0 and 2.0 dB. 1.0 ····· Indicates range between 0 and 1.0 dB. 0.2 ····· Indicates range between 0 and 0.2 dB.
(e)	Store	Saves graphic data to memory. • This is displayed only in the single screen mode.

(f)	Marker	Sets On/Off of the marker. □ ····· Indicates that the marker is set to OFF. Press Set to turn ON. ■ ····· Indicates that the marker is set to ON. Press Set to turn OFF. • This can be set only in the single screen mode.
(g)	Search	Searches the measurement point. ←□ ····· Shifts marker to a measurement point in the forward direction. □→ ····· Shifts marker to a measurement point in the backward direction.
(h)		Indicates detailed data of the measurement point designated by the marker.
(i)	(Graph)	Indicates measurement results and mask line. • Measurement points are plotted by ○ . • × is plotted when the measurement result is Unlock.

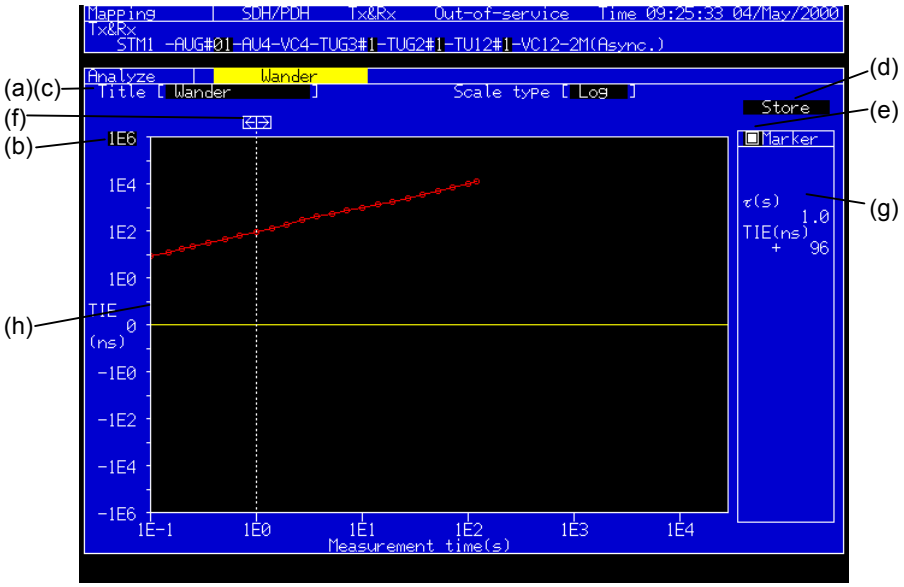
Note

* …..These parameters can be displayed when the MU150005A, MU150006A, or MU150007A jitter unit is installed.

2.5.5 Wander Subscreen

This screen analyzes results of wander automatic measurements.

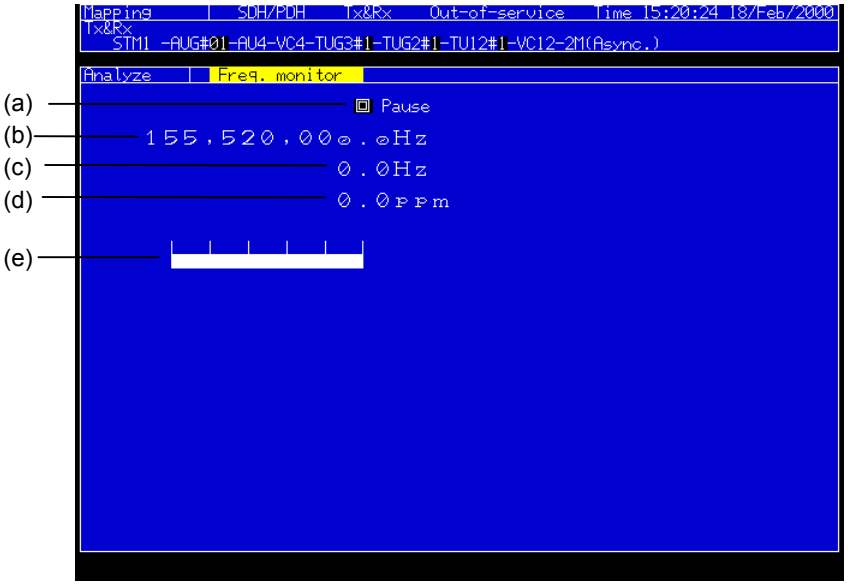
- This screen is displayed when wander options are installed.



	Display	Description
(a)	Title	A graph title can be entered.
(b)	[Scale]	Select the vertical scale of graph. Setting range depends on the Scale type in item (d). Log····· 1E3 to 1E9 Linear····· 100 to 1E9
(c)	Scale type	Sets Log/Linear for a vertical axis scale of the graph. Log····· Indicates the vertical axis of the graph in logarithmic scale. Linear····· Indicates the vertical axis of the graph in linear scale.
(d)	Store	Saves graphic data to memory. • This is displayed only in the single screen mode.
(e)	Marker	Sets On/Off of the marker. □ ····· Indicates that the marker is set to OFF. Press Set to turn ON. ■ ····· Indicates that the marker is set to ON. Press Set to turn OFF. • This can be set only in the single screen mode.
(f)	Search	Searches the measurement point. ←□ ····· Shifts marker to a measurement point in the forward direction. □→ ····· Shifts marker to a measurement point in the backward direction.
(g)		Indicates detailed data of the measurement point designated by the marker.
(h)	(Graph)	Indicates measurement results and mask line. • Measurement points are plotted by ○ .

2.5.6 Frequency monitor Subscreen

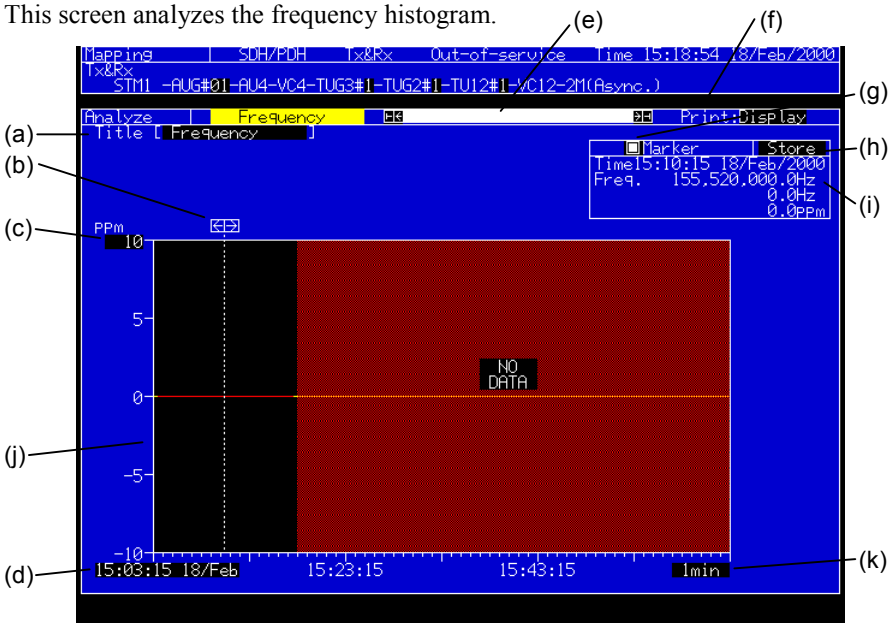
This screen is used to monitor the frequency.



	Display	Description
(a)	Pause	When the cursor is placed here and [Set] is pressed, the monitor display is stopped.
(b)	[Freq.]	Displays the frequency value to be monitoring.
(c)	[Freq.]	Displays the relative frequency to be monitored. • The relative frequency is calculated as below: Relative frequency = Measured frequency – Nominal frequency
(d)	[ppm]	Displays the relative frequency in ppm unit.
(e)		Indicates the gating time elapsed.

2.5.7 Frequency Subscreen

This screen analyzes the frequency histogram.



	Display	Description
(a)	Title	A graph title can be entered.
(b)	Serch	Searches the measurement point. ◁□ ····· Shifts marker to a measurement point in the forward direction. □▷ ····· Shifts marker to a measurement point in the backward direction.
(c)	[Scale]	Switches the vertical axis scale of the graph. 1000 ····· Indicates the scale range from –1000 to +1000 ppm. 100 ····· Indicates the scale range from –100 to +100 ppm. 10 ····· Indicates the scale range from –10 to +10 ppm.
(d)	[Graph start]	Sets the display start time.
(e)	[Scroll]	Scrolls the screen horizontally. · ····· Displays the first page. ← ····· Displays the previous half page. → ····· Displays the next half page. · ····· Displays the last page.
(f)	Print	Sets the printing range.
(g)	Marker	Sets On/Off of the marker. □ ····· Indicates that the marker is set to OFF. Press Set to turn ON. ■ ····· Indicates that the marker is set to ON. Press Set to turn OFF. • This can be set only in the single screen mode.
(h)	Store	Saves graphic data to memory. • This is displayed only in the single screen mode.
(i)		Indicates detailed data of the measurement point designated by the marker.
(j)	(Graph)	Indicates measurement results and mask line.
(k)	[Interval]	Sets the horizontal axis interval of the graph.

2.5.8 Freq. sweep Subscreen

This screen analyzes the result of automatic frequency sweep measurement.

	Display	Descreption
(a)	Title	A graph title can be entered.
(b)	[Mod.freq.] [Freq.offset] [Step] [Waiting time] [Offset mask] [Detection] [Error] [Unit] [Hold time] [Threshold]	Displays the detection condition for the Test menu:Frequency sweep screen.
(c)	Offset mask	Sets whether to display an offset mask line. ☐ ..... indicates that the offset mask line is not being displayed. It is displayed by pressing Set. ■ ..... indicates that the offset mask line is being displayed. It is disappeared by pressing Set. • This can be set only in the single screen mode.
(d)	[Scale]	Changes the vertical axis scale of the graph. 100 ..... Up to 100UIp-p is displayed. 10 ..... Up to 10UIp-p is displayed. 1 ..... Up to 1UIp-p is displayed.
(e)	Store	Stores graph data in memory. - This is displayed only in the single screen display

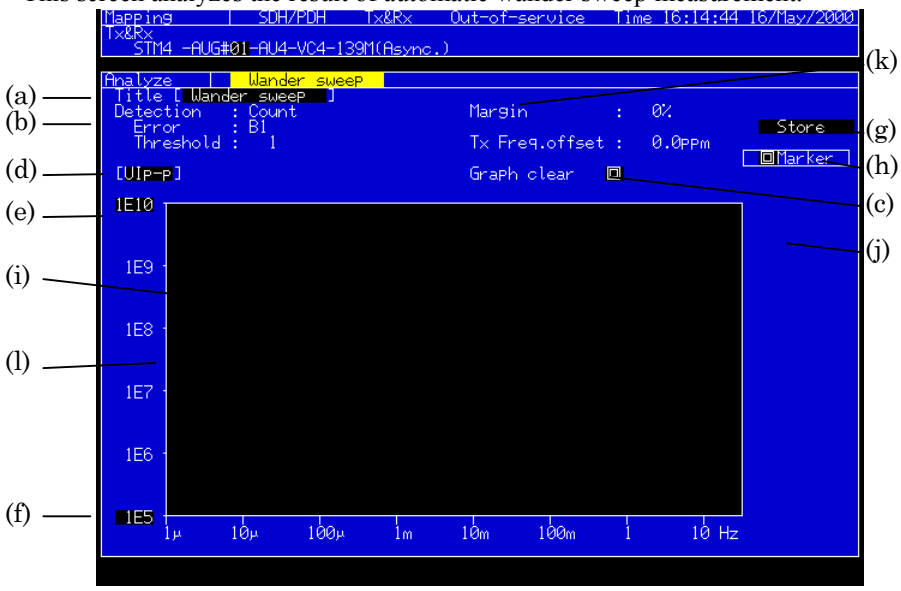
(f)	Marker	Sets On/Off of the marker. □Indicates that the marker is set to OFF. Press Set to turn ON. ■Indicates that the marker is set to ON. Press Set to turn OFF. • This can be set only in the single screen mode.
(g)	(Graph)	Displays the measurement result and the mask line. Measurement points are plotted in "○". When rhe measurement result is "Unlock", "×" is plotted.

Note

This screen can be displayed when the MU150005A, MU150006A, or MU150007A jitter unit is installed.

2.5.9 Wander sweep Subscreen

This screen analyzes the result of automatic wander sweep measurement.



	Display	Description
(a)	Title	A graph title can be entered.
(b)	[Detection] [Error] [Threshold] [Hold time] [Margin] [Measure type] [Tx.Freq.offset]	Displays the detection condition for the Test menu: Wander sweep screen.
(c)	Graph clear	Deletes the graph data and the other measurement results displayed on the screen.
(d)	[UI_{P-P}] [ns]	Sets the vertical axis scale unit on the graph.
(e)	[Scale:max]	Changes the upper limit of the vertical axis scale on the graph.
(f)	[Scale:min]	Changes the lower limit of the vertical axis scale on the graph.
(g)	Store	Stores graph data in memory. - This is displayed only in the single screen display
(h)	Marker	Sets On/Off of the marker. □ ····· Indicates that the marker is set to OFF. Press Set to turn ON. ■ ····· Indicates that the marker is set to ON. Press Set to turn OFF. • This can be set only in the single screen mode.

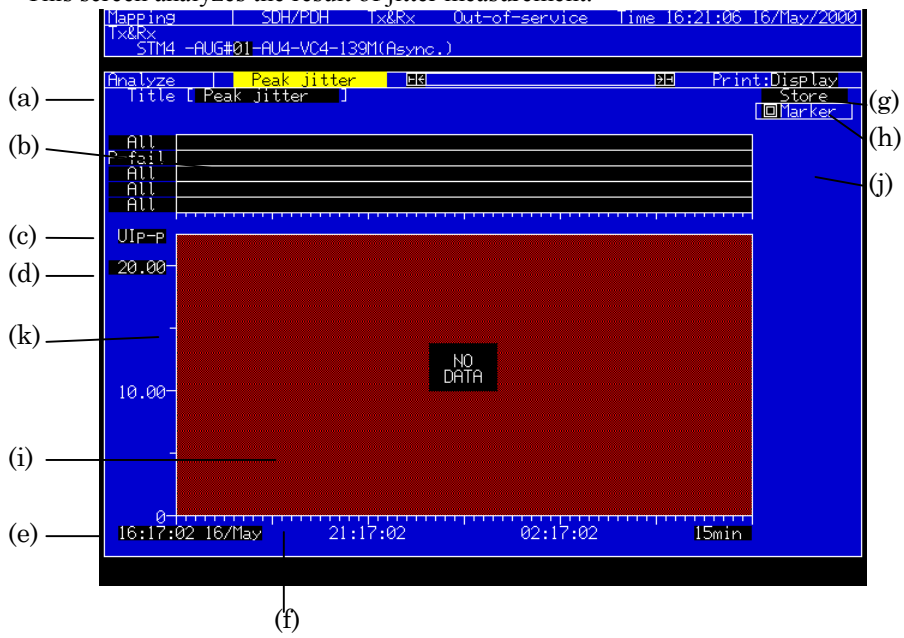
(i)	Search	Searches a measurement point. ◁□..... Shifts the marker to a measurement point in the forward direction. □▷..... Shifts the marker to a measurement point in the backward direction.
(j)		Displays the detailed data of the measurement point designated by the marker.
(k)	(Margin)	Set the margin related to the jitter amplitude set on the Setup screen.
(l)	(Graph)	Displays the measurement result and the mask line. - Measurement points are plotted in "○". When rhe measurement result is "Unlock", "×" is plotted.

Note

This screen can be displayed when the MU150005A, MU150006A, or MU150007A jitter unit is installed.

2.5.10 Peak jitter Subscreen

This screen analyzes the result of jitter measurement.



	Display	Description
(a)	Title	Enter the graph title.
(b)	[Alarm]	Set the graph display alarm.
(c)	[UI_{P-P}] [$UI+_{P}$] [$UI-_{P}$] [UIrms]	Set the unit of the vertical axis scale on the graph.
(d)	[Scale]	Changes the vertical axis scale of the graph.
(e)		Set the display graph start time.
(f)		Set the time interval of the horizontal axis scale on the graph.
(g)	Store	Stores graph data in memory. - This is displayed for the single screen display.
(h)	Marker	Sets On/Off of the marker. □ ····· Indicates that the marker is set to OFF. Press [Set] to turn ON. ■ ····· Indicates that the marker is set to ON. Press [Set] to turn OFF. •This can be set only in the single screen mode.
(i)	Search	Searches a measurement point. ←□ ····· Shifts the marker to a measurement point in the forward direction. □→ ····· Shifts the marker to a measurement point in the backward direction.

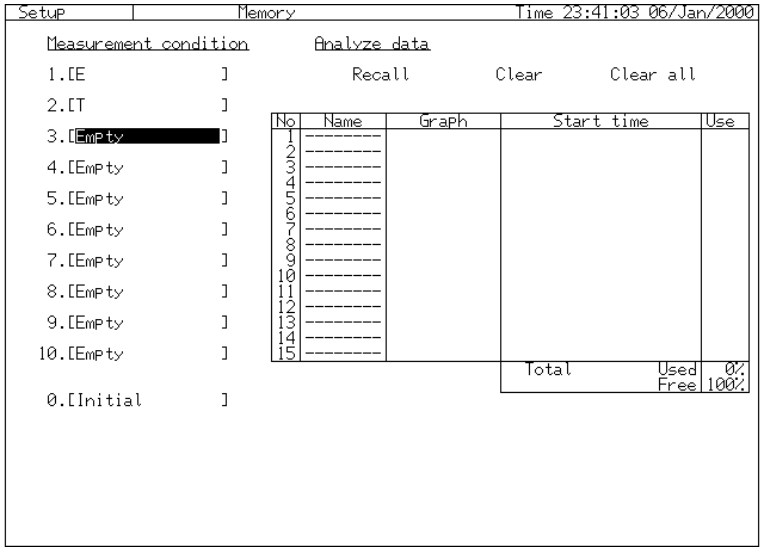
(j)		Displays the detailed data of the measurement point at the marker.
(k)	(Graph)	Displays the jitter measurement result. No result is displayed when some alarm is detected.

Note

This screen can be displayed when the MU150005A, MU150006A, or MU150007A jitter unit is installed.

2.5.11 Recall Subscreen

This screen indicates analysis graph data being recalled on the Setup: Memory or Setup: Floppy disk screen.



The operation procedures are identical to those of Jitter tolerance, Jitter transfer, Jitter/Frequency and Wander subscreens. Entry and Store of the title, however, are disabled.

Section 3 Measurement Examples

This section explains the jitter and wander measurement examples.

3.1 Jitter Tolerance Measurement

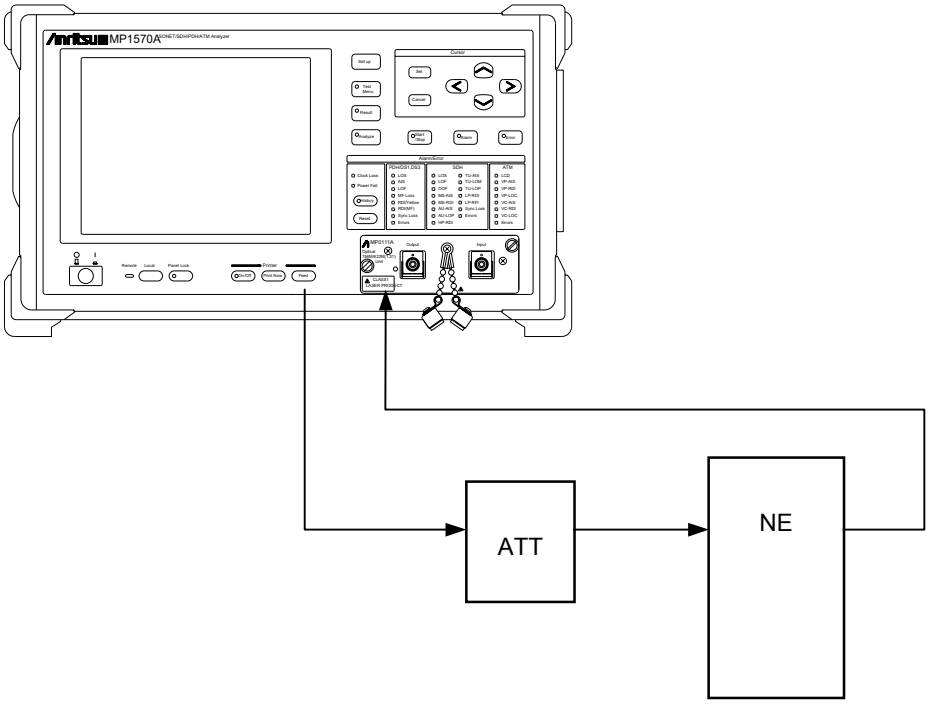
Jitter yield strength of up to 20 measurement points can be measured accurately at a high speed. Operation procedures are explained using an example to measure a 622 Mbit/s NE using the jitter unit and optical interface unit.

3.1.1 Connecting the Measurement Route

(1) Turn Off the MP1570A power switch and install the jitter unit and MP0111A.

(2) Connect the MP0111A optical output connector and NE input connector via an attenuator using a SM optical fiber.

(3) Connect the MP0111A optical input connector and NE output connector using a SM optical fiber.

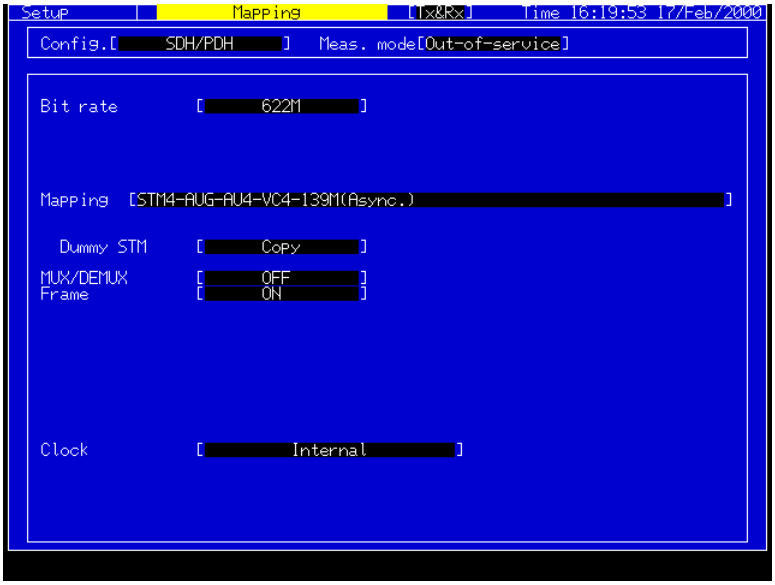


(4) Turn On the MP1570A power switch.

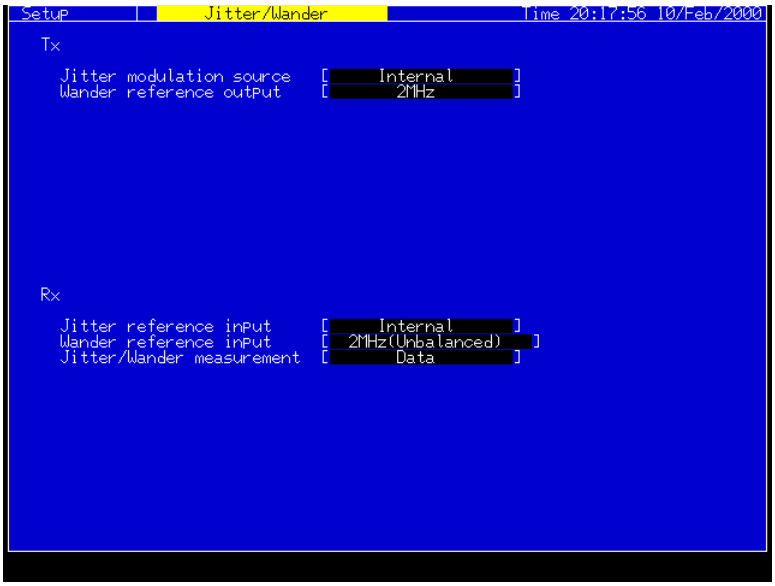
(5) Adjust the attenuator to select an input level 1 dB greater than that where an error occurs.

3.1.2 Basic Setting

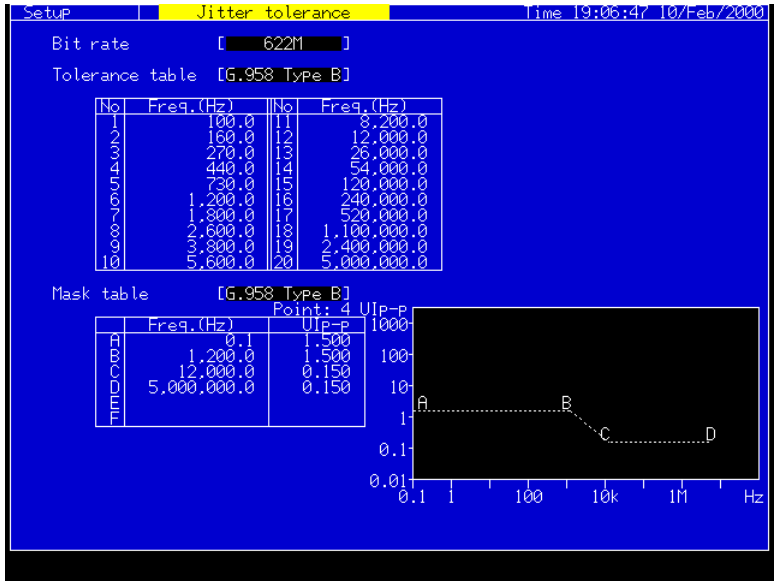
(1) Make a basic setting on the Setup: apping screen. The screen shown below is the typical settings for measurements using the 622M interface.



(2) Set the Setup: Jitter/Wander screen as shown below.



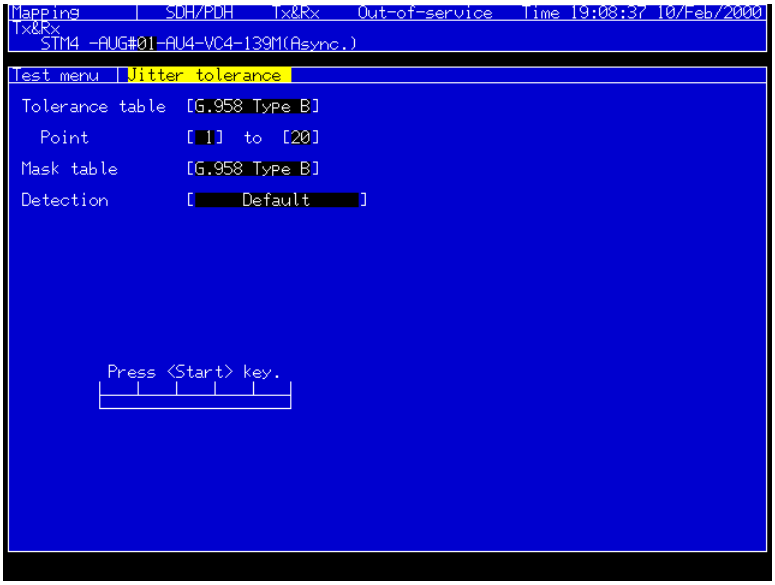
(3) Set the Tolerance and Mask Tables on the Setup: Jitter tolerance screen. (Settings can be changed only when "User" is selected.)



3.1.3 Measurement

(1) Display the Test menu: Jitter tolerance screen.

(2) Conduct selection for the Tolerance Table and Mask table.

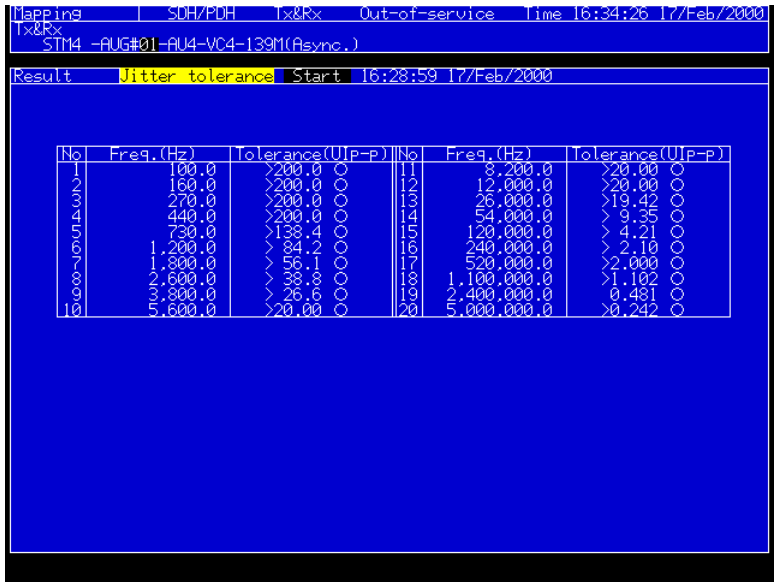


(3) Press Start /Stop to start a measurement.

(4) Progress of the measurement is shown on the screen.

3.1.4 Displaying the Measurement Results

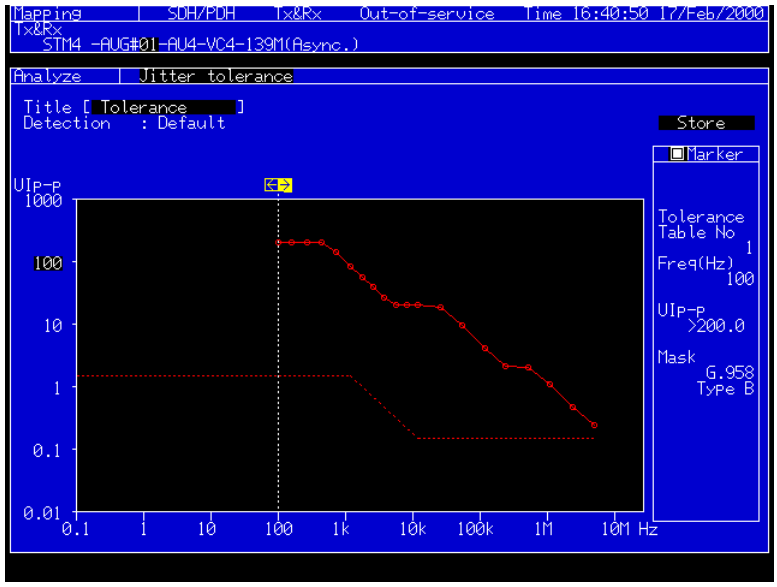
Select the Result: Jitter tolerance screen to display the jitter measurement results.



- Measurement results are indicated as numeric data together with measured frequencies.
- When a result is out of the specification, " ● " or "NG" is displayed.
  ● .....Displayed when the MP0124A, MP0124A, or MP01245A is installed.
  NG .....Displayed when the MU150005A, MU150006A, or MU1500075A is installed.

3.1.5 Analysis

Select the Analyze: Jitter tolerance screen to display the measurement results graphically.



- Pressing [Set] after moving the cursor to ◁□ or □▷ indicates numeric data at the measurement point.

3.2 Jitter Sweep Measurement

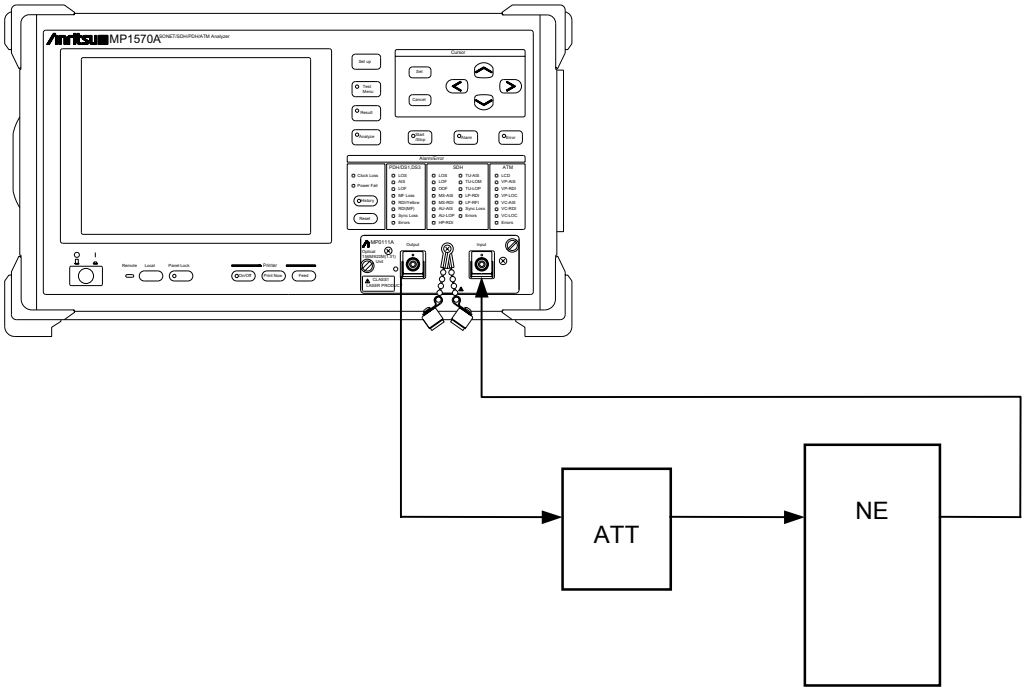
Jitter sweep of up to 20 measurement points can be measured accurately at a high speed. Operation procedures are explained using an example to measure a 622 Mbit/s NE using the MP0111A unit.

3.2.1 Connecting the Measurement Route

(1) Turn Off the MP1570A power switch and install the Jitter unit and MP0111A..

(2) Connect the MP0111A optical output connector and NE input connector via an attenuator using a SM optical fiber.

(3) Connect the MP0111A optical input connector and NE output connector using a SM optical fiber.

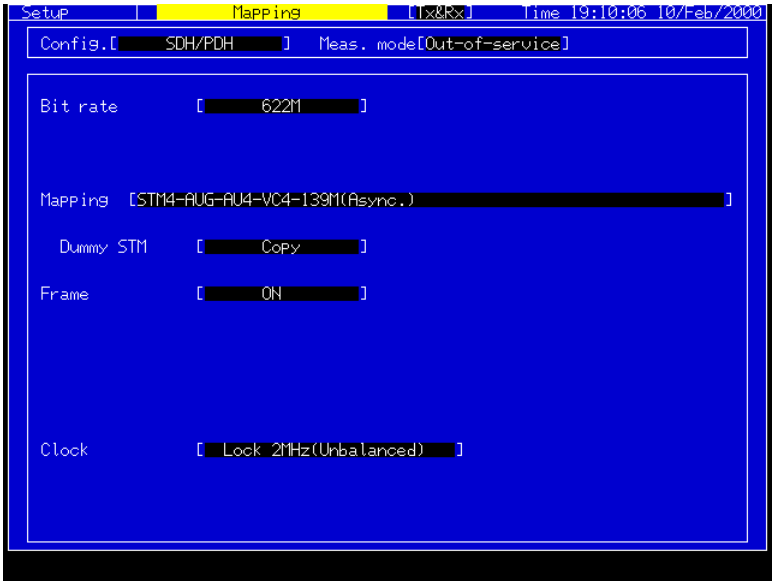


(4) Turn On the MP1570A power switch.

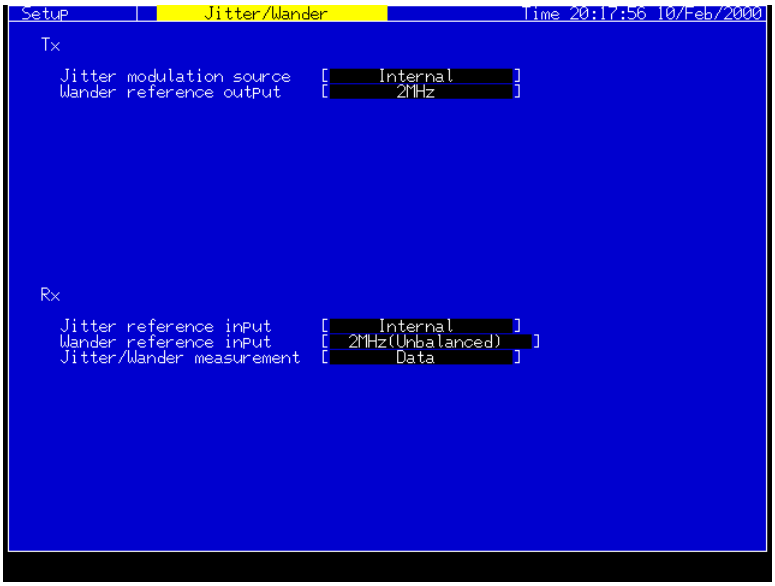
(5) Adjust the attenuator to select an input level 1 dB greater than that where an error occurs.

3.2.2 Basic Setting

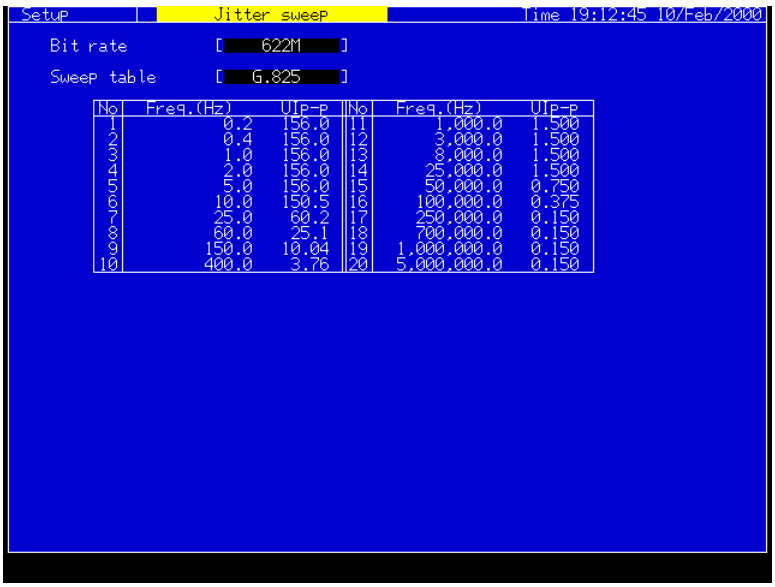
(1) Set the Setup: Mapping screen as shown below, which is typical settings for measurements using the 622M interface.



(2) Set the Setup: Jitter/Wander screen as shown below.



(3) Sets the Sweep Mask on the Setup: Jitter sweep screen. (Settings can be changed only when "User" is selected.)

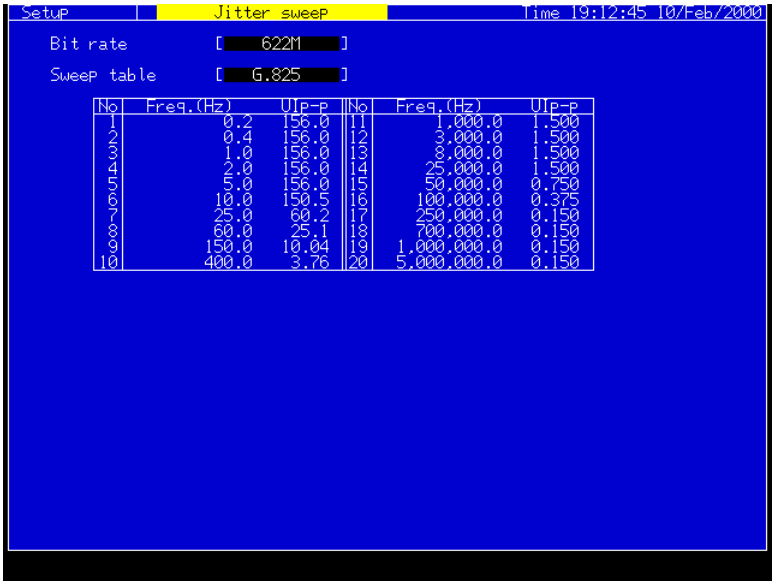


No	Freq.(Hz)	UIp-p	No	Freq.(Hz)	UIp-p
1	0.2	156.0	11	1,000.0	1.500
2	0.4	156.0	12	3,000.0	1.500
3	1.0	156.0	13	8,000.0	1.500
4	2.0	156.0	14	25,000.0	1.500
5	5.0	156.0	15	50,000.0	0.750
6	10.0	150.5	16	100,000.0	0.375
7	25.0	60.2	17	250,000.0	0.150
8	60.0	25.1	18	700,000.0	0.150
9	150.0	10.04	19	1,000,000.0	0.150
10	400.0	3.76	20	5,000,000.0	0.150

3.2.3 Measurement

(1) Display the Test menu: Jitter sweep screen.

(2) Conduct selection for the Measurement Sweep Mask.



(3) Press [Start /Stop] key to start a measurement.

(4) Progress of the measurement is shown on the screen.

3.2.4 Displaying the Measurement Results

Select the Result: Jitter sweep screen.

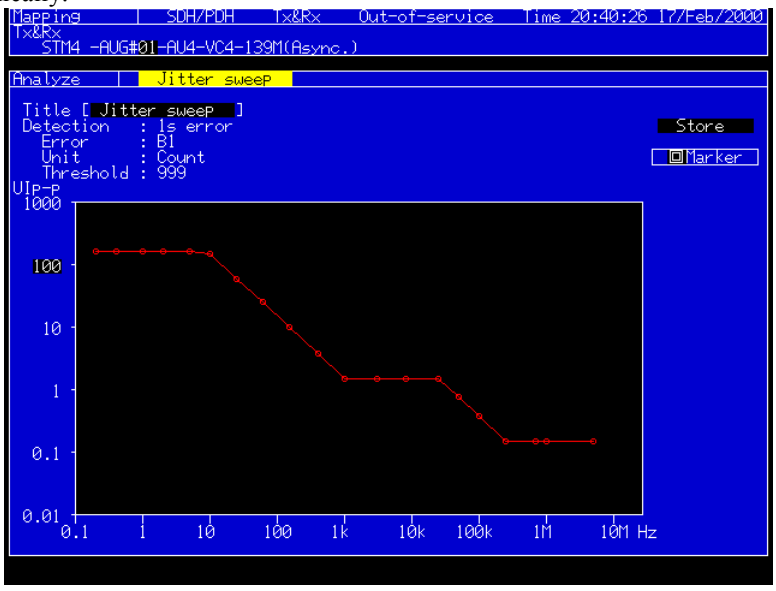
- Measurement results are indicated as numeric data together with measured frequencies.
- If the result is Not-OK under the error evaluation conditions, " ● " or "NG" is indicated.

  ● .....Displayed when the MP0124A, MP0124A, or MP01245A is installed.

  NG.....Displayed when the MU150005A, MU150006A, or MU1500075A is installed.

3.2.5 Analysis

Select the Analyze: Jitter sweep screen to display the measurement results graphically.



- Pressing [Set] after moving the cursor to ←□ or □→ indicates numeric data at the measurement point.
- The latest five graph data and measurement results are displayed.

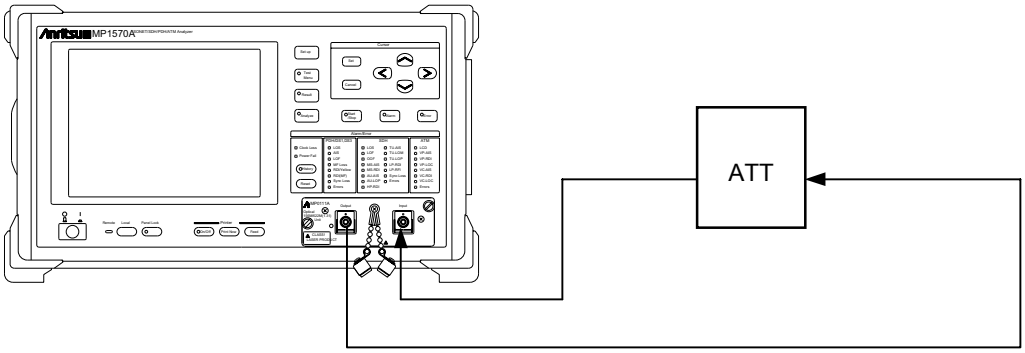
3.3 Jitter Transfer Measurement

Jitter transmission characteristics of up to 20 measurement points can be measured using the Selective method* in a wide dynamic range. Operation procedures are explained using an example to perform the Jitter transfer measurement when a 156 Mbit/s NE is connected with MP1570A using the jitter unit and MP0111A unit.

3.3.1 Connecting the Measurement Route

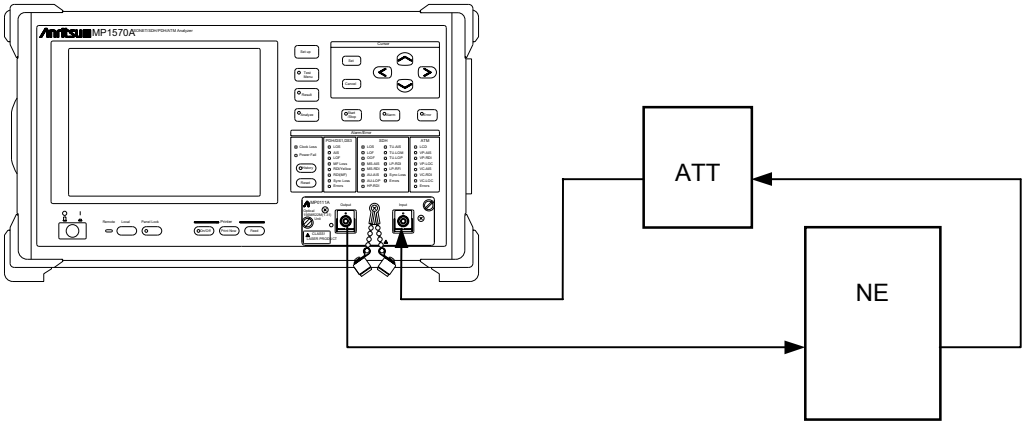
Connection for Calibration

(1) Turn Off the MP1570A power switch and install the jitter unit and MP0111A.
(2) Connect the MP0111A optical output connector and attenuator input connector using a SM optical fiber.
(3) Connect the MP0111A optical input connector and attenuator output connector using a SM optical fiber.
(4) Turn On the MP1570A power switch.
(5) Measure the input levels on the Analyze: Opt. power meter screen.



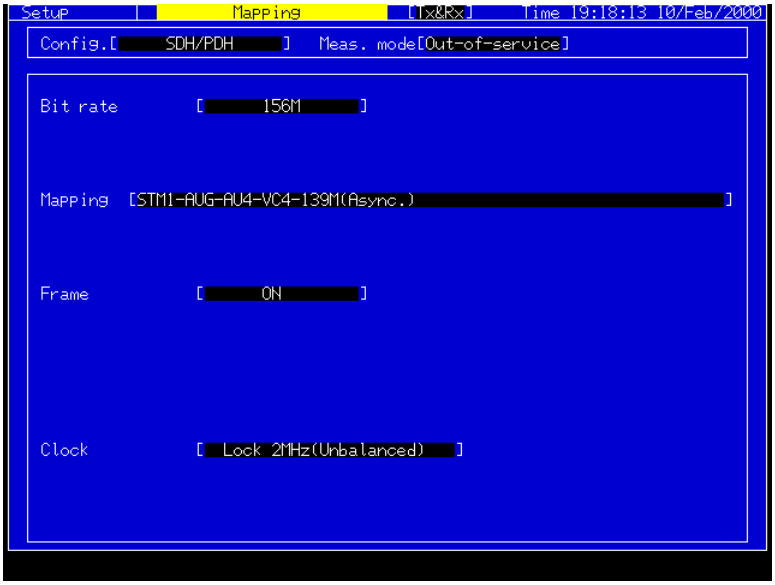
Connection for Measurement

(6) Turn Off the MP1570A power switch again.
(7) Connect the MP0111A optical output connector and NE input connector using a SM optical fiber.
(8) Connect the MP0111A optical input connector and NE output connector via an attenuator using a SM optical fiber.
(9) Adjust the attenuator so that an equal input level can be obtained to that for Calibration.

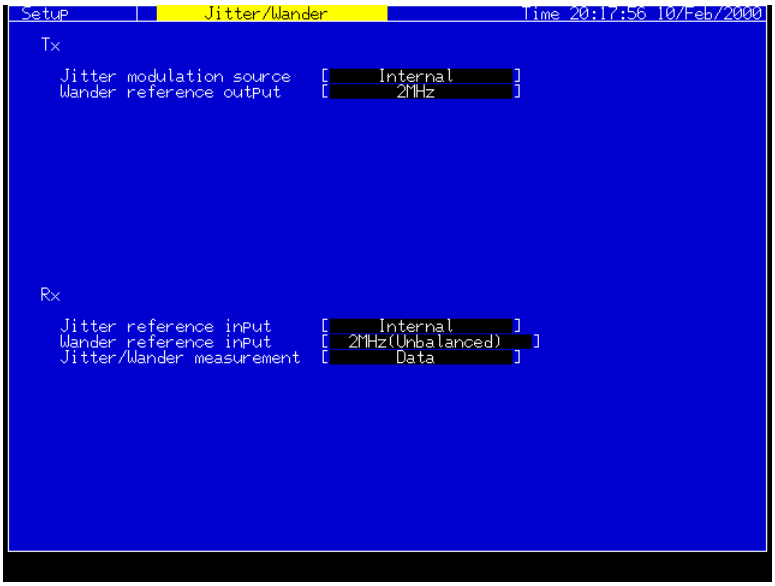


3.3.2 Basic Setting

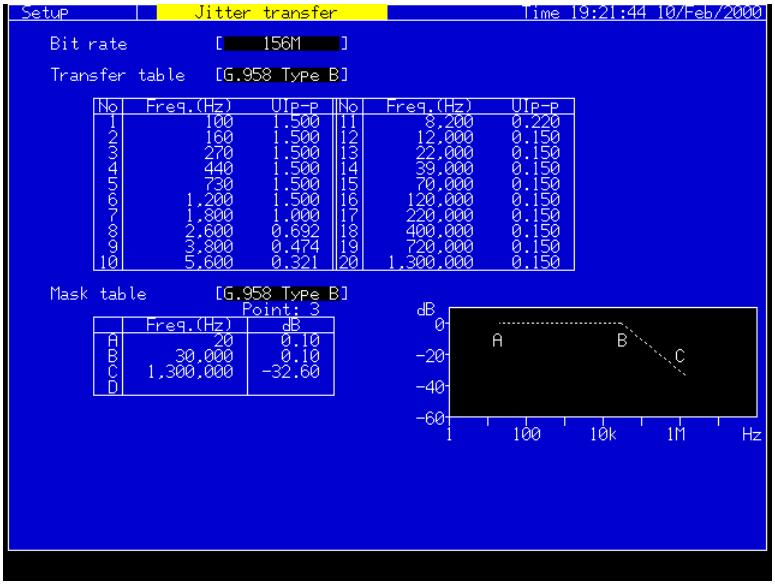
(1) Set the Setup: Mapping screen as shown below, which is typical settings for measurements using the 156M interface.



(2) Set the Setup: Jitter/Wander screen as shown below.



(3) Conduct checks and settings of the Transfer and Mask Tables on the Setup: Jitter transfer screen. (Settings can be changed only when "User" is selected.)**



3.3.3 Measurement

(1) Display the Test menu: Jitter transfer screen.

(2) Conduct settings for Transfer Table*** and Mask Table.

(3) Before connecting a device under test, set the measurement unit to the loopback connection.

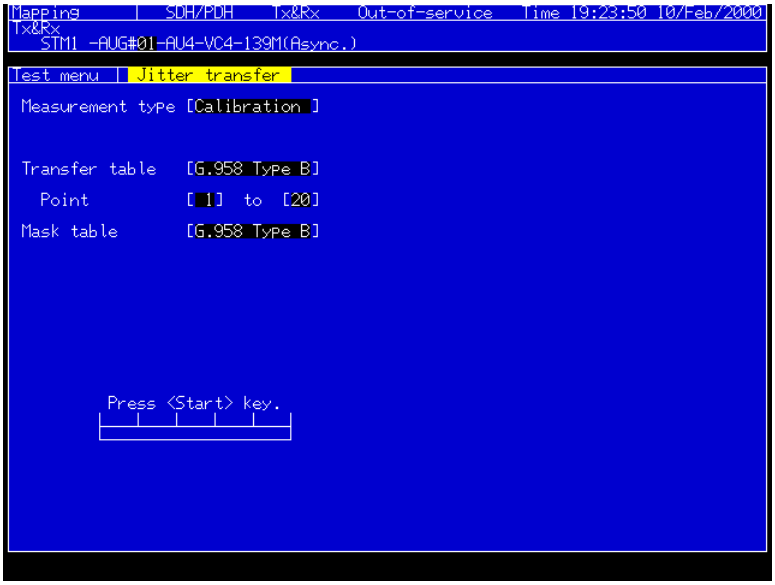
Connect the units as shown in "Connection for Calibration" in Section 3.3.1, "Connecting the measurement route."

(4) Set the measurement type to "Calibration" and press Start /Stop to perform the calibration.****

(5) When calibration is completed, connect the units as shown in "Connection for Measurement" in Section 3.3.1, "Connecting the measurement route."

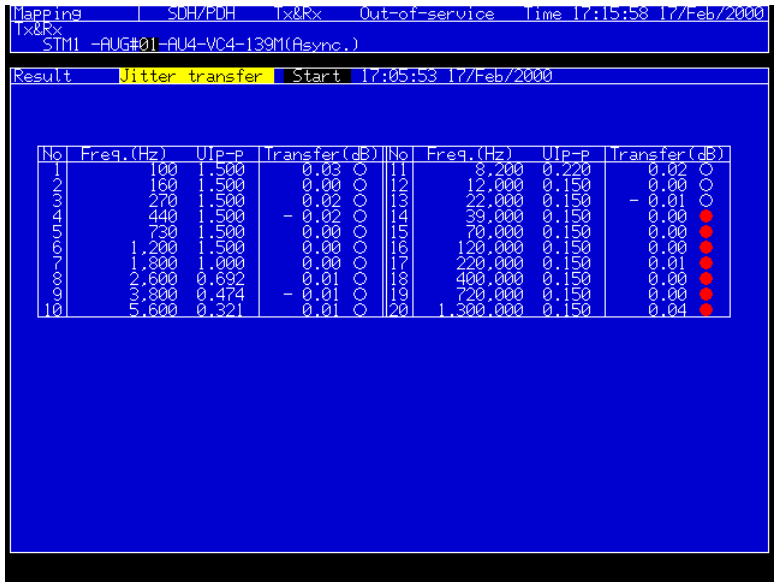
(6) Set the measurement type to "Measurement" and press Start /Stop to start a measurement.

(7) Progress of the measurement is shown on the screen.



3.3.4 Displaying the Measurement Results

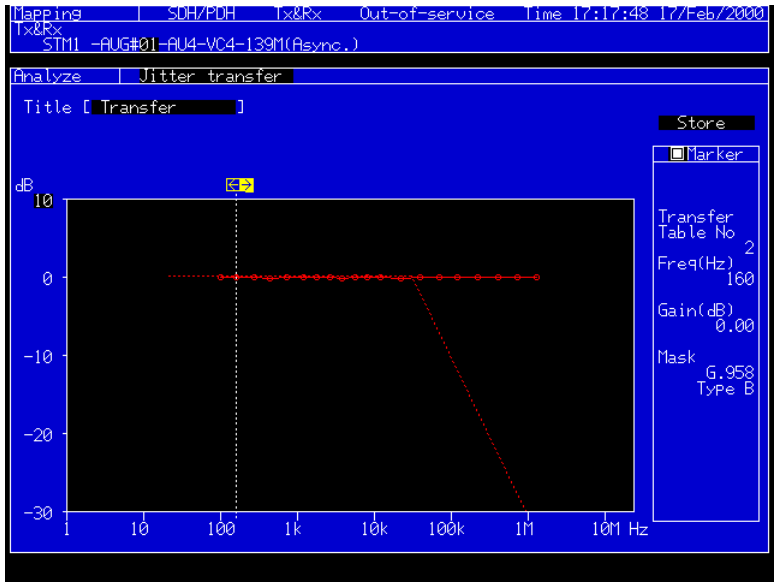
Select the Result: Jitter transfer screen.



- Measurement results are indicated as numeric data together with measured frequencies.*****
- When a result is out of the specification, " ● " or "NG" is displayed.
  ● .....Displayed when the MP0124A, MP0125A, or MP0126A is installed.
  NG .....Displayed when the MU150005A, MU150006A, or MU150007A is installed.

3.3.5 Analysis

Select the Analyze: Jitter tolerance screen to display the measurement results graphically.



- Pressing [Set] after moving the cursor to ◻← or →◻ indicates numeric data at the measurement point.

Notes:

* The measurement frequency range and bandwidth selection are as follows.

$2 \leq fm < 20$ Hz : Pass ≤ 200 Hz

$fm \geq 20$ Hz : Bw ≤ 10 Hz

** When the amplitude on the Transfer Table is less than 1.7 UIp-p, the receive side range is set to 2 UI range. When 1.7 UIp-p or more, it is set to 20 UI range.

*** High Q or Low Q can be selected only for 2 Mbit/s and 8 Mbit/s. This selection depends on the Q factor (Quality factor) of the Clock recovery circuit of the Input section in the device under test. High Q is used for high Q circuit such as PLL circuit.

**** The Cal data is deleted in the following cases:

- At the time of power loss
- When the receive bit rate is changed
- When the Transfer Table is changed
- When Calibration measurement is started

***** When the display field of the measurement point is blinking during a measurement, it indicates that the loop of the jitter receive section is unlocked.

****** When the measured result displays "> 10 dB", the following cases are considered.

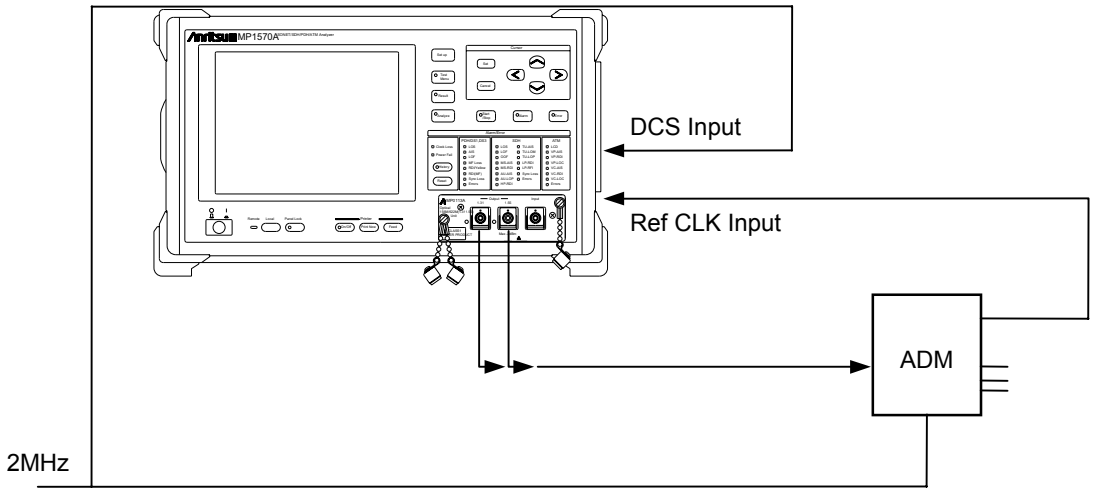
- The measured result is > 10 dB.
- The loop of the jitter receive section is unlocked.
- The measured result exceeds the measurement limit of the jitter receive section.

3.4 Tributary Jitter Measurement and Pointer Sequence Generation

MP1570A can perform the Tributary Jitter measurement under the SDH pointer test conditions. An example to conduct a 622 Mbit/s ADM Tributary Jitter measurement using the jitter unit and MP0113A is explained.

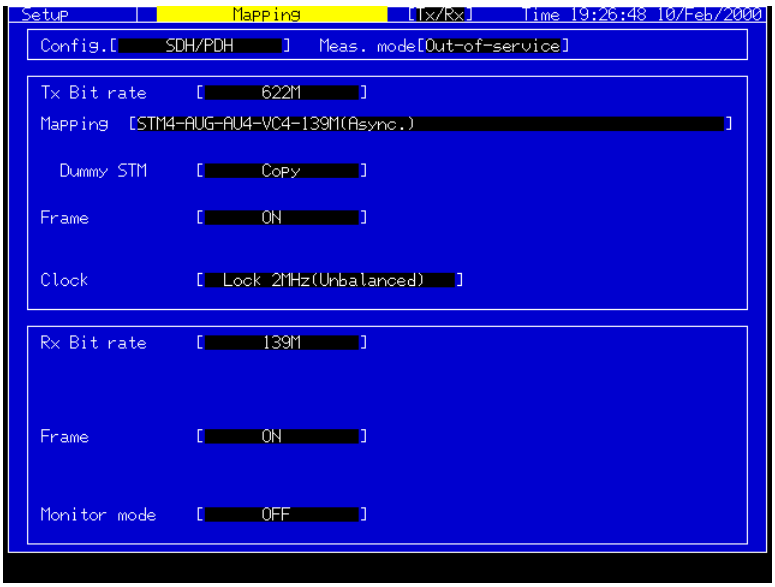
3.4.1 Connecting the Measurement Route

(1) Turn Off the MP1570A power switch and install the jitter unit and MP0113A.
(2) Branch the 2 MHz signal to be input to ADM and connect one end to the DCS Input connector.
(3) Connect the MP0111A optical output connector and ADM input connector using a SM optical fiber.
(4) Connect the ADM output connector and Ref CLK Input connector.
(5) Turn On the MP1570A power switch.

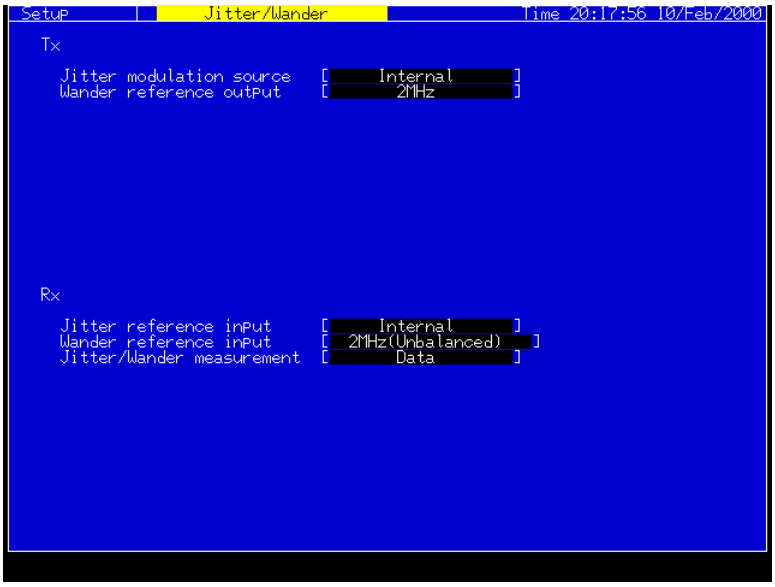


3.4.2 Basic Setting

(1) Set the Setup: Mapping screen as shown below, which is typical settings for measurements at VC4-139M (Async.) mapping. In this case, synchronize the MP1570A and the device under test by 2 MHz timing signal.



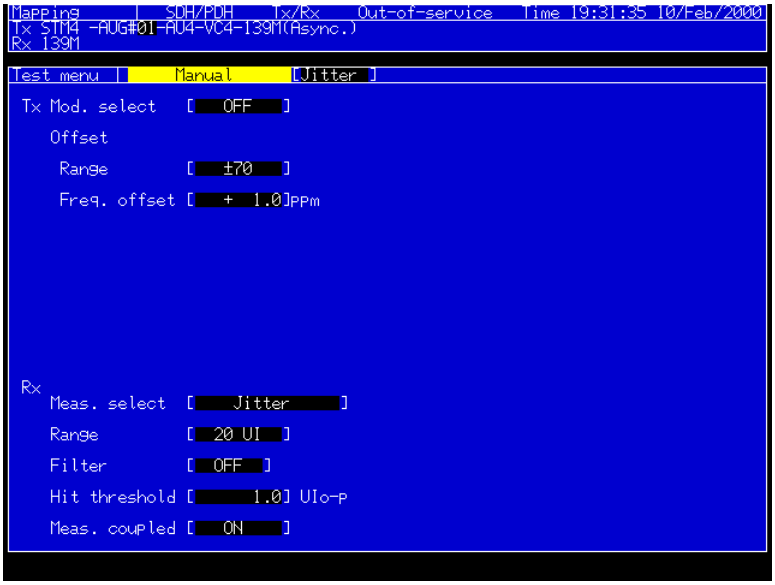
(2) Set the Setup: Jitter/Wander screen as shown below.



(3) Display the Test menu: Manual screen.

(4) Set the mode to "Jitter."

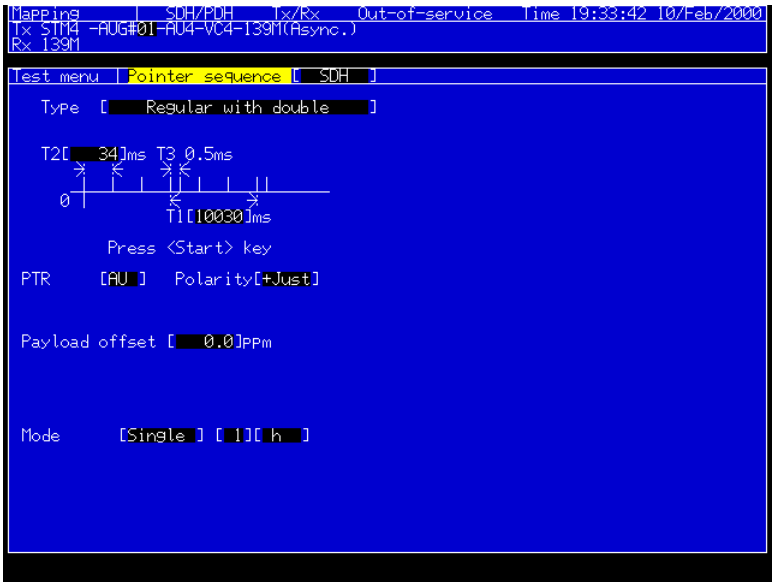
(5) Set the parameters as shown in the figure.



3.4.3 Measurement

(1) Display the Test menu: Pointer sequence screen.

(2) Set the parameters on the screen. The figure shows an example for measurements of jitters at the AU pointer in the "Regular with double" sequence.

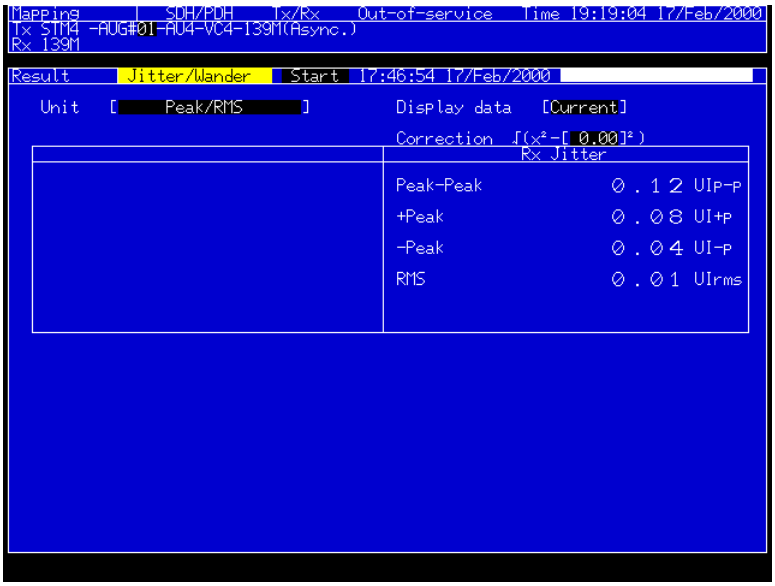


(3) Press Start /Stop key to start a measurement.

3.4.4 Displaying the Measurement Results (Peak)

(1) Select the Result: Jitter screen.

(2) When the Unit is set to "Peak/RMS", the maximum jitter values are indicated as UIp-p, UI+p and UI-p.

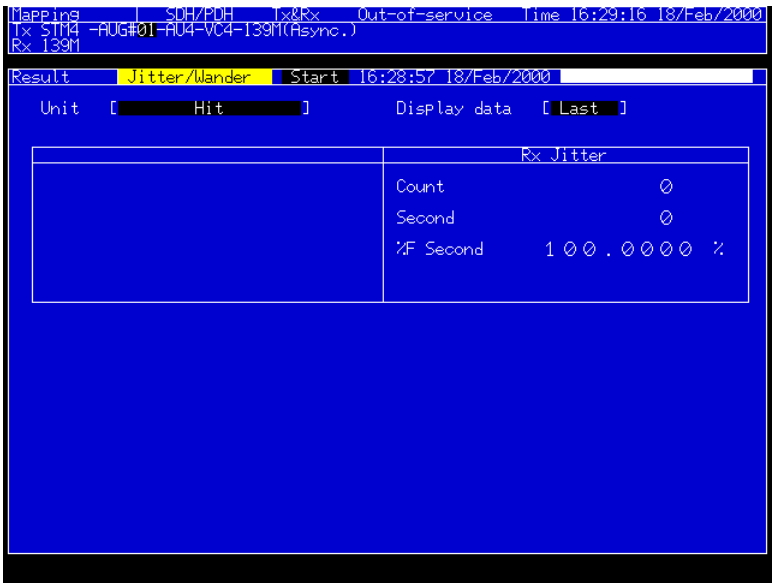


- Results under measurement are indicated when the Display data is set to "Current."

3.4.5 Displaying the Measurement Results (Hit)

(1) Select the Result: Jitter screen.

(2) When the Unit is set to "Hit", the number and seconds of jitters which exceed the preset Hit threshold are indicated.



- Results under measurement are indicated when the Display data is set to "Current."

3.5 Wander Measurement (Manual)

Wander measurements for up to 99 days are possible for manual measurement. Explanation is given using the Wander measurement at 2M as an example.

Notes:

Perform the enough heat-running of the MP1570A before measurement in the following cases:

- When the power switch is turned On
- When the Clock interface or Wander Reference Output setting is changed

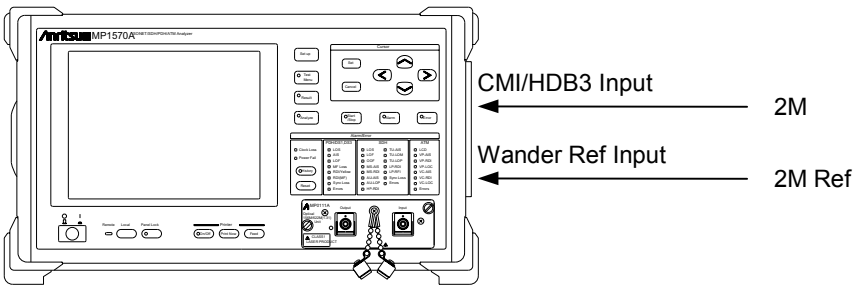
3.5.1 Connecting the Measurement Route

(1) Turn Off the MP1570A power switch and install the jitter unit and MP0121A.

(2) Connect 2M signal to CMI/HDB3 Input connector of the MP0121A.

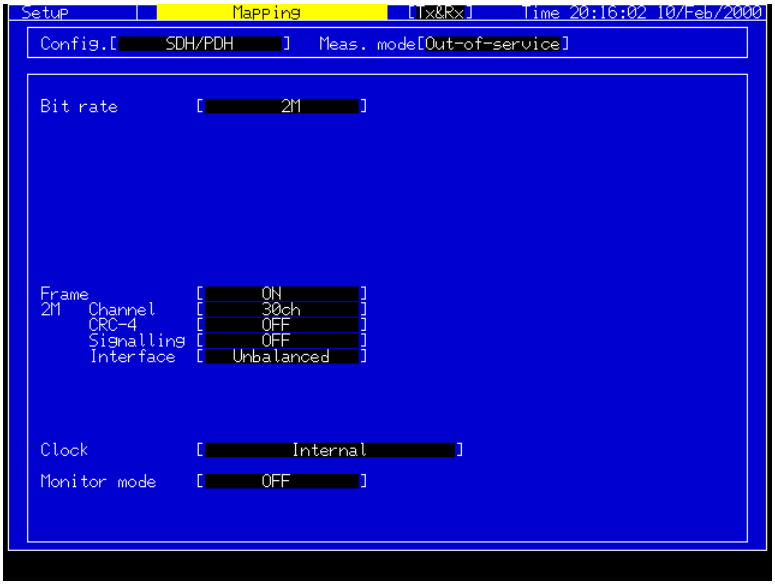
(3) Connect 2M Ref signal to Wander Ref Input connector of the jitter unit.

(4) Turn On the MP1570A power switch.

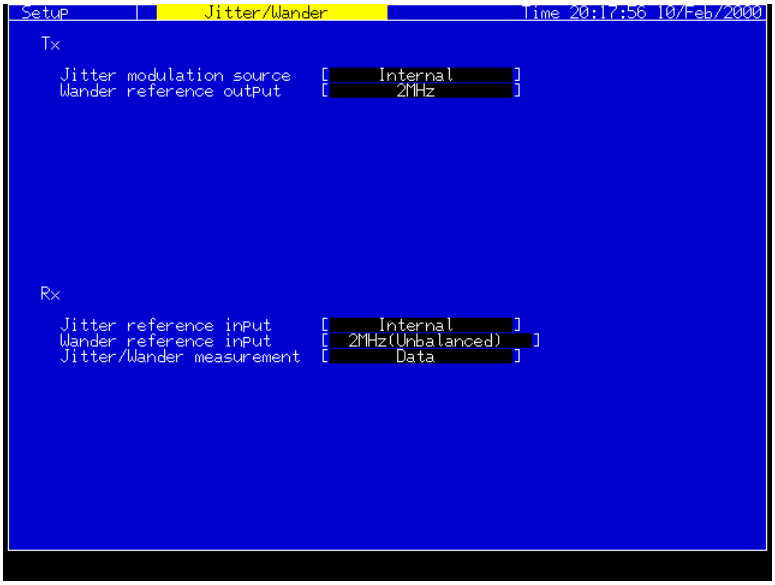


3.5.2 Basic Setting

(1) Set the Setup: Mapping screen as shown below.
Set the bit rate to 2M.



(2) Set the Setup: Jitter/Wander screen as shown below.
The screen shown below is the typical settings for Wander measurement using 2M Clock as the reference signal.

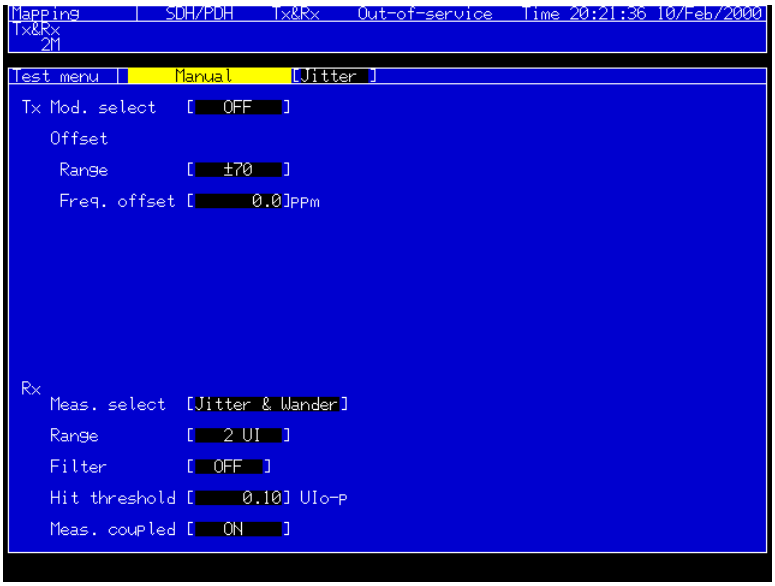


3.5.3 Measurement

(1) Display the Test menu: Manual screen.

(2) Set the mode to "Jitter."

(3) Set the parameters on the screen. Set the Rx Meas. select to "Jitter & Wander." The figure shows an example of 1 hour measurement.



(4) Press Start /Stop key to start a measurement.

(5) Progress of the measurement is shown on the screen.

3.5.4 Displaying the Measurement Results

(1) Select the Result: Jitter/Wander screen.

(2) Peak-Peak, +Peak, –Peak and TIE numeric data are indicated on the screen.

Note:

When "Jitter & Wander" is selected as Meas. select in the Test menu: Manual screen, jitter and wander measurements are conducted, simultaneously. The measurement result is displayed alternatively by switching the Unit on the Result: Jitter/Wander screen.

3.6 Wander Measurement (TIE; Time Interval Error)

The following explains Wander measurement at 2M as an example. Measurement points are automatically set according to the Observation time.

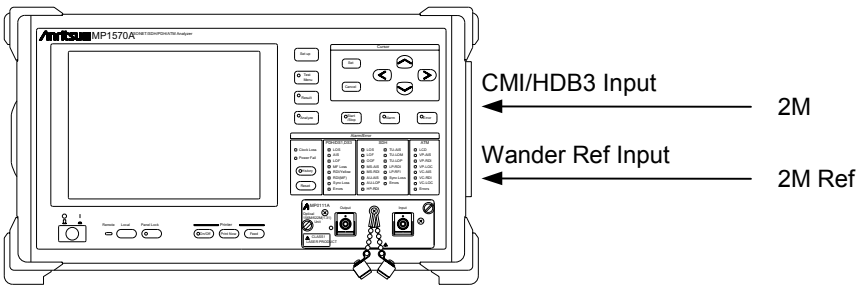
Notes:

Perform the enough heat-running of the MP1570A before measurement in the following cases:

- When the power switch is turned On
- When the Clock interface or Wander Reference Output setting is changed

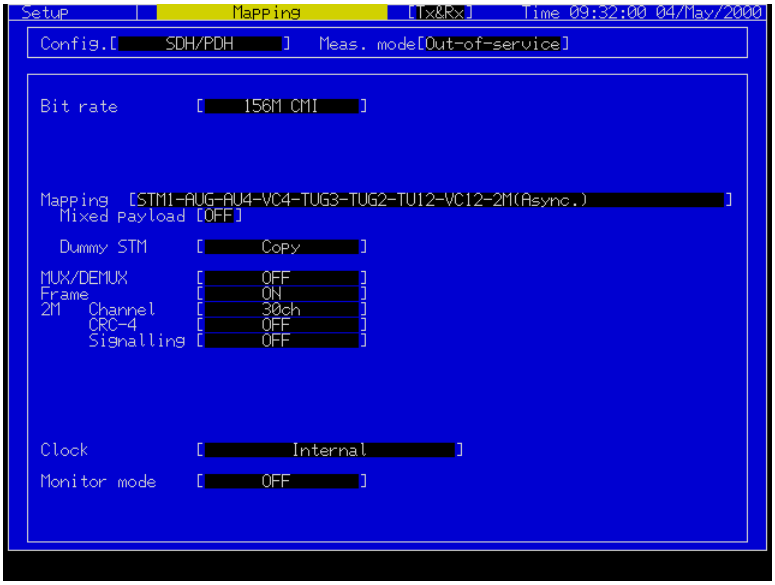
3.6.1 Connecting the Measurement Route

(1) Turn Off the MP1570A power switch and install the jitter unit and MP0121A.
(2) Connect 2M signal to CMI/HDB3 Input connector of the MP0121A.
(3) Connect 2M Ref signal to Wander Ref Input connector of the jitter unit.
(4) Turn On the MP1570A power switch.

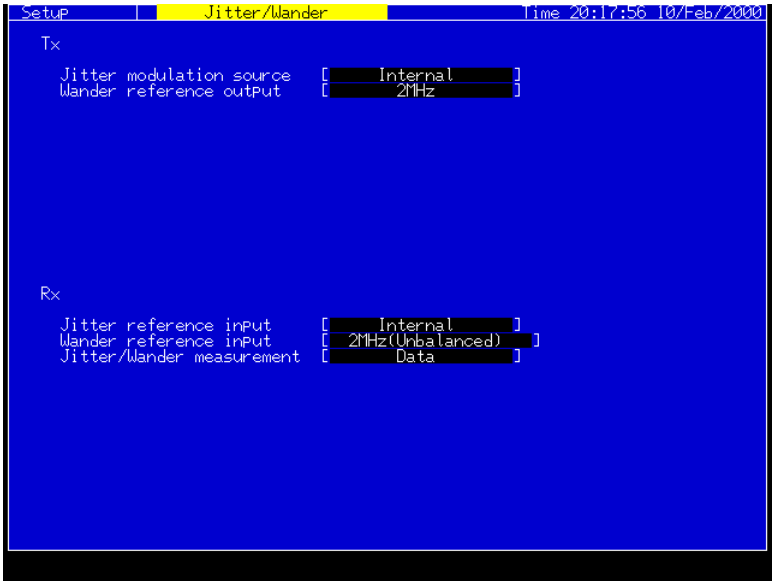


3.6.2 Basic Setting

(1) Set the Setup: Mapping screen as shown below.
Set the bit rate to 156M CM1.



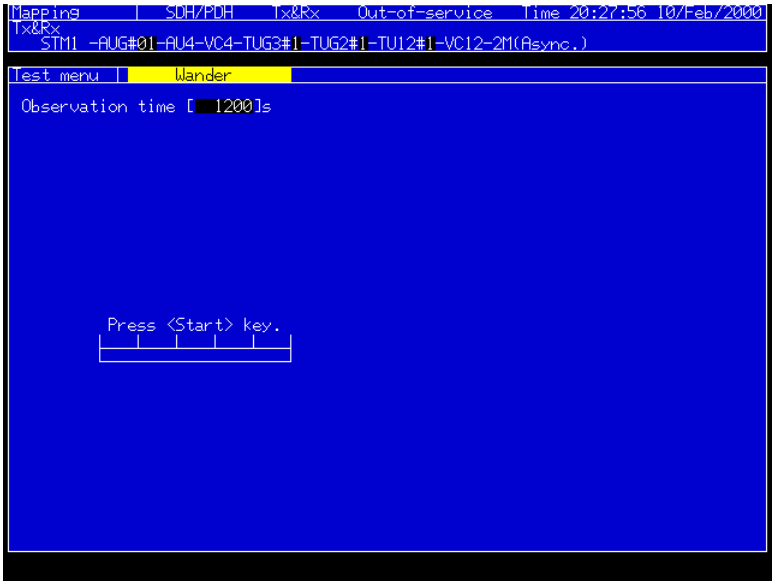
(2) Set the Setup: Jitter/Wander screen as shown below.
The screen shown below is the typical settings for Wander measurement using 2M Clock as the reference signal.



3.6.3 Measurement

(1) Display the Test menu: Wander screen.

(2) Set the Observation time.



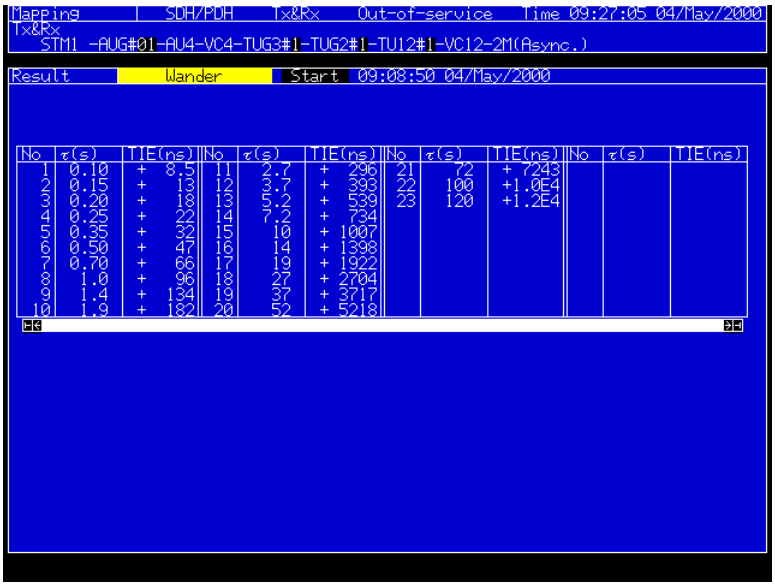
(3) Press [Start /Stop] key to start the measurement.

(4) Progress of the measurement is shown on the screen.

3.6.4 Displaying the Measurement Results

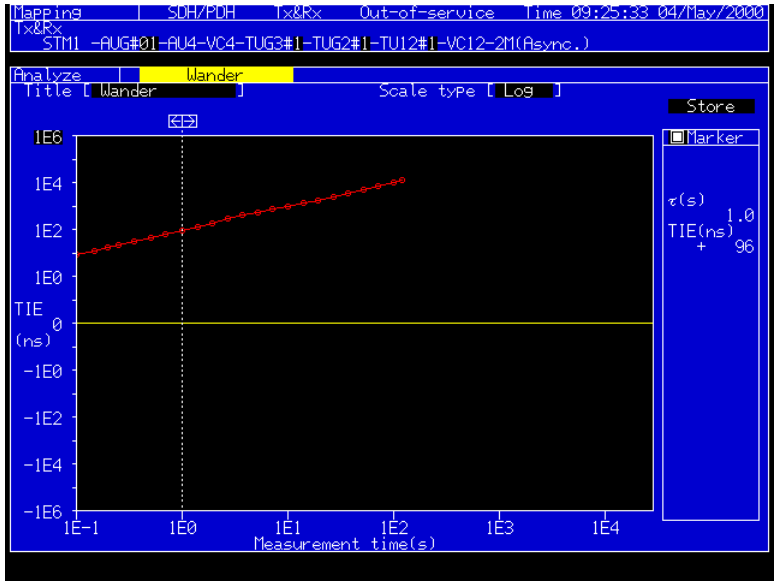
(1) Select the Result: Wander screen.

(2) Measurement results are indicated as numeric data on the screen.



3.6.5 Analyzing the Measurement Results

Select the Analyze: Wander screen to display the measurement results graphically.



- Pressing Set key after moving the cursor to ◁□ or □▷ indicates numeric data at the measurement points.
- Graph data can be saved by saving analysis results.

3.6.6 Analyzing the TIE, MTIE and TDEV Measurement Results

Analysis software (run on an external personal computer) can be used to analyze <TIE>, <MTIE>, and <TDEV>. All data stored during the Observation time can be saved by using Wander data (TIE).

3.7 Jitter/Frequency Offset Measurement

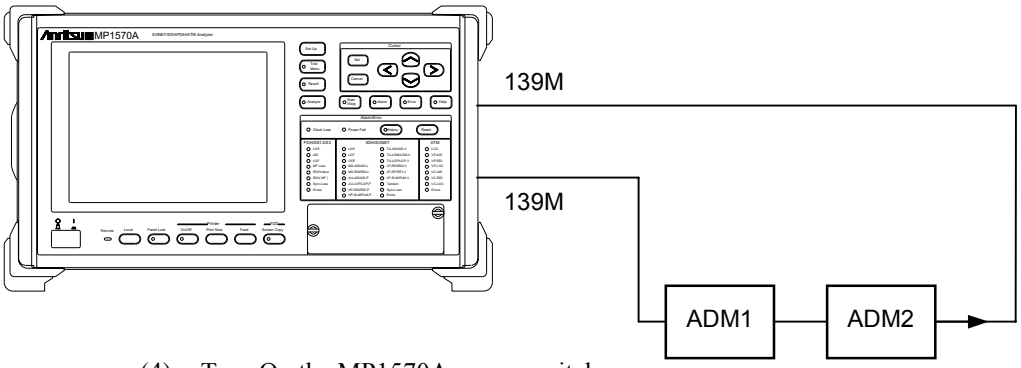
The maximum jitter at each offset in up to 51 ranges can be measured by Jitter/frequency offset measurement. The following explains the 139 Mbit/s Mapping Jitter measurement as an example.

3.7.1 Connecting the Measurement Route

(1) Turn Off the MP1570A power switch and install the jitter unit and MP0121A.

(2) Connect the CMI/HDB3 output connector of the MP0121A and ADM1 input connector.

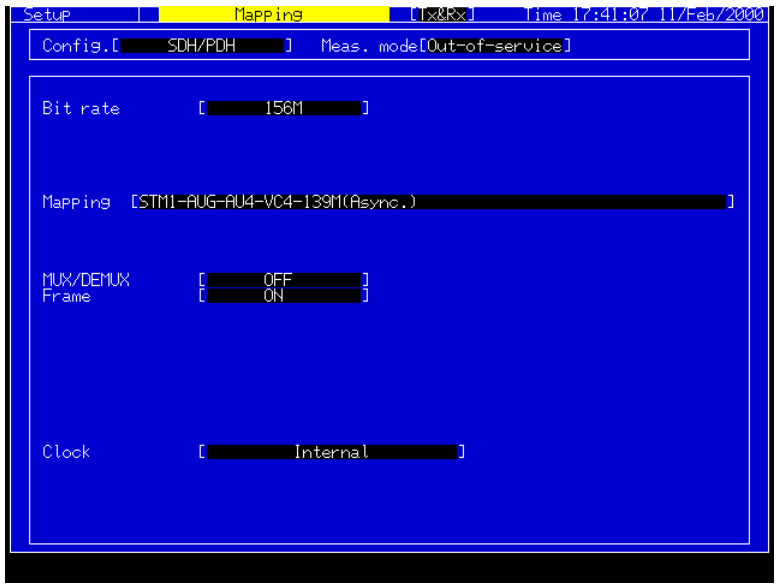
(3) Connect the ADM2 output connector and CMI/HDB3 input connector of the MP0121A.



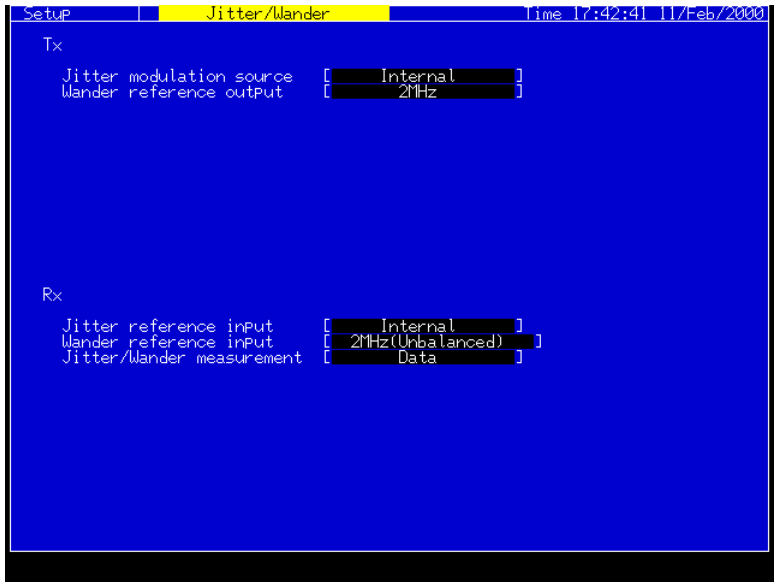
(4) Turn On the MP1570A power switch.

3.7.2 Basic Setting

(1) Make a basic setting on the Setup: Mapping screen. The screen shown below is the typical settings for measurements at 139M.



(2) Set the Setup: Jitter/Wander screen as shown below.

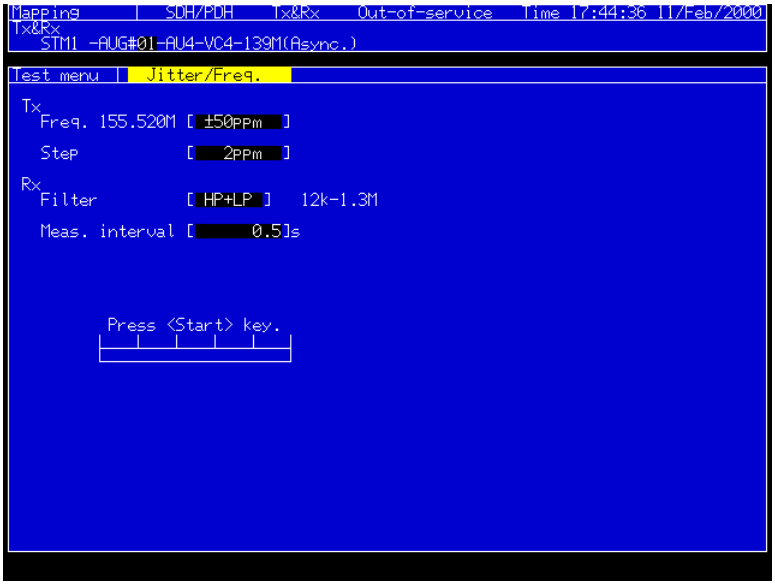


(3) Set the Setup : Jitter/Freq. screen.

3.7.3 Measurement

(1) Display the Test menu: Jitter/Freq. screen.

(2) Set the frequency offset value, step value, filter, and measurement time.



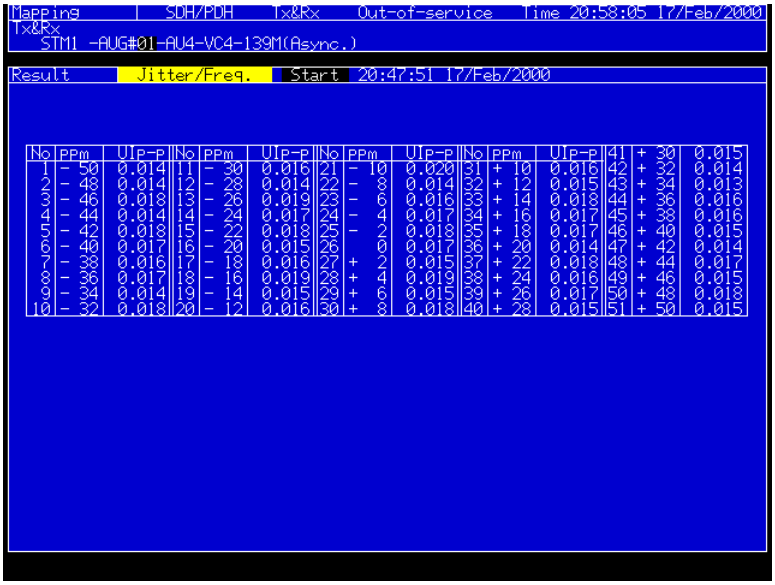
(3) Press Start /Stop key to start the measurement.

(4) Progress of the measurement is shown on the screen.

3.7.4 Displaying the Measurement Results

(1) Select the Result: Jitter/Freq. screen.

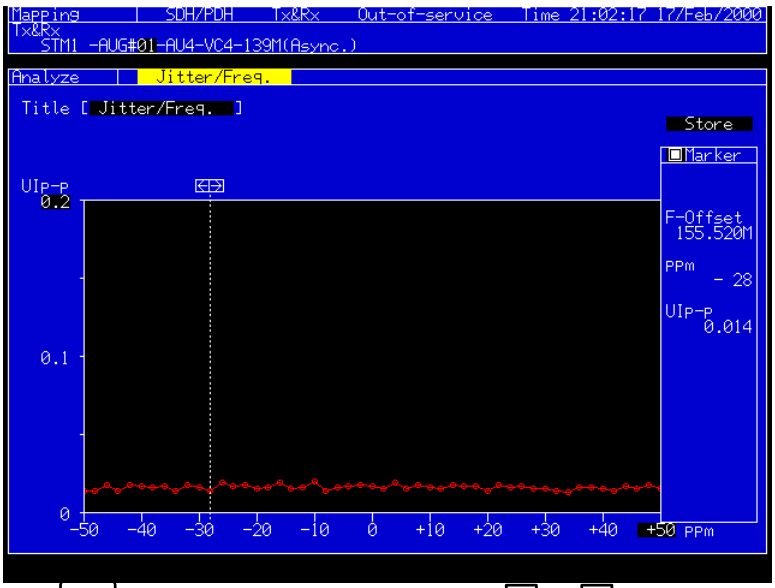
(2) Measurement results are indicated as numeric data together with ppm values.



- When the MU150005A, MU150006A, or MU1500075A is installed. And a result is out of the specification, “NG” is displayed.

3.7.5 Analysis

Select the Analyze: Jitter/Freq. screen to display the measurement results graphically.



- Pressing Set key after moving the cursor to ◁□ or □▷ indicates numeric data at the measurement points.
- The latest five graph data and measurement results are displayed when the MU150005A, MU150006A, or MU1500075A is installed.

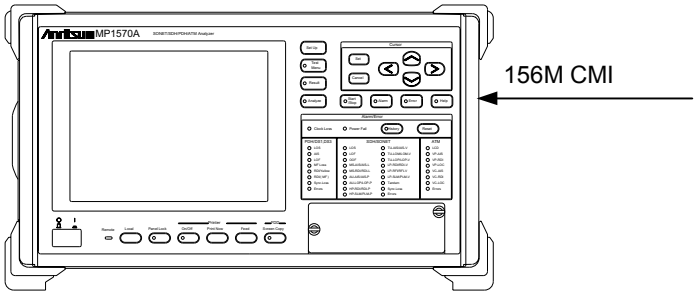
3.8 Frequency Measurement

Frequency can be monitored at Manual Jitter measurement. In this case, max. 60-hour data can be collected. An example to measure a 156 M CMI signal is explained.

3.8.1 Connecting the Measurement Route

(1) Turn Off the MP1570A power switch and install the jitter unit and MP0121A.

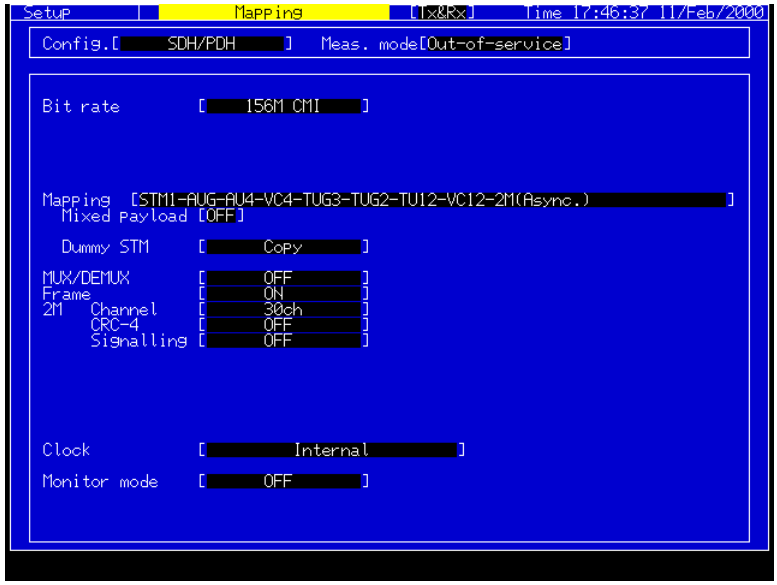
(2) Connect the signal to be measured to the CMI/HDB3 Input connector of the MP0121A.



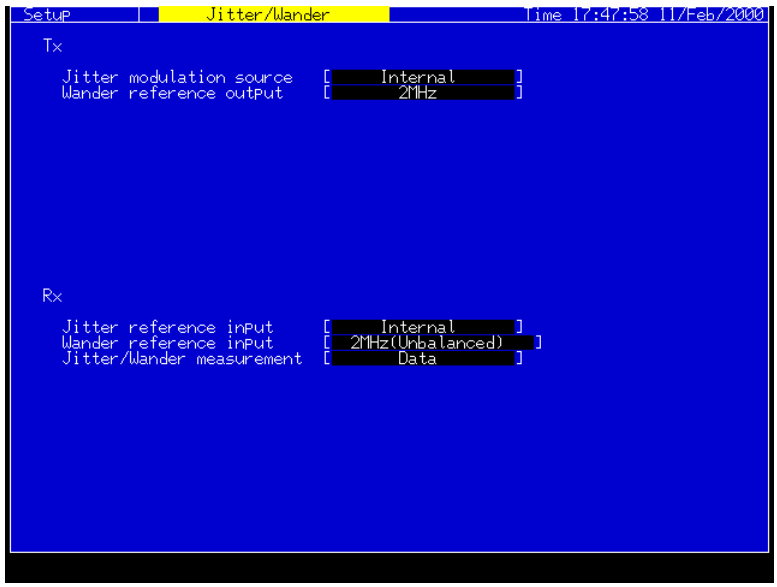
(3) Turn On the MP1570A power switch.

3.8.2 Basic Setting

(1) Make a basic setting on the Setup: Mapping screen.



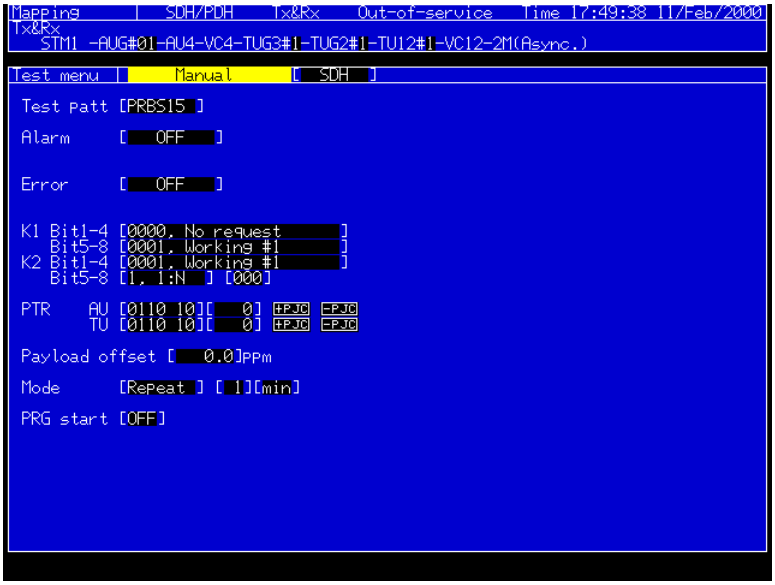
(2) Set the Setup: Jitter/Wander screen as shown below.



3.8.3 Measurement

(1) Display the Test menu: Manual screen.

(2) Set the measurement time.

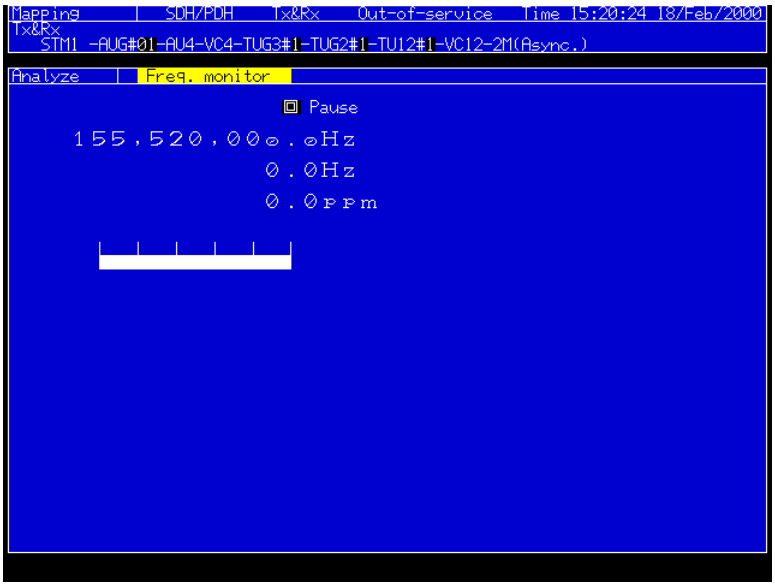


(3) Press Start /Stop key to start the measurement.

(4) Frequency histogram is displayed on the screen.

3.8.4 Displaying the Measurement Results

Select the Analyze: Freq. monitor screen to display the frequency being monitored and the value in ppm.

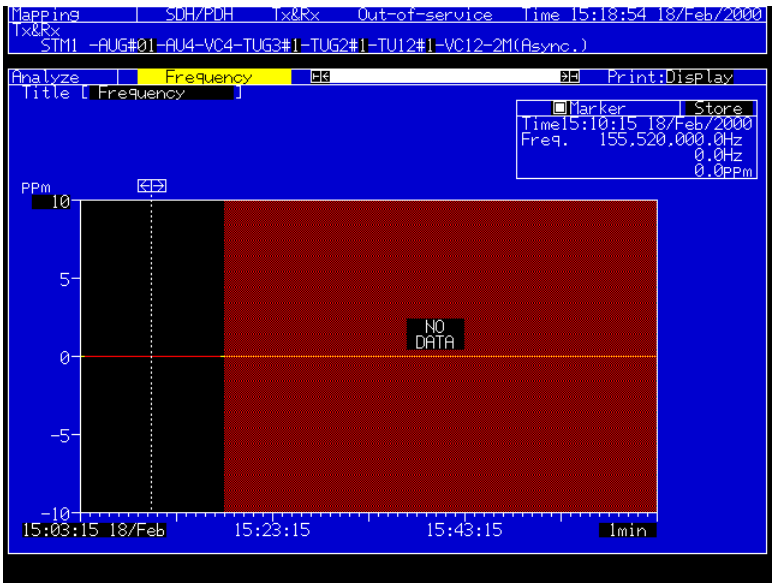


- The gate time changes automatically depending on the bit rate to be monitored.
- The monitored value is updated every gate time.

3.8.5 Analysis

(1) Select the Analyze: Frequency screen.

(2) When a measurement is started by pressing Start /Stop key, the histogram of the monitored frequency value (in ppm unit) is displayed.



- The record automatically stops at measurement end or after 60 hours elapsed from the measurement start time.

Section 4 Remote Control

This section describes information required for the remote control of the MP1570A by an external device. Parameter, response, function, restrictions and example use are described for each command.

4.1 Common Command

Here, explanation is given on IEEE488.2 common commands supported by the MP1570A. Common commands can be used commonly for the GPIB and RS-232C interface.
All common commands supported by the MP1570A are sequential commands.

The table below lists IEEE488.2 common commands supported by the MP1570A.

IEEE488.2 Common Commands

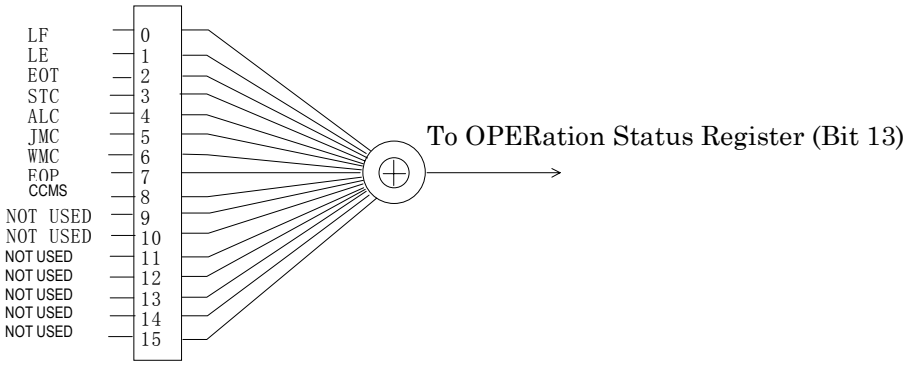
Plain language	Command full spell
*IDN?	Identification Query
*RST	Reset Command
*TST?	Self Test Query
*OPC	Operation Complete Command
*OPC?	Operation Complete Query
*WAI	Wait Continue Command
*CLS	Clear Status Command
*ESE	Standard Event Status Enable Command
*ESE?	Standard Event Status Enable Query
*ESR?	Standard Event Status Register Query
*SRE	Service Request Enable Command
*SRE?	Service Request Enable Query
*STB?	Read Status Byte Query
*TRG	Trigger Command
*PSC	Power On Status Clear Command
*PSC?	Power On Status Clear Query
*SAV	Save Command
*RCL	Recall Command
*OPT?	Option Identification Query

Note:

For other commands, refer to the MP1570A SONET/SDH/PDH/ATM Analyzer Operation Manual Vol.2 Remote Control.

4.2 MP1570A Specific Status Register

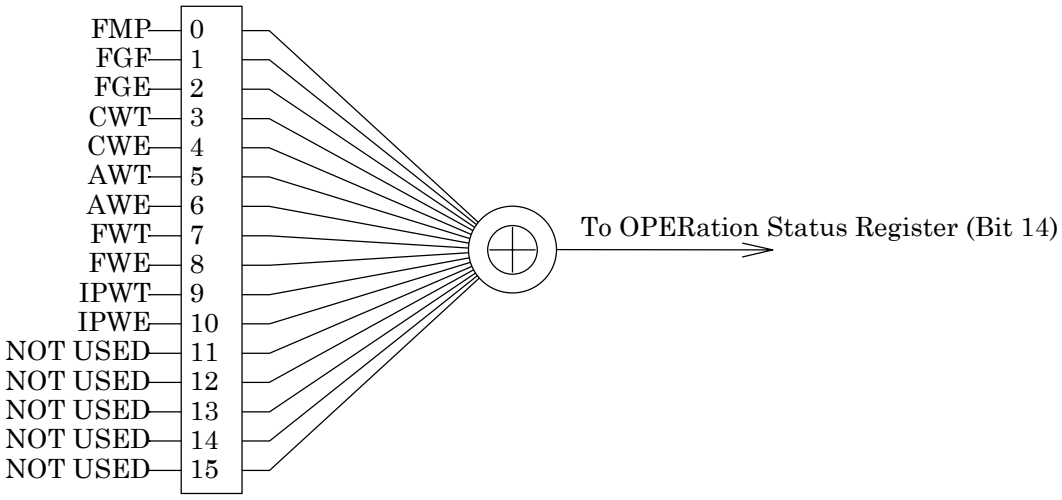
INSTrument Status Register



Bit Definition for INSTrument Status Register

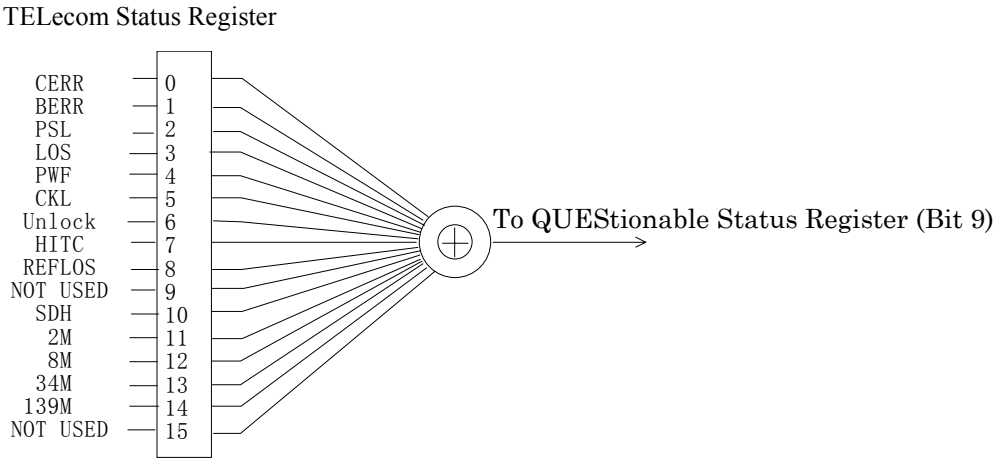
DB0	LF (Log Full)	Indicates that the log is full.
DB1	LE (Log Empty)	Indicates that the log is empty.
DB2	EOT (End Of Test Period)	Indicates that a test (measurement) has completed.
DB3	STC (Self Test Complete)	Indicates that the self-test has completed.
DB4	ALC (ALarm Change)	Indicates that change has occurred to alarm.
DB5	JMC (Jitter Measurement Complete)	Indicates that a jitter measurement has completed.
DB6	WMC (Wander Measurement Complete)	Indicates that a wander measurement has completed.
DB7	EOP (End Of Printer Period)	Indicates the intermediate printing timing.

INSTrument2 Status Register



Bit Definition for INSTrument2 Status Register

DB0	FMP	(Freq. Monitor Period)	Indicates a timing to update frequency monitor.
DB1	FGF	(Freq. Graph Full)	Indicates that the Freq. graph data is full.
DB2	FGE	(Freq. Graph Empty)	Indicates that the Freq. graph data is empty.



Bit Definition for TELecom Status Register

DB0	CERR (Code ERRor)	Indicates existence of a code error.
DB1	BERR (Bit ERRor)	Indicates existence of a bit error.
DB2	PSL (Pattern Sync Loss)	Indicates that pattern sync loss occurred.
DB3	LOS (Loss Of Signal)	Indicates that signal loss occurred.
DB4	PWF (PoWer Fail)	Indicates occurrence of a power loss.
DB5	CKL (ClocK Loss)	Indicates that clock loss occurred.
DB6	Unlock(Unlock)	Indicates that unlock occurred.
DB7	HITC (HIT Count)	Indicates that a Hit count for the jitter measurement has been counted.
DB8	REFLOS(REFerence LOS)	Indicates that a REF LOS has occurred during the wander measurement.
DB10	SDH (SDH status register summary)	SDH Status Register Summary
DB11	2M (2M status resister summary)	PDH:2M Status Register Summary
DB12	8M (8M status resister summary)	PDH:8M Status Register Summary
DB13	34M (34M status resister summary)	PDH:34M Status Register Summary
DB14	139M (139M status resister summary)	PDH:139M Status Register Summary

Note:

For other commands, refer to the MP1570A SONET/SDH/PDH/ATM Analyzer Operation Manual Vol.2.

4.3 Detailed Device Message

4.3.1 Parameter format

The table below shows the type of parameter used for this measuring instrument.
In this manual, lowercase letters enclosed in < and > in the table below indicate a parameter type.
The type of program data specified in IEEE488.2 (or SCPI) corresponding to a parameter type is shown in uppercase letters.
The correspondence between each type of parameter and program data specified in IEEE488.2 (or SCPI) is described for each command.

Parameter Contents

Parameter type	Explanation
<numeric> <NON-DECIMAL NUMERIC PROGRAM DATA>	Indicates a decimal number (decimal fraction input).

Note:

For other commands, refer to the MP1570A SONET/SDH/PDH/ATM Analyzer Operation Manual Vol.2.

4.3.2 Response format

Response formats corresponding to queries are listed in the table below.

Response Format (1/3)

Type	Format	Description
Form5 UI type	" X.XXX"	≤When ≤0.000 ≤ value ≤ 2.020 at UIpp in 2 UI range When 0.000 ≤ value ≤ 1.010 at UI+p, UI-p in 2 UI range When 0.000 ≤ value ≤ 0.714 at UIrms in 2UI range 5 among 6 characters with right margin: Example: > :CALCulate:DATA? "AMPLitude:PP" < " 1.234"
	" XX.XX"	When 0.00 ≤ value ≤ 20.20 at UIpp in 20 UI range When 0.00 ≤ value ≤ 10.10 at UI+p, UI-p in 20 UI range When 0.00 ≤ value ≤ 7.14 at UIrms in 20 UI range 5 among 6 characters with right margin: Example: > :CALCulate:DATA? "AMPLitude:RMS" < " 7.00"
	" XXX.X" (Jitter Tx)	When 0.0 ≤ value ≤ 50.5 at UIpp in 50 UI range When 0.0 ≤ value ≤ 202.0 at UIpp in 200 UI range When 0.0 ≤ value ≤ 808.0 at UIpp in 800 UI range 5 among 6 characters with right margin: Example: > :SOURce:JITTer:MANual:AMPLitude:UIPP 7.0 < " 7.00"
	">2.020"	When value > 2.020 (2 UI range, UIpp)
	">20.20"	When value > 20.20 (20 UI range, UIpp)
	">50.50"	When value > 50.50 (50 UI range, UIpp)
	">202.0"	When value > 202.0 (200 UI range, UIpp)
	">808.0"	When value > 808.0 (800 UI range, UIpp)
	">1.010"	When value > 1.010 (2 UI range, UI+p/UI-p)
	">10.10"	When value > 10.10 (20 UI range, UI+p/UI-p)
	">0.714"	When value > 0.714 (2 UI range, UIrms)
	"> 7.14"	When value > 7.14 (20 UI range, UIrms)
	">X.XXX"	alue > Maximum amplitude value of frequency (2 UI range,Tolerance(UIpp))
	">XX.XX"	alue > Maximum amplitude value of frequency (20 UI range,Tolerance(UIpp))
	">XXX.X"	alue > Maximum amplitude value of frequency (50 UI range,Tolerance(UIpp)) (200 UI range,Tolerance(UIpp)) (800 UI range,Tolerance(UIpp))
	"------"	When no data corresponding to query exists

Response Format (2/3)

Type	Format	Description
Form6 dB type	" XX.XX"	When value > 0, 5 among 7 characters with right margin Example: > :CALCulate:DATA? "JTRansfer:POINt1" < " 0.50"," Acceptable"
	" 0.00"	When value = 0
	" -XX.XX"	When value > 0, 5 among 7 characters with right margin Example: > :CALCulate:DATA? "JTRansfer:POINt1" < " –10.00","Acceptable"
	"> 10.00"	When value > 10.00
	"<–60.00"	When value < –60.00
	" ***.**"	When value = ***.**
	"-------"	When no data corresponding to query exists
Form7 Time type 1	" X.X"	When 0 ≤ value < 10, 3 among 7 characters with right margin Example: > :CALCulate:DATA? "WANDer:TIE" < " 5.0"
	" XXXXX"	When 0 ≤ value < 10, 5 among 7 characters with right margin Example: > :CALCulate:DATA? "WANDer:PTPeak" < " 1000"
	" -X.X"	When 10 ≤ value ≤ 10000, 4 among 7 characters with right margin Example: > :CALCulate:DATA? "WANDer:TIE" < " –5.0"
	" -XXXXX"	When –10000 ≤ value ≤ –10, 6 among 7 characters with right margin Example: > :CALCulate:DATA? "WANDer:MTPeak" < " –1000"
	"> 10000"	When value > 10000
	"<–10000"	When value < –10000
	"-------"	When no data corresponding to query exists

Response Format (3/3)

Type	Format	Description
From8 Time type 2	" X.X"	When 10 ≤ value < 0, 5 among 6 characters with right margin Example: > :CALCulate:DATA? "WANDer:POINt1" < " 5.0"," Acceptable"
	" XXXXX"	When 10 ≤ value ≤ 10000, 5 among 6 characters with right margin Example: > :CALCulate:DATA? "WANDer:POINt2" < " 5.0","Unacceptable"
	" X.XEXX"	When 1.0E04 ≤ value ≤ 1.0E10, 6 among 7 characters with right margin Example: > :CALCulate:DATA? "WANDer:POINt3" < " 4.0E04"," Acceptable"
	"-------"	When no data corresponding to query exists
Form10 Integer type 2	" XXXXXXXXXX X.X"	When 0 ≤ value ≤ 9,999,999,999.9, 12 among 13 characters with right margin Example: > :DISPlay:ANAlysis:FMONitor:FREQuency? < " 120000.9"," +1000.0""
	">9999999999.9"	When value > 9999999999.9
	"------"	When no data corresponding to query exists
Form11 ppm type	" +XXXX.X"	When value > 0, 7 among 8 characters with right margin Example: > :DISPlay:ANAlysis:FMONitor:FREQuency? < " 120000000.9"," +1000.0"
	" 0.0"	When value = 0
	"–XXXX.X"	When value < 0, 6 among 7 characters with right margin Example: > :DISPlay:ANALysis:FMONitor:FREQuency? < " 120000000.9"," –1000.0"
	">+1000.0"	When value > 1000.0
	"<+1000.0"	When value < –1000.0
	"-------"	When no data corresponding to query exists
Form13 Integer type	"+XXXXXXX.X"	When 0 < value <= 9,999,999.9, 9 among 10characters with right > :DISPlay:ANALysis:FMONitor:FREQuency? < " 120000000.9"," +1000.0"," +1000.0"
	" X.X"	When value = 0, 9 among 10 characters with right > :DISPlay:ANALysis:FMONitor:FREQuency? < " 120000000.9"," +1000.0"," 0.0"
	"-XXXXXXX.X"	When -9,999,999.9 <= value < 0, 12 among 13 characters with right margin > :DISPlay:ANALysis:FMONitor:FREQuency? < " 120000000.9"," +1000.0"," -1000.0"
	"----------"	When no data corresponding to query exists.
Form14 Judgment type	“CLKLOSS“	On Clock loss
	LF+EIO	On other than Clock loss
	"--------"	When no data corresponding to query exists.
Form16 Integer type	"XXXXXX.X"	8 characters, right-aligned Example: " 800.0"
	"--------"	When no data corresponding to query exists.

4.4 Device Specific Command

Here, explanation is given on details of device specific commands.
For commands other than Jitter/Wander, refer to the MP1570A SONET/SDH/PDH/ATM Analyzer Operation Manual Vol.2 Remote Control.

4.4.1 INSTrument subsystem

Function	Command	Parameter
Page 4-12		
Sets a test item	:INSTrument:CONFig	type
Queries the test itme	:INSTrument:CONFig?	

:INSTrument:CONFig <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

SDH_PDH	Uses the SDH frame for jitter or wander measurement
SONET_PDH	Uses the SONET frame for jitter or wander measurement
JITTER	Jitter and wander measuring function (for measurement using a jitter unit only)

Function Sets a test item

Example use To set SDH_PDH;
> INSTrument: CONFig SDH_PDH

:INSTrument:CONFig?

Response <type> = <CHARACTER RESPONSE DATA>

SDH_PDH	Uses the SDH frame for jitter or wander measurement
SONET_PDH	Uses the SONET frame for jitter or wander measurement
JITTER	Jitter and wander measuring function (for measurement using a jitter unit only)

Function Queries the test item.

Example use > :INSTrument: CONFig?
< SDH_PDH

4.4.2 SOURce subsystem

The SOURce subsystem is used to make settings of the sender.

Function	Command	Parameter
Page 4-20		
Sets a clock source for the send signal.	:SOURce:TELecom:CLOCk:SOURce	csource
Queries clock source of the send signal.	:SOURce:TELecom:CLOCk:SOURce?	
Page 4-20		
Sets the frequency offset.	:SOURce:TELecom:OFFSet	numeric
Queries the frequency offset value.	:SOURce:TELecom:OFFSet?	
Page 4-21		
Sets whether jitter or wander is generated.	:SOURce:TELecom:JWANder:MSELect	mode
Queries whether jitter or wander is generated.	:SOURce:TELecom:JWANder:MSELect?	
Sets the frequency offset range.	:SOURce:TELecom:JWANder:ORANge	numeric
Queries the frequency offset range.	:SOURce:TELecom:JWANder:ORANge?	
Page 4-22		
Sets a jitter modulation signal source for jitter generation.	:SOURce:JITTer:MANual:MODE	mode
Queries the jitter modulation signal source for jitter generation.	:SOURce:JITTer:MANual:MODE?	
Sets a jitter generation range for jitter generation.	:SOURce:JITTer:MANual:RANGe	numeric
Queries the jitter generation range for jitter generation.	:SOURCE:JITTer:MANual:RANGe?	
Sets a jitter modulation frequency for jitter generation.	:SOURce:JITTer:MANual:FREQuency	freq1 freq2
Queries the jitter modulation frequency for jitter generation.	:SOURce:JITTer:MANual:FREQuency?	
Sets how to set the jitter amplitude value for jitter generation.	:SOURce:JITTer:MANual:AMPLitude:TYPE	type
Queries how to set the jitter amplitude value for jitter generation.	:SOURce:JITTer:MANual:AMPLitude:TYPE?	
Sets a set resolution of the jitter amplitude value for jitter generation.	:SOURce:JITTer:MANual:AMPLitude:STEP	step
Queries the set resolution of the jitter amplitude value for jitter generation.	:SOURce:JITTer:MANual:AMPLitude:STEP?	
Sets a jitter amplitude value for jitter generation.	:SOURce:JITTer:MANual:AMPLitude:DATA	data
Sets a jitter amplitude value for jitter generation.	:SOURce:JITTer:MANual:AMPLitude:UIPP	numeric
Queries the jitter amplitude value for jitter generation.	:SOURce:JITTer:MANual:AMPLitude:UIPP?	
Queries the output amplitude monitored value for jitter generation.	:SOURce:JITTer:MANual:AMPLitude:MONitor?	
Sets Mask specifications for TDEV generation.	:SOURce:JITTer:MANual:TDEV:DTYPe	type
Queries the setting of Mask specifications for TDEV generation.	:SOURce:JITTer:MANual:TDEV:DTYPe?	
Sets a TDEV Mask table when the Mask specifications are set to ITU-T.	:SOURce:JITTer:MANual:TDEV:ITYPe	type

Queries the setting state of the TDEV Mask table when the Mask specifications is ITU-T.	:SOURce:JITTer:MANual:TDEV:ITYPe?	
Sets a TDEV Mask table when the Mask specifications are set to ETSI.	:SOURce:JITTer:MANual:TDEV:ETYPe	type
Queries the setting state of the TDEV Mask table when the Mask specifications is ETSI	:SOURce:JITTer:MANual:TDEV:ETYPe?	
Sets a TDEV Mask table when the Mask specifications are set to ANSI.	:SOURce:JITTer:MANual:TDEV:ATYPe	type
Queries the setting state of the TDEV Mask table when the Mask specifications is ANSI.	:SOURce:JITTer:MANual:TDEV:ATYPe?	
Sets a TDEV Mask table when the Mask specifications are set to Bellecore.	:SOURce:JITTer:MANual:TDEV:BTYPe	type
Queries the setting state of the TDEV Mask table when the Mask specifications is Bellecore.	:SOURce:JITTer:MANual:TDEV:BTYPe?	
Sets TDEV initializing time (A0) when the Mask specifications are set to User.	:SOURce:JITTer:MANual:TDEV:A0	s
Queries the TDEV initializing time (A0) when the Mask specifications are set to User.	:SOURce:JITTer:MANual:TDEV:A0?	
Queries τ0 value of TDEV when the Mask specifications are set to User.	:SOURce:JITTer:MANual:TDEV:VAT0?	
Sets τ1 value of TDEV when the Mask specifications are set to User.	:SOURce:JITTer:MANual:TDEV:VAT1	numeric
Queries the τ1 set value of TDEV when the Mask specifications are set to User.	:SOURce:JITTer:MANual:TDEV:VAT1?	
Sets τ2 value of TDEV when the Mask specifications are set to User.	:SOURce:JITTer:MANual:TDEV:VAT2	numeric
Queries the τ2 set value of TDEV when the Mask specifications are set to User.	:SOURce:JITTer:MANual:TDEV:VAT2?	
Sets τ3 value of TDEV when the Mask specifications are set to User.	:SOURce:JITTer:MANual:TDEV:VAT3	numeric
Queries the τ3 set value of TDEV when the Mask specifications are set to User.	:SOURce:JITTer:MANual:TDEV:VAT3?	
Sets τ4 value of TDEV when the Mask specifications are set to User.	:SOURce:JITTer:MANual:TDEV:VAT4?	
Initializes Mask specifications and Mask table of TDEV when User is set.	:SOURce:JITTer:MANual:TDEV:DEFault	Type table

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Sets an execution table for jitter generation in jitter tolerance measurement.	:SOURce:JITTer:TOLerance:TYPE	type
Queries the execution table for jitter generation in jitter tolerance measurement.	:SOURce:JITTer:TOLerance:TYPE?	
Sets an edit table for jitter generation in jitter tolerance measurement.	:SOURce:JITTer:TOLerance:PTABle:TYPE	brate type
Queries the edit table for jitter generation in jitter tolerance measurement.	:SOURce:JITTer:TOLerance:PTABle:TYPE?	brate

Sets the table output point range for jitter generation in jitter tolerance measurement.	:SOURce:JITTer:TOLerance:PTABle:COUNt	numeric1 numeric2
Queries the table output point range for jitter generation in jitter tolerance measurement.	:SOURce:JITTer:TOLerance:PTABle:COUNt?	
Sets the contents of User define table for jitter generation in jitter tolerance measurement.	:SOURce:JITTer:TOLerance:PTABle:DATA	brate point freq1 freq2
Queries the contents of User define table for jitter generation in jitter tolerance measurement.	:SOURce:JITTer:TOLerance:PTABle:DATA?	brate point
Initializes the User define table contents for jitter generation in jitter tolerance measurement.	:SOURce:JITTer:TOLerance:PTABle:DEFault	brate

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Sets an output table for jitter generation in jitter transfer characteristic measurement.	:SOURce:JITTer:TRANsfer:TYPE	type
Queries the output table for jitter generation in jitter transfer characteristic measurement.	:SOURce:JITTer:TRANsfer:TYPE?	
Sets an edit table for jitter generation in jitter transfer characteristic measurement.	:SOURce:JITTer:TRANser:PTABle:TYPE	brate type
Queries the edit table for jitter generation in jitter transfer characteristic measurement.	:SOURce:JITTer:TRANsfer:PTABle:TYPE?	brate
Sets the table output point range for jitter generation in the jitter transfer measurement.	:SOURce:JITTer:TRANsfer:PTABle:COUNt	numeric1 numeric2
Queries the table output point range for jitter generation in jitter transfer measurement.	:SOURce:JITTer:TRANsfer:PTABle:COUNt?	
Sets the contents of the User define table for jitter generation in jitter transfer characteristic measurement.	:SOURce:JITTer:TRANsfer:PTABle:DATA	brate point freq1 freq2 ampl
Queries the contents of User define table for jitter generation in jitter transfer characteristic measurement.	:SOURce:JITTer:TRANsfer:PTABle:DATA?	brate point
Sets a User table contents for jitter generation in jitter transfer measurement when the transfer table is set to User2.	:SOURce:JITTer:TRANsfer:PTABle:DATA2	brate Point freq1 freq2 amp1 rxrange
Queries the User table contents for jitter generation in jitter transfer measurement when the transfer table is set to User2.	:SOURce:JITTer:TRANsfer:PTABle:DATA2?	brate point

Initializes the User define table contents for jitter generation in jitter transfer characteristic measurement.	:SOURce:JITTer:TRANsfer:PTABle:DEFault	brate
Initializes a User table contents for jitter generation in jitter transfer measurement when the transfer table is set to User2.	:SOURce:JITTer:TRANsfer:PTABle:DEFault2	brate

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Sets the offset frequency range for Jitter/Freq. measurement.	:SOURce:JITTer:JFRequency:FREQuency	numeric
Queries the offset frequency range for Jitter/Freq. measurement.	:SOURce:JITTer:JFRequency:FREQuency?	
Sets the offset increment for Jitter/Freq. measurement.	:SOURce:JITTer:JFRequency:STEP	numeric
Queries the offset increment for Jitter/Freq. measurement.	:SOURce:JITTer:JFRequency:STEP?	

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Sets an output table for jitter generation in jitter tolerance measurement.	:SOURce:JITTer:SWEep:TYPE	type
Queries the output table for jitter generation in jitter tolerance measurement.	:SOURce:JITTer:SWEep:TYPE?	
Sets an edit table for jitter generation in jitter tolerance measurement.	:SOURce:JITTer:SWEep:PTABle:TYPE	brate type
Queries the edit table for jitter generation in jitter tolerance measurement.< G958A	:SOURce:JITTer:SWEep:PTABle:TYPE?	brate
Sets a table output point range for jitter generation in jitter transfer measurement.	:SOURce:JITTer:SWEep:PTABle:COUNt	numeric1 numeric2
Queries the table output point range for jitter generation in jitter transfer measurement.	:SOURce:JITTer:SWEep:PTABle:COUNt?	
Sets a User table contents for jitter generation in jitter tolerance measurement.	:SOURce:JITTer:SWEep:PTABle:DATA	brate point freq1 freq2 ampl
Queries the User table contents for jitter generation in jitter tolerance measurement.	:SOURce:JITTer:SWEep:PTABle:DATA?	brate point
Initializes a User table contents for jitter generation in jitter tolerance measurement.	:SOURce:JITTer:SWEep:PTABle:DEFault	brate
Sets the margin.	:SOURce:JITTer:SWEep:MARGin	margin
Queries the margin setting.	:SOURce:JITTer:SWEep:MARGin?	

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Sets the frequency of the jitter modulation frequency measurement (transmission side).	:SOURce:JITTer:FSWeep:FREQuency	freq suffix
Queries the frequency of the jitter modulation frequency measurement (transmission side).	:SOURce:JITTer:FSWeep:FREQuency?	

Sets offset frequency range for Freq. sweep measurement	:SOURce:JITTer:FSWeep:FOFFset	offset
Queries the setting state of offset frequency range for Freq. sweep measurement.	:SOURce:JITTer:FSWeep:FOFFset?	
Sets increments of the offset frequency range for Freq. sweep measurement.	:SOURce:JITTer:FSWeep:STEP	step
Queries the increments of the offset frequency range for Freq. sweep measurement.	:SOURce:JITTer:FSWeep:STEP?	

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Sets wander reference output.	:SOURce:WANDer:MANual:MODE	mode
Queries the wander reference output.	:SOURce:WANDer:MANual:MODE?	
Sets the wander frequency for wander generation.	:SOURce:WANDer:MANual:FREQuency	numeric suffix
Queries the wander frequency for wander generation.	:SOURce:WANDer:MANual:FREQuency?	
Sets the wander amplitude value for wander generation.	:SOURce:WANDer:MANual:AMPLitude:UIPP	numeric
Queries the wander amplitude value for wander generation.	:SOURce:WANDer:MANual:AMPLitude:UIPP?	

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Sets the unit for Wander generation amplitude width.	:SOURce:WANDer:MANual:AMPLitude:UNIT	type
Queries the unit for Wander generation amplitude width.	:SOURce:WANDer:MANual:AMPLitude:UNIT?	
Sets a wander generation type in automatic wander measurement.	:SOURce:WANDer:AUTO:TYPE	type
Queries the setting state of wander generation type.	:SOURce:WANDer:AUTO:TYPE?	
Sets a TDEV Mask specifications in automatic wander measurement.	:SOURce:WANDer:AUTO:TDEV:DTYPe	type
Queries the TDEV Mask specifications for automatic wander measurement.	:SOURce:WANDer:AUTO:TDEV:DTYPe?	
Sets a Mask table of TDEV Mask specifications ITU-T in automatic wander measurement.	:SOURce:WANDer:AUTO:TDEV:ITYPe	type
Queries the setting of Mask table of TDEV Mask specifications ITU-T in automatic wander measurement.	:SOURce:WANDer:AUTO:TDEV:ITYPe?	
Sets a Mask table of TDEV Mask specifications ETSI in automatic wander measurement.	:SOURce:WANDer:AUTO:TDEV:ETYPe	type
Queries the setting of Mask table of TDEV Mask specifications ETSI in automatic wander measurement.	:SOURce:WANDer:AUTO:TDEV:ETYPe?	
Sets a Mask table of TDEV Mask specifications ANSI in automatic wander measurement.	:SOURce:WANDer:AUTO:TDEV:ATYPe	type
Queries the setting of Mask table of TDEV Mask specifications ANSI in automatic wander measurement.	:SOURce:WANDer:AUTO:TDEV:ATYPe?	

Sets a Mask table of TDEV Mask specifications Bellcore in automatic wander measurement.	:SOURce:WANDer:AUTO:TDEV:BTYPe	type
Queries the setting of Mask table of TDEV Mask specifications Bellcore for automatic wander measurement.	:SOURce:WANDer:AUTO:TDEV:BTYPe?	
Sets a Maximum phase deviation value in automatic wander measurement.	:SOURce:WANDer:AUTO:MPDeviation	deviation
Queries the set value of Maximum phase deviation in automatic wander measurement.	:SOURce:WANDer:AUTO:MPDeviation?	

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Sets the output table of the wander tolerance measurement.	:SOURce:WANDer:WSWeep:TYPE	type
Queries the setting state of output table of wander tolerance measurement.	:SOURce:WANDer:WSWeep:TYPE?	
Sets an edit table of wander tolerance measurement	:SOURce:WANDer:WSWeep:PTABle:TYPE	brate type
Queries the setting state of edit table for wander tolerance measurement.	:SOURce:WANDer:WSWeep:PTABle:TYPE?	brate
Sets an output point range of the table for wander generation of the wander transfer characteristics.	:SOURce:WANDer:WSWeep:PTABle:COUNt	numeric1 numeric2
Queries the output point range of the table for wander generation of the wander transfer characteristics.	:SOURce:WANDer:WSWeep:PTABle:COUNt?	
Sets a frequency and amplitude of each measuring point in wander measurement.	:SOURce:WANDer:WSWeep:PTABle:DATA	brate point freq1 freq2 ampl
Queries the frequency and amplitude of each measuring point in wander measurement.	:SOURce:WANDer:WSWeep:PTABle:DATA?	brate point
Initializes the measurement condition in wander measurement.	:SOURce:WANDer:WSWeep:PTABle:DEFault	brate

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Sets a wander generation type.	:SOURce:JITTer:WANDgen:TYPE	type
Queries Wander generation type.	:SOURce:JITTer:WANDgen:TYPE?	
Sets a TDEV Mask specification when the wander generation type is Wander(TDEV).	:SOURce:JITTer:WANDgen:TDEV:DTYPe	type
Queries the TDEV Mask specifications in the wander generation measurement	:SOURce:JITTer:WANDgen:TDEV:DTYPe?	
Set a Mask table in the TDEV Mask specification ITU-T in the wander generation measurement.	:SOURce:JITTer:WANDgen:TDEV:ITYPe	type
Queries the setting of Mask table in the TDEV Mask specification ITU-T in the wander generation measurement.	:SOURce:JITTer:WANDgen:TDEV:ITYPe?	

Sets a Mask table in the TDEV Mask specification ETSI in the wander generation measurement.	:SOURce:JITTer:WANDgen:TDEV:ETYPe	type
Queries the setting of Mask table in the TDEV Mask specification ETSI in the wander generation measurement.	:SOURce:JITTer:WANDgen:TDEV:ETYPe?	
Sets a Mask table in the TDEV Mask specification ANSI in the wander generation measurement.	:SOURce:JITTer:WANDgen:TDEV:ATYPe	type
Queries the setting of Mask table in the TDEV Mask specification ANSI in the wander generation measurement.	:SOURce:JITTer:WANDgen:TDEV:ATYPe?	
Sets a Mask table in the TDEV Mask specification Bellcore in the wander generation measurement.	:SOURce:JITTer:WANDgen:TDEV:BTYPe	type
Queries the setting of Mask table in the TDEV Mask specification Bellcore in the wander generation measurement.	:SOURce:JITTer:WANDgen:TDEV:BTYPe?	
Sets the Maximum phase deviation value when the wander generation type is Transient.	:SOURce:JITTer:WANDgen:MARGin	margin
Queries the setting of Maximum phase deviation value when the wander generation type is Transient.	:SOURce:JITTer:WANDgen:MARGin?	

:SOURce:TELecom:CLOCk:SOURce <csource>

Parameter <csource> = <CHARACTER PROGRAM DATA>

INTernal	Internal	
EXTernal	External	
LUNB_2MHZ	Lock 2 MHz	Unbalanced
LBAL_2MHZ	Lock 2 MHz	Balanced
LUNB_2MBPS	Lock 2 Mbps	Unbalanced
LBAL_2MBPS	Lock 2 Mbps	Balanced
LBAL_1_5M HZ	Lock 1.5 MHz	Balanced
LBAL_1_5MBPS	Lock 1.5 Mbps	Balanced
LBAL_64K	Lock 64 k+8 kHz	
L10M	Lock 10 M	
RECeive	Receive	
L5M	Lock 5M	

Function Sets a clock source for the send signal.

Restriction Invalid when,

- :INSTrument:COUPled is <NONE> and <RECeive> is set.

Example use To set the clock source to Internal:

> :SOURce:TELecom:CLOCk:SOURce INTernal

:SOURce:TELecom:CLOCk:SOURce?

Response <csource> = <CHARACTER PROGRAM DATA>

Function Queries clock source of the send signal.

Example use > :SOURce:TELecom:CLOCk:SOURce?

< INT

:SOURce:TELecom:OFFSet <numeric>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>

–999.9 to +999.9Step value:0.1

Function Sets the frequency offset.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> and <"MANual:JON">.
- :ROUTe:THRough is <ON>.
- :SOURe:TELecom:CLOCk:SOURce is <EXTernal> or <RECeive>
- :SOURce:TELecom:JWANder:ORANge is <100>, and the value is not from –100.0 to +100.0.

Example use To set the offset to +100:

> :SOURce:TELecom:OFFSet 100

:SOURce:TELecom:OFFSet?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>

Function Queries the frequency offset value.

Example use > :SOURce:TELecom:OFFSet?

< 100

:SOURce:TELecom:JWANder:MSELect <mode>

Parameter <mode> = <CHARACTER PROGRAM DATA>

OFF	Without generation
JITTer	Jitter is generated.
WANDer	Wander is generated.

Function Sets whether jitter or wander is generated.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> and <"MANual:JON">.
- :ROUTe:THRough is <ON>.
- :SOURce:TELecom:CLOCk:SOURce is <RECeive>.
- :SOURce:TELecom:CLOCk:SOURce is <EXTernal> and <WANDer> is set.

Example use To set jitter generation:

> :SOURce:TELecom:JWANder:MSELect JITTer

:SOURce:TELecom:JWANder:MSELect?

Response <mode> = <CHARACTER RESPONSE DATA>

OFF	Without generation
JITT	Jitter is generated.
WAND	Wander is generated.

Function Queries whether jitter or wander is generated.

Example use> :SOURce:TELecom:JWANder:MSELect?

< JITT

:SOURce:TELecom:JWANder:ORANge <numeric>

Parameter <numeric> = <CHARCTER PROGRAM DATA>

70, 999, 100

Function Sets the frequency offset range.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> and <"MANual:JON">.
- :ROUTe:THRough is <ON>.
- :SOURce:TELecom:CLOCk:SOURce is <EXTernal> or <RECeive>.
- :SOURce:TELecom:JWANder:MSELect is <JITTer> or <WANDer>, and <999> is set.

Example use To set the frequency offset range to 999:

> :SOURce:TELecom:JWANder:ORANge 999

:SOURce:TELecom:JWANder:ORANge?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>

Function Queries the frequency offset range.

Example use > :SOURce:TELecom:JWANder:ORANge?

< 999

:SOURce:JITTer:MANual:MODE <mode>

Parameter <mode> = <CHARACTER PROGRAM DATA>

INTernal	Internal
EXTernal	External

Function Sets a jitter modulation signal source for jitter generation.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is <"JTOLerance"> or <"JTRansfer">, and <EXTernal> is set.

Example use To set the modulation signal source to Internal:

> :SOURce:JITTer:MANual:MODE INTernal

:SOURce:JITTer:MANual:MODE?

Response <mode> = <CHARACTER RESPONSE DATA>

Function Queries the jitter modulation signal source for jitter generation.

Example use > :SOURce:JITTer:MANual:MODE?

< INT

:SOURce:JITTer:MANual:RANGe <numeric>

Parameter <numeric> = <CHARCTER PROGRAM DATA>

200	200UI
50	50UI
20	20UI
2	2UI
400	400UI
80	80UI
16	16UI

Function Sets a jitter generation range for jitter generation.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> and <"MANual:JON">.
- :ROUTe:THRough is <ON>.
- :SOURce:TELecom:JWANder:MSELect is <OFF>,<WANDer>.
- :SOURce:TELecom:BRATe is other than <M156> or <M156CMI>; and <50> is set.
- The MP0124A, MP0125A, or MP0126A is not installed; and <20> is set.
- The MU150005A, MU150006A, or MU150007A is not installed; and <400>, <80>, or <16> is set.

Example use To set the jitter generaton range to 20UI.

> :SOURce:JITTer:MANual:RANGe 20

:SOURCE:JITTer:MANual:RANGe?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>

Function Queries the jitter generation range for jitter generation.

Example use > :SOURce:JITTer:MANual:RANGe?

< 20

:SOURce:JITTer:MANual:FREQuency <freq1>,<freq2>

Parameter <freq1> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.1 to 990.0
<freq2> = <CHARACTER PROGRAM DATA>
HZ Hz
KHZ kHz
MHZ MHz

Function Sets a jitter modulation frequency for jitter generation.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> and <"MANual:JON">.
- :ROUTe:THRough is <ON>.
- :SOURce:TELecom:JWANder:MSELect is <OFF> or <WANDer>.
- :SOURce:JITTer:MANual:MODE is <EXTernal>.
- The setting is out of the range shown in the table below (starting with a lower limit of 0.1 Hz).

Tx Bit rate	Setting range (upper limit)			
	2 UI	20 UI	52 UI	200 UI
622 M	6.0 MHz	500.0 kHz	–	50.0 kHz
156 M 156 M CMI	1.5 MHz	500.0 kHz	26.0 kHz	–
52 M B3ZS	500.0 kHz	80.0 kHz	–	–
139 M	4.0 MHz	100.0 kHz	–	–
45 M	4.5 MHz	500.0 kHz	–	–
34 M	1.0 MHz	100.0 kHz	–	–
8 M	420.0 kHz	20.0 kHz	–	–
2 M	110.0 kHz	20.0 kHz	–	–
1.5 M	50.0 kHz	5.0 kHz	–	–

Example use To set the modulation frequency to 100 kHz:
> :SOURce:JITTer:MANual:FREQuency 100,KHZ

:SOURce:JITTer:MANual:FREQuency?

Response <freq1>,<freq2>
<freq1> = <NR2 NUMERIC RESPONSE DATA>
<freq2> = <CHARACTER RESPONSE DATA>

Function Queries the jitter modulation frequency for jitter generation.

Example use > :SOURce:JITTer:MANual:FREQuency?
< 100.0,KHZ

:SOURce:JITTer:MANual:AMPLitude:TYPE <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
MANual
AUTO

Function Sets how to set the jitter amplitude value for jitter generation.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> and <"MANual:JON">.
- :ROUTe:THRough is <ON>.
- :SOURce:TELecom:JWANder:MSELect is <OFF> or <WANDer>.
- :SOURce:JITTer:MANual:MODE is <EXTernal>.

Example use To set the setting method to AUTO:
> :SOURce:JITTer:MANual:AMPLitude:TYPE AUTO

:SOURce:JITTer:MANual:AMPLitude:TYPE?

Response <type> = <CHARACTER RESPONSE DATA>
MAN
AUTO

Function Queries how to set the jitter amplitude value for jitter generation.

Example use > :SOURce:JITTer:MANual:AMPLitude:TYPE?
< AUTO

:SOURce:JITTer:MANual:AMPLitude:STEP <step>

Parameter <step> = <CHARACTER PROGRAM DATA>
FINE Fine (fine adjustment)
COARse Coarse (coarse adjustment)

Function Sets a set resolution of the jitter amplitude value for jitter generation.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> and <"MANual:JON">.
- :ROUTe:THRough is <ON>.
- :SOURce:TELecom:JWANder:MSELect is <OFF> or <WANDer>.
- :SOURce:JITTer:MANual:MODE is <EXTernal>.
- :SOURce:JITTer:MANual:AMPLitude:TYPE is <AUTO>.
- The MP0124A, MP0125A, or MP0126A is not installed.

Example use To set the set resolution to Fine:
> :SOURce:JITTer:MANual:AMPLitude:STEP FINE

:SOURce:JITTer:MANual:AMPLitude:STEP?

Response <step> = <CHARACTER RESPONSE DATA>

Function Queries the set resolution of the jitter amplitude value for jitter generation.

Example use > :SOURce:JITTer:MANual:AMPLitude:STEP?
< FINE

:SOURce:JITTer:MANual:AMPLitude:DATA <data>

Parameter <data> = <CHARACTER PROGRAM DATA>
UP Up (increase)
DOWN Down (decrease)

Function Sets a jitter amplitude value for jitter generation.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> and <"MANual:JON">.
- :ROUTe:THRough is <ON>.
- :SOURce:TELecom:JWANder:MSELect is <OFF> or <WANDer>.
- :SOURce:JITTer:MANual:MODE is <EXTernal>.
- :SOURce:JITTer:MANual:AMPLitude:TYPE is <AUTO>.

Example use To set an amplitude value to UP
> :SOURce:JITTer:MANual:AMPLitude:DATA UP

:SOURce:JITTer:MANual:AMPLitude:UIPP <numeric>

Parameter <numeric> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.000 to 808.000 Step value: 0.001

Function Sets a jitter amplitude value for jitter generation.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> and <"MANual:JON">.
- :ROUTe:THRough is <ON>.
- :SOURce:TELecom:JWANder:MSELect is <OFF> or <WANDer>.
- :SOURce:JITTer:MANual:MODE is <EXTernal>
- :SOURce:JITTer:MANual:AMPLitude:TYPE is <MANual>.
- The numeric value exceeds the upper limit of amplitude value determined from the Tx Bit rate, jitter frequency, and range.
- The value does not match any listed below.

:SOURce:JITTer:MANual:RANGe	:SOURce:JITTer:MANual:AMPLitude:UIPP
<200>	<0.0> to <202.0>
<50>	<0.0> to <52.2>
<20>	<0.00> to <20.20>
<2>	<0.000> to <2.020>

Example use To set the amplitude value to 1.5:
> :SOURce:JITTer:MANual:AMPLitude:UIPP 1.5

:SOURce:JITTer:MANual:AMPLitude:UIPP?

Response <numeric> = <NR2 NUMERIC RESPONSE DATA>

Function Queries the jitter amplitude value for jitter generation.

Example use > :SOURce:JITTer:MANual:AMPLitude:UIPP?
< 1.5

:SOURce:JITTer:MANual:AMPLitude:MONitor?

Response <numeric> = <STRING RESPONSE DATA>
Form5

Function Queries the output amplitude monitored value for jitter generation.

Example use > :SOURce:JITTer:MANual:AMPLitude:MONitor?
< "10.00"

:SOURce:JITTer:MANual:TDEV:DTYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

ITUT	ITU-T
ETSI	ETSI
ANSI	ANSI
BELLcore	Bellcore
USER	User

Function Sets Mask specifications for TDEV generation.

Restriction Invalid when,

- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the TDEV Mask table to ITU-T.

> :SOURce:MANual:TDEV:DTYPe ITUT

:SOURce:JITTer:MANual:TDEV:DTYPe?

Response <type> = <CHARACTER RESPONSE DATA>

ITUT	ITU-T
ETSI	ETSI
ANSI	ANSI
BEL	Bellecore
USER	User

Function Queries the setting of Mask specifications for TDEV generation.

Example use >:SOURce:JITTer:MANual:TDEV:DTYPe?

<ITUT

:SOURce:JITTer:MANual:TDEV:ITYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

G811	G.811-1997
S81T6	Section 8.1 Table 6(G.812-1997)
S81T7	Section 8.1 Table 7(G.812-1997)
S91T11	Section 9.1 Table 11(G.812-1997)
S91T12	Section 9.1 Table 12(G.812-1997)
S10T18	Section 10 Table 18(G.812-1997)
S10T19	Section 10 Table 19(G.812-1997)
SA31	Section A.3.1(G.812-1997)
SA41	Section A.4.1(G.812-1997)
SA5	Section A.5(G.812-1997)
S71O1	Section 7.1 Option1(G.813-1996)
S71O2	Section 7.1 Option2(G.813-1996)

Function Sets a TDEV Mask table when the Mask specifications are set to ITU-T.

Restriction Invalid when,

- The MU150005A, MU150006A, or MU150007A is not installed.
- :SOURce:JITTer:MANual:TDEV:DTYPe is other than <ITUT>.

Example use To set the TDEV Mask table to G.811-1997.

> :SOURce:MANual:TDEV:ITYPe G811

:SOURce:JITTer:MANual:TDEV:ITYPe?

Response <type> = <CHARACTER RESPONSE DATA>
Function Queries the setting state of the TDEV Mask table when the Mask specifications is ITU-T.
Example use >:SOURce:JITTer:MANual:TDEV:ITYPe?
<G811

:SOURce:JITTer:MANual:TDEV:ETYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

S721	Section 7.2.1(ETS 300 462-3-1997)
S722	Section 7.2.2(ETS 300 462-3-1997)
S723	Section 7.2.3(ETS 300 462-3-1997)
S724	Section 7.2.4(ETS 300 462-3-1997)
S61_4	Section 6.1(ETS 300 462-4-1997)
S61_5	Section 6.1(ETS 300 462-5-1996)
S72_4	Section 7.2(ETS 300 462-4-1997)
S72_5	Section 7.2(ETS 300 462-5-1996)
S8	Section 8(ETS 300 462-4-1997)
ETS300_6	ETS 300 462-6-1997

Function Sets a TDEV Mask table when the Mask specifications are set to ETSI.
Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- :SOURce:JITTer:MANual:TDEV:DTYPe is other than <ETSI>.

Example use To set the TDEV Mask table to Section 7.2.1(ETS 300 462-3-1997).
> :SOURce:MANual:TDEV:ETYPe S721

:SOURce:JITTer:MANual:TDEV:ETYPe?

Response <type> = <CHARACTER RESPONSE DATA>
Function Queries the setting state of the TDEV Mask table when the Mask specifications is ETSI.
Example use >:SOURce:JITTer:MANual:TDEV:ETYPe?
<S721

:SOURce:JITTer:MANual:TDEV:ATYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

S722	Section 7.2.2(ANSI TI.101-1994)
S732	Section 7.3.2(ANSI TI.101-1994)
SD21	Section D.2.1(ANSI TI.105.03-1994)
SD221	Section D.2.2.1(ANSI TI.105.03-1994)
SD222	Section D.2.2.2(ANSI TI.105.03-1994)
ANSIT1_9	ANSI T1.105.09-1996

Function Sets a TDEV Mask table when the Mask specifications are set to ANSI.
Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- :SOURce:JITTer:MANual:TDEV:DTYPe is other than <ANSI>.

Example use To set the TDEV Mask table to ANSI T1.105.09-1996.
> :SOURce:MANual:TDEV:ATYPe ANSIT1_9

:SOURce:JITTer:MANual:TDEV:ATYPe?

Response <type> = <CHARACTER RESPONSE DATA>
Function Queries the setting state of the TDEV Mask table when the Mask specifications is ANSI.
Example use >:SOURce:JITTer:MANual:TDEV:ATYPe?
<ANSIT1_9

:SOURce:JITTer:MANual:TDEV:BTYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

GR2830	GR-2830-CORE-1995
S43	Section 4.3(GR-1244-CORE-1995)
S53	Section 5.3(GR-1244-CORE-1995)
S54S2	Section 5.4 Strarum 2&3E(GR-1244-CORE-1995)
S54S3	Section 5.4 Strarum 3(GR-1244-CORE-1995)
S54424F515	Section 5.4.4.2.4 Figure 5-15(GR-253-CORE-1995)
S54425F516	Section 5.4.4.2.4 Figure 5-16(GR-253-CORE-1995)
S54432	Section 5.4.4.3.2(GR-253-CORE-1995)
S545	Section 5.4.5(GR-253-CORE-1995)

Function Sets a TDEV Mask table when the Mask specifications are set to Bellecore.
Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- :SOURce:JITTer:MANual:TDEV:DTYPe is other than <BEL>.

Example use To set the TDEV Mask table to GR-2830-CORE-1995.
> :SOURce:MANual:TDEV:BTYPe GR2830

:SOURce:JITTer:MANual:TDEV:BTYPe?

Response <type> = <CHARACTER RESPONSE DATA>
Function Queries the setting state of the TDEV Mask table when the Mask specifications is Bellecore.
Example use >:SOURce:JITTer:MANual:TDEV:BTYPe?
<GR2830

:SOURce:JITTer:MANual:TDEV:A0 <s>

Parameter <s> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 200 Step value 1

Function Sets TDEV initializing time (A0) when the Mask specifications are set to User. However, the specifications by :SOURce:JITTer:MANual:TDEV:DEFault limit the setting value. (For a list of setting ranges, see the table below.)

Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- :SOURce:JITTer:MANual:TDEV:DTYPe is other than <USER>.

Setting ranges

Mask specifications	Setting range of A0, τ0 to 4 when TDEV(Mask) : User is set.
G.811-1997	1≤A0≤40, τ0=0.1, τ0*40≤τ1, τ1*4≤τ2≤τ3*0.1, τ3≤10000
G.812-1997 Section8.1 Table6	1≤A0≤40, τ0=0.1, τ0*40≤τ1, τ1*4≤τ2≤τ3*0.1, τ3≤10000
G.812-1997 Section8.1 Table7	5≤A0≤20, τ0=0.1, τ1=2.5, τ2=40, τ3=1000, τ4=10000
G.812-1997 Section9.1 Table11	2≤A0≤80, τ0=0.1, τ1=20, τ2=100, τ3=1000, τ4=10000
G.812-1997 Section9.1 Table12	5≤A0≤200, τ0=0.05, τ0*10≤τ1≤0.1*τ2, τ2≤10000
G.812-1997 Section10 Table18	1≤A0≤40, τ0=0.1, τ1=13.1, 13.3, τ2=100, τ3=1000, τ4=10000
G.812-1997 Section10 Table19	5≤A0≤20, τ0=0.1, τ0*10≤τ1, τ1*10≤τ2≤τ3*1/3, τ3≤10000
G.812-1997 SectionA.3.1	5≤A0≤20, τ0=0.1, τ1=2.5, τ2=40, τ3=1000, τ4=10000
G.812-1997 SectionA.4.1	5≤A0≤200, τ0=0.05, τ0*10≤τ1≤τ2*0.1, τ2≤10000
G.812-1997 SectionA.5	25≤A0≤100, τ0=0.05, τ0*2≤τ1, τ1*10≤τ2≤τ3*0.1, τ3≤10000
G.813-1996 Section7.1 Option1	1≤A0≤10, τ0=0.1, τ0*40≤τ1, τ1*4≤τ2≤τ3*0.1, τ3≤10000
G.813-1996 Section7.1 Option2	5≤A0≤≤20, τ0=0.1, τ1=2.5, τ2=40, τ3=1000, τ4=10000
ETS 300 462-3-1997 Section7.2.1	1≤A0≤80, τ0=0.1, τ1=100, 4.3, 17.14, 48, τ2=1000, 100, τ3=10000
ETS 300 462-3-1997 Section7.2.2	1≤A0≤80, τ0=0.1, τ1=100, 4.3, 17.14, 48, τ2=1000, 100, τ3=10000
ETS 300 462-3-1997 Section7.2.3	1≤A0≤80, τ0=0.1, τ1=100, 4.3, 17.14, 48, τ2=1000, 100, τ3=10000
ETS 300 462-3-1997 Section7.2.4	1≤A0≤80, τ0=0.1, τ1=100, 4.3, 17.14, 48, τ2=1000, 100, τ3=10000
ETS 300 462-4-1997 Section6.1	1≤A0≤10, τ0=0.1, τ0*40≤τ1, τ1*4≤τ2≤τ3*0.1, τ3≤10000
ETS 300 462-4-1997 Section7.2	2≤A0≤80, τ0=0.1, τ1=20, τ2=100, τ3=1000, τ4=10000
ETS 300 462-4-1997 Section8	1≤A0≤40, τ0=0.1, τ1=13.1, 13.3, τ2=100, τ3=1000, τ4=10000
ETS 300 462-5-1996 Section6.1	1≤A0≤40, τ0=0.1, τ0*40≤τ1, τ1*4≤τ2≤τ3*0.1, τ3≤10000
ETS 300 462-5-1996 Section7.2	1≤A0≤40, τ0=0.1, τ0*40≤τ1, τ1*4≤τ2≤τ3*0.1, τ3≤10000
ETS 300 462-6-1997	1≤A0≤40, τ0=0.1, τ0*40≤τ1, τ1*4≤τ2≤τ3*0.1, τ3≤10000
ANSI T1.101-1994 Section7.2.2	5≤A0≤200, τ0=0.05, τ0*10≤τ1≤τ2*0.1, τ2≤10000
ANSI T1.101-1994 Section7.3.2	1≤A0≤40, τ0=0.05, τ0*10≤τ1, τ1*10≤τ2≤τ3*0.1, τ3≤10000
ANSI T1.105.03-1994 SectionD.2.1	1≤A0≤40, τ0=0.05, τ0*10≤τ1, τ1*10≤τ2≤τ3*0.1, τ3≤10000
ANSI T1.105.03-1994 SectionD.2.2.1	5≤A0≤200, τ0=0.05, τ0*10≤τ1≤τ2*0.1, τ2≤10000
ANSI T1.105.03-1994 SectionD.2.2.2	1≤A0≤40, τ0=0.05, τ0*10≤τ1, τ1*10≤τ2≤τ3*0.1, τ3≤10000
ANSI T1.105.09-1996	5≤A0≤200, τ0=0.05, τ0*10≤τ1≤τ2*0.1, τ2≤10000
GR-2830-CORE-1995	5≤A0≤20, τ0=0.1, τ0*10≤τ1, τ1*10≤τ2≤τ3*0.1, τ3≤10000
GR-1244-CORE-1995 Section4.3	5≤A0≤200, τ0=0.05, τ0*10≤τ1≤τ2*0.1, τ2≤10000
GR-1244-CORE-1995 Section5.3	5≤A0≤20, τ0=0.1, τ1=2.5, τ2=40, τ3=1000, τ4=10000
GR-1244-CORE-1995 Section5.4	1≤A0≤40, τ0=0.05, τ0*10≤τ1, τ1*10≤τ2≤τ3*1/3, τ3≤10000
Stratum2&3E	
GR-1244-CORE-1995 Section5.4 Stratum3	25≤A0≤100, τ0=0.05, τ0*2≤τ1, τ1*10≤τ2≤τ3*0.1, τ3≤10000
GR-253-CORE-1995 Section5.4.4.2.4 Fig. 5-15	1≤A0≤40, τ0=0.1, τ0*10≤τ1, τ1*10≤τ2≤τ3*0.1, τ3≤10000
GR-253-CORE-1995 Section5.4.4.2.4 Fig. 5-16	1≤A0≤40, τ0=0.1, τ0*10≤τ1, τ1*10≤τ2≤τ3*0.1, τ3≤10000
GR-253-CORE-1995 Section5.4.4.3.2	5≤A0≤20, τ0=0.1, τ1=2.5, τ2=40, τ3=1000, τ4=10000
GR-253-CORE-1995 Section5.4.5	5≤A0≤20, τ0=0.1, τ0*10≤τ1≤τ2*0.1, τ2≤10000

Example use To set the value of A0 to 1
>:SOURce:JITTer:MANual:TDEV:A0 1

:SOURce:JITTer:MANual:TDEV:A0?

Response <s> = <NR1 NUMERIC RESPONSE DATA>
Same as :SOURce:JITTer:MANual:TDEV:A0.
Function Queries the TDEV initializing time (A0) when the Mask specifications are set to User.
Example use To query the set value of A0.
>:SOURce:JITTer:MANual:TDEV:A0?
<1

:SOURce:JITTer:MANual:TDEV:VAT0?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
0.05, 0.1
Function Queries τ0 value of TDEV when the Mask specifications are set to User.
Example use To query the value of τ0.
>:SOURce:JITTer:MANual:TDEV:VAT0?
<0.05

:SOURce:JITTer:MANual:TDEV:VAT1 <numeric>

Parameter <s> = <DECIMAL NUMERIC PROGRAM DATA>
0.5 to 99.9 Step value 0.1
100 to 1000 Step value 1
Function Sets τ1 value of TDEV when the Mask specifications are set to User.However, the specifications by :SOURce:JITTer:MANual:TDEV:DEFault limit the setting value. See the table of SOURce:JITTer:MANual:TDEV:A0.
Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- :SOURce:JITTer:MANual:TDEV:DTYPe is other than <USER>.

Example use To set the value of τ1 to 100.0.
>:SOURce:JITTer:MANual:TDEV:VAT1 100.0

:SOURce:JITTer:MANual:TDEV:VAT1?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
Same as :SOURce:JITTer:MANual:TDEV:VAT1.
Function Queries the τ1 set value of TDEV when the Mask specifications are set to User.
Example use To query the value of τ1.
>:SOURce:JITTer:MANual:TDEV:VAT1?
<100.0

:SOURce:JITTer:MANual:TDEV:VAT2 <numeric>

Parameter <s> = <DECIMAL NUMERIC PROGRAM DATA>
4 to 999 Step value 1
1000 to 10000 Step value 10

Function Sets τ2 value of TDEV when the Mask specifications are set to User. However, the specifications by :SOURce:JITTer:MANual:TDEV:DEFault limit the setting value. See the table of SOURce:JITTer:MANual:TDEV:A0.

Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- :SOURce:JITTer:MANual:TDEV:DTYPe is other than <USER>.

Example use To set the value of τ2 to 1000.
>:SOURce:JITTer:MANual:TDEV:VAT2 1000

:SOURce:JITTer:MANual:TDEV:VAT2?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
Same as :SOURce:JITTer:MANual:TDEV:VAT2.

Function Queries the τ2 set value of TDEV when the Mask specifications are set to User.

Example use To query the set value of τ2.
>:SOURce:JITTer:MANual:TDEV:VAT2?
<1000

:SOURce:JITTer:MANual:TDEV:VAT3 <numeric>

Parameter <s> = <DECIMAL NUMERIC PROGRAM DATA>
4 to 999 Step value 1
1000 to 10000 Step value 10

Function Sets τ3 value of TDEV when the Mask specifications are set to User.However, the specifications by :SOURce:JITTer:MANual:TDEV:DEFault limit the setting value. See the table of SOURce:JITTer:MANual:TDEV:A0.

Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- :SOURce:JITTer:MANual:TDEV:DTYPe is other than <USER>.

Example use To set the value of τ3 to 1000.
>:SOURce:JITTer:MANual:TDEV:VAT3 1000

:SOURce:JITTer:MANual:TDEV:VAT3?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
Same as :SOURce:JITTer:MANual:TDEV:VAT3.

Function Queries the τ3 set value of TDEV when the Mask specifications are set to User.

Example use To query the value of τ3.
>:SOURce:JITTer:MANual:TDEV:VAT3?
<1000

:SOURce:JITTer:MANual:TDEV:VAT4?

Response	<numeric> = <NR1 NUMERIC RESPONSE DATA> Same as :SOURce:JITTer:MANual:TDEV:VAT4.
Function	Sets τ4 value of TDEV when the Mask specifications are set to User.However, the specifications by :SOURce:JITTer:MANual:TDEV:DEFault may disable this setting. See the table of SOURce:JITTer:MANual:TDEV:A0.
Example use	To query the value of τ4. >:SOURce:JITTer:MANual:TDEV:VAT4? <1000

:SOURce:JITTer:MANual:TDEV:DEFault <type>, <table>

Parameter <type> = <CHARACTER PROGRAM DATA>

IUTT	ITU-T
ETSI	ETSI
ANSI	ANSI
Belecore	Belecore

<table> = <CHARACTER PROGRAM DATA>

G811	G.811-1997
S81T6	Section 8.1 Table 6(G.812-1997)
S81T7	Section 8.1 Table 7(G.812-1997)
S91T11	Section 9.1 Table 11(G.812-1997)
S91T12	Section 9.1 Table 12(G.812-1997)
S10T18	Section 10 Table 18(G.812-1997)
S10T19	Section 10 Table 19(G.812-1997)
SA31	Section A.3.1(G.812-1997)
SA41	Section A.4.1(G.812-1997)
SA5	Section A.5(G.812-1997)
S71O1	Section 7.1 Option1(G.813-1996)
S71O2	Section 7.1 Option2(G.813-1996)
S721	Section 7.2.1(ETS 300 462-3-1997)
S722	Section 7.2.2(ETS 300 462-3-1997)
S723	Section 7.2.3(ETS 300 462-3-1997)
S724	Section 7.2.4(ETS 300 462-3-1997)
S61_4	Section 6.1(ETS 300 462-4-1997)
S61_5	Section 6.1(ETS 300 462-5-1996)
S72_4	Section 7.2(ETS 300 462-4-1997)
S72_5	Section 7.2(ETS 300 462-5-1996)
S8	Section 8(ETS 300 462-4-1997)
ETS300_6	ETS 300 462-6-1997
S722	Section 7.2.2(ANSI TI.101-1994)
S732	Section 7.3.2(ANSI TI.101-1994)
SD21	Section D.2.1(ANSI TI.105.03-1994)
SD221	Section D.2.2.1(ANSI TI.105.03-1994)
SD222	Section D.2.2.2(ANSI TI.105.03-1994)
ANSIT1_9	ANSI T1.105.09-1996
GR2830	GR-2830-CORE-1995
S43	Section 4.3(GR-1244-CORE-1995)
S53	Section 5.3(GR-1244-CORE-1995)
S54S2	Section 5.4 Strarum 2&3E(GR-1244-CORE-1995)
S54S3	Section 5.4 Strarum 3(GR-1244-CORE-1995)
S54424F515	Section 5.4.4.2.4 Figure 5-15(GR-253-CORE-1995)
S54425F516	Section 5.4.4.2.4 Figure 5-16(GR-253-CORE-1995)
S54432	Section 5.4.4.3.2(GR-253-CORE-1995)
S545	Section 5.4.5(GR-253-CORE-1995)

Function Initializes Mask specifications and Mask table of TDEV when User is set.

Restriction Invalid when,

- The MU150005A, MU150006A, or MU150007A is not installed.
- :SOURce:JITTer:MANual:TDEV:DTYPe is other than <USER>.

Example use To set TDEV Mask to ITU-T, and Mask table to G.811-1997 when Manual jitter measurement is performed.

>:SOURce:JITTer:MANual:TDEV:DEFault ITUT, G811

:SOURce:JITTer:TOLerance:TYPE <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

G958A	G.958 Type A
G958B	G.958 Type B
G823	G.823
G823H	G.823 High-Q
G823L	G.823 LOW-Q
G824	G.824
B499	Bell 499
B253	Bell 253
USER	User
G825E	G.825 Electrical
G813	G.813
G755	G.755
G825_1_5M	G.825 1.5M
G825_2M	G.825 2M
G825O_1_5M	G.825 Optical 1.5M
G825O_2M	G.825 Optical 2M

Function Sets an execution table for jitter generation in jitter tolerance measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"JTOLerance">.
- The value is other than the followings, according to Tx Bit rate on the Setup:Mapping screen:

  When the setting is other than the followings:

  622M : G.958 Type A/B, G.825, User,Bell253, G.813, G.825 1.5M, G.825 2M
  156M : G.958 Type A/B, G.825, User, Bell253,G.813, G.825 Optical 1.5M, G.825 Optical 2M
  156M CMI : G.958 Type A/B, G.825, User, Bell253,G.813,G.825 Electrical, G.825 1.5M, G.825 2M
  52M B3ZS : Bell253,User
  139M : G.823, User
  45M : G.824, User, Bell499,G.755
  34M : G.823, User
  8M : G.823 High-Q/Low-Q, User
  2M : G.823 High-Q/Low-Q, User
  1.5M : G.824, Bell499, User
- <G825E>,<G813>,<G755>, <G825_1_5M>, <G825_2M>, <G825O_1_5M>, <G825O_2M> is set, The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the execution table to G.958 Type A:

```
> :SOURce:JITTer:TOLerance:TYPE G958A
```

:SOURce:JITTer:TOLerance:TYPE?

Response <type> = <CHARACTER RESPONSE DATA>

Function Queries the execution table for jitter generation in jitter tolerance measurement.

Example use

```
> :SOURce:JITTer:TOLerance:TYPE?
< G958A
```

:SOURce:JITTer:TOLerance:PTABle:TYPE <brate>,<type>

Parameter <brate> = <CHARACTER PROGRAM DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<type> = <CHARACTER PROGRAM DATA>
G958A, G958B, G823, G823H, G823L, G824, G825, USER,
G825E, G813,G755, G825_1_5M, G825_2M, G825O_1_5M, G825O_2M

Function Sets an edit table for jitter generation in jitter tolerance measurement.

Restriction Invalid when,

- The 622M-type interface unit is not installed, and <M622> is set.
- The 156M-type interface unit and 2/8/34/139/156M (CMI) unit are not installed, and <M156> is set.
- The 2/8/34/139/156M (CMI) unit is not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52MB3ZS unit is not installed, and <M52>, <M45> or <M1_5> is set.
- The value is other than the followings, according to Bit rate on the Setup:Tolerance screen:
  When the setting is other than the followings:
  622M : G.958 Type A/B, G.825, User,Bell253, G.813, G.825 Optical 1.5M, G.825 Optical 2M
  156M : G.958 Type A/B, G.825, User, Bell253,G.813, G.825 Electrical, G.825 1.5M, G.825 2M
  52M : Bell253,User
  139M : G.823, User
  45M : G.824, User, Bell499,G.755
  34M : G.823, User
  8M : G.823 High-Q/Low-Q, User
  2M : G.823 High-Q/Low-Q, User
  1.5M : G.824, Bell499, User
- <G825E>,<G813>, <G755>, <G825_1_5M>, <G825_2M>, <G825O_1_5M> or <G825O_2M> is set, and the MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the edit table to 622M, G.958 Type A:
> :SOURce:JITTer:TOLerance:PTABle:TYPE M622,G958A

:SOURce:JITTer:TOLerance:PTABle:TYPE? <brate>

Parameter <brate> = <CHARACTER PROGRAM DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5

Response <type> = <CHARACTER RESPONSE DATA>
G958A, G958B, G823, G823H, G823L, G824, G825, USER

Function Queries the edit table for jitter generation in jitter tolerance measurement.

Example use > :SOURce:JITTer:TOLerance:PTABle:TYPE? M622
< G958A

:SOURce:JITTer:TOLerance:PTABle:COUNt <numeric1>,<numeric2>

Parameter <numeric1>,<numeric2> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 20 Step value: 1

Function Sets the table output point range for jitter generation in jitter tolerance measurement.

Restriction Invalid when,

- <numeric1> > <numeric2>.

Example use To set the output point range from 2 to 10:
> :SOURce:JITTer:TOLerance:PTABle:COUNt 2,10

:SOURce:JITTer:TOLerance:PTABle:COUNt?

Response <numeric1>,<numeric2> = <NR1 NUMERIC RESPONSE DATA>
Function Queries the table output point range for jitter generation in jitter tolerance measurement.
Example use > :SOURce:JITTer:TOLerance:PTABle:COUNt?
< 2,10

:SOURce:JITTer:TOLerance:PTABle:DATA <brate>,<point>,<freq1>,<freq2>

Parameter <brate> = <CHARACTER PROGRAM DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<point> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 20 Step value: 1
<freq1> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.1 to 999.0
* <freq1> is changed to a value that can be set on the application side.
<freq2> = <CHARACTER PROGRAM DATA>
HZ, KHZ, MHZ
Function Sets the contents of User define table for jitter generation in jitter tolerance measurement.
Restriction Invalid when,

- The 622M-type interface unit is not installed, and <M622> is set.
- The 156M-type interface unit and 2/8/34/139/156M (CMI) unit are not installed, and <M156> is set.
- The 2/8/34/139/156M (CMI) unit is not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52MB3ZS unit is not installed, and <M52>, <M45> or <M1_5> is set.
- A frequency lower than that at the preceding point is set.
- The value is out of the ranges shown in the table below.

Tolerance Bit rate	Setting range
622 M	0.1 Hz to 6.0 MHz
156 M	0.1 Hz to 1.5 MHz
52 M	0.1 Hz to 500.0 kHz
139 M	0.1 Hz to 4.0 MHz
45 M	0.1 Hz to 4.5 MHz
34 M	0.1 Hz to 1.0 MHz
8 M	0.1 Hz to 420.0 kHz
2 M	0.1 Hz to 110.0 kHz
1.5 M	0.1 Hz to 50.0 kHz

Example use To set No.5 data of 622 M table to 100 kHz:
> :SOURce:JITTer:TOLerance:PTABle:DATA M622,5,100,KHZ

:SOURce:JITTer:TOLerance:PTABle:DATA? <brate>,<point>

Parameter
<brate> = <CHARACTER PROGRAM DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<point> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 20 Step value: 1

Function
Queries the contents of User define table for jitter generation in jitter tolerance measurement.

Example use
> :SOURce:JITTer:TOLerance:PTABle:DATA? M622,5
< 100.0,KHZ
* When no data exists at the designated point:
< 0.0,HZ

:SOURce:JITTer:TOLerance:PTABle:DEFault <brate> [,<type>]

Parameter
<brate> = <CHARACTER PROGRAM DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<type> = <CHARACTER PROGRAM DATA>

G958A	G.958 Type A
G958B	G.958 Type B
G823	G.823
G823H	G.823 High-Q
G823L	G.823 LOW-Q
G824	G.824
G825	G.825
B499	Bell 499
B253	Bell 253
G825E	G.825 Electrical
G813	G.813
G755	G.755
G825_1_5M	G.825 1.5M
G825_2M	G.825 2M
G825O_1_5M	G.825 Optical 1.5M
G825O_2M	G.825 Optical 2M

Function
Initializes the User define table contents for jitter generation in jitter tolerance measurement.

Restriction
Invalid when,
- The 156M-type interface unit and 2/8/34/139/156M (CMI) unit are not installed, and <M156> is set.
- The 2/8/34/139/156M (CMI) unit is not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52MB3ZS unit is not installed, and <M52>, <M45> or <M1_5> is set.
- <B499> or <B253> is set, and :INSTrument:CONFig<SDH> is set.
- <G825E>,<G813>, <G755>, <G825_1_5M>, <G825_2M>, <G825O_1_5M> or <G825O_2M> is set, and the MU150005A, MU150006A, or MU150007A is not installed.

Example use
To initialize the 622 M table contents:
> :SOURce:JITTer:TOLerance:PTABle:DEFault M622

:SOURce:JITTer:TRANsfer:TYPE <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

G958A	G.958 Type A
G958B	G.958 Type B
G823	G.823
G823H	G.823 High-Q
G823L	G.823 LOW-Q
G824	G.824
B499	Bell 499
B253	Bell 253
USER	User
USER2	User2
G825E	G.825 Electrical
G813	G.813
G755	G.755
G825	G.825
TRESULT	Tolerance result
G825_1_5M	G.825 1.5M
G825_2M	G.825 2M
G825O_1_5M	G.825 Optical 1.5M
G825O_2M	G.825 Optical 2M

Function Sets an output table for jitter generation in jitter transfer characteristic measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"JTRansfer">.
- <B499> or <B253> is set, and :INSTrument:CONFig<SDH> is set.
- The value is other than the followings, according to the Rx Bit rate on the Setup:Mapping screen:

  When the setting is other than the followings:

622M	: G.958 Type A/B, User, User2, G.813, G.825, G.825 1.5M, G.825 2M
156M	: G.958 Type A/B, User, User2, G.813, G.825 Optical 1.5M, G.825 Optical 2M
156M CMI	: G.958 Type A/B, User, User2, G.813, G.825 Electrical, G.825 1.5M, G.825 2M
52M B3ZS	: User, User2
139M	: G.823, User, User2
45M	: G.824, User, User2
34M	: G.823, User, User2
8M	: G.823 High-Q/Low-Q, User, User2
2M	: G.823 High-Q/Low-Q, User, User2
1.5M	: G.824, User, User2

- No Jitter tolerance measurement result exists, and “TRESULT” is set.
- <G825E>, <G813>, <G825_1_5M>, <G825_2M>, <G825O_1_5M> or <G825O_2M> is set, and the MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the output table to G.958 Type A:

> :SOURce:JITTer:TRANsfer:TYPE G958A

:SOURce:JITTer:TRANsfer:TYPE?

Response <type> = <CHARACTER RESPONSE DATA>

Function Queries the output table for jitter generation in jitter transfer characteristic measurement.

Example use > :SOURce:JITTer:TRANsfer:TYPE?

< G958A

:SOURce:JITTer:TRANser:PTABle:TYPE <brate>,<type>

Parameter <brate> = <CHARACTER PROGRAM DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<type> = <CHARACTER PROGRAM DATA>
G958A, G958B, G823, G823H, G823L, G824, User,User2,G825
G825O, G825E, G813, TRESULT, G825_1_5M, G825_2M, G825O_1_5M, G825O_2M

Function Sets an edit table for jitter generation in jitter transfer characteristic measurement.

Restriction Invalid when,

- The 622M-type interface unit is not installed, and <M622> is set.
- The 156M-type interface unit and 2/8/34/139/156M (CMI) unit are not installed, and <M156> is set.
- The 2/8/34/139/156M (CMI) unit is not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52MB3ZS unit is not installed, and <M52>, <M45> or <M1_5> is set.
- No Jitter tolerance measurement result exists, and "TRESULT" is set.
- <G825E>, <G813>, <G825_1_5M>, <G825_2M>, <G825O_1_5M> or <G825O_2M> is set, and the MU150005A, MU150006A, or MU150007A is not installed.
- The value is other than the followings, according to the Bit rate on the Setup:Transfer screen:

622M	: G.958 Type A/B, User, User2, G.813, G.825 1.5M, G.825 2M
156M	: G.958 Type A/B, User, User2, G.813, G.825 Electrical, G.825 1.5M, G.825 2M, G.825 Optical 1.5M, G.825 Optical 2M
52M	: User, User2
139M	: G.823, User, User2
45M	: G.824, User, User2
34M	: G.823, User, User2
8M	: G.823 High-Q/Low-Q, User, User2
2M	: G.823 High-Q/Low-Q, User, User2
1.5M	: G.824, User, User2

Example use To set the edit table to 622 M, G.958 Type A:
> :SOURce:JITTer:TRANsfer:PTABle:TYPE M622,G958A

:SOURce:JITTer:TRANsfer:PTABle:TYPE? <brate>

Parameter <brate> = <CHARACTER PROGRAM DATA>
Response <type> = <CHARACTER RESPONSE DATA>
Function Queries the edit table for jitter generation in jitter transfer characteristic measurement.
Example use > :SOURce:JITTer:TRANsfer:PTABle:TYPE? M622
< G958A

:SOURce:JITTer:TRANsfer:PTABle:COUNt <numeric1>,<numeric2>

Parameter <numeric1>,<numeric2> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 20 Step value: 1
Function Sets the table output point range for jitter generation in the jitter transfer measurement.
Restriction Invalid when,

- <numeric1> > <numeric2>.

Example use To set the 622M table output point range from 2 to 10:
> :SOURce:JITTer:TRANsfer:PTABle:COUNt 2,10

:SOURce:JITTer:TRANsfer:PTABle:COUNt?

Response <numeric1>,<numeric2> = <NR1 NUMERIC RESPONSE DATA>
Function Queries the table output point range for jitter generation in jitter transfer measurement.
Example use > :SOURce:JITTer:TRANsfer:PTABle:COUNt?
< 2,10

:SOURce:JITTer:TRANsfer:PTABle:DATA <brate>,<point>,<freq1>,<freq2>,<ampl>

Parameter
<brate> = <CHARACTER PROGRAM DATA>
M622, M156,M52, M139, M45, M34, M8, M2, M1_5
<point> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 20 Step value: 1
<freq1> = <NON-DECIMAL NUMERIC PROGRAM DATA>
1.0 to 999.0
* <freq1> is changed to a value that can be set on the application side.
<freq2> = <CHARACTER PROGRAM DATA>
HZ, KHZ, MHZ
<amp1> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.051 to 20.000 Step value: 0.001

Function
Sets the contents of the User define table for jitter generation in jitter transfer characteristic measurement.

Restriction
Invalid when,
- The 622M-type interface unit is not installed, and <M622> is set.
- The 156M-type interface unit and 2/8/34/139/156M (CMI) unit are not installed, and <M156> is set.
- The 2/8/34/139/156M (CMI) unit is not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52MB3ZS unit is not installed, and <M45> or <M1_5> is set.
- A frequency lower than that at the preceding point is set.
- The value is out of the range shown in the table below.

Transfer Bit rate	Setting range
622 M	2.0 Hz to 6.0 MHz
156 M	2.0 Hz to 1.5 MHz
52 M	2.0 Hz to 4.0 MHz
139 M	2.0 Hz to 4.0 MHz
45 M	2.0 Hz to 4.5 MHz
34 M	2.0 Hz to 1.0 MHz
8 M	2.0 Hz to 420.0 kHz
2 M	2.0 Hz to 110.0 kHz
1.5 M	2.0 Hz to 50.0 kHz

Example use
To set No.5 data of 622 M table to 100 kHz, 0.5 UIpp:
> :SOURce:JITTer:TRANsfer:PTABle:DATA M622,5,100,KHZ,0.5

:SOURce:JITTer:TRANsfer:PTABle:DATA? <brate>,<point>

Parameter
<brate> = <CHARACTER PROGRAM DATA>
<point> = <DECIMAL NUMERIC PROGRAM DATA>

Response
<freq1> = <NR2 NUMERIC RESPONSE DATA>
<freq2> = <CHARACTER RESPONSE DATA>
<amp1> = <NR2 NUMERIC RESPONSE DATA>

Function
Queries the contents of User define table for jitter generation in jitter transfer characteristic measurement.

Example use
> :SOURce:JITTer:TRANsfer:PTABle:DATA? M622,5
< 100.0,KHZ,0.500
* When no data exists at the designated point:
< 0.0,HZ,0.000

:SOURce:JITTer:TRANsfer:PTABle:DATA2 <brate>,<point>,<freq1>,<freq2>,<amp1>,<rxrange>

Parameter
<brate> = <CHARACTER PROGRAM DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<point> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 20 Step value: 1
<freq1> = <NON-DECIMAL NUMERIC PROGRAM DATA>
1.0 to 999.0
<freq2> = <CHARACTER PROGRAM DATA>
HZ, KHZ, MHZ
<amp1> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.051 to 20.000 Step value: 0.001
<rxrange> = <CHARACTER PROGRAM DATA>
UI2, UI20, UI32
* <freq1> is changed to a value that can be set on the application side.

Function
Sets a User table contents for jitter generation in jitter transfer measurement when the transfer table is set to User2.

Restriction
Invalid when,

- The 622M-type interface unit is not installed, and <M622> is set.
- The 156M-type interface unit and 2/8/34/139/156M (CMI) unit are not installed, and <M156> is set.
- The 2/8/34/139/156M (CMI) unit is not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52MB3ZS unit is not installed, and <M45> or <M1_5> is set.
- A frequency lower than that at the preceding point is set.
- The value is out of the range shown in the table below.

Transfer Bit rate	Setting range
622 M	2.0 Hz to 6.0 MHz
156 M	2.0 Hz to 1.5 MHz
52 M	2.0 Hz to 4.0 MHz
139 M	2.0 Hz to 4.0 MHz
45 M	2.0 Hz to 4.5 MHz
34 M	2.0 Hz to 1.0 MHz
8 M	2.0 Hz to 420.0 kHz
2 M	2.0 Hz to 110.0 kHz
1.5 M	2.0 Hz to 50.0 kHz

Example use
To set No.1 data of 622M table to 100.0Hz, 0.051, 20 UI:
> :SOURce:JITTer:TRANsfer:PTABle:DATA M622,1,100.0,HZ,0.051,UI20

:SOURce:JITTer:TRANsfer:PTABle:DATA2? <brate>,<point>

Parameter
<brate> = <CHARACTER PROGRAM DATA>
<point> = <DECIMAL NUMERIC PROGRAM DATA>

Response
<freq1> = <NR2 NUMERIC RESPONSE DATA>
<freq2> = <CHARACTER RESPONSE DATA>
<amp1> = <NR2 NUMERIC RESPONSE DATA>
<rxrange> = <CHARACTER RESPONSE DATA>
UI2, UI20, UI32

Function
Queries the User table contents for jitter generation in jitter transfer measurement when the transfer table is set to User2.

Example use
> :SOURce:JITTer:TRANsfer:PTABle:DATA? M622,1
< 100.0,HZ,0.051,UI20

:SOURce:JITTer:TRANsfer:PTABle:DEFault <brate>, [<type>]

Parameter <brate> = <CHARACTER PROGRAM DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<type> = <CHARACTER PROGRAM DATA>
G958A, G958B, G823, G823H, G823L, G824, B499, B253, G825E, G813, TRESULT, G825, G825_1_5M, G825_2M, G825O_1_5M, G825O_2M

Function Initializes the User define table contents for jitter generation in jitter transfer characteristic measurement.

Restriction Invalid when,
- The 622M-type interface unit is not installed, and <M622> is set.
- The 156M-type interface unit and 2/8/34/139/156M (CMI) unit are not installed, and <M156> is set.
- The 2/8/34/139/156M (CMI) unit is not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52MB3ZS unit is not installed, and <M52>, <M45> or <M1_5> is set.
- No Jitter tolerance measurement result exists, and "TRESULT" is set.
- <G825E>, <G813>, <G825_1_5M>, <G825_2M>, <G825O_1_5M> or <G825O_2M> is set; and the MU150005A, MU150006A, or MU150007A is not installed.

Example use To initialize the 622 M table contents:
> :SOURce:JITTer:TRANsfer:PTABle:DEFault M622

:SOURce:JITTer:TRANsfer:PTABle:DEFault2 <brate>, [<type>]

Parameter <brate> = <CHARACTER PROGRAM DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<type> = <CHARACTER PROGRAM DATA>
G958A, G958B, G823, G823H, G823L, G824, B499, B253, G825E, G813, TRESULT, G825, G825_1_5M, G825_2M, G825O_1_5M, G825O_2M

Function Initializes a User table contents for jitter generation in jitter transfer measurement when the transfer table is set to User2.

Restriction Invalid when,
- The 622M-type interface unit is not installed, and <M622> is set.
- The 156M-type interface unit and 2/8/34/139/156M (CMI) unit are not installed, and <M156> is set.
- The 2/8/34/139/156M (CMI) unit is not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52MB3ZS unit is not installed, and <M52>, <M45> or <M1_5> is set.
- No Jitter tolerance measurement result exists, and "TRESULT" is set.
- <G825E>, <G813>, <G825_1_5M>, <G825_2M>, <G825O_1_5M>, <G825O_2M> is set; and the MU150005A, MU150006A, or MU150007A is not installed.

Example use To initialize the 622M, G.742 High-Q table contents:
> :SOURce:JITTer:TRANsfer:PTABle:DEFault2 M622,G742HQ

:SOURce:JITTer:JFRequency:FREQuency <numeric>

Parameter <numeric> = <CHARCTER PROGRAM DATA>

100	±100 ppm
90	±90 ppm
80	±80 ppm
70	±70 ppm
60	±60 ppm
50	±50 ppm
40	±40 ppm
30	±30 ppm
20	±20 ppm
10	±10 ppm

Function Sets the offset frequency range for Jitter/Freq. measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"JFRequency">.

Example use To set the offset frequency range for Jitter/Freq. measurement to ±50 ppm:

> :SOURce:JITTer:JFRequency:FREQuency 50

:SOURce:JITTer:JFRequency:FREQuency?

Parameter <numeric> = <NR1 NUMERIC RESPONSE DATA>

Function Queries the offset frequency range for Jitter/Freq. measurement.

Example use > :SOURce:JITTer:JFRequency:FREQuency?

< 50

:SOURce:JITTer:JFRequency:STEP <numeric>

Parameter <numeric> = <CHARCTER PROGRAM DATA>

1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 15, 20, 25, 35, 40, 45, 50, 60, 70, 80, 90, 100 (ppm)

Function Sets the offset increment for Jitter/Freq. measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"JFRequency">.
- The value is other than the followings, according to Freq:

Freq.	Values that can be set
100	2,4,5,10,20,25,50,100
90	2,3,5,6,9,10,15,30,45,90
80	2,4,5,8,10,20,40,80
70	2,5,7,10,35,70
60	2,3,4,5,6,10,20,30,60
50	2,4,5,10,20,25,50
40	2,4,5,8,10,20,40
30	2,3,5,6,10,15,30
20	1,2,4,5,10,20
10	1,2,5,10

Example use To set the offset increment for Jitter/Freq. measurement to 20:

> :SOURce:JITTer:JFRequency:STEP 20

:SOURce:JITTer:JFRequency:STEP?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
Function Queries the offset increment for Jitter/Freq. measurement.
Example use > :SOURce:JITTer:JFRequency:STEP?
< 20

:SOURce:JITTer:SWEep:TYPE <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

G958A	G.958 Type A
G958B	G.958 Type B
G823	G.823
G823H	G.823 High-Q
G823L	G.823 LOW-Q
G824	G.824
G825	G.825
B499	Bell 499
B253	Bell 253
USER	User
G825E	G.825 Electrical
G813	G.813
G755	G.755
G825_1_5M	G.825 1.5M
G825_2M	G.825 2M
G825O_1_5M	G.825 Optical 1.5M
G825O_2M	G.825 Optical 2M

Function Sets an output table for jitter generation in jitter tolerance measurement.
Restriction Invalid when,

- <B499> or <B253> is set, and :INSTrument:CONFig<SDH> is set.
- When the setting is other than the followings:

Bit rate	Table type
622 M	G.958 Type A, G.958 Type B, G.825, Bell 253,User, G.813, G.825 1.5M, G.825 2M
156 M	G.958 Type A, G.958 Type B, G.825, Bell 253,User, G.813, G.825 Electrical, G.825 1.5M, G.825 2M, G.825 Optical 1.5M, G.825 Optical 2M
52 M	Bell 253,User
139 M	G.823,User
45 M	G.824,User, Bell 499, G.755
34 M	G.823,User
8 M	G.823 High-Q, G.823 LOW-Q ,User
2 M	G.823 High-Q, G.823 LOW-Q,User
1.5 M	G.824,User, Bell 499

Example use To set the output table to G.958 Type A:
> :SOURce:JITTer:SWEep:TYPE G958A

:SOURce:JITTer:SWEep:TYPE?

Response <type> = <CHARACTER RESPONSE DATA>
Function Queries the output table for jitter generation in jitter tolerance measurement.
Example use > :SOURce:JITTer:SWEep:TYPE?
< G958A

:SOURce:JITTer:SWEep:PTABle:TYPE <brate>,<type>

Parameter <brate> = <CHARACTER PROGRAM DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<type> = <CHARACTER PROGRAM DATA>
G958A, G958B, G823, G823H, G823L, G824, G825, USER, B499, B253, G825E, G813, G.755, G825_1_5M, G825_2M, G825O_1_5M, G825O_2M
Function Sets an edit table for jitter generation in jitter tolerance measurement.
Restriction Invalid when,
- The setting is other than the followings:

Bit rate	Table type
622 M	G.958 Type A, G.958 Type B, G.825, Bell 253,User, G.813, G.825 1.5M, G.825 2M
156 M	G.958 Type A, G.958 Type B, G.825, Bell 253,User, G.813, G.825 Electrical, G.825 1.5M, G.825 2M, G.825 Optical 1.5M, G.825 Optical 2M
52 M	Bell 253,User
139 M	G.823,User
45 M	G.824,User, Bell 499, G.755
34 M	G.823,User
8 M	G.823 High-Q, G.823 LOW-Q ,User
2 M	G.823 High-Q, G.823 LOW-Q,User
1.5 M	G.824,User, Bell 499

Example use To set the M622 edit table in jitter tolerance measurement to G.958 Type A:
> :SOURce:JITTer:SWEep:PTABle:TYPE M622,G958A

:SOURce:JITTer:SWEep:PTABle:TYPE? <brate>

Parameter <brate> = <CHARACTER PROGRAM DATA>
Response <type> = <CHARACTER RESPONSE DATA>
Function Queries the edit table for jitter generation in jitter tolerance measurement.
< G958A

:SOURce:JITTer:SWEep:PTABle:COUNt <numeric1>,<numeric2>

Parameter <numeric1>,<numeric2> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 20 Step value: 1
Function Sets a table output point range for jitter generation in jitter transfer measurement.
Restriction Invalid when,
- Sweep mask is other than User.

Example use To set the 622M table output point range from 2 to 10:
> :SOURce:JITTer:SWEep:PTABle:COUNt 2,10

:SOURce:JITTer:SWEep:PTABle:COUNt?

Response <numeric1>,<numeric2> = <NR1 NUMERIC RESPONSE DATA>
Function Queries the table output point range for jitter generation in jitter transfer measurement.
Example use > :SOURce:JITTer:SWEep:PTABle:COUNt?
< 2,10

:SOURce:JITTer:SWEep:PTABle:DATA <brate>,<point>,<freq1>,<freq2>,<ampl>

Parameter
<brate>= <CHARACTER PROGRAM DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<point> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 20 Step value: 1
<freq1> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.1 to 999.0
<freq2> = <CHARACTER PROGRAM DATA>
HZ, KHZ, MHZ
<ampl> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.000 to 808.000 Step value: 0.001
* <freq1> is changed to a value that can be set on the application side.

Function
Sets a User table contents for jitter generation in jitter tolerance measurement.

Restriction
Invalid when,

- Sweep mask is other than User.
- The 622M-type interface unit is not installed, and <M622> is set.
- The 156M-type interface unit and the 2/8/34/139M 156M unit are not installed, and <M156> is set.
- The 1.5/45/52M unit (MP0122B) is not installed, and <M52> is set.
- The 2/8/34/139M 156M unit in not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52M unit is not installed, and <M45> or <M1_5> is set.
- A frequency lower than that at the preceding point is set.
- The value is out of the range shown in the table below.

Sweep Bit rate	Setting range	
	<freq1>	<amp1>
622M	0.1 Hz to 6.0 MHz	0 to 200 UI_{P-P}
156M	0.1 Hz to 1.5 MHz	0 to 50 UI_{P-P}
52M	0.1 Hz to 500.0 kHz	0 to 20 UI_{P-P}
139M	0.1 Hz to 4.0 MHz	0 to 20 UI_{P-P}
45M	0.1 Hz to 1.0 MHz	0 to 20 UI_{P-P}
34M	0.1 Hz to 1.0 MHz	0 to 20 UI_{P-P}
8M	0.1 Hz to 420.0 kHz	0 to 20 UI_{P-P}
2M	0.1 Hz to 110.0 kHz	0 to 20 UI_{P-P}
1.5M	0.1 Hz to 50.0 kHz	0 to 20 UI_{P-P}

Example use
To set No.1 data of 622M table to 100.0Hz, 0.051:
> :SOURce:JITTer:SWEep:PTABle:DATA M622,1,100.0,HZ,0.051

:SOURce:JITTer:SWEep:PTABle:DATA? <brate>,<point>

Parameter <brate> = <CHARACTER PROGRAM DATA>
<point> = <DECIMAL NUMERIC PROGRAM DATA>
Response <freq1> = <NR2 NUMERIC RESPONSE DATA>
<freq2> = <CHARACTER RESPONSE DATA>
<amp1> = <NR2 NUMERIC RESPONSE DATA>
Function Queries the User table contents for jitter generation in jitter tolerance measurement.
Example use > :SOURce:JITTer:SWEep:PTABle:DATA? M622,1
< 100.0,HZ,0.051

:SOURce:JITTer:SWEep:PTABle:DEFault <brate>, [<type>]

Parameter <brate> = <CHARACTER PROGRAM DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<type> = <CHARACTER PROGRAM DATA>
G958A, G958B, G823, G823H, G823L, G824, B499, B253, G825E, G813, G.755, G825_1_5M, G825_2M, G825O_1_5M, G825O_2M
Function Initializes a User table contents for jitter generation in jitter tolerance measurement.
Restriction Invalid when,
- Sweep mask is other than User.

Example use To initialize the 622M, G.823 High-Q table contents:
> :SOURce:JITTer:SWEep:PTABle:DEFault M622,G823HQ

:SOURce:JITTer:SWEep:MARGin <margin>

Parameter <margin> = <DECIMAL NUMERIC PROGRAM DATA>
0 to 100 Step value 10 (%)
Function Sets the margin.
Restriction Invalid when,
- Sweep mask is other than User.

Example use To set the margin to 20%:
> :SOURce:JITTer:SWEep:MARGin 20

:SOURce:JITTer:SWEep:MARGin?

Response <margin> = <NR1 NUMERIC RESPONSE DATA>
Function Queries the margin setting.
Example use To query the margin setting:
> :SOURce:JITTer:SWEep:MARGin?
< 20

:SOURce:JITTer:FSWeep:FREQuency <freq>, <suffix>

Parameter <freq> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.1 to 990.0 Step value 0.1
<suffix> = <CHARACTER PROGRAM DATA>

HZ	Hz
KHZ	kHz
MHZ	MHz

Function Sets the frequency of the jitter modulation frequency measurement (transmission side).
See specifications for the bit rate and the setting range (transmission side)..

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"FSW">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the frequency to 880.0kHz.
> :SOURce:JITTer:FSWeep:FREQuency 880.0, KHZ

:SOURce:JITTer:FSWeep:FREQuency?

Response <freq> = <NR2 NUMERIC RESPONSE DATA>
Same as :SOURce:JITTer:FSWeep:FREQuency
<suffix> = <CHARACTER RESPONSE DATA>
Same as :SOURce:JITTer:FSWeep:FREQuency

Function Queries the frequency of the jitter modulation frequency measurement (transmission side).

Example use To query the frequency of the jitter modulation frequency measurement (transmission side).
> :SOURce:JITTer:FSWeep:FREQuency?
< 880.0, KHZ

:SOURce:JITTer:FSWeep:FOFFset <offset>

Parameter <offset> = <CHARACTER PROGRAM DATA>

100	±100ppm
90	±90ppm
80	±80ppm
70	±70ppm
60	±60ppm
50	±50ppm
40	±40ppm
30	±30ppm
20	±20ppm
10	±10ppm

Function Sets offset frequency range for Freq. sweep measurement

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"FSW">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the offset frequency range to ±60 ppm
> :SOURce:JITTer:FSWeep:FOFFset 60

:SOURce:JITTer:FSWeep:FOFFset?

Response <offset> = <CHARACTER RESPONSE DATA>
Same as :SOURce:JITTer:FSWeep:FOFFset
Function Queries the setting state of offset frequency range for Freq. sweep measurement.
Example use To query the offset frequency range.
> :SOURce:JITTer:FSWeep:FOFFset?
< 60

:SOURce:JITTer:FSWeep:STEP <step>

Parameter <step> = <CHARACTER PROGRAM DATA>
1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, and 100 (ppm)
Function Sets increments of the offset frequency range for Freq. sweep measurement.
Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"FSW">.
- The MU150005A, MU150006A, or MU150007A is not installed.
- The value is set to other than the followings, according to Freq. offset.

Freq. offset	Set value (ppm)
±100ppm	4, 5, 10, 20, 25, 50, 100
±90ppm	5, 10, 15, 30, 45, 90
±80ppm	4, 5, 8, 10, 20, 40, 80
±70ppm	5, 7, 10, 35, 70
±60ppm	3, 4, 5, 6, 10, 12, 15, 20, 30, 60
±50ppm	2, 4, 5, 10, 20, 25, 50
±40ppm	2, 4, 5, 8, 10, 20, 40
±30ppm	2, 3, 5, 6, 10, 15, 30
±20ppm	1, 2, 4, 5, 10, 20
±10ppm	1, 2, 5, 10

Example use To set the increment to 10 ppm.
> :SOURce:JITTer:FSWeep:STEP 10

:SOURce:JITTer:FSWeep:STEP?

Response <step> = <CHARACTER RESPONSE DATA>
Same as :SOURce:JITTer:FSWEep:STEP
Function Queries the increments of the offset frequency range for Freq. sweep measurement.
Example use > :SOURce:JITTer:FSWeep:STEP?
< 10

:SOURce:WANDer:MANual:MODE <mode>

Parameter <mode> = <CHARACTER PROGRAM DATA>

M2	2M
M1_5	M1.5
M5	5M

Function Sets wander reference output.
Example use To set the wander reference output to M2:
> :SOURce:WANDer:MANual:MODE M2

:SOURce:WANDer:MANual:MODE?

Response <mode> = <CHARACTER RESPONSE DATA>
Function Queries the wander reference output.
Example use > :SOURce:WANDer:MANual:MODE?
< M2

:SOURce:WANDer:MANual:FREQuency <numeric>,<suffix>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>
10 to 10000000 Step value: 1
The setting range depens on the plug-in unit installed.
When the MP0124A, MP0125A, or MP0126A is installed : 10 to 200,000 (μ m)
When the MU150005A, MU150006A, or MU150007A is installed : 10 to 10,000,000 (μ m)
<suffix> = <CHARACTER PROGRAM DATA>
UHZ μ Hz
MLHZ mHz
Function Sets the wander frequency for wander generation.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> and <"MANual:JON">.
- :ROUTe:THRough is <ON>.
- :SOURce:TELecom:JWANder:MSELect is <OFF> or <JITTer>.

Example use To set the wander frequency for wander generation to 100 mHz:
> :SOURce:WANDer:MANual:FREQuency 100,MLHZ

:SOURce:WANDer:MANual:FREQuency?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
<suffix> = <CHARACTER RESPONSE DATA>
Function Queries the wander frequency for wander generation.
Example use > :SOURce:WANDer:MANual:FREQuency?
< 100,MLHZ

:SOURce:WANDer:MANual:AMPLitude:UIPP <numeric>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>
0.0 to 57600.0 Step value : 0.1 When the MP0124A, MP0125A, or MP0126A is installed.
0 to 400000 Step value : 10 When the MU150005A, MU150006A, or MU150007A is installed.
Function Sets the wander amplitude value for wander generation.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> and <"MANual:JON">.
- :ROUTe:THRough is <ON>.
- :SOURce:TELecom:JWANder:MSELect is <OFF> or <JITTer>.
- The numeric value exceeds the upper limit of amplitude value determined from the Tx Bit rate and wander frequency.

Example use To set the wander amplitude value to 100:
> :SOURce:WANDer:MANual:AMPLitude:UIPP 100

:SOURce:WANDer:MANual:AMPLitude:UIPP?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
Function Queries the wander amplitude value for wander generation.
Example use > :SOURce:WANDer:MANual:AMPLitude:UIPP?
< 100

:SOURce:WANDer:MANual:AMPLitude:UNIT<unit>

Parameter <unit> = <CHARACTER PROGRAM DATA>

UIPP	UIp-p
NS	ns

Function Sets the unit for Wander generation amplitude width.
Restrictions This command disabled in the following cases:
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> or <"MANual[:JON]">.
- :SOURce:TELecom:JWANder:MSELect is <OFF> or <JITTer>.

Example use To set the unit for Wander generation amplitude width to UIp-p:
> :SOURce:WANDer:MANual:AMPLitude:UNIT UIPP

:SOURce:WANDer:MANual:AMPLitude:UNIT?

Response <unit> = <CHARACTER RESPONSE DATA>
Same as :SOURce:WANDer:MANual:AMPLitude:UNIT.
Function Queries the unit for Wander generation amplitude width.
Example use > :SOURce:WANDer:MANual:AMPLitude:UNIT?
< UIPP

:SOURce:WANDer:AUTO:TYPE <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

OFF	OFF
WANDer	Wander(TDEV)
TRANsient	Transient
SIGNal	Signal off

Function Sets a wander generation type in automatic wander measurement.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WAND">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the generation type to Wander
> :SOURce:WANDer:Auto:TYPE WANDer

:SOURce:WANDer:AUTO:TYPE?

Response <type> = <CHARACTER RESPONSE DATA>
Same as :SOURce:WANDer:AUTO:TYPE
Function Queries the setting state of wander generation type.
Example use > :SOURce:WANDer:AUTO:TYPE?
< OFF

:SOURce:WANDer:AUTO:TDEV:DTYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

ITUT	ITU-T
ETSI	ETSI
ANSI	ANSI
BELLcore	Bellcore
USER	User

Function Sets a TDEV Mask specifications in automatic wander measurement.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WAND">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the TDEV Mask specifications to ITU-T.
> :SOURce:WANDer:AUTO:TDEV:DTYPe ITUT

:SOURce:WANDer:AUTO:TDEV:DTYPe?

Response <type> = <CHARACTER RESPONSE DATA>
Same as :SOURce:WANDer:AUTO:TDEV:DTYPe

Function Queries the TDEV Mask specifications for automatic wander measurement.

Example use >:SOURce:WANDer:AUTO:TDEV:DTYPe?
<ITUT

:SOURce:WANDer:AUTO:TDEV:ITYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

G811	G.811-1997
S81T6	Section 8.1 Table 6(G.812-1997)
S81T7	Section 8.1 Table 7(G.812-1997)
S91T11	Section 9.1 Table 11(G.812-1997)
S91T12	Section 9.1 Table 12(G.812-1997)
S10T18	Section 10 Table 18(G.812-1997)
S10T19	Section 10 Table 19(G.812-1997)
SA31	Section A.3.1(G.812-1997)
SA41	Section A.4.1(G.812-1997)
SA5	Section A.5(G.812-1997)
S71O1	Section 7.1 Option1(G.813-1996)
S71O2	Section 7.1 Option2(G.813-1996)

Function Sets a Mask table of TDEV Mask specifications ITU-T in automatic wander measurement.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WAND">.
- The MU150005A, MU150006A, or MU150007A is not installed.
- :SOURce:WANDer:AUTO:TDEV:DTYPe is other than <ITUT>.

Example use To set ITU-T of TDEV Mask table to G.811-1997.
> :SOURce:WANDer:AUTO:TDEV:ITYPe G811

:SOURce:WANDer:AUTO:TDEV:ITYPe?

Response <type> = <CHARACTER RESPONSE DATA>
Same as :SOURce:WANDer:AUTO:TDEV:ITYPe.

Function Queries the setting of Mask table of TDEV Mask specifications ITU-T in automatic wander measurement.

Example use >:SOURce:WANDer:AUTO:TDEV:ITYPe?
<G811

:SOURce:WANDer:AUTO:TDEV:ETYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

S721	Section 7.2.1(ETS 300 462-3-1997)
S722	Section 7.2.2(ETS 300 462-3-1997)
S723	Section 7.2.3(ETS 300 462-3-1997)
S724	Section 7.2.4(ETS 300 462-3-1997)
S61_4	Section 6.1(ETS 300 462-4-1997)
S61_5	Section 6.1(ETS 300 462-5-1996)
S72_4	Section 7.2(ETS 300 462-4-1997)
S72_5	Section 7.2(ETS 300 462-5-1996)
S8	Section 8(ETS 300 462-4-1997)
ETS300_6	ETS 300 462-6-1997

Function Sets a Mask table of TDEV Mask specifications ETSI in automatic wander measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"WAND">.
- The MU150005A, MU150006A, or MU150007A is not installed.
- :SOURce:WANDer:AUTO:TDEV:DTYPe is other than <ETSI>.

Example use To set TDEV Mask table of ETSI to Section 7.2.1(ETS 300 462-3-1997).

> :SOURce:WANDer:AUTO:TDEV:ETYPe S721

:SOURce:WANDer:AUTO:TDEV:ETYPe?

Response <type> = <CHARACTER PROGRAM DATA>

Same as :SOURce:WANDer:AUTO:TDEV:ETYPe.

Function Queries the setting of Mask table of TDEV Mask specifications ETSI in automatic wander measurement.

Example use >:SOURce:WANDer:AUTO:TDEV:ETYPe?

<S721

:SOURce:WANDer:AUTO:TDEV:ATYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

S722	Section 7.2.2(ANSI TI.101-1994)
S732	Section 7.3.2(ANSI TI.101-1994)
SD21	Section D.2.1(ANSI TI.105.03-1994)
SD221	Section D.2.2.1(ANSI TI.105.03-1994)
SD222	Section D.2.2.2(ANSI TI.105.03-1994)
ANSIT1_9	ANSI T1.105.09-1996

Function Sets a Mask table of TDEV Mask specifications ANSI in automatic wander measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"WAND">.
- The MU150005A, MU150006A, or MU150007A is not installed.
- :SOURce:WANDer:AUTO:TDEV:DTYPe is other than <ANSI>.

Example use To set TDEV Mask table of ANSI to ANSI T1.105.09-1996.

> :SOURce:WANDer:AUTO:TDEV:ATYPe ANSIT1_9

:SOURce:WANDer:AUTO:TDEV:ATYPe?

Response <type> = <CHARACTER PROGRAM DATA>

Same as :SOURce:WANDer:AUTO:TDEV:ATYPe.

Function Queries the setting of Mask table of TDEV Mask specifications ANSI in automatic wander measurement.

Example use >:SOURce:WANDer:AUTO:TDEV:ATYPe?

<ANSIT1_9

:SOURce:WANDer:AUTO:TDEV:BTYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

GR2830	GR-2830-CORE-1995
S43	Section 4.3(GR-1244-CORE-1995)
S53	Section 5.3(GR-1244-CORE-1995)
S54S2	Section 5.4 Strarum 2&3E(GR-1244-CORE-1995)
S54S3	Section 5.4 Strarum 3(GR-1244-CORE-1995)
S54424F515	Section 5.4.4.2.4 Figure 5-15(GR-253-CORE-1995)
S54425F516	Section 5.4.4.2.4 Figure 5-16(GR-253-CORE-1995)
S54432	Section 5.4.4.3.2(GR-253-CORE-1995)
S545	Section 5.4.5(GR-253-CORE-1995)

Function Sets a Mask table of TDEV Mask specifications Bellcore in automatic wander measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"WAND">.
- The MU150005A, MU150006A, or MU150007A is not installed.
- :SOURce:WANDer:AUTO:TDEV:DTYPe is other than <BELLcore>.

Example use To set TDEV Mask table of Bellcore to GR-2830-CORE-1995.

> :SOURce:WANDer:AUTO:TDEV:BTYPe GR2830

:SOURce:WANDer:AUTO:TDEV:BTYPe?

Response <type> = <CHARACTER PROGRAM DATA>

Same as :SOURce:WANDer:AUTO:TDEV:BTYPe.

Function Queries the setting of Mask table of TDEV Mask specifications Bellcore for automatic wander measurement.

Example use >:SOURce:WANder:AUTO:TDEV:BTYPe?

<GR2830

:SOURce:WANDer:AUTO:MPDeviation <deviation>

Parameter <deviation> = <DECIMAL NUMERIC PROGRAM DATA>

1000 to 2000 Step value : 100

Function Sets a Maximum phase deviation value in automatic wander measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"WAND">.
- :SOURce:WANDer:AUTO:TYPE is other than <TRANsient>.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set Maximum phase deviation value to 100.

> :SOURce:WANDer:Auto: MPDeviation 100

:SOURce:WANDer:AUTO:MPDeviation?

Response <deviation> = <NR1 NUMERIC RESPONSE DATA>

Same as :SOURce:WANDer:AUTO:MPDeviation.

Function Queries the set value of Maximum phase deviation in automatic wander measurement.

Example use > :SOURce:WANDer:AUTO: MPDeviation?

< 2000

:SOURce:WANDer:WSWeep:TYPE <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

G813	G.813
G823	G.823
G824	G.824
G825	G.825
G812T1	G.812 Type1
G812T2	G.812 Type2
G812T3	G.812 Type3
USER	User

Function Sets the output table of the wander tolerance measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"WSW">.
- The MU150005A, MU150006A, or MU150007A is not installed.
- The Table type is set to other than the followings, according to Bit rate.

Bit rate	Table type
622M	G.812 Type1, G.812 Type2, G.812 Type3, G.813, G.825, User
156M	G.812 Type1, G.812 Type2, G.812 Type3, G.813, G.825, User
52M	User
139M	G.812 Type1, G.813, G.823, User
45M	G.812 Type2, G.812 Type3, G.824, User
34M	G.812 Type1, G.813, G.823, User
8M	G.812 Type1, G.813, User
2M	G.812 Type1, G.813, G.823, User
1.5M	G.812 Type2, G.812 Type3, G.824, User

Example use To set the output table type to G.825.

> :SOURce:WANDer:SWEep:TYPE G825

:SOURce:WANDer:WSWeep:TYPE?

Response <type> = <CHARACTER RESPONSE DATA>

Same as :SOURce:WANDer:WSWeep:TYPE

Function Queries the setting state of output table of wander tolerance measurement.

Example use To query the setting state of output table.

> :SOURce:WANDer:SWEep:TYPE?

< G825

:SOURce:WANDer:WSWeep:PTABle:TYPE <brate>,<type>

Parameter <brate> = <CHARACTER PROGRAM DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<type> = <CHARACTER PROGRAM DATA>
G823, G.824, G825, G813, G812T1, G812T2, G812T3, USER

Function Sets an edit table of wander tolerance measurement

Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- :INSTrument:CONFig is <JITTER>.
- The Table type is set to other than the followings, according to Bit rate.

Bit rate	Table type
622M	G.812 Type1, G.812 Type2, G.812 Type3, G.813, G.825, User
156M	G.812 Type1, G.812 Type2, G.812 Type3, G.813, G.825, User
52M	User
139M	G.812 Type1, G.813, G.823, User
45M	G.812 Type2, G.812 Type3, G.824, User
34M	G.812 Type1, G.813, G.823, User
8M	G.812 Type1, G.813, User
2M	G.812 Type1, G.813, G.823, User
1.5M	G.812 Type2, G.812 Type3, G.824, User

Example use To set the edit table 622M for wander tolerance measurement to G825.
> :SOURce:WANDer:WSWeep:PTABle:TYPE M622,G825

:SOURce:WANDer:WSWeep:PTABle:TYPE? <brate>

Parameter <brate> = <CHARACTER PROGRAM DATA>
Same as :SOURce:WANDer:WSWeep:PTABle:TYPE.

Response <type> = <CHARACTER RESPONSE DATA>
Same as :SOURce:WANDer:WSWeep:PTABle:TYPE.

Function Queries the setting state of edit table for wander tolerance measurement.

Example use > :SOURce:WANDer:WSWeep:PTABle:TYPE? M622
< G825

:SOURce:WANDer:WSWeep:PTABle:COUNt <numeric1>,<numeric2>

Parameter <numeric1>,<numeric2> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 20 Step value : 1

Function Sets an output point range of the table for wander generation of the wander transfer characteristics.

Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- :DISPlay:TMENu[:NAME] is other than <"WSW">.
- :SOURce:WANDer:WSWeep:TYPE is other than <USER>.

Example use To set the output point in the range of 2 to 10.
> :SOURce:WANDer:WSWeep:PTABle:COUNt 2,10

:SOURce:WANDer:WSWeep:PTABle:COUNt?

Response <numeric1>,<numeric2> = <NR1 NUMERIC RESPONSE DATA>
Same as :SOURce:WANDer:WSWeep:PTABle:COUNt.
Function Queries the output point range of the table for wander generation of the wander transfer characteristics.
Example use > :SOURce:WANDer:WSWeep:PTABle:COUNt?
< 2,10

:SOURce:WANDer:WSWeep:PTABle:DATA <brate>, <point>, <freq1>, <freq2>, <ampl>

Parameter <brate> = <CHARACTER PROGRAM DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<point> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 20 Step value 1
<freq1> = <DECIMAL NUMERIC PROGRAM DATA>
0.1 to 999 Step value 0.1
<freq2> = <CHARACTER PROGRAM DATA>
UHz μHZ
MHz mHZ
<ampl> = <NON-DECIMAL NUMERIC PROGRAM DATA>
8.0 to 400000.0 Step value 0.1
Function Sets a frequency and amplitude of each measuring point in wander measurement.
Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- :SOURce:WANDer:WSWeep:TYPE is other than <USER>.
- :INSTrument:CONFig is <JITTER>.

Example use To set No.15 of Bit rate 622M to 100 μ HZ, and UIp-p value to 18.0.
> :SOURce:WANDer:WSWeep:DATA M622, 15, 100,UHz, 18.0

:SOURce:WANDer:WSWeep:PTABle:DATA? <brate>, <point>

Parameter <brate> = <CHARACTER PROGRAM DATA>
Same as :SOURce:WANDer:WSWeep:DATA.
<point> = <DECIMAL NUMERIC PROGRAM DATA>
Same as :SOURce:WANDer:WSWeep:DATA.
Response <freq1> = <NR2 NUMERIC RESPONSE DATA>
Same as :SOURce:WANDer:WSWeep:DATA.
<freq2> = <CHARACTER RESPONSE DATA>
Same as :SOURce:WANDer:WSWeep:DATA.
<ampl> = <NR2 NUMERIC RESPONSE DATA>
Same as :SOURce:WANDer:WSWeep:DATA.
Function Queries the frequency and amplitude of each measuring point in wander measurement.
Example use To query the frequency of No15 of Bit rate 622M and UIp-p value.
> :SOURce:WANDer:WSWeep:DATA? M622, 15
< 100.0, UHz, 18.0

:SOURce:WANDer:WSWeep:PTABle:DEFault <brate>[,<type>]

Parameter <brate> = <CHARACTER PROGRAM DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<type> = <CHARACTER PROGRAM DATA>
G823, G.824, G825, G813, G812T1, G812T2, G812T3, USER

Function Initializes the measurement condition in wander measurement.

Restriction Invalid when,

- The MU150005A, MU150006A, or MU150007A is not installed.
- :INSTrument:CONFig is <JITTER>.
- :SOURce:WANDer:WSWeep:TYPE is other than <USER>.
- The Table type is set to other than the followings, according to Bit rate.

Bit rate	Table type
622M	G.812 Type1, G.812 Type2, G.812 Type3, G.813, G.825
156M	G.812 Type1, G.812 Type2, G.812 Type3, G.813, G.825
139M	G.812 Type1, G.813, G.823
45M	G.812 Type2, G.812 Type3, G.824
34M	G.812 Type1, G.813, G.823
8M	G.812 Type1, G.813
2M	G.812 Type1, G.813, G.823
1.5M	G.812 Type2, G.812 Type3, G.824

Example use To initialize the table in Bit rate 622M to G.825.
> :SOURce:WANDer:WSWeep:DEFault M622 G825

:SOURce:JITTer:WANDgen:TYPE <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

OFF	OFF
WANDer	Wander(TDEV)
TRANsient	Transient
SIGNal	Signal off

Function Sets a wander generation type.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual:WANDgen">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the wander generation type to Wander(TDEV).
> :SOURce:JITTer:WANDgen:TYPE WAND

:SOURce:JITTer:WANDgen:TYPE?

Response <type> = <CHARACTER PROGRAM DATA>
Same as :SOURce:JITTer:WANDgen:TYPE.

Function Queries Wander generation type.

Example use > :SOURce:JITTer:WANDgen:TYPE?
< :WAND

:SOURce:JITTer:WANDgen:TDEV:DTYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

ITUT	ITU-T
ETSI	ETSI
ANSI	ANSI
BELLcore	Bellcore
USER	User

Function Sets a TDEV Mask specification when the wander generation type is Wander(TDEV).

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual:WANDgen">.
- :SOURce:JITTer:WANDgen:TYPE is other than <WAND>.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the TDEV Mask specifications to ITU-T.

> :SOURce:JITTer:WANDgen:TDEV:DTYPe ITUT

:SOURce:JITTer:WANDgen:TDEV:DTYPe?

Response <type> = <CHARACTER RESPONSE DATA>

Same as :SOURce:JITTer:WANDgen:TDEV:DTYPe.

Function Queries the TDEV Mask specifications in the wander generation measurement

Example use >:SOURce:JITTer:WANDgen:TDEV:DTYPe?

<ITUT

:SOURce:JITTer:WANDgen:TDEV:ITYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

G811	G.811-1997
S81T6	Section 8.1 Table 6(G.812-1997)
S81T7	Section 8.1 Table 7(G.812-1997)
S91T11	Section 9.1 Table 11(G.812-1997)
S91T12	Section 9.1 Table 12(G.812-1997)
S10T18	Section 10 Table 18(G.812-1997)
S10T19	Section 10 Table 19(G.812-1997)
SA31	Section A.3.1(G.812-1997)
SA41	Section A.4.1(G.812-1997)
SA5	Section A.5(G.812-1997)
S71O1	Section 7.1 Option1(G.813-1996)
S71O2	Section 7.1 Option2(G.813-1996)

Function Set a Mask table in the TDEV Mask specification ITU-T in the wander generation measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual:WANDgen">.
- :SOURce:JITTer:WANDgen:TYPE is other than <WAND>.
- :SOURce:JITTer:WANDgen:TDEV:DTYPe is other than <ITUT>.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use Set a TDEV Mask table of ITU-T to G.811-1997.

> :SOURce:JITTer:WANDgen:TDEV:ITYPe G811

:SOURce:JITTer:WANDgen:TDEV:ITYPe?

Response <type> = <CHARACTER RESPONSE DATA>

Same as :SOURce:JITTer:WANDgen:TDEV:ITYPe.

Function Queries the setting of Mask table in the TDEV Mask specification ITU-T in the wander generation measurement.

Example use >:SOURce:JITTer:WANDgen:TDEV:ITYPe?

<G811

:SOURce:JITTer:WANDgen:TDEV:ETYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

S721	Section 7.2.1(ETS 300 462-3-1997)
S722	Section 7.2.2(ETS 300 462-3-1997)
S723	Section 7.2.3(ETS 300 462-3-1997)
S724	Section 7.2.4(ETS 300 462-3-1997)
S61_4	Section 6.1(ETS 300 462-4-1997)
S61_5	Section 6.1(ETS 300 462-5-1996)
S72_4	Section 7.2(ETS 300 462-4-1997)
S72_5	Section 7.2(ETS 300 462-5-1996)
S8	Section 8(ETS 300 462-4-1997)
ETS300_6	ETS 300 462-6-1997

Function Sets a Mask table in the TDEV Mask specification ETSI in the wander generation measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual:WANDgen">.
- :SOURce:JITTer:WANDgen:TYPE is other than <WAND>.
- :SOURce:JITTer:WANDgen:TDEV:DTYPe is other than <ETSI>.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set a TDEV Mask table of ETSI to Section 7.2.1(ETS 300 462-3-1997).

```
> :SOURce:JITTer:WANDgen:TDEV:ETYPe S721
```

:SOURce:JITTer:WANDgen:TDEV:ETYPe?

Response <type> = <CHARACTER RESPONSE DATA>

Same as :SOURce:JITTer:WANDgen:TDEV:ETYPe.

Function Queries the setting of Mask table in the TDEV Mask specification ETSI in the wander generation measurement.

Example use

```
>:SOURce:JITTer:WANDgen:TDEV:ETYPe?
<S721
```

:SOURce:JITTer:WANDgen:TDEV:ATYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

S722	Section 7.2.2(ANSI TI.101-1994)
S732	Section 7.3.2(ANSI TI.101-1994)
SD21	Section D.2.1(ANSI TI.105.03-1994)
SD221	Section D.2.2.1(ANSI TI.105.03-1994)
SD222	Section D.2.2.2(ANSI TI.105.03-1994)
ANSIT1_9	ANSI T1.105.09-1996

Function Sets a Mask table in the TDEV Mask specification ANSI in the wander generation measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual:WANDgen">.
- :SOURce:JITTer:WANDgen:TYPE is other than <WAND>.
- :SOURce:JITTer:WANDgen:TDEV:DTYPe is other than <ANSI>.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set a TDEV Mask table of ANSI to ANSI T1.105.09-1996.

```
> :SOURce:JITTer:WANDgen:TDEV:ATYPe ANSIT1_9
```

:SOURce:JITTer:WANDgen:TDEV:ATYPe?

Response <type> = <CHARACTER RESPONSE DATA>
Same as :SOURce:JITTer:WANDgen:TDEV:ATYPe.
Function Queries the setting of Mask table in the TDEV Mask specification ANSI in the wander generation measurement.
Example use >:SOURce:JITTer:WANDgen:TDEV:ATYPe?
<ANSIT1_9

:SOURce:JITTer:WANDgen:TDEV:BTYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

GR2830	GR-2830-CORE-1995
S43	Section 4.3(GR-1244-CORE-1995)
S53	Section 5.3(GR-1244-CORE-1995)
S54S2	Section 5.4 Strarum 2&3E(GR-1244-CORE-1995)
S54S3	Section 5.4 Strarum 3(GR-1244-CORE-1995)
S54424F515	Section 5.4.4.2.4 Figure 5-15(GR-253-CORE-1995)
S54425F516	Section 5.4.4.2.4 Figure 5-16(GR-253-CORE-1995)
S54432	Section 5.4.4.3.2(GR-253-CORE-1995)
S545	Section 5.4.5(GR-253-CORE-1995)

Function Sets a Mask table in the TDEV Mask specification Bellcore in the wander generation measurement.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual:WANDgen">.
- :SOURce:JITTer:WANDgen:TYPE is other than <WAND>.
- :SOURce:JITTer:WANDgen:TDEV:DTYPe is other than <BELL>.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set a TDEV Mask table of Bellcore to GR-2830-CORE-1995.
> :SOURce:JITTer:WANDgen:TDEV:BTYPe GR2830

:SOURce:JITTer:WANDgen:TDEV:BTYPe?

Response <type> = <CHARACTER PROGRAM DATA>
Same as :SOURce:WANDer:AUTO:TDEV:BTYPe.
Function Queries the setting of Mask table in the TDEV Mask specification Bellcore in the wander generation measurement.
Example use >:SOURce:JITTer:WANDgen:TDEV:BTYPe?
<GR2830

:SOURce:JITTer:WANDgen:MARGin <margin>

Parameter <margin> = <DECIMAL NUMERIC PROGRAM DATA>
1000 to 2000 Step value 100
Function Sets the Maximum phase deviation value when the wander generation type is Transient.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual:WANDgen">.
- :SOURce:JITTer:WANDgen:TYPE is other than <TRANsient>.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the Transient margin to 100.
> :SOURce:JITTer:WANDgen:MARGin 100

:SOURce:JITTer:WANDgen:MARGin?

Response	<deviation> = <NR1 NUMERIC RESPONSE DATA> Same as :SOURce:JITTer:WANDgen:MARGin.
Function	Queries the setting of Maximum phase deviation value when the wander generation type is Transient.
Example use	> :SOURce:JITTer:WANDgen:MARGin? < 100

4.4.3 SENSe subsystem

The SENSe subsystem is used to make settings of the receiver and measurement conditions.

Function	Command	Parameter
Page 4-70		
Queries the measurement status.	:SENSe:MEASure:STATe?	
Queries the measurement starting time.	:SENSe:MEASure:STIMe? [ ]	type
Page 4-70		
Queries the time elapsed for progress of measurement.	:SENSe:MEASure:ELAPsed? [ ]	type
Page 4-71		
Switches the jitter or wander measurement.	:SENSe:MEASure:JWANder:MSELect	type
Queries the status of Jitter/Wander manual measurement.	:SENSe:MEASure:JWANder:MSELect?	
Sets a jitter reference signal source for Jitter manual measurement.	:SENSe:MEASure:JWANder:JITTer:MODE	mode
Queries the jitter reference signal source for Jitter manual measurement.	:SENSe:MEASure:JWANder:JITTer:MODE?	
CLOCkFunctionSets the type of the Jitter /Wander masurement signal.	:SENSe:MEASure:JWANder:MEASure	type
Queries the type of the Jitter/Wander measurement signal.	:SENSe:MEASure:JWANder:MEASure?	
Sets a wander reference signal source.	:SENSe:MEASure:JWANder:WANDer:MODE	mode
Queries the wander reference signal source for Wander manual measurement.	:SENSe:MEASure:JWANder:WANDer:MODE?	
Sets the jitter measurement (RMS) correction value.	:SENSe:MEASure:JWANder:CORRection:OFFSet	numeric
Queries the jitter measurement (RMS) correction value.	:SENSe:MEASure:JWANder:CORRection:OFFSet?	
Page 4-73		
Sets a receive range for Jitter manual measurement.	:SENSe:JITTer:MANual:RANGe	numeric
Queries the receive range setting for Jitter manual measurement.	:SENSe:JITTer:MANual:RANGe?	
Sets a filter type inserted for Jitter manual measurement.	:SENSe:JITTer:MANual:FILTer	filter
Queries the filter type inserted for Jitter manual measurement.	:SENSe:JITTer:MANual:FILTer?	
Sets a threshold value for Hit measurement of Jitter manual measurement.	:SENSe:JITTer:MANual:THReshold	numeric
Queries the threshold value for Hit measurement of Jitter manual measurement.	:SENSe:JITTer:MANual:THReshold?	
Sets a measurement state for Jitter manual measurement.	:SENSe:JITTer:MANual:COUPled	boolean
Queries the measurement state setting for Jitter manual measurement.	:SENSe:JITTer:MANual:COUPled?	

Sets a measurement interval for Jitter manual measurement.	:SENSe:JITTer:MANual:INTerval	numeric
Queries the measurement interval for Jitter manual measurement.	:SENSe:JITTer:MANual:INTerval?	
Sets a User filter value.	:SENSe:JITTer:MANual:USER:FILTer	hp hpsuffix lp lpsuffix
Queries the User filter value.	:SENSe:JITTer:MANual:USER:FILTer?	
Sets whether to display the measurement results when the receive section is Unlock.	:SENSe:JITTer:MANual:ASYNc	boolean
Queries the setting state whether to display the measurement results when the receive section is Unlock.	:SENSe:JITTer:MANual:ASYNc?	
Sets the measurement band	:SENSe:JITTer:MANual:BANd	band
Queries the setting state of the band.	:SENSe:JITTer:MANual:BANd?	

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Sets a mask line table for judgment use of jitter tolerance measurement.	:SENSe:JITTer:TOLerance:MASK	type
Queries the mask line table for judgment use of jitter tolerance measurement.	:SENSe:JITTer:TOLerance:MASK?	
Sets the detection condition for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:DETection:TYPE	type
Queries the detection condition for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:DETection:TYPE?	
Sets the detection condition error for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:DETection:ERRor	error
Queries the detection condition error for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:DETection:ERRor?	
Sets the threshold type for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:DETection:UNIT	unit
Queries the threshold type for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:DETection:UNIT?	
Sets the threshold count detection range for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:DETection:THReshold:EC	numeric
Queries the threshold count detection range for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:DETection:THReshold:EC?	
Sets the threshold rate detection range for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:DETection:THReshold:ER	erate
Queries the threshold rate detection range for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:DETection:THReshold:ER?	
Sets the Hold time.	:SENSe:JITTer:TOLerance:DETection:HTIMe	s
Queries the Hold time.	:SENSe:JITTer:TOLerance:DETection:HTIMe?	
Sets the Waiting time.	:SENSe:JITTer:TOLerance:WTIMe	wait
Queries the Waiting time.	:SENSe:JITTer:TOLerance:WTIMe?	
Sets an editing mask line table for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:MTABle:TYPE	brate type
Queries the editing mask line table for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:MTABle:TYPE?	brate
Sets the mask table output point range for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:MTABle:POINt	brate numeric

Queries the mask table output point range for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:MTABle:POINt?	brate
Sets the User define mask line data for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:MTABle:DATA	brate point freq1 freq2 ampl
Queries the User define mask line data for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:MTABle:DATA?	brate point
Initializes the User define mask line data for jitter tolerance measurement.	:SENSe:JITTer:TOLerance:MTABle:DEFault	brate

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Sets a measurement mode for jitter transfer characteristic measurement.	:SENSe:JITTer:TRANsfer:MODE	mode
Queries the measurement mode setting for jitter transfer characteristic measurement.	:SENSe:JITTer:TRANsfer:MODE?	
Sets a mask line table for judgment use of jitter transfer characteristic measurement.	:SENSe:JITTer:TRANsfer:MASK	type
Queries the mask line table for judgment use of jitter transfer characteristic measurement.	:SENSe:JITTer:TRANsfer:MASK?	
Sets an editing mask line table for jitter transfer characteristic measurement.	:SENSe:JITTer:TRANsfer:MTABle:TYPE	brate type
Queries the editing mask line table for jitter transfer characteristic measurement.	:SENSe:JITTer:TRANsfer:MTABle:TYPE?	brate
Sets the mask table output point range for jitter tolerance measurement.	:SENSe:JITTer:TRANsfer:MTABle:POINt	brate numeric
Queries the mask table output point range for jitter tolerance measurement.	:SENSe:JITTer:TRANsfer:MTABle:POINt?	brate
Sets the User define mask line data for jitter transfer characteristic measurement.	:SENSe:JITTer:TRANsfer:MTABle:DATA	brate point freq1 freq2 ampl
Queries the User define mask line data for jitter transfer characteristic measurement.	:SENSe:JITTer:TRANsfer:MTABle:DATA?	brate point
Initializes the mask table contents for jitter transfer characteristic measurement	:SENSe:JITTer:TRANsfer:MTABle:DEFault	brate
Switches the internal loopback/external connection for Calibration measurement.	:SENSe:JITTer:TRANsfer:LOOPback	type
Queries the internal loopback/external connection setting for Calibration measurement.	:SENSe:JITTer:TRANsfer:LOOPback?	
Sets the Selective bandwidth value.	:SENSe:JITTer:TRANsfer:SELectband	band
Queries the Selective bandwidth value.	:SENSe:JITTer:TRANsfer:SELectband?	
Sets the Waiting time.	:SENSe:JITTer:TRANsfer:WTIMe	wait
Queries the Waiting time.	:SENSe:JITTer:TRANsfer:WTIMe?	

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Sets the number of filter for Jitter/Freq. measurement	:SENSe:JITTer:JFRequency:FMODe	mode
Queries the setting state of filter number for Jitter/Freq. measurement.	:SENSe:JITTer:JFRequency:FMODe?	
Sets the filter for Jitter/Freq. measurement.	:SENSe:JITTer:JFRequency:FILTer	filter
Queries the filter for Jitter/Freq. measurement.	:SENSe:JITTer:JFRequency:FILTer?	
Sets a type of filter 2 when the filter number is 2 (double).	:SENSe:JITTer:JFRequency:FILTer2	filter
Queries the setting state of Filter 2 when the filter number for Jitter/Freq. measurement is 2 (double).	:SENSe:JITTer:JFRequency:FILTer2?	
Sets the measurement interval for Jitter/Freq. measurement.	:SENSe:JITTer:JFRequency:INTerval	numeric
Queries the measurement interval for Jitter/Freq. measurement.	:SENSe:JITTer:JFRequency:INTerval?	
Sets a User filter value.	:SENSe:JITTer:JFRequency:USER:FILTer	hp hpsuffix lp lpsuffix
Queries the User filter value.	:SENSe:JITTer:JFRequency:USER:FILTer?	
Sets a User filter2 value.	:SENSe:JITTer:JFRequency:USER:FILTer2	hp hpsuffix lp lpsuffix
Queries the setting state of User filter value.	:SENSe:JITTer:JFRequency:USER:FILTer2?	
Sets a mask table type of Jitter/Freq. Measurement.	:SENSe:JITTer:JFRequency:MTABle:TYPE	brate type
Queries the setting state of Jitter/Freq. measurement mask table.	:SENSe:JITTer:JFRequency:MTABle:TYPE?	brate
Edits a mask table for the Jitter/Freq. measurement.	:SENSe:JITTer:JFRequency:MTABle:DATA	brate uipp1 uipp2
Queries the contents when mask table is User in Jitter/Freq. Measurement.	:SENSe:JITTer:JFRequency:MTABle:DATA?	brate
Set an Offset mask in Jitter/Freq. Measurement.	:SENSe:JITTer:JFRequency:OFFSet	offset
Queries the setting state of Offset mask.	:SENSe:JITTer:JFRequency:OFFSet?	
Initializes the Jitter/Freq. Measurement mask table which can be set optionally.	:SENSe:JITTer:JFRequency:MTABle:DEFault	brate

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Sets a detection condition for jitter sweep measurement.	:SENSe:JITTer:SWEep:DETection:TYPE	type
Queries the detection condition for jitter sweep measurement.	:SENSe:JITTer:SWEep:DETection:TYPE?	
Sets a detection condition error for jitter sweep measurement.	:SENSe:JITTer:SWEep:DETection:ERRor	error
Queries the detection condition error for jitter sweep measurement.	:SENSe:JITTer:SWEep:DETection:ERRor?	

Sets a detection type for jitter sweep measurement.	:SENSe:JITTer:SWEep:DETection:UNIT	unit
Queries the setting state of detection type for jitter sweep measurement.	:SENSe:JITTer:SWEep:DETection:UNIT?	
Sets a detection range of Threshold count for jitter sweep measurement.	:SENSe:JITTer:SWEep:DETection:THReshold:EC	numeric
Queries the detection range of Threshold count for jitter sweep measurement.	:SENSe:JITTer:SWEep:DETection:THReshold:EC?	
Sets a detection range of Threshold count for jitter sweep measurement.	:SENSe:JITTer:SWEep:DETection:THReshold:ER	erate
Queries the setting state of detection range of Threshold count for jitter sweep measurement.	:SENSe:JITTer:SWEep:DETection:THReshold:ER?	
Sets Hold time for jitter sweep measurement.	:SENSe:JITTer:SWEep:DETection:HTIMe	s
Queries the Hold time setting state for jitter sweep measurement.	:SENSe:JITTer:SWEep:DETection:HTIMe?	
Sets Waiting time for jitter sweep measurement.	:SENSe:JITTer:SWEep:WTIMe	wait
Queries the Waiting time setting state.	:SENSe:JITTer:SWEep:WTIMe?	

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Set a mask table for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:MTABle:TYPE	brate type
Queries the mask table setting state for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:MTABle:TYPE?	brate
Sets an output point range when the mask table is User for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:MTABle:POINt	brate point
Queries the output point range when the mask table is User	:SENSe:JITTer:FSWeep:MTABle: POINt?	brate
Sets contents of point when the Mask table is User for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:MTABle:DATA	brate ptype freq1 freq2 uipp
Queries the setting state of point contents when the Mask table is User for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:MTABle:DATA?	brate ptype
Initializes the edit contents when the Mask table is User for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:MTABle:DEFault	brate
Sets offset data for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:MTABle:OFFSet	offset
Queries the offset data for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:MTABle:OFFSet?	
Sets a detection condition for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:DETection:TYPE	type
Queries the setting state of detection condition for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:DETection:TYPE?	

Sets a detection condition error for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:DETection:ERRor	error
Queries the setting state of detection condition error for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:DETection:ERRor?	
Sets a detection type for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:DETection:UNIT	unit
Queries the setting state of detection type for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:DETection:UNIT?	
Sets a detection range of Threshold count for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:DETection:THReshold:EC	numeric
Queries the detection range of Threshold count for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:DETection:THReshold:EC?	
Sets a detection range of Threshold count for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:DETection:THReshold:ER	erate
Queries the setting state of Threshold count detection range for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:DETection:THReshold:ER?	
Sets Hold time for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:DETection:HTIMe	s
Queries the setting state of Hold time for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:DETection:HTIMe?	
Sets Waiting time for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:WTIMe	wait
Queries the setting state of Waiting time.	:SENSe:JITTer:FSWeep:WTIMe?	
Sets a mask line table for judgment use for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:MASK	mask
Queries the setting state of mask line table for judgment use for jitter modulation frequency measurement.	:SENSe:JITTer:FSWeep:MASK?	

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Sets a measurement state for Wander manual measurement.	:SENSe:WANDer:MANual:COUPled	boolean
Queries the measurement state setting for Wander manual measurement.	:SENSe:WANDer:MANual:COUPled?	

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Sets the measurement interval for automatic Wander measurement.	:SENSe:WANDer:AUTO:INTerval	numeric suffix
Queries the measurement interval for automatic Wander measurement.	:SENSe:WANDer:AUTO:INTerval?	
Sets measurement time (Observation time) for automatic wander measurement.(When User is set)	:SENSe:WANDer:AUTO:USER	numeric

Queries the setting state of measurement time (Observation time) of automatic wander measurement.(When User is set.)	:SENSe:WANDer:AUTO:USER?	

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Sets a detection condition for wander sweep measurement.	:SENSe:WANDer:WSWeep:DETection:TYPE	type
Queries the setting state of detection condition for wander sweep measurement.	:SENSe:WANDer:WSWeep:DETection:TYPE?	
Sets a detection condition error for wander sweep measurement.	:SENSe:WANDer:WSWeep:DETection:ERRor	error
Queries the setting state of detection condition error for wander sweep measurement.	:SENSe:WANDer:WSWeep:DETection:ERRor?	
Sets a detection range of Threshold count for wander sweep measurement.	:SENSe:WANDer:WSWeep:DETection:THReshold:EC	numeric
Queries the setting state of Threshold count detection range for wander sweep measurement.	:SENSe:WANDer:WSWeep:DETection:THReshold:EC?	
Sets a detection range of Threshold count for wander sweep measurement.	:SENSe:WANDer:WSWeep:DETection:THReshold:ER	erate
Queries the setting state of Threshold count detection range for wander sweep measurement.	:SENSe:WANDer:WSWeep:DETection:THReshold:ER?	
Sets margin(%) for wander sweep measurement.	:SENSe:WANDer:WSWeep:MARGin	margin
Queries the setting state of margin(%) for wander sweep measurement.	:SENSe:WANDer:WSWeep:MARGin?	

:SENSe:MEASure:STATe?

Response <mestype>, <numeric>
<mestype> = <CHARACTER RESPONSE DATA>

TSE	Trouble search measurement
MAN	Manual measurement
PSEQ	Pointer sequence measurement
DEL	Delay measurement
JTOL	Jitter tolerance measurement
JTR	Jitter transfer measurement
JFR	Jitter Frequency measurement
WAND	Wander measurement
JSW	Jitter sweep measurement
FSW	Freq. sweep measurement
WSW	Wander sweep measurement
NON	None is under measurement

<numeric> = <NR1 NUMERIC RESPONSE DATA>

0	Measurement completed
1	Measuring

Function Queries the measurement status.
Example use > :SENSe:MEASure:STATe?
< MAN, 1
When measurement is not under-going, the output is as follows:
< NON,0

:SENSe:MEASure:STIMe? [<type>]

Parameter <type> = <CHARACTER PROGRAM DATA>

JWANder:	Time for starting jitter/wander manual measurement
(Omitted)	Time for starting other measurements

Response <year>,<month>,<day>,<hour>,<minute>,<second>
= <NR1 NUMERIC RESPONSE DATA>
Function Queries the measurement starting time.
Example use > :SENSe:MEASure:STIMe? JWANder
< 1994,12,25,14,50,30
* When no measurement start time exists:
< -,-,-,-,-,-

:SENSe:MEASure:ELAPsed? [<type>]

Parameter <type> = <CHARACTER PROGRAM DATA>

JWANder	Elapsed time for progress of jitter/wander manual measurement
(Omitted)	Elapsed time for other measurements

Response <day>,<hour>,<minute>,<second>
= <NR1 NUMERIC RESPONSE DATA>
Function Queries the time elapsed for progress of measurement.
Example use > :SENSe:MEASure:ELAPsed? JWANder
< 5,19,50,34
* When no measurement progress time exists:
< -,-,-,-

:SENSe:MEASure:JWANder:MSELect <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
- JITTer Jitter measurement
- JWANder Jitter and Wander measurement

Function Switches the jitter or wander measurement.

Restriction Invalid when,
- The Wander measurement option is not installed, and <JWANder> is set.
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">, <"MANual:JON">, <"PSEQuence[:JOFF]">, and <"PSEQuence[:JON]">.

Example use To set to the Jitter measurement:
> :SENSe:MEASure:JWANder:MSELect JITTer

:SENSe:MEASure:JWANder:MSELect?

Response <type> = <CHARACTER RESPONSE DATA>

Function Queries the status of Jitter/Wander manual measurement.

Example use > :SENSe:MEASure:JWANder:MSELect?
< JITT

:SENSe:MEASure:JWANder:JITTer:MODE <mode>

Parameter <mode> = <CHARACTER PROGRAM DATA>
- INTernal Internal signal
- EXTernal External signal

Function Sets a jitter reference signal source for Jitter manual measurement.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is <"JTRansfer"> or <"JFRequency">, and <EXTernal> is set.

Example use To set the reference signal source to Internal:
> :SENSe:MEASure:JWANder:JITTer:MODE INTernal

:SENSe:MEASure:JWANder:JITTer:MODE?

Response <mode> = <CHARACTER RESPONSE DATA>

Function Queries the jitter reference signal source for Jitter manual measurement.

Example use > :SENSe:MEASUre:JWANder:JITTer:MODE?
< INT

:SENSe:MEASure:JWANder:MEASure <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
- DATA
- CLOCk

Function Sets the type of the Jitter /Wander masurement signal.

Restriction Invalid when,
:DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">,<"MANual:JON">, <"PSEQuence[:JOFF]">, and <"PSEQuence:JON">

Example use To set the Jitter/Wander meas. to DATA:
> :SENSe:MEASure:JWANder:MEASure DATA

:SENSe:MEASure:JWANder:MEASure?

Response <type> = <CHARACTER RESPONSE DATA>
DATA
CLOC
Function Queries the type of the Jitter/Wander measurement signal.
Example use > :SENSe:MEASure:JWANder:MEASure?
< DATA

:SENSe:MEASure:JWANder:WANDer:MODE <mode>

Parameter <mode> = <CHARACTER PROGRAM DATA>

UNB_2M HZ	2 MHz (Unbalanced)
UNB_2M BPS	2 Mbit/s (Unbalanced)
BAL_2M BPS	2 Mbit/s (Balanced)
UNB_1_5 MHZ	1.5 MHz (Unbalanced)
UNB_1_5M BPS	1.5 Mbit/s (Unbalanced)
BAL_1_5M BPS	1.5 Mbit/s (Balanced)
H64_8	64k+8kHz
H5M	5MHz
H10M	10MHz

Function Sets a wander reference signal source.
Example use To set the wander reference signal source to 2MHz(Unbalanced) signal:
> :SENSe:MEASure:JWANder:WANDer:MODE UNB_2M HZ

:SENSe:MEASure:JWANder:WANDer:MODE?

Response <mode> = <CHARACTER RESPONSE DATA>
Function Queries the wander reference signal source for Wander manual measurement.
Example use > :SENSe:MEASure:JWANder:WANDer:MODE?
< UNB_2M HZ

:SENSe:MEASure:JWANder:CORRection:OFFSet <numeric>

Parameter <numeric> = <NON-DECIMAL NUMERIC PROGRAM DATA>

0.000 to 1.000	2 UI range
0.00 to 1.0	20 UI range

* The digits lower than the resolution are cut off.

Function Sets the jitter measurement (RMS) correction value.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">, <"MANual:JON">, <"PSEQuence[:JOFF]">, and <"PSEQuence[:JON]">.

Example use To set the jitter measurement (RMS) correction value to 1.00:
> :SENSe:MEASure:JWANder:CORRection:OFFSet 1.00

:SENSe:MEASure:JWANder:CORRection:OFFSet?

Response <numeric> = <NR2 NUMERIC RESPONSE DATA>
Function Queries the jitter measurement (RMS) correction value.
Example use > :SENSe:MEASure:JWANder:CORRection:OFFSet?
< 1.00

:SENSe:JITTer:MANual:RANGe <numeric>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>

800	800UI
400	400UI
20	20UI
8	8UI
2	2UI

Function Sets a receive range for Jitter manual measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">, <"MANual:JON">, <"PSEQuence[:JOFF]">, and <"PSEQuence[:JON]">.
- <WANDer> is set for :SENSe:MEASure:JWANder:MSELect.
- The MU150005A, MU150006A, or MU150007A is not installed; and <800> or <400> is set.
- The MU150005A, MU150006A, or MU150007A is not installed; the bit rate is set to 622M; and <400> is set.
- The MU150005A, MU150006A, or MU150007A is not installed; and th bit rate is set to 622M; and <800> is set.

<8> cannot set when,

- <WIDe> is set for :SENSe:JITTer:MANual:BANd.

Example use To set the receive range to 2UI:

> :SENSe:JITTer:MANual:RANGe 2

:SENSe:JITTer:MANual:RANGe?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>

Function Queries the receive range setting for Jitter manual measurement.

Example use > :SENSe:JITTer:MANual:RANGe?

< 2

:SENSe:JITTer:MANual:FILTer <filter>

Parameter <filter> = <CHARACTER PROGRAM DATA>

OFF	Filter is not inserted.
HP	High-pass filter is inserted.
HP1	High-pass filter 1 is inserted.
HP21	High-pass filter 2 is inserted.
HP22	High-pass filter 2' is inserted.
LP	Low-pass filter is inserted.
LPHP	Low-pass filter and High-pass filter are inserted.
LPHP1	Low-pass filter and High-pass filter 1 are inserted.
LPHP21	Low-pass filter and High-pass filter 2 are inserted.
LPHP22	Low-pass filter and High-pass filter 2' are inserted.
LPHP0	Low-pass filter and High-pass filter 0 are inserted.
USER	

Function Sets a filter type inserted for Jitter manual measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">, <"MANual:JON">, <"PSEQuence[:JOFF]">, and <"PSEQuence[:JON]">.
- :SENSe:TELecom:BRATe is other than <M8> and <M2>, and <HP22> or <LPHP22> is set.

Example use To insert High-pass filter 1:

> :SENSe:JITTer:MANual:FILTer HP1

:SENSe:JITTer:MANual:FILTer?

Response <filter> = <CHARACTER RESPONSE DATA>
Function Queries the filter type inserted for Jitter manual measurement.
Example use > :SENSe:JITTer:MANual:FILTer?
< HP1

:SENSe:JITTer:MANual:THReshold <numeric>

Parameter <numeric> = <NON-DECIMAL PROGRAM DATA>
0.05 to 1.00 Step value: 0.01 (2 UI range)
0.5 to 40 Step value: 0.1 (8 UI range)
0.5 to 10.0 Step value: 0.1 (20 UI range)
0.5 to 200.0 Step value: 0.1(400UI range)
0.5 to 400.0 Step value: 0.1(800UI range)
* The digits lower than the resolution are cut off.
Function Sets a threshold value for Hit measurement of Jitter manual measurement.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">, <"MANual:JON">, <"PSEQuence[:JOFF]">, and <"PSEQuence[:JON]">.

Example use To set the threshold to 0.5:
> :SENSe:JITTer:MANual:THReshold 0.5

:SENSe:JITTer:MANual:THReshold?

Response <numeric> = <NR2 NUMERIC RESPONSE DATA>
Function Queries the threshold value for Hit measurement of Jitter manual measurement.
Example use > :SENSe:JITTer:MANual:THReshold?
< 0.5

:SENSe:JITTer:MANual:COUPled <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Asynchronized with Error/alarm measurement
ON or 1 Synchronized with Error/alarm measurement
Function Sets a measurement state for Jitter manual measurement.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">, <"MANual:JON">, <"PSEQuence[:JOFF]">, and <"PSEQuence[:JON]">.
- :SENSe:MEASure:JWANder:MSELect is <JWANder>, and <OFF> is set.

When :SENSe:MEASure:JWANder:MSELect is <WANDer>, the <OFF> setting is invalid.
Example use To set the measurement state to Asynchronous:
> :SENSe:JITTer:MANual:COUPled OFF

:SENSe:JITTer:MANual:COUPled?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 or 1
Function Queries the measurement state setting for Jitter manual measurement.
Example use > :SENSe:JITTer:MANual:COUPled?
< 0

:SENSe:JITTer:MANual:INTerval <numeric>

Parameter <numeric> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.5 to 99.5 Step value: 0.5
* The digits lower than the resolution are cut off.

Function Sets a measurement interval for Jitter manual measurement.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">, <"MANual:JON">, <"PSEQuence[:JOFF]">, and <"PSEQuence[:JON]">.
- :SENSe:JITTer:MANual:COUPled is <ON>.

Example use To set the measurement interval to 10 seconds:
> :SENSe:JITTer:MANual:INTerval 10

:SENSe:JITTer:MANual:INTerval?

Response <numeric> = <NR2 NUMERIC RESPONSE DATA>

Function Queries the measurement interval for Jitter manual measurement.

Example use > :SENSe:JITTer:MANual:INTerval?
< 10.0

:SENSe:JITTer:MANual:USER:FILTer <hp>,<hpsuffix>,<lp>,<lpsuffix>

Parameter <hp> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.0 to 999.9 Step value: 0.1 * Value of 0.0 indicates OFF.
<hpsuffix> = <CHARACTER PROGRAM DATA>
HZ Hz
KHZ KHz
MHZ MHz
<lp> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.0 to 999.9 Step value: 0.1 * Value of 0.0 indicates OFF.
<lpsuffix> = <CHARACTER PROGRAM DATA>
HZ Hz
KHZ KHz
MHZ MHz

Function Sets a User filter value.

Restriction Invalid when,
- DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> or <"MANual:JON">.
- The filter setting for Test menu:Manual screen is other than User.

Example use To set HP and LP of User filter value to 12KHz and 1.3MHz, respectively.
> :SENSe:JITTer:MANual:USER:FILTer 12.0,KHZ,1.3,MHZ

:SENSe:JITTer:MANual:USER:FILTer?

Response <hp> = <NR2 NUMERIC RESPONSE DATA>
<hpsuffix> = <CHARACTER RESPONSE DATA>
<lp> = <NR2 NUMERIC RESPONSE DATA>
<lpsuffix> = <CHARACTER RESPONSE DATA>

Function Queries the User filter value.

Example use To query the User filter value:
> :SENSe:JITTer:MANual:USER:FILTer?
<12.0,KHZ,1.3,MHZ

:SENSe:JITTer:MANual:ASYNc <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>

OFF or 0	OFF (Measurement results are not displayed.)
ON or 1	ON (Measurement reesults are displayed.)

Function Sets whether to display the measurement results when the receive section is Unlock.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">,<"MANual:JON">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To display the measurement results.

```
> :SENSe:JITTer:MANual:ASYNc ON
```

:SENSe:JITTer:MANual:ASYNc?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>

0	OFF
1	ON

Function Queries the setting state whether to display the measurement results when the receive section is Unlock.

Example use

```
> :SENSe:JITTer:MANual:ASYNc?
< 0
```

:SENSe:JITTer:MANual:BANd <band>

Parameter <band> = <CHARACTER PROGRAM DATA>

WIDe	Wide
FULl	Full

Function Sets the measurement band.

Example use To set the measurement band to Wide.

```
> :SENSe:JITTer:MANual:BANd WIDe
```

:SENSe:JITTer:MANual:BANd?

Response <band>= <CHARACTER RESPONSE DATA>

Same as :SENSe:JITTer:MANual:BANd.

Function Queries the setting state of the band.

Example use

```
> :SENSe:JITTer:MANual:Band?
< FUL
```

:SENSe:JITTer:TOLerance:MASK <type>

<type> = <CHARACTER PROGRAM DATA>

G958A	G.958 Type A
G958B	G.958 Type B
G823	G.823
G823H	G.823 High-Q
G823L	G.823 LOW-Q
G824	G.824
G825	G.825
B499	Bell 499
B253	Bell 253
G825E	G.825 Electrical
G813	G.813
G755	G.755
USER	User
G825_1_5M	G.825 1.5M
G825_2M	G.825 2M
G825O_1_5M	G.825 Optical 1.5M
G825O_2M	G.825 Optical 2M

Function Sets a mask line table for judgment use of jitter tolerance measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"JTOLerance">.
- The MU150005A, MU150006A, or MU150007A is not installed; and <G825E>, <G813>, <G755>, <G825_1_5M>, <G825_2M>, <G825O_1_5M> or <G825O_2M> is set.
- The value is other than the followings, according to the Rx Bit rate on the Setup:Mapping screen:

622M	: G.958 Type A/B, G.825, G.813, User, G.825 1.5M, G.825 2M
156M	: G.958 Type A/B, G.825, G.813, User, G.825 Optical 1.5M, G.825 Optical 2M
156M CMI	: G.958 Type A/B, G.825, G.813, G.825 Electrical, User, G.825 1.5M, G.825 2M
52M B3ZS	: User
52M	: User
139M	: G.823, User
45M	: G.824, G.755, User
34M	: G.823, User
8M	: G.823 High-Q/Low-Q, User
2M	: G.823 High-Q/Low-Q, User
1.5M	: G.824, User

Example use To set the mask line table to G.958 Type A:

> :SENSe:JITTer:TOLerance:MASK G958A

:SENSe:JITTer:TOLerance:MASK?

Response <type> = <CHARACTER RESPONSE DATA>

Function Queries the mask line table for judgment use of jitter tolerance measurement.

Example use > :SENSe:JITTer:TOLerance:MASK?

< G958A

:SENSe:JITTer:TOLerance:DETection:TYPE <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

SEC1	1s error
DEFault	Default
ON	On set of errors
DB1	1 dB power penalty
COUNt	Count
RATE	Rate

Function Sets the detection condition for jitter tolerance measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"JTOLerance">.

Example use To set the detection condition to 1sec error:

> :SENSe:JITTer:TOLerance:DETection:TYPE SEC1

:SENSe:JITTer:TOLerance:DETection:TYPE?

Response <type> = <CHARACTER RESPONSE DATA>

SEC1	1sec error
DEF	Default
ON	On set of errors
DB1	1 dB power penalty
COUNt	Count
RATE	Rate

Function Queries the detection condition for jitter tolerance measurement.

Example use > :SENSe:JITTer:TOLerance:DETection:TYPE?

< SEC1

:SENSe:JITTer:TOLerance:DETection:ERRor <error>

Parameter <error> = <CHARACTER PROGRAM DATA>

(SDH)	"B1"		B1 error	(SONET) "B1"		B1 error
	"B2"		B2 error	"B2"		B2 error
	"HB3"		HP-B3 error	"HB3"		HP-B3 error
	"LB3"		LP-B3 error	"LB3"		LP-B3 error
	"BIP2"		BIP-2 error	"BIP2"		BIP-2 error
	"MREI"	(SDH)	MS-REI error	"REIL"	(SONET)	REI-L error
	"HREI"	(SDH)	HP-REI error	"REIP"	(SONET)	REI-P error
	"HIEC"		HP-IEC error	"HIEC"		HP-IEC error
	"HTREI"		HP-TC-REI error	"HTREI"		HP-TC-REI error
	"HOEI"		HP-OEI error	"HOEI"		HP-OEI error
	"LREI"	(SDH)	LP-REI error	"REIV"	(SONET)	REI-V error
	"LIEC"		LP-IEC error	"LIEC"		LP-IEC error
	"LTREI"		LP-TC-REI error	"LTREI"		LP-TC-REI error
	"LOEI"		LP-OEI error	"LOEI"		LP-OEI error
	"N2BIP2"		N2_BIP2 error	"N2BIP2"		N2_BIP2 error
	"BIT"		Bit error	"BIT"		Bit error
	"CODE"		Code error	"CODE"		Code error
	"EBIT"		EBit error	"EBIT"		EBit error
	"FAS139"		FAS 139M error	"FAS139"		FAS 139M error
	"FAS45"		FAS 45M error	"FAS45"		FAS 45M error
	"FAS34"		FAS 34M error	"FAS34"		FAS 34M error
	"FAS8"		FAS 8M error	"FAS8"		FAS 8M error
	"FAS2"		FAS 2M error	"FAS2"		FAS 2M error
	"FAS1_5"		FAS 1.5M error	"FAS1_5"		FAS 1.5M error
	"REI139"		REI 139M error	"REI139"		REI 139M error
	"REI45"		REI 45M error	"REI45"		REI 45M error
	"REI34"		REI 34M error	"REI34"		REI 34M error
	"BIP8"		BIP8 error	"BIP8"		BIP8 error
	"PARITY"		Patity error	"PARITY"		Patity error
	"CBIT"		CBIT error	"CBIT"		CBIT error
	"CRC6"		CRC6 error	"CRC6"		CRC6 error
	"CORRECT"		Correct error	"CORRECT"		Correct error
	"DISCARD"		Discard error	"DISCARD"		Discard error
	"NONCONF"		Nonconf error	"NONCONF"		Nonconf error
	"ERRORED"		Errored error	"ERRORED"		Errored error
	"LOST"		Lost error	"LOST"		Lost error
	"MISINS"		Misinserted error	"MISINS"		Misinserted error
	"SECB"		SECB error	"SECB"		SECB error

Function Sets the detection condition error for jitter tolerance measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"JTOLerance">.
- :SENSe:JITTer:TOlerance:DETection:TYPE is <DEFault>.

Example use To set the detection condition error to B1:

> :SENSe:JITTer:TOLerance:DETection:ERRor B1

:SENSe:JITTer:TOLerance:DETection:ERRor?

Response <error> = <CHARACTER RESPONSE DATA>

Function Queries the detection condition error for jitter tolerance measurement.

Example use > :SENSe:JITTer:TOLerance:DETection:ERRor?

< B1

:SENSe:JITTer:TOLerance:DETection:UNIT <unit>

Parameter <unit> = <CHARACTER PROGRAM DATA>
COUNt Displays the count value.
RATE Displays the rate value.

Function Sets the threshold type for jitter tolerance measurement.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"JTOLerance">.
- :SENSe:JITTer:TOlerance:DETection:TYPE is <DEFault>.

Example use To set the threshold type to Count:
> :SENSe:JITTer:TOLerance:DETection:UNIT COUNt

:SENSe:JITTer:TOLerance:DETection:UNIT?

Response <unit> = <CHARACTER RESPONSE DATA>

Function Queries the threshold type for jitter tolerance measurement.

Example use > :SENSe:JITTer:TOLerance:DETection:UNIT?
< COUN

:SENSe:JITTer:TOLerance:DETection:THReshold:EC <numeric>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 99999 Step value:1

Function Sets the threshold count detection range for jitter tolerance measurement.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"JTOLerance">.
- :SENSe:JITTer:TOLerance:DETection:TYPE is other than <SEC1> and <COUN>.
- :SENSe:JITTer:TOLerance:DETection:TYPE is <SEC1>, and
  :SENSe:JITTer:TOLerance:DETection:UNIT is other than <COUN>.

Example use To set the threshold count detection range to 100:
> :SENSe:JITTer:TOLerance:DETection:THReshold:EC 100

:SENSe:JITTer:TOLerance:DETection:THReshold:EC?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>

Function Queries the threshold count detection range for jitter tolerance measurement.

Example use > :SENSe:JITTer:TOLerance:DETection:THReshold:EC?
< 100

:SENSe:JITTer:TOLerance:DETection:THReshold:ER <erate>

Parameter <erate> = <CHARACTER PROGRAM DATA>
R1E_3 >1E-3
R1E_4 >1E-4
R1E_5 >1E-5
R1E_6 >1E-6
R1E_7 >1E-7

Function Sets the threshold rate detection range for jitter tolerance measurement.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"JTOLerance">.
- :SENSe:JITTer:TOLerance:DETection:TYPE is other than <SEC1> and <RATE>.
- :SENSe:JITTer:TOLerance:DETection:TYPE is <SEC1>, and :SENSe:JITTer:TOLerance:DETection:UNIT is other than <RATE>.

Example use To set the threshold rate detection range to 1E-3:
> :SENSe:JITTer:TOLerance:DETection:THReshold:ER R1E_3

:SENSe:JITTer:TOLerance:DETection:THReshold:ER?

Response <unit> = <CHARACTER RESPONSE DATA>

Function Queries the threshold rate detection range for jitter tolerance measurement.

Example use > :SENSe:JITTer:TOLerance:DETection:THReshold:ER?
< R1E_3

:SENSe:JITTer:TOLerance:DETection:HTIMe <s>

Parameter <s> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.0 to 99.5 Step value: 0.5

Function Sets the Hold time.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"JTOLerance">.

Example use To set the Hold time to 5.5 seconds:
> :SENSe:JITTer:TOLerance:DETection:HTIMe 5.5

:SENSe:JITTer:TOLerance:DETection:HTIMe?

Response <s> = <NR2 NUMERIC RESPONSE DATA>

Function Queries the Hold time.

Example use > :SENSe:JITTer:TOLerance:DETection:HTIMe?
< 5.5

:SENSe:JITTer:TOLerance:WTIMe <wait>

Parameter <wait> = <NON-DECIMAL NUMERIC PROGRAM DATA>
1.0 to 99.5 Step value: 0.5

Function Sets the Waiting time.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"JTOLerance">.

Example use To set the Waiting time to 1.5 seconds:
> :SENSe:JITTer:TOLerance:WTIMe 1.5

:SENSe:JITTer:TOLerance:WTIMe?

Response	<wait> = <NR2 NUMERIC RESPONSE DATA>
Function	Queries the Waiting time.
Example use	To query the Waiting time: > :SENSe:JITTer:TOLerance:WTIMe? < 1.5

:SENSe:JITTer:TOLerance:MTABle:TYPE <brate>,<type>

Parameter

<brate> = <CHARACTER PROGRAM DATA>

M622	622 Mbit/s
M156	156 Mbit/s
M52	52 Mbit/s
M139	139 Mbit/s
M45	45 Mbit/s
M34	34 Mbit/s
M8	8 Mbit/s
M2	2 Mbit/s
M1_5	1.5 Mbit/s

<type> = <CHARACTER PROGRAM DATA>

G958A	G958 TypeA
G958B	G958 TypeB
G823	G823
G823H	G823 High-Q
G823L	G823 Low-Q
G824	G824
G825	G825
B499	Bell 499
B253	Bell 253
G825E	G.825 Electrical
G813	G.813
G755	G.755
USER	User define
G825_1_5M	G.825 1.5M
G825_2M	G.825 2M
G825O_1_5M	G.825 Optical 1.5M
G825O_2M	G.825 Optical 2M

Function

Sets an editing mask line table for jitter tolerance measurement.

Restriction

Invalid when,

- The 622M-type interface unit is not installed, and <M622> is set.
- The 156M-type interface unit and 2/8/34/139/156M (CMI) unit are not installed, and <M156> is set.
- The 2/8/34/139/156M (CMI) unit is not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52MB3ZS unit is not installed, and <M52>, <M45> or <M1_5> is set.
- The MU150005A, MU150006A, or MU150007A is not installed <G825E>, <G813>, <G755>, <G825_1_5M>, <G825_2M>, <G825O_1_5M> or <G825O_2M> is set.
- The value is other than the followings, according to the Bit rate on the Setup:Tolerance screen:

  When the setting is other than the followings:

622 M:	G.958 Type A/B, G.825, G.813, User, G.825 1.5M, G.825 2M
156 M:	G.958 Type A/B, G.825, G.813, User, G.825 Electrical, G.825 1.5M, G.825 2M, G.825 Optical 1.5M, G.825 Optical 2M
52 M:	User
139 M:	G.823, User
45 M:	G.824, G.755, User
34 M:	G.823, User
8 M:	G.823 High-Q/Low-Q, User
2 M:	G.823 High-Q/Low-Q, User
1.5 M:	G.824, User

Example use

To set the editing mask line table to 622M G.958 Type A:

> :SENSe:JITTer:TOLerance:MTABle:TYPE M622,G958A

:SENSe:JITTer:TOLerance:MTABle:TYPE? <brate>

Parameter <brate> = <CHARACTER PROGRAM DATA>
Response <type> = <CHARACTER PROGRAM DATA>
Function Queries the editing mask line table for jitter tolerance measurement.
Example use > :SENSe:JITTer:TOLerance:MTABle:TYPE? M622
< G958A

:SENSe:JITTer:TOLerance:MTABle:POINt <brate>,<numeric>

Parameter <brate> = <CHARACTER PROGRAM DATA>

M622	622 Mbit/s
M156	156 Mbit/s
M52	52 Mbit/s
M139	139 Mbit/s
M45	45 Mbit/s
M34	34 Mbit/s
M8	8 Mbit/s
M2	2 Mbit/s
M1_5	1.5 Mbit/s

<numeric> = <DECIMAL NUMERIC PROGRAM DATA>

2 to 7	Step value: 1

Function Sets the mask table output point range for jitter tolerance measurement.
Restriction Invalid when,
- The 622M-type interface unit is not installed, and <M622> is set.
- The 156M-type interface unit and 2/8/34/139/156M (CMI) unit are not installed, and <M156> is set.
- The 2/8/34/139/156M (CMI) unit is not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52MB3ZS unit is not installed, and <M52>, <M45> or <M1_5> is set.

Example use To set the 622M table output point range to 2:
> :SENSe:JITTer:TOLerance:MTABle:POINt M622,2

:SENSe:JITTer:TOLerance:MTABle:POINt? <brate>

Parameter <brate> = <CHARACTER PROGRAM DATA>
Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
Function Queries the mask table output point range for jitter tolerance measurement.
Example use > :SENSe:JITTer:TOLerance:MTABle:POINt? M622
< 2

:SENSe:JITTer:TOLerance:MTABle:DATA <brate>,<point>,<freq1>,<freq2>,<ampl>

Parameter

<brate> = <CHARACTER PROGRAM DATA>

M622	622 Mbit/s
M156	156 Mbit/s
M52	52 Mbit/s
M139	139 Mbit/s
M45	45 Mbit/s
M34	34 Mbit/s
M8	8 Mbit/s
M2	2 Mbit/s
M1_5	1.5 Mbit/s

<point> = <CHARACTER PROGRAM DATA>

A	Mask line A coordinate point
B	Mask line B coordinate point
C	Mask line C coordinate point
D	Mask line D coordinate point
E	Mask line E coordinate point
F	Mask line F coordinate point
G	Mask line G coordinate point

<freq1> = <NON-DECIMAL NUMERIC PROGRAM DATA>

0.1 to 999.0

* The maximum value varies depending on the Bit rate.

* <freq1> is changed to a value that can be set on the application side.
(Upper 2 digits are effective, the lower digits are discarded.)

<freq2> = <CHARACTER PROGRAM DATA>

HZ, KHZ, MHZ

<amp1> = <NON-DECIMAL NUMERIC PROGRAM DATA>

0.000 to 800.000 Step value: 0.001

Function

Sets the User define mask line data for jitter tolerance measurement.

Restriction

Invalid when,

- The 622M-type interface unit is not installed, and <M622> is set.
- The 156M-type interface unit and 2/8/34/139/156M (CMI) unit are not installed, and <M156> is set.
- The 2/8/34/139/156M (CMI) unit is not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52MB3ZS unit is not installed, and <M52>, <M45> or <M1_5> is set.
- A frequency lower than that at the preceding point is set.
- The value is out of the range shown in the table below. (<freq1>)

Tolerance Bit rate	Setting range
622M	0.1 Hz to 6.0 MHz
156M	0.1 Hz to 1.5 MHz
52M	0.1 Hz to 500.0 kHz
139M	0.1 Hz to 4.0 MHz
45M	0.1 Hz to 4.5 MHz
34M	0.1 Hz to 1.0 MHz
8M	0.1 Hz to 420.0 kHz
2M	0.1 Hz to 110.0 kHz
1.5M	0.1 Hz to 50.0 kHz

Example use

To set the 622 M table A coordinates to 100 Hz, 2 UIpp:

> :SENSe:JITTer:TOLerance:MTABle:DATA M622,A,100,HZ,2

:SENSe:JITTer:TOLerance:MTABle:DATA? <brate>,<point>

Parameter <brate> = <CHARACTER PROGRAM DATA>
<point> = <CHARACTER PROGRAM DATA>
Response <freq1>,<freq2>,<ampl>
<freq1> = <NR2 NUMERIC RESPONSE DATA>
<freq2> = <CHARACTER RESPONSE DATA>
<ampl> = <NR2 NUMERIC RESPONSE DATA>
Function Queries the User define mask line data for jitter tolerance measurement.
Example use > :SENSe:JITTer:TOLerance:MTABle:DATA? M622,A
< 100.0,HZ,2.000

:SENSe:JITTer:TOLerance:MTABle:DEFault <brate> [,<type>]

Parameter <brate> = <CHARACTER PROGRAM DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<type> = <CHARACTER PROGRAM DATA>

G958A	G.958 Type A
G958B	G.958 Type B
G823	G.823
G823H	G.823 High-Q
G823L	G.823 LOW-Q
G824	G.824
G825	G.825
B499	Bell 499
B253	Bell 253
G825E	G.825 Electrical
G813	G.813
G755	G.755
G825_1_5M	G.825 1.5M
G825_2M	G.825 2M
G825O_1_5M	G.825 Optical 1.5M
G825O_2M	G.825 Optical 2M

Function Initializes the User define mask line data for jitter tolerance measurement.
Restriction Invalid when,

- The 622M-type interface unit is not installed, and <M622> is set.
- The 156M-type interface unit and 2/8/34/139/156M (CMI) unit are not installed, and <M156> is set.
- The 2/8/34/139/156M (CMI) unit is not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52MB3ZS unit is not installed, and <M52>, <M45>, or <M1_5> is set.
- :SENSe:JITTer:TOLerance:MTABle:TYPE の<type> is other than <USER>.
- The MU150005A, MU150006A, or MU150007A is not installed; and <G825E>, <G813>, <G755>, <G825_1_5M>, <G825_2M>, <G825O_1_5M> or <G825O_2M> is set.
- The value is out of the set range specified by Bit rate of :SENSe:JITTer:TOLerance:MTABle:TYPE.

Example use To initialize 622M mask line data to G.958 Type A
> :SENSe:JITTer:TOLerance:MTABle:DEFault M622 G958A

:SENSe:JITTer:TRANsfer:MODE <mode>

Parameter <mode> = <CHARACTER PROGRAM DATA>

CAL	Calibration
MEAS	Measurement

Function Sets a measurement mode for jitter transfer characteristic measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"JTRansfer">.
- The MP0104A/B and MP0106B units are installed, and :SENse:TELecom:BRATe is <M622> or <M156>.

Example use To set the measurement mode to Measurement:

> :SENSe:JITTer:TRANsfer:MODE MEAS

:SENSe:JITTer:TRANsfer:MODE?

Parameter <mode> = <CHARACTER RESPONSE DATA>

Function Queries the measurement mode setting for jitter transfer characteristic measurement.

Example use > :SENSe:JITTer:TRANsfer:MODE?

< MEAS

:SENSe:JITTer:TRANsfer:MASK <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

G958A	G958 Type A
G958B	G958 Type B
G752	G752
G751	G751
G742	G742
G743	G743
B253	Bell 253
USER	User define
B499	Bell499
G755	G755
G735F2H	G735 Fig2 High-Q
G735F2L	G735 Fig2 Low-Q
G735F3	G735 Fig3
G736F1H	G736 Fig1 High-Q
G736F1L	G736 Fig1 Low-Q
G736F2	G736 Fig2
G737F2H	G737 Fig2 High-Q
G737F2L	G737 Fig2 Low-Q
G737F3	G737 Fig3
G738F2H	G738 Fig2 High-Q
G738F2L	G738 Fig2 Low-Q
G738F3	G738 Fig3
G739F2H	G739 Fig2 High-Q
G739F2L	G739 Fig2 Low-Q
G739F3	G739 Fig3
ANSIT1	ANSI T1.105.03

Function Sets a mask line table for judgment use of jitter transfer characteristic measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"JTRansfer">.
- The value is other than the followings, according to the Rx Bit rate on the Setup:Mapping screen, and installed unit.

When MP0124A, MP0125A, or MP0126A is installed

Bit rate	Table type
622M	G.958 TypeA,G.958 TypeB,User,Bell253
156M	G.958 TypeA,G.958 TypeB,User,Bell253
52M	User,Bell253
139M	User
45M	G.752,User,Bell253
34M	G.751,User
8M	G.751,User
2M	G.742,User,
1.5M	G.743,User,Bell253

When MU150005A, MU150006A, or MU150007A is installed

Bit rate	Table type
622M	G.958 TypeA,G.958 TypeB,User,Bell253,ANSI T1.105.03
156M	G.958 TypeA,G.958 TypeB,User,Bell253,ANSI T1.105.03
52M	User,Bell253,ANSI T1.105.03
139M	User
45M	G.755,User,Bell253,Bell499
34M	G.751,User
8M	G.751,User
2M	G.742,User, G.735 Fig2 High-Q, G.735 Fig2 Low-Q, G.735 Fig3, G.736 Fig1 High-Q, G.736 Fig1 Low-Q, G.736 Fig2, G.737 Fig2 High-Q, G.737 Fig2 Low-Q, G.737 Fig3, G.738 Fig2 High-Q, G.738 Fig2 Low-Q, G.738 Fig3, G.739 Fig2 High-Q, G.739 Fig2 Low-Q, G.739 Fig3
1.5M	G.743,User,Bell253,Bell499

Example use To set the mask line table to G.958 Type A:

> :SENSe:JITTer:TRANsfer:MASK G958A

:SENSe:JITTer:TRANsfer:MASK?

Response <type> = <CHARACTER RESPONSE DATA>
Function Queries the mask line table for judgment use of jitter transfer characteristic measurement.
Example use > :SENSe:JITTer:TRANsfer:MASK?
< G958A

:SENSe:JITTer:TRANsfer:MTABle:TYPE <brate>,<type>

Parameter <brate> = <CHARACTER PROGRAM DATA>

M622	622 Mbit/s
M156	156 Mbit/s
M52	52 Mbit/s
M139	139 Mbit/s
M45	45 Mbit/s
M34	34 Mbit/s
M8	8 Mbit/s
M2	2 Mbit/s
M1_5	1.5 Mbit/s

<type> = <CHARACTER PROGRAM DATA>

G958A	G958 Type A
G958B	G958 Type B
G752	G752
G751	G751
G742	G742
G743	G743
B253	Bell 253
USER	User define
B499	Bell499
G755	G755
G735F2H	G735 Fig2 High-Q
G735F2L	G735 Fig2 Low-Q
G735F3	G735 Fig3
G736F1H	G736 Fig1 High-Q
G736F1L	G736 Fig1 Low-Q
G736F2	G736 Fig2
G737F2H	G737 Fig2 High-Q
G737F2L	G737 Fig2 Low-Q
G737F3	G737 Fig3
G738F2H	G738 Fig2 High-Q
G738F2L	G738 Fig2 Low-Q
G738F3	G738 Fig3
G739F2H	G739 Fig2 High-Q
G739F2L	G739 Fig2 Low-Q
G739F3	G739 Fig3
ANSIT1	ANSI T1.105.03

Function Sets an editing mask line table for jitter transfer characteristic measurement.
Restriction Invalid when,

- The 622M-type interface unit is not installed, and <M622> is set.
- The 156M-type interface unit and 2/8/34/139/156M (CMI) unit are not installed, and <M156> is set.
- The 2/8/34/139/156M (CMI) unit is not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52MB3ZS unit is not installed, and <M52>, <M45> or <M1_5> is set.
- The value is other than the followings, according to the installed unit.

When MP0124A, MP0125A, or MP0126A is installed

Bit rate	Table type
622M	G.958 TypeA,G.958 TypeB,User,Bell253
156M	G.958 TypeA,G.958 TypeB,User,Bell253
52M	User,Bell253
139M	User
45M	G.752,User,Bell253
34M	G.751,User
8M	G.751,User
2M	G.742,User,
1.5M	G.743,User,Bell253

When MU150005A, MU150006A, or MU150007A is installed

Bit rate	Table type
622M	G.958 TypeA,G.958 TypeB,User,Bell253,ANSI T1.105.03
156M	G.958 TypeA,G.958 TypeB,User,Bell253,ANSI T1.105.03
52M	User,Bell253,ANSI T1.105.03
139M	User
45M	G.755,User,Bell253,Bell499
34M	G.751,User
8M	G.751,User
2M	G.742,User, G.735 Fig2 High-Q, G.735 Fig2 Low-Q, G.735 Fig3, G.736 Fig1 High-Q, G.736 Fig1 Low-Q, G.736 Fig2, G.737 Fig2 High-Q, G.737 Fig2 Low-Q, G.737 Fig3, G.738 Fig2 High-Q, G.738 Fig2 Low-Q, G.738 Fig3, G.739 Fig2 High-Q, G.739 Fig2 Low-Q, G.739 Fig3
1.5M	G.743,User,Bell253,Bell499

Example use To set the 622 M editing mask line table to G.958 Type A:

> :SENSe:JITTer:TRANsfer:MTABle:TYPE M622,G958A

:SENSe:JITTer:TRANsfer:MTABle:TYPE? <brate>

Parameter <brate> = <CHARACTER PROGRAM DATA>
Response <type> = <CHARACTER PROGRAM DATA>
Function Queries the editing mask line table for jitter transfer characteristic measurement.
Example use > :SENSe:JITTer:TRANsfer:MTABle:TYPE? M622
< G958A

:SENSe:JITTer:TRANsfer:MTABle:POINt <brate>,<numeric>

Parameter <brate> = <CHARACTER PROGRAM DATA>

M622	622 Mbit/s
M156	156 Mbit/s
M52	52 Mbit/s
M139	139 Mbit/s
M45	45 Mbit/s
M34	34 Mbit/s
M8	8 Mbit/s
M2	2 Mbit/s
M1_5	1.5 Mbit/s

<numeric> = <DECIMAL NUMERIC PROGRAM DATA>

2 to 4	Step value: 1

Function Sets the mask table output point range for jitter tolerance measurement.
Restriction Invalid when,

- The 622M-type interface unit is not installed, and <M622> is set.
- The 156M-type interface unit and 2/8/34/139/156M (CMI) unit are not installed, and <M156> is set.
- The 2/8/34/139/156M (CMI) unit is not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52MB3ZS unit is not installed, and <M52>, <M45> or <M1_5> is set.

Example use To set the 622M table output point range to 2:
> :SENSe:JITTer:TRANsfer:MTABle:POINt M622,2

:SENSe:JITTer:TRANsfer:MTABle:POINt? <brate>

Parameter <brate> = <CHARACTER PROGRAM DATA>
Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
Function Queries the mask table output point range for jitter tolerance measurement.
Example use > :SENSe:JITTer:TRANsfer:MTABle:POINt? M622
< 2

:SENSe:JITTer:TRANsfer:MTABle:DATA <brate>,<point>,<freq1>,<freq2>,<ampl>

Parameter

<brate> = <CHARACTER PROGRAM DATA>

M622	622 Mbit/s
M156	156 Mbit/s
M52	52 Mbit/s
M139	139 Mbit/s
M45	45 Mbit/s
M34	34 Mbit/s
M8	8 Mbit/s
M2	2 Mbit/s
M1_5	1.5 Mbit/s

<point> = <CHARACTER PROGRAM DATA>

A	Mask line A coordinate point
B	Mask line B coordinate point
C	Mask line C coordinate point
D	Mask line D coordinate point

<freq1> = <NON-DECIMAL NUMERIC PROGRAM DATA>

1.0 to 999.0

* <freq1> is changed to a value that can be set on the application side.
(Upper 2 digits are effective, the lower digits are discarded.)

<freq2> = <CHARACTER PROGRAM DATA>

HZ, KHZ, MHZ

<amp1> = <NON-DECIMAL NUMERIC PROGRAM DATA>

−60.00 to 10.00 Step value: 0.01

Function

Sets the User define mask line data for jitter transfer characteristic measurement.

Restriction

Invalid when,

- The 622M-type interface unit is not installed, and <M622> is set.
- The 156M-type interface unit and 2/8/34/139/156M (CMI) unit are not installed, and <M156> is set.
- The 2/8/34/139/156M (CMI) unit is not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52MB3ZS unit is not installed, and <M52>, <M45> or <M1_5> is set.
- A frequency lower than that at the preceding point is set.
- The value is out of the range shown in the table below. (<freq1>)

Transfer Bit rate	Setting range
622 M	2.0 Hz to 6.0 MHz
156 M	2.0 Hz to 1.5 MHz
52 M	2.0 Hz to 500.0 kHz
139 M	2.0 Hz to 4.0 MHz
45 M	2.0 Hz to 4.5 MHz
34 M	2.0 Hz to 1.0 MHz
8 M	2.0 Hz to 420.0 kHz
2 M	2.0 Hz to 110.0 kHz
1.5 M	2.0 Hz to 50.0 kHz

Example use

To set the 622M mask table A contents to 100.0 Hz, −30.00:

> :SENSe:JITTer:TRANsfer:MTABle:DATA M622,A,100.0,HZ,−30.00

:SENSe:JITTer:TRANsfer:MTABle:DATA? <brate>,<point>

Parameter <brate> = <CHARACTER PROGRAM DATA>
<point> = <CHARACTER PROGRAM DATA>

Response <freq1>,<freq2>,<ampl>
<freq1> = <NR2 NUMERIC RESPONSE DATA>
<freq2> = <CHARACTER RESPONSE DATA>
<ampl> = <NR2 NUMERIC RESPONSE DATA>

Restriction Queries the User define mask line data for jitter transfer characteristic measurement.

Example use > :SENSe:JITTer:TRANsfer:MTABle:DATA? M622,A
< 100.0,HZ,2.00

:SENSe:JITTer:TRANsfer:MTABle:DEFault <brate> [,<type>]

Parameter

<brate> = <CHARACTER PROGRAM DATA>

M622	622 Mbit/s
M156	156 Mbit/s
M52	52 Mbit/s
M139	139 Mbit/s
M45	45 Mbit/s
M34	34 Mbit/s
M8	8 Mbit/s
M2	2 Mbit/s
M1_5	1.5 Mbit/s

<type> = <CHARACTER PROGRAM DATA>

G958A	G.958 Type A
G958B	G.958 Type B
B253	Bell 253
G752	G.752
G751	G.751
G743	G.743
G742	G.742
B499	Bell499
G755	G755
G735F2H	G735 Fig2 High-Q
G735F2L	G735 Fig2 Low-Q
G735F3	G735 Fig3
G736F1H	G736 Fig1 High-Q
G736F1L	G736 Fig1 Low-Q
G736F2	G736 Fig2
G737F2H	G737 Fig2 High-Q
G737F2L	G737 Fig2 Low-Q
G737F3	G737 Fig3
G738F2H	G738 Fig2 High-Q
G738F2L	G738 Fig2 Low-Q
G738F3	G738 Fig3
G739F2H	G739 Fig2 High-Q
G739F2L	G739 Fig2 Low-Q
G739F3	G739 Fig3
ANSIT1	ANSI T1.105.03

Function

Initializes the mask table contents for jitter transfer characteristic measurement.

Restriction

Invalid when,

- The 622M-type interface unit is not installed, and <M622> is set.
- The 156M-type interface unit and 2/8/34/139/156M (CMI) unit are not installed, and <M156> is set.
- The 2/8/34/139/156M (CMI) unit is not installed, and <M139>, <M34>, <M8>, or <M2> is set.
- The 1.5/45/52MB3ZS unit is not installed, and <M52>, <M45> or <M1_5> is set.
- :SENSe:JITTer:TRANsfer:MTABle:TYPE is other than <USER>.
- The value is other than the followings, according to the installed unit.

When MP0124A, MP0125A, or MP0126A is installed

Bit rate	Table type
622M	G.958 TypeA,G.958 TypeB,User,Bell253
156M	G.958 TypeA,G.958 TypeB,User,Bell253
52M	User,Bell253
139M	User
45M	G.752,User,Bell253
34M	G.751,User
8M	G.751,User
2M	G.742,User,
1.5M	G.743,User,Bell253

When MU150005A, MU150006A, or MU150007A is installed

Bit rate	Table type
622M	G.958 TypeA,G.958 TypeB,User,Bell253,ANSI T1.105.03
156M	G.958 TypeA,G.958 TypeB,User,Bell253,ANSI T1.105.03
52M	User,Bell253,ANSI T1.105.03
139M	User
45M	G.755,User,Bell253,Bell499
34M	G.751,User
8M	G.751,User
2M	G.742,User, G.735 Fig2 High-Q, G.735 Fig2 Low-Q, G.735 Fig3, G.736 Fig1 High-Q, G.736 Fig1 Low-Q, G.736 Fig2, G.737 Fig2 High-Q, G.737 Fig2 Low-Q, G.737 Fig3, G.738 Fig2 High-Q, G.738 Fig2 Low-Q, G.738 Fig3, G.739 Fig2 High-Q, G.739 Fig2 Low-Q, G.739 Fig3
1.5M	G.743,User,Bell253,Bell499

Example use To initialize the mask table contents of Bit rate 622M to G.958 Type A.

> :SENSe:JITTer:TRANsfer:MTABle:DEFault M622 G958A

:SENSe:JITTer:TRANsfer:LOOPback <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

INTernal	Internal
EXTernal	External

Function Switches the internal loopback/external connection for Calibration measurement.

Restriction Invalid when,

- Other than :DISPlay:TMENu<JTRansfer> is set.

Example use To set internal loopback for Calibration measurement:

> :SENSe:JITTer:TRANsfer:LOOPback INT

:SENSe:JITTer:TRANsfer:LOOPback?

Response <type> = <CHARACTER RESPONSE DATA>

Function Queries the internal loopback/external connection setting for Calibration measurement.

Example use To query the internal loopback/external connection setting for Calibration measurement:

> :SENSe:JITTer:TRANsfer:LOOPback?

< INT

:SENSe:JITTer:TRANsfer:SELectband <band>

Parameter <band> = < CHARACTER PROGRAM DATA>

H_1	1Hz
H_3	3Hz
H_10	10Hz
H_30	30Hz

Function Sets the Selective bandwidth value.

Restriction Invalid when,

- Other than :DISPlay:TMENu<JTRansfer> is set.
- The MU150005A, MU150006A, or MU150007A is installed

Example use To set the Selective bandwidth value to 10Hz:

> :SENSe:JITTer:TRANsfer:SELectband H_10

:SENSe:JITTer:TRANsfer:SELectband?

Response <band> = <NR2 NUMERIC RESPONSE DATA>

Function Queries the Selective bandwidth value.

Example use To query the Selective bandwidth value:

> :SENSe:JITTer:TRANsfer:SELectband?

< H_10

:SENSe:JITTer:TRANsfer:WTIMe <wait>

Parameter <wait> = <NON-DECIMAL NUMERIC PROGRAM DATA>

0.0 to 99.5	Step value: 0.5

Function Sets the Waiting time.

Restriction Invalid when,

- Other than :DISPlay:TMENu<JTRansfer> is set.

Example use To set the Waiting time to 1.5 seconds:

> :SENSe:JITTer:TRANsfer:WTIMe 1.5

:SENSe:JITTer:TRANsfer:WTIMe?

Response <wait> = <NR2 NUMERIC RESPONSE DATA>
Function Queries the Waiting time.
Example use > :SENSe:JITTer:TRANsfer:WTIMe?
< 1.5

:SENSe:JITTer:JFRequency:FMODe <mode>

Parameter <mode> = <CHARACTER PROGRAM DATA>

SINGle	Sets single filter (uses Filter 1 only)
DOUBle	Sets double filter (uses Filter 1 and 2)

Function Sets the number of filter for Jitter/Freq. measurement
Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- :DISPlay:TMENu[:NAME] is other than <"JFRequency">.

Example use To set the Filter to double.
> :SENSe:JITTer:JFRequency:FMODe DOUBle

:SENSe:JITTer:JFRequency:FMODe?

Response <filter> = <CHARACTER RESPONSE DATA>
Same as :SENSe:JITTer:JFRequency:FMODe .
Function Queries the setting state of filter number for Jitter/Freq. measurement.
Example use > :SENSe:JITTer:JFRequency:FMODe?
< SING

:SENSe:JITTer:JFRequency:FILTer <filter>

Parameter <filter> = <CHARACTER PROGRAM DATA>

OFF	No filters are inserted.
HP	High-pass filter is inserted.
HP1	High-pass filter 1 is inserted.
HP21	High-pass filter 2 is inserted.
HP22	High-pass filter 2' is inserted.
LP	Low-pass filter is inserted.
LPHP	Low-pass filter and High-pass filter are inserted.
LPHP0	Low-pass filter and High-pass filter 0 are inserted.
LPHP1	Low-pass filter and High-pass filter 1 are inserted.
LPHP21	Low-pass filter and High-pass filter 2 are inserted.
LPHP22	Low-pass filter and High-pass filter 2' are inserted.
USER	User setting filter is inserted

Function Sets the filter for Jitter/Freq. measurement.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"JFRequency">.
- :SENSe:TELecom:BRATe is other than <M8> and <M2>, and <HP22> or <LPHP22> is set.
- The same parameter as :SENSe:JITTer:JFRequency:FILTer is set.
- The MP0124A, MP0125A, or MP0126A is not installed; and <OFF> is set.

Example use To set the filter for Jitter/Freq. measurement to HP1:
> :SENSe:JITTer:JFRequency:FILTer HP1

:SENSe:JITTer:JFRequency:FILTer?

Response <filter> = <CHARACTER RESPONSE DATA>
Function Queries the filter for Jitter/Freq. measurement.
Example use > :SENSe:JITTer:JFRequency:FILTer?
< HP1

:SENSe:JITTer:JFRequency:FILTer2 <filter>

Parameter <filter> = <CHARACTER PROGRAM DATA>

HP	High-pass filter is inserted.
HP1	High-pass filter 1 is inserted.
HP21	High-pass filter 2 is inserted.
HP22	High-pass filter 2' is inserted.
LP	Low-pass filter is inserted.
LPHP0	Low-pass filter and High-pass filter 0 are inserted.
LPHP	Low-pass filter and High-pass filter are inserted.
LPHP1	Low-pass filter and High-pass filter 1 are inserted.
LPHP21	Low-pass filter and High-pass filter 2 are inserted.
LPHP22	Low-pass filter and High-pass filter 2' are inserted.
USER	User setting filter is inserted

Function Sets a type of filter 2 when the filter number is 2 (double).
Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- :DISPlay:TMENu[:NAME] is other than <"JFRequency">.
- :SENSe:TELecom:BRATe is other than <M8> and <M2>; and <HP22> or <LPHP22> is set.
- :SENSe:JITTer:JFRequency:FMODe is <SINGle>
- The same parameter as :SENSe:JITTer:JFRequency:FILTer is set.

Example use To set the type of Filter 2 for Jitter/Freq. measurement to HP1.
> :SENSe:JITTer:JFRequency:FILTer2 HP1

:SENSe:JITTer:JFRequency:FILTer2?

Response <filter> = <CHARACTER RESPONSE DATA>
Same as :SENSe:JITTer:JFRequency:FILTer2 .
Function Queries the setting state of Filter 2 when the filter number for Jitter/Freq. measurement is 2 (double).
Example use > :SENSe:JITTer:JFRequency:FILTer2?
< HP1

:SENSe:JITTer:JFRequency:INTerval <numeric>

Parameter <numeric> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.5 to 99.5 Step value: 0.5
* The digits lower than the resolution are cut off.
Function Sets the measurement interval for Jitter/Freq. measurement.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"JFRequency">.

Example use To set the measurement interval for Jitter/Freq. measurement to 0.5:
> :SENSe:JITTer:JFRequency:INTerval 0.5

:SENSe:JITTer:JFRequency:INTerval?

Response <numeric> = <NR2 NUMERIC RESPONSE DATA>
Function Queries the measurement interval for Jitter/Freq. measurement.
Example use > :SENSe:JITTer:JFRequency:INTerval?
< 0.5

:SENSe:JITTer:JFRequency:USER:FILTer <hp>,<hpsuffix>,<lp>,<lpsuffix>

Parameter <hp> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.0 to 990.0 Step value: 0.1 * Value of 0.0 indicates OFF.
The top 2-digits are valid.
<hpsuffix> = <CHARACTER PROGRAM DATA>
HZ Hz
KHZ KHz
MHZ MHz
<lp> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.0 to 990.0 Step value: 0.1 * Value of 0.0 indicates OFF.
The top 2-digits are valid.
<lpsuffix> = <CHARACTER PROGRAM DATA>
HZ Hz
KHZ KHz
MHZ MHz
Function Sets a User filter value.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"JFRequency">.
- The filter setting is other than User.
- Filter2 is set to USER.
- Sets <lp> to the lower value than <hp>.

Example use To set HP and LP of User filter value to 12KHz and 1.3MHz, respectively.
> :SENSe:JITTer:JFRequency:USER:FILTer 12.0,KHZ,1.3,MHZ

:SENSe:JITTer:JFRequency:USER:FILTer?

Response <hp> = <NR2 NUMERIC RESPONSE DATA>
<hpsuffix> = <CHARACTER RESPONSE DATA>
<lp> = <NR2 NUMERIC RESPONSE DATA>
<lpsuffix> = <CHARACTER RESPONSE DATA>
Function Queries the User filter value.
Example use To query the User filter value:
> :SENSe:JITTer:JFRequency:USER:FILTer?
< 12.0,KHZ,1.3,MHZ

:SENSe:JITTer:JFRequency:USER:FILTer2 <hp>,<hpsuffix>,<lp>,<lpsuffix>

Parameter
<hp> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.0 to 990.0 Step value : 0.1 * Value of 0.0 indicates OFF
The top 2-digits are valid.
<hpsuffix> = <CHARACTER PROGRAM DATA>
HZ Hz
KHZ KHz
MHZ MHz
<lp> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.0 to 990.0 Step value : 0.1 * Value of 0.0 indicates OFF
The top 2-digits are valid.
<lpsuffix> = <CHARACTER PROGRAM DATA>
HZ Hz
KHZ KHz
MHZ MHz

Function
Sets a User filter2 value.

Restriction
Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- :DISPlay:TMENu[:NAME] is other than <"JFRequency">.
- :SENSe:JITTer:JFRequency:FMODe is <SINGle>.
- :SENSe:JITTer:JFRequency:FILTer is <USER>.
- Sets <lp> to the lower value than <hp>.

Example use
To set the User filter value for HP to 12KHz, for LP to 1.3MHz.
> :SENSe:JITTer:JFRequency:USER:FILTer2 12.0,KHZ,1.3,MHZ

:SENSe:JITTer:JFRequency:USER:FILTer2?

Response
<hp> = <NR2 NUMERIC RESPONSE DATA>
Same as SENSe:JITTer:JFRequency:USER:FILTer2 .
<hpsuffix> = <CHARACTER RESPONSE DATA>
Same as :SENSe:JITTer:JFRequency:USER:FILTer2 .
<lp> = <NR2 NUMERIC RESPONSE DATA>
Same as :SENSe:JITTer:JFRequency:USER:FILTer2 .
<lpsuffix> = <CHARACTER RESPONSE DATA>
Same as :SENSe:JITTer:JFRequency:USER:FILTer2 .

Function
Queries the setting state of User filter value.

Example use
To query the setting of User filter value.
> :SENSe:JITTer:JFRequency:USER:FILTer2?
< 12.0,KHZ,1.3,MHZ

:SENSe:JITTer:JFRequency:MTABle:TYPE <brate>,<type>

Parameter <brate> = <CHARACTER PROGRAM DATA>

M139	139M
M45	45M
M34	34M
M8	8M
M2	2M
M1_5	1.5M

<type> = <CHARACTER PROGRAM DATA>

G783	G783
USER	User

Function Sets a mask table type of Jitter/Freq. Measurement.

Restriction Invalid when,

- The MU150005A, MU150006A, or MU150007A is not installed.
- The unit conforming to the set Bit rate is not installed.

Example use To set the mask table type of Bit rate 139M to G.783

> :SENSe:JITTer:JFRequency:MTABle:TYPE M139,G783

:SENSe:JITTer:JFRequency:MTABle:TYPE? <brate>

Parameter <brate> = <CHARACTER PROGRAM DATA>

Same as :SENSe:JITTer:JFRequency:MTABle:TYPE .

Response <type> = <CHARACTER RESPONSE DATA>

Same as :SENSe:JITTer:JFRequency:MTABle:TYPE .

Function Queries the setting state of Jitter/Freq. measurement mask table.

Example use > :SENSe:JITTer:JFRequency:MTABle:TYPE? M139

< USER

:SENSe:JITTer:JFRequency:MTABle:DATA <brate>,<uipp1>,<uipp2>

Parameter <brate> = <CHARACTER PROGRAM DATA>

M139	139M
M45	45M
M34	34M
M8	8M
M2	2M
M1_5	1.5M

<uipp1> = <NON-DECIMAL NUMERIC PROGRAM DATA>

0.000 to 800.000

<uipp2> = <NON-DECIMAL NUMERIC PROGRAM DATA>

0.000 to 800.000

Function Edits a mask table for the Jitter/Freq. measurement.

Restriction Invalid when,

- The MU150005A, MU150006A, or MU150007A is not installed.
- <type> of :SENSe:JITTer:JFRequency:MTABle:TYPE is set to other than <USER>.

Example use To set HP1+LP UIp-p=0.123 ,HP2+LP UIp-p=0.224 on the Bit rate 139M mask table.

> :SENSe:JITTer:JFRequency:MTABle:DATA M139,0.123,0.224

:SENSe:JITTer:JFRequency:MTABle:DATA? <brate>

Parameter <brate> = <CHARACTER PROGRAM DATA>
Same as :SENSe:JITTer:JFRequency:MTABle:DATA
Response <uipp1> = <NR2 NUMERIC RESPONSE DATA>
Same as :SENSe:JITTer:JFRequency:MTABle:DATA
<uipp2> = <NR2 NUMERIC RESPONSE DATA>
Same as :SENSe:JITTer:JFRequency:MTABle:DATA
Function Queries the contents when mask table is User in Jitter/Freq. Measurement.
Example use To query the setting contents of Bit rate 45M mask table.
> :SENSe:JITTer:JFRequency:MTABle:DATA? M45
< 0.123,0.224

:SENSe:JITTer:JFRequency:OFFSet <offset>

Parameter <offset> = <DECIMAL NUMERIC PROGRAM DATA>
0 to 100 Step value : 1
Function Set an Offset mask in Jitter/Freq. Measurement.
Restriction Invalid when,
Example use To set the Offset mask to 0.
> :SENSe:JITTer:JFRequency:OFFSet 0

:SENSe:JITTer:JFRequency:OFFSet?

Response <offset> = <NR1 NUMERIC RESPONSE DATA>
Same as :SENSe:JITTer:JFRequency:OFFSet .
Function Queries the setting state of Offset mask.
Example use To query the setting state of Offset mask.
> :SENSe:JITTer:JFRequency:OFFSet?
< 100

:SENSe:JITTer:JFRequency:MTABle:DEFault <brate> [,<type>]

Parameter <brate> = <CHARACTER PROGRAM DATA>
M139,M45,M34,M8,M2,M1_5
<type> = <CHARACTER PROGRAM DATA>
G783 G.783
Function Initializes the Jitter/Freq. Measurement mask table which can be set optionally.
Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- <type> of :SENSe:JITTer:JFRequency:MTABle:TYPE is set to other than <USER>.

Example use To initialize contents of Bit rate 139M mask table to G.783.
> :SENSe:JITTer:JFRequency:MTABle:DEFault M139,G783

:SENSe:JITTer:SWEep:DETection:TYPE <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

SEC1	1sec error
DEFault	Default
ON	On set of errors
DB1	1dB power penalty
COUNt	Count
RATE	Rate

Function Sets a detection condition for jitter sweep measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"JSWeep">.

Example use To set the detection condition to 1s error.

> :SENSe:JITTer:SWEep:DETection:TYPE SEC1

:SENSe:JITTer:SWEep:DETection:TYPE?

Response <type> = <CHARACTER RESPONSE DATA>

Same as :SENSe:JITTer:SWEep:DETection:TYPE.

Function Queries the detection condition for jitter sweep measurement.

Example use > :SENSe:JITTer:SWEep:DETection:TYPE?

< SEC1

:SENSe:JITTer:SWEep:DETection:ERRor <error>

Parameter <error> = < STRING PROGRAM DATA>

(SDH)	"B1"	B1 error	(SONET)	"B1"	B1 error
	"B2"	B2 error		"B2"	B2 error
	"HB3"	HP-B3 error		"HB3"	HP-B3 error
	"LB3"	LP-B3 error		"LB3"	LP-B3 error
	"BIP2"	BIP-2 error		"BIP2"	BIP-2 error
	"MREI" (SDH)	MS-REI error		"REIL" (SONET)	REI-L error
	"HREI" (SDH)	HP-REI error		"REIP" (SONET)	REI-P error
	"HIEC"	HP-IEC error		"HIEC"	HP-IEC error
	"HTREI"	HP-TC-REI error		"HTREI"	HP-TC-REI error
	"HOEI"	HP-OEI error		"HOEI"	HP-OEI error
	"LREI" (SDH)	LP-REI error		"REIV" (SONET)	REI-V error
	"LIEC"	LP-IEC error		"LIEC"	LP-IEC error
	"LTREI"	LP-TC-REI error		"LTREI"	LP-TC-REI error
	"LOEI"	LP-OEI error		"LOEI"	LP-OEI error
	"N2BIP2"	N2_BIP2 error		"N2BIP2"	N2_BIP2 error
	"BIT"	Bit error		"BIT"	Bit error
	CODE"	Code error		"CODE"	Code error
	"FAS139"	FAS 139M error		"FAS139"	FAS 139M error
	"FAS45"	FAS 45M error		"FAS45"	FAS 45M error
	"FAS34"	FAS 34M error		"FAS34"	FAS 34M error
	"FAS8"	FAS 8M error		"FAS8"	FAS 8M error
	"FAS2"	FAS 2M error		"FAS2"	FAS 2M error
	"FAS1_5"	FAS 1.5M error		"FAS1_5"	FAS 1.5M error
	"REI139"	REI 139M error		"REI139"	REI 139M error
	"REI45"	REI 45M error		"REI45"	REI 45M error
	"REI34"	REI 34M error		"REI34"	REI 34M error
	"BIP8"	BIP8 error		"BIP8"	BIP8 error
	"PLCPREI"	REI PLCP error		"PLCPREI"	REI PLCP error
	"PARITY"	Patity error		"PARITY"	Patity error
	"CBIT"	CBIT error		"CBIT"	CBIT error
	"CRC6"	CRC6 error		"CRC6"	CRC6 error
	"CORRECT"	Correct error		"CORRECT"	Correct error
	"DISCARD"	Discard error		"DISCARD"	Discard error
	"NONCONF"	Nonconf error		"NONCONF"	Nonconf error
	"ERRORED"	Errored error		"ERRORED"	Errored error
	"LOST"	Lost error		"LOST"	Lost error
	"MISINS"	Misinserted error		"MISINS"	Misinserted error
	"SECB"	SECB error		"SECB"	SECB error

Function Sets a detection condition error for jitter sweep measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"JSWeep">.
- :SENSe:JITTer:SWEep:DETection:TYPE is <DEFault>.
- The jitter unit is not installed.
- An error which does not conform to the installed unit is set.

Example use To set the detection condition error to B1.

> :SENSe:JITTer:SWEep:DETection:ERRor B1

:SENSe:JITTer:SWEep:DETection:ERRor?

Response <Error> = <CHARACTER RESPONSE DATA>
Same as :SENSe:JITTer:SWEep:DETection:ERRor.
Function Queries the detection condition error for jitter sweep measurement.
Example use > :SENSe:JITTer:SWEep:DETection:ERRor?
< B1

:SENSe:JITTer:SWEep:DETection:UNIT <unit>

Parameter <unit> = <CHARACTER PROGRAM DATA>
COUNt
RATE
Function Sets a detection type for jitter sweep measurement.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"JSWeep">.
- :SENSe:JITTer:SWEep:DETection:TYPE is other than <SEC1>.

Example use To set the type to Count.
> :SENSe:JITTer:SWEep:DETection:UNIT COUNt

:SENSe:JITTer:SWEep:DETection:UNIT?

Response <unit> = <CHARACTER RESPONSE DATA>
Same as :SENSe:JITTer:SWEep:DETection:UNIT.
Function Queries the setting state of detection type for jitter sweep measurement.
Example use > :SENSe:JITTer:SWEep:DETection:UNIT?
< COUN

:SENSe:JITTer:SWEep:DETection:THReshold:EC <numeric>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 99999 Step:1
Function Sets a detection range of Threshold count for jitter sweep measurement.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"JSWeep">.
- :SENSe:JITTer:SWEep:DETection:TYPE is other than <SEC1>,<COUN>.
- :SENSe:JITTer:SWEep:DETection:TYPE is <SEC1>, and :SENSe:JITTer:SWEep:DETection:UNIT is other than <COUN>.

Example use To set the detection range of Threshold count to 100.
> :SENSe:JITTer:SWEep:DETection:THReshold:EC 100

:SENSe:JITTer:SWEep:DETection:THReshold:EC?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
Same as :SENSe:JITTer:SWEep:DETection:THReshold:EC .
Function Queries the detection range of Threshold count for jitter sweep measurement.
Example use > :SENSe:JITTer:SWEep:DETection:THReshold:EC?
< 100

:SENSe:JITTer:SWEep:DETection:THReshold:ER <erate>

Parameter <erate> = <CHARACTER NUMERIC PROGRAM DATA>

R1E_3	>1E-3
R1E_4	>1E-4
R1E_5	>1E-5
R1E_6	>1E-6
R1E_7	>1E-7

Function Sets a detection range of Threshold count for jitter sweep measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"JSWeep">.
- :SENSe:JITTer:SWEep:DETection:TYPE is other than <SEC1> and<RATE>.
- :SENSe:JITTer:SWEep:DETection:TYPE is <SEC1>, and :SENSe:JITTer:SWEep:DETection:UNIT is other than <RATE>.

Example use To set the detection range of Threshold rate to 1E-3.

> :SENSe:JITTer:SWEep:DETection:THReshold:ER R1E_3

:SENSe:JITTer:SWEep:DETection:THReshold:ER?

Response <unit> = <CHARACTER RESPONSE DATA>

Samee as :SENSe:JITTer:SWEep:DETection:THReshold:ER.

Function Queries the setting state of detection range of Threshold count for jitter sweep measurement.

Example use > :SENSe:JITTer:SWEep:DETection:THReshold:ER?

< R1E_3

:SENSe:JITTer:SWEep:DETection:HTIMe <s>

Parameter <s> = <NON-DECIMAL NUMERIC PROGRAM DATA>

1.0 to 99.5 Step value : 0.5(s)

Function Sets Hold time for jitter sweep measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"JSWeep">.
- :SENSe:JITTer:SWEep:DETection:TYPE is other than <COUN> and <RATE>.

Example use To set the Hold time to 5.5 seconds.

> :SENSe:JITTer:SWEep:DETection:HTIMe 5.5

:SENSe:JITTer:SWEep:DETection:HTIMe?

Response <s> = <NR2 NUMERIC RESPONSE DATA>

Same as :SENSe:JITTer:SWEep:DETection:HTIMe.

Function Queries the Hold time setting state for jitter sweep measurement.

Example use > :SENSe:JITTer:SWEep:DETection:HTIMe?

< 5.5

:SENSe:JITTer:SWEep:WTIMe <wait>

Parameter <wait> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.0 to 99.5 Step value : 0.5(s)
Function Sets Waiting time for jitter sweep measurement.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"JSWeep">.

Example use To set the Waiting time to 1.5 seconds.
> :SENSe:JITTer:SWEep:WTIMe 1.5

:SENSe:JITTer:SWEep:WTIMe?

Response <wait> = <NR2 NUMERIC RESPONSE DATA>
Same as :SENSe:JITTer:SWEep:WTIMe.
Function Queries the Waiting time setting state.
Example use > :SENSe:JITTer:SWEep:WTIMe?
< 1.5

:SENSe:JITTer:FSWeep:MTABle:TYPE <brate>,<type>

Parameter

<brate> = <CHARACTER PROGRAM DATA>

M622	622M
M156	156M
M52	52M
M139	139M
M45	45M
M34	34M
M8	8M
M2	2M
M1_5	1.5M

<type> = <CHARACTER PROGRAM DATA>

G958A	G.958 Type A
G958B	G.958 Type B
G823	G.823
G823H	G.823 High-Q
G823L	G.823 LOW-Q
G824	G.824
G825	G.825
B499	Bell 499
B253	Bell 253
G825E	G.825 Electrical
G813	G.813
G755	G.755
USER	User
G825_1_5M	G.825 1.5M
G825_2M	G.825 2M
G825O_1_5M	G.825 Optical 1.5M
G825O_2M	G.825 Optical 2M

Function

Set a mask table for jitter modulation frequency measurement.

Restriction

Invalid when,

- The MU150005A, MU150006A, or MU150007A is not installed.
- :INSTrument:CONFig is <JITTER>.
- The value other than the followings, according to the Bit rate.

622M	: G.958 Type A/B, G.825, G.813, User, G.825 1.5M, G.825 2M
156M	: G.958 Type A/B, G.813, G.825 Optical, G.825 Electrical, User, G.825 Optical 1.5M, G.825 Optical 2M
52M	: User, Bell 253
139M	: G.823, User
45M	: G.824, G.755, User,Bell 499
34M	: G.823, User
8M	: G.823 High-Q/Low-Q, User
2M	: G.823 High-Q/Low-Q, User
1.5M	: G.824, User, Bell 499

Example use

To set the mask table with Bit rate 622M to G.958.

```
> :SENSe:JITTer:FSWeep:MTABle:TYPE M622,G958A
```

:SENSe:JITTer:FSWeep:MTABle:TYPE? <brate>

Parameter <brate> = <CHARACTER PROGRAM DATA>
Same as :SENSe:JITTer:FSWeep:MTABle:TYPE.
Response <type> = <CHARACTER RESPONSE DATA>
Same as :SENSe:JITTer:FSWeep:MTABle:TYPE.
Function Queries the mask table setting state for jitter modulation frequency measurement.
Example use To query the setting state of mask table with Bit rate 622M
> :SENSe:JITTer:FSWeep:MTABle:TYPE? M622
< G958A

:SENSe:JITTer:FSWeep:MTABle:POINt <brate>,<point>

Parameter <brate> = <CHARACTER PROGRAM DATA>
M622,M156,M52,M139,M45,M34,M8,M2,M1_5
<point> = <DECIMAL NUMERIC PROGRAM DATA>
2 to 7 Step value : 1
Function Sets an output point range when the mask table is User for jitter modulation frequency measurement.
Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- :SENSe:JITTer:FSWeep:MTABle:TYPE <type> is other than <USER>.
- :INSTrument:CONFig is <JITTER>.

Example use To set the output point of table in Bit rate 622M to 2.
> :SENSe:JITTer:FSWeep:MTABle:POINt M622,2

:SENSe:JITTer:FSWeep:MTABle: POINt?<brate>

Parameter <brate> = <CHARACTER PROGRAM DATA>
Same as :SENSe:JITTer:FSWeep:MTABle:POINt.
Response <point> = <NR1 NUMERIC RESPONSE DATA>
Same as :SENSe:JITTer:FSWeep:MTABle:POINt.
Function Queries the output point range when the mask table is User
Example use > :SENSe:JITTer:FSWeep:MTABle:POINt?M622
< 2

:SENSe:JITTer:FSWeep:MTABle:DATA <brate>,<ptype>,<freq1>,<freq2>,<uipp>

Parameter
<brate> = <CHARACTER PROGRAM DATA>
M622,M156,M52,M139,M45,M34,M8,M2,M1_5
<ptype> = <CHARACTER PROGRAM DATA>
A,B,C,D,E,F,G
<freq1> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.1 to 990.0 Step value : 0.1
<freq2> = <CHARACTER PROGRAM DATA>
HZ,KHZ,MHZ
<uipp > = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.000 to 800.000

Function
Sets contents of point when the Mask table is User for jitter modulation frequency measurement.

Restriction
Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- <type> of :SENSe:JITTer:FSWeep:MTABle:TYPE is other than <USER>.
- :INSTrument:CONFig is <JITTER>.
- The value exceeds the set point.

Example use
To set Freq=100Hz and UIp-p=0.123 as mask table point A of Bit rate 622M.
> :SENSe:JITTer:FSWeep:MTABle:DATA M622,A,100.0,HZ,0.123

:SENSe:JITTer:FSWeep:MTABle:DATA? <brate>,<ptype>

Parameter
<brate> = <CHARACTER PROGRAM DATA>
Same as :SENSe:JITTer:FSWeep:MTABle:DATA.
<ptype> = <CHARACTER PROGRAM DATA>
Same as :SENSe:JITTer:FSWeep:MTABle:DATA.

Response
<freq1> = <NR2 NUMERIC RESPONSE DATA>
Same as :SENSe:JITTer:FSWeep:MTABle:DATA.
<freq2> = <CHARACTER RESPONSE DATA>
Same as :SENSe:JITTer:FSWeep:MTABle:DATA.
<uipp > = <NR2 NUMERIC RESPONSE DATA>
:SENSe:JITTer:FSWeep:MTABle:DATA.

Function
Queries the setting state of point contents when the Mask table is User for jitter modulation frequency measurement.

Example use
To query the Mask table point A of Bit rate 622M.
> :SENSe:JITTer:FSWeep:MTABle:DATA? M622,A
< 100.0,HZ,0.123

:SENSe:JITTer:FSWeep:MTABle:DEFault <brate> [,<type>]

Parameter <brate> = <CHARACTER PROGRAM DATA>

M622	622M
M156	156M
M52	52M
M139	139M
M45	45M
M34	34M
M8	8M
M2	2M
M1_5	1.5M

<type> = <CHARACTER PROGRAM DATA>

G958A	G.958 Type A
G958B	G.958 Type B
G823	G.823
G823H	G.823 High-Q
G823L	G.823 LOW-Q
G824	G.824
G825	G.825
B499	Bell 499
B253	Bell 253
G825O	G.825 Optical
G825E	G.825 Electrical
G813	G.813
G755	G.755

Function Initializes the edit contents when the Mask table is User for jitter modulation frequency measurement.

Restriction Invalid when,

- The MU150005A, MU150006A, or MU150007A is not installed.
- <type> of :SENSe:JITTer:FSWeep:MTABle:TYPE is other than <USER>.
- :INSTrument:CONFig is <JITTER>.
- The value other than the followings, according to the Bit rate.

622M	: G.958 Type A/B, G.825, G.813, G.825 1.5M, G.825 2M
156M	: G.958 Type A/B, G.813, G.825 Optical, G.825 Electrical, G.825 Optical 1.5M, G.825 Optical 2M
52M	: Bell 253
139M	: G.823
45M	: G.824, G.755, Bell 499
34M	: G.823
8M	: G.823 High-Q/Low-Q
2M	: G.823 High-Q/Low-Q
1.5M	: G.824, Bell 499

Example use To initialize the mask table contents of Bit rate 622M to G.813.

> :SENSe:JITTer:FSWeep:MTABle:DEFault M622,G813

:SENSe:JITTer:FSWeep:MTABle:OFFSet <offset>

Parameter <offset> = <DECIMAL NUMERIC PROGRAM DATA>
0 to 100 Step value : 1
Function Sets offset data for jitter modulation frequency measurement.
Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- :INSTrument:CONFig is <JITTER>.

Example use To set the offset value to 100.
> :SENSe:JITTer:FSWeep:MTABle:OFFSet 100

:SENSe:JITTer:FSWeep:MTABle:OFFSet?

Response <offset> = <NR1 NUMERIC RESPONSE DATA>
: SENSe:JITTer:FSWeep:MTABle:OFFSet.
Function Queries the offset data for jitter modulation frequency measurement.
Example use > :SENSe:JITTer:FSWeep:MTABle:OFFSet?
< 10

:SENSe:JITTer:FSWeep:DETection:TYPE <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

DEFault	Default
SEC1	1Sec error
ON	On set of errors
DB1	1db power penalty
COUNt	Count
RATE	Rate

Function Sets a detection condition for jitter modulation frequency measurement.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"FSWeep">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the detection condition to 1s error.
> :SENSe:JITTer:FSWeep:DETection:TYPE SEC1

:SENSe:JITTer:FSWeep:DETection:TYPE?

Response <type> = <CHARACTER RESPONSE DATA>

DEFault	Defautl
SEC1	1Sec error
ON	On set of errors
DB1	1db power penalty
COUNt	Count
RATE	Rate

Function Queries the setting state of detection condition for jitter modulation frequency measurement.
Example use > :SENSe:JITTer:FSWeep:DETection:TYPE?
< SEC1

:SENSe:JITTer:FSWeep:DETection:ERRor <error>

Parameter<error> = < STRING PROGRAM DATA>

(SDH)	"B1"	B1 error	(SONET)	"B1"	B1 error
	"B2"	B2 error		"B2"	B2 error
	"HB3"	HP-B3 error		"HB3"	HP-B3 error
	"LB3"	LP-B3 error		"LB3"	LP-B3 error
	"BIP2"	BIP-2 error		"BIP2"	BIP-2 error
	"MREI" (SDH)	MS-REI error		"REIL" (SONET)	REI-L error
	"HREI" (SDH)	HP-REI error		"REIP" (SONET)	REI-P error
	"HIEC"	HP-IEC error		"HIEC"	HP-IEC error
	"HTREI"	HP-TC-REI error		"HTREI"	HP-TC-REI error
	"HOEI"	HP-OEI error		"HOEI"	HP-OEI error
	"LREI" (SDH)	LP-REI error		"REIV" (SONET)	REI-V error
	"LIEC"	LP-IEC error		"LIEC"	LP-IEC error
	"LTREI"	LP-TC-REI error		"LTREI"	LP-TC-REI error
	"LOEI"	LP-OEI error		"LOEI"	LP-OEI error
	"N2BIP2"	N2_BIP2 error		"N2BIP2"	N2_BIP2 error
	"BIT"	Bit error		"BIT"	Bit error
	"CODE"	Code error		"CODE"	Code error
	"EBIT"	EBit error		"EBIT"	EBit error
	"FAS139"	FAS 139M error		"FAS139"	FAS 139M error
	"FAS45"	FAS 45M error		"FAS45"	FAS 45M error
	"FAS34"	FAS 34M error		"FAS34"	FAS 34M error
	"FAS8"	FAS 8M error		"FAS8"	FAS 8M error
	"FAS2"	FAS 2M error		"FAS2"	FAS 2M error
	"FAS1_5"	FAS 1.5M error		"FAS1_5"	FAS 1.5M error
	"REI139"	REI 139M error		"REI139"	REI 139M error
	"REI45"	REI 45M error		"REI45"	REI 45M error
	"REI34"	REI 34M error		"REI34"	REI 34M error
	"BIP8"	BIP8 error		"BIP8"	BIP8 error
	"PARITY"	Patity error		"PARITY"	Patity error
	"CBIT"	CBIT error		"CBIT"	CBIT error
	"CRC6"	CRC6 error		"CRC6"	CRC6 error
	"CORRECT"	Correct error		"CORRECT"	Correct error
	"DISCARD"	Discard error		"DISCARD"	Discard error
	"NONCONF"	Nonconf error		"NONCONF"	Nonconf error
	"ERRORED"	Errored error		"ERRORED"	Errored error
	"LOST"	Lost error		"LOST"	Lost error
	"MISINS"	Misinserted error		"MISINS"	Misinserted error
	"SECB"	SECB error		"SECB"	SECB error

Function Sets a detection condition error for jitter modulation frequency measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"FSWeep">.
- :SENSe:JITTer:FSWeep:DETection:TYPE is <DEFault>.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the detection condition error to B1.

> :SENSe:JITTer:FSWeep:DETection:ERRor B1

:SENSe:JITTer:FSWeep:DETection:ERRor?

Response <error> = <CHARACTER RESPONSE DATA>
Same as :SENSe:JITTer:FSWeep:DETection:ERRor.
Function Queries the setting state of detection condition error for jitter modulation frequency measurement.
Example use > :SENSe:JITTer:FSWeep:DETection:ERRor?
< B1

:SENSe:JITTer:FSWeep:DETection:UNIT <unit>

Parameter <unit> = <CHARACTER PROGRAM DATA>
COUNt
RATE
Function Sets a detection type for jitter modulation frequency measurement.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"FSWeep">.
- :SENSe:JITTer:FSWeep:DETection:TYPE is <SEC1>.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the type to Count
> :SENSe:JITTer:FSWeep:DETection:UNIT COUNt

:SENSe:JITTer:FSWeep:DETection:UNIT?

Response <unit> = <CHARACTER RESPONSE DATA>
COUN
RATE
Function Queries the setting state of detection type for jitter modulation frequency measurement.
Example use > :SENSe:JITTer:FSWeep:DETection:UNIT?
< COUN

:SENSe:JITTer:FSWeep:DETection:THReshold:EC <numeric>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 99999 Step:1
Function Sets a detection range of Threshold count for jitter modulation frequency measurement.
Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.
- :DISPlay:TMENu[:NAME] is other than <"FSWeep">.
- :SENSe:JITTer:FSWeep:DETection:TYPE is other than <SEC1>,<COUN>.
- :SENSe:JITTer:FSWeep:DETection:TYPE is <SEC1>, and :SENSe:JITTer:FSWeep:DETection:UNIT is other than <COUN>.

Example use To set the detection range of Threshold count to 100
> :SENSe:JITTer:FSWeep:DETection:THReshold:EC 100

:SENSe:JITTer:FSWeep:DETection:THReshold:EC?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
Same as :SENSe:JITTer:FSWeep:DETection:THReshold:EC.
Function Queries the detection range of Threshold count for jitter modulation frequency measurement.
Example use > :SENSe:JITTer:FSWeep:DETection:THReshold:EC?
< 100

:SENSe:JITTer:FSWeep:DETection:THReshold:ER <erate>

Parameter <erate> = <CHARACTER PROGRAM DATA>

R1E_3	>1E-3
R1E_4	>1E-4
R1E_5	>1E-5
R1E_6	>1E-6
R1E_7	>1E-7

Function Sets a detection range of Threshold count for jitter modulation frequency measurement.

Restriction Invalid when,

- The MU150005A, MU150006A, or MU150007A is not installed.
- :DISPlay:TMENu[:NAME] is other than <"FSWeep">.
- :SENSe:JITTer:FSWeep:DETection:TYPE is other than <SEC1>,<RATE>.
- :SENSe:JITTer:FSWeep:DETection:TYPE is <SEC1>, and :SENSe:JITTer:FSWeep:DETection:UNIT is other than <RATE>.

Example use To set the detection range of Threshold rate to 1E-3.

> :SENSe:JITTer:FSWeep:DETection:THReshold:ER R1E_3

:SENSe:JITTer:FSWeep:DETection:THReshold:ER?

Response <erate> = <CHARACTER RESPONSE DATA>

Same as :SENSe:JITTer:FSWeep:DETection:THReshold:ER.

Function Queries the setting state of Threshold count detection range for jitter modulation frequency measurement.

Example use > :SENSe:JITTer:FSWeep:DETection:THReshold:ER?

< R1E_3

:SENSe:JITTer:FSWeep:DETection:HTIMe <s>

Parameter <s> = <NON-DECIMAL NUMERIC PROGRAM DATA>

1.0 to 99.5 Step value : 0.5(s)

Function Sets Hold time for jitter modulation frequency measurement.

Restriction Invalid when,

- The MU150005A, MU150006A, or MU150007A is not installed.
- :DISPlay:TMENu[:NAME] is other than <"FSWeep">.
- :SENSe:JITTer:FSWeep:DETection:TYPE is other than <SEC1>,<RATE>.
- :SENSe:JITTer:FSWeep:DETection:TYPE is <SEC1>, and :SENSe:JITTer:FSWeep:DETection:UNIT is other than <COUN>,<RATE>.

Example use To set Hold time to 5.5 seconds.

> :SENSe:JITTer:FSWeep:DETection:HTIMe 5.5

:SENSe:JITTer:FSWeep:DETection:HTIMe?

Response <s> = <NR2 NUMERIC RESPONSE DATA>

Same as :SENSe:JITTer:FSWeep:DETection:HTIMe.

Function Queries the setting state of Hold time for jitter modulation frequency measurement.

Example use > :SENSe:JITTer:FSWeep:DETection:HTIMe?

< 5.5

:SENSe:JITTer:FSWeep:WTIMe <wait>

Parameter <wait> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.0 to 99.5 Step value : 0.5
Function Sets Waiting time for jitter modulation frequency measurement.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"FSWeep">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set Waiting time to 1.5 seconds.
> :SENSe:JITTer:FSWeep:WTIMe 1.5

:SENSe:JITTer:FSWeep:WTIMe?

Response <wait> = <NR2 NUMERIC RESPONSE DATA>
Same as :SENSe:JITTer:FSWeep:WTIMe.
Function Queries the setting state of Waiting time.
Example use > :SENSe:JITTer:FSWeep:WTIMe?
< 1.5

:SENSe:JITTer:FSWeep:MASK <mask>

Parameter <mask> = <CHARACTER PROGRAM DATA>

G958A	G.958 Type A
G958B	G.958 Type B
G823	G.823
G823H	G.823 High-Q
G823L	G.823 LOW-Q
G824	G.824
G825	G.825
B499	Bell 499
B253	Bell 253
USER	User
G825E	G.825 Electrical
G813	G.813
G755	G.755
G825_1_5M	G.825 1.5M
G825_2M	G.825 2M
G825O_1_5M	G.825 Optical 1.5M
G825O_2M	G.825 Optical 2M

Function Sets a mask line table for judgment use for jitter modulation frequency measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"FSWeep">.
- The MU150005A, MU150006A, or MU150007A is not installed.
- The value of the receive side is other than the followings, according to the Bit rate.

622M	: G.958 Type A/B, G.825, G.813, Bell 253, User, G.825 1.5M, G.825 2M
156M	: G.958 Type A/B, G.825, G.813, G.825 Optical, Bell 253, User, G.825 Optical 1.5M, G.825 Optical 2M
156M CMI	: G.958 Type A/B, G.825, G.813, G.825 Electrical Bell 253, User
52M	: Bell 253, User
52M B3ZS	: Bell 253, User
139M	: G.823, User
45M	: G.824, G.755, Bell 499, User
34M	: G.823, User
8M	: G.823 High-Q/Low-Q, User
2M	: G.823 High-Q/Low-Q, User
1.5M	: G.824, Bell 499, User

Example use To set the mask line table to G.958 Type A.

> :SENSe:JITTer:FSWeep:MASK G958A

:SENSe:JITTer:FSWeep:MASK?

Response <type> = <CHARACTER RESPONSE DATA>

Same as :SENSe:JITTer:FSWeep:MASK.

Function Queries the setting state of mask line table for judgment use for jitter modulation frequency measurement.

Example use > :SENSe:JITTer:FSWeep:MASK?

< G958A

:SENSe:WANDer:MANual:COUPled <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
ON or 1 Synchronized with error/alarm measurement.

Function Sets a measurement state for Wander manual measurement.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">, <"MANual:JON">, <"PSEQuence[:JOFF]">, and <"PSEQuence[:JON]">.
- :SENSe:MEASure:JWANder:MSELect is <JITTer>.

Example use To set the measurement state to Asynchronous:
> :SENSe:WANDer:MANual:COUPled OFF

:SENSe:WANDer:MANual:COUPled?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
1

Function Queries the measurement state setting for Wander manual measurement.

Example use > :SENSe:WANDer:MANual:COUPled?
< 1

:SENSe:WANDer:AUTO:INTerval < otime >

Parameter <otime> = <CHARACTER PROGRAM DATA>

SEC12	12s
SEC120	120s
SEC1200	1200s
SEC12000	12000s
SEC120000	120000s
USER	User

Function Sets measurement time (Observation time) of automatic wander measurement.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WANDer]">.
- The MU150005A, MU150006A, or MU150007A is not installed; and <SEC120000> or <USER> is set.

Example use To set the measurement time (Observation time) of automatic wander measurement to 12 seconds.
> :SENSe:WANDer:AUTO:INTerval 12,SEC

:SENSe:WANDer:AUTO:INTerval?

Response <otime> = <CHARACTER RESPONSE DATA>
Same as :SENSe:WANDer:AUTO:INTerval.

Function Queries the setting state of measurement time (Observation time) of automatic wander measurement.

Example use > :SENSe:WANDer:AUTO:INTerval?
< 1,SEC
< SEC12

:SENSe:WANDer:AUTO:USER <numeric>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>
12 to 100000000 Step value : 1(s)
The top 2-digits are valid.

Function Sets measurement time (Observation time) for automatic wander measurement.(When User is set)

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WANDer">.
- The MU150005A, MU150006A, or MU150007A is not installed.
- :SENSe:WANDer:AUTO:INTerval is other than <USER>.

Example use To set the measurement time (Observation time) for automatic wander measurement to 800 seconds.
> :SENSe:WANDer:AUTO:USER 800

:SENSe:WANDer:AUTO:USER?

Response <numeric> = <DECIMAL NUMERIC PROGRAM DATA>
12 to 100000000 Step value : 1(s)

Function Queries the setting state of measurement time (Observation time) of automatic wander measurement.(When User is set.)

Example use > :SENSe:WANDer:AUTO:USER?
< 800

:SENSe:WANDer:WSWeep:DETection:TYPE <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

COUNt	Count
RATE	Rate

Function Sets a detection condition for wander sweep measurement.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WSWeep">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the detection condition to Count.
> :SENSe:WANDer:WSWeep:DETection:TYPE COUN

:SENSe:WANDer:WSWeep:DETection:TYPE?

Response <type> = <CHARACTER RESPONSE DATA>

COUNt	Count
RATE	Rate

Function Queries the setting state of detection condition for wander sweep measurement.

Example use > :SENSe:WANDer:WSWeep:DETection:TYPE?
< SEC1

:SENSe:WANDer:WSWeep:DETection:ERRor <error>

Parameter <error> = < STRING PROGRAM DATA>

(SDH)	"B1"	B1 error	(SONET)	"B1"	B1 error
	"B2"	B2 error		"B2"	B2 error
	"HB3"	HP-B3 error		"HB3"	HP-B3 error
	"LB3"	LP-B3 error		"LB3"	LP-B3 error
	"BIP2"	BIP-2 error		"BIP2"	BIP-2 error
	"MREI" (SDH)	MS-REI error		"REIL" (SONET)	REI-L error
	"HREI" (SDH)	HP-REI error		"REIP" (SONET)	REI-P error
	"HIEC"	HP-IEC error		"HIEC"	HP-IEC error
	"HTREI"	HP-TC-REI error		"HTREI"	HP-TC-REI error
	"HOEI"	HP-OEI error		"HOEI"	HP-OEI error
	"LREI" (SDH)	LP-REI error		"REIV" (SONET)	REI-V error
	"LIEC"	LP-IEC error		"LIEC"	LP-IEC error
	"LTREI"	LP-TC-REI error		"LTREI"	LP-TC-REI error
	"LOEI"	LP-OEI error		"LOEI"	LP-OEI error
	"N2BIP2"	N2_BIP2 error		"N2BIP2"	N2_BIP2 error
	"BIT"	Bit error		"BIT"	Bit error
	"CODE"	Code error		"CODE"	Code error
	"EBIT"	EBit error		"EBIT"	EBit error
	"FAS139"	FAS 139M error		"FAS139"	FAS 139M error
	"FAS45"	FAS 45M error		"FAS45"	FAS 45M error
	"FAS34"	FAS 34M error		"FAS34"	FAS 34M error
	"FAS8"	FAS 8M error		"FAS8"	FAS 8M error
	"FAS2"	FAS 2M error		"FAS2"	FAS 2M error
	"FAS1_5"	FAS 1.5M error		"FAS1_5"	FAS 1.5M error
	"REI139"	REI 139M error		"REI139"	REI 139M error
	"REI45"	REI 45M error		"REI45"	REI 45M error
	"REI34"	REI 34M error		"REI34"	REI 34M error
	"BIP8"	BIP8 error		"BIP8"	BIP8 error
	"PARITY"	Patity error		"PARITY"	Patity error
	"CBIT"	CBIT error		"CBIT"	CBIT error
	"CRC6"	CRC6 error		"CRC6"	CRC6 error
	"CORRECT"	Correct error		"CORRECT"	Correct error
	"DISCARD"	Discard error		"DISCARD"	Discard error
	"NONCONF"	Nonconf error		"NONCONF"	Nonconf error
	"ERRORED"	Errored error		"ERRORED"	Errored error
	"LOST"	Lost error		"LOST"	Lost error
	"MISINS"	Misinserted error		"MISINS"	Misinserted error
	"SECB"	SECB error		"SECB"	SECB error

Function Sets a detection condition error for wander sweep measurement.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"WSWeep">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the detection condition error to B1.

> :SENSe:WANDer:WSWeep:DETection:ERRor B1

:SENSe:WANDer:WSWeep:DETection:ERRor?

Response <error> = <CHARACTER RESPONSE DATA>

Same as :SENSe:WANDer:WSWeep:DETection:ERRor.

Function Queries the setting state of detection condition error for wander sweep measurement.

Example use > :SENSe:WANDer:WSWeep:DETection:ERRor?

< B1

:SENSe:WANDer:WSWeep:DETection:THReshold:EC <numeric>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 99999 Step value : 1
Function Sets a detection range of Threshold count for wander sweep measurement.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WSWeep">.
- :SENSe:WANDer:WSWeep:DETection:TYPE is other than <COUN>.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the detection range of Threshold count to 100.
> :SENSe:WANDer:WSWeep:DETection:THReshold:EC 100

:SENSe:WANDer:WSWeep:DETection:THReshold:EC?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
Same as :SENSe:WANDer:WSWeep:DETection:THReshold:EC.
Function Queries the setting state of Threshold count detection range for wander sweep measurement.
Example use > :SENSe:WANDer:WSWeep:DETection:THReshold:EC?
< 100

:SENSe:WANDer:WSWeep:DETection:THReshold:ER <erate>

Parameter <erate> = <CHARACTER PROGRAM DATA>

R1E_3	>1E-3
R1E_4	>1E-4
R1E_5	>1E-5
R1E_6	>1E-6
R1E_7	>1E-7
R1E_8	>1E-8
R1E_9	>1E-9
R1E_10	>1E-10
R1E_11	>1E-11

Function Sets a detection range of Threshold count for wander sweep measurement.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WSWeep">.
- :SENSe:WANDer:WSWeep:DETection:TYPE is other than <RATE>.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the detection range of Threshold rate to 1E-3.
> :SENSe:WANDer:WSWeep:DETection:THReshold:ER R1E_3

:SENSe:WANDer:WSWeep:DETection:THReshold:ER?

Response <erate> = <CHARACTER RESPONSE DATA>
Same as :SENSe:WANDer:WSWeep:DETection:THReshold:ER.
Function Queries the setting state of Threshold count detection range for wander sweep measurement.
Example use > :SENSe:WANDer:WSWeep:DETection:THReshold:ER?
< R1E_3

:SENSe:WANDer:WSWeep:MARGin <margin>

Parameter <wait> = <DECIMAL NUMERIC PROGRAM DATA>
0 to 100 Step value : 10(%)

Function Sets margin(%) for wander sweep measurement.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WSWeep">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set margin to 10%.
> :SENSe:WANDer:WSWeep:MARGin 10

:SENSe:WANDer:WSWeep:MARGin?

Response <wait> = <DECIMAL NUMERIC RESPONSE DATA>
Same as :SENSe:WANDer:WSWeep:MARGin.

Function Queries the setting state of margin(%) for wander sweep measurement.

Example use > :SENSe:WANDer:WSWeep:MARGin?
< 100

4.4.4 DISPlay subsystem

The DISPlay subsystem is used to make settings on the Result and Analyze screens.

Function	Command	Parameter
Page 4-138		
Sets a subscreen for the Test menu main screen.	:DISPlay:TMENu[:NAME]	display
Queries the selected subscreen of the Test menu main screen.	:DISPlay:TMENu[:NAME]?	
Page 4-139		
Sets a subscreen for the Result main screen.	:DISPlay:RESult[:NAME]	display
Queries the selected subscreen of the Result main screen.	:DISPlay:RESult[:NAME]?	
Page 4-140		
Sets a display mode for Result:Jitter/Wander screen.	:DISPlay:RESult:JWANder:MODE	mode
Queries the display mode setting for Result:Jitter/Wander screen.	:DISPlay:RESult:JWANder:MODE?	
Sets a display data type for Result:Jitter/Wander screen.	:DISPlay:RESult:JWANder:UNIT	unit
Queries the display data type for Result:Jitter/Wander screen.	:DISPlay:RESult:JWANder:UNIT?	
Page 4-141		
Controls the scroll of the Freq. sweep measurement result table.	:DISPlay:RESult:JFRequency:SCRoll	type
ets a filter type to display on the Jitter/Freq. measurement result table for the Result screen.	:DISPlay:RESult:JFRequency:OFFSetmask	filter
Queries the filter type setting state of Jitter/Freq. measurement result display on the Result screen.	:DISPlay:RESult:JFRequency:OFFSetmask?	
Page 4-142		
Queries the filter type setting state of Jitter/Freq. measurement result display on the Result screen.	:DISPlay:RESult:FSWeep:SCRoll	type
Page 4-142		
Changes wander measurement result display.	:DISPlay:RESult:WANDer:DISPtype	type
Queries the state of wander measurement result display type	:DISPlay:RESult:WANDer:DISPtype?	
Controls the scroll of the Wander measurement result table.	:DISPlay:RESult:WANDer:SCRoll	type
Page 4-143		
Changes wander sweep measurement result display unit.	:DISPlay:RESult:WSWeep:UNIT	unit
Queries display data in the Result: Wander sweep screen.	:DISPlay:RESult:WSWeep:UNIT?	
Page 4-144		
Sets a subscreen for the Analyze main screen.	:DISPlay:ANALysis[:NAME]	display
Queries the selected subscreen for the Analyze main screen.	:DISPlay:ANALysis[:NAME]?	

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Queries the data indicated by marker on Analyze:Error/alarm screen.	:DISPlay:ANALysis:TGRaph:DATA?	
Sets an error item subject to graphic display on Analyze:Error/Alarm screen.	:DISPlay:ANALysis:TGRaph:ERRor	error1 error2
Queries the error item subject to graphic display on Analyze:Error/Alarm screen.	:DISPlay:ANALysis:TGRaph:ERRor?	
Sets an alarm item to be graphically displayed to alarm1 of the Analyze:Error/Alarm screen.	:DISPlay:ANALysis:TGRaph:ALARm1	alarm
Queries the alarm item graphically displayed to alarm1 of the Analyze:Error/Alarm screen.	:DISPlay:ANALysis:TGRaph:ALARm1?	
Sets an alarm item to be graphically displayed to alarm2 of the Analyze:Error/Alarm screen.	:DISPlay:ANALysis:TGRaph:ALARm2	alarm
Queries the alarm item graphically displayed to alarm2 of the Analyze:Error/Alarm screen.	:DISPlay:ANALysis:TGRaph:ALARm2?	
Sets an alarm item to be graphically displayed to alarm3 of the Analyze:Error/Alarm screen.	:DISPlay:ANALysis:TGRaph:ALARm3	alarm
Queries the alarm item graphically displayed to alarm3 of the Analyze:Error/Alarm screen.	:DISPlay:ANALysis:TGRaph:ALARm3?	
Sets an alarm item to be graphically displayed to alarm4 of the Analyze:Error/Alarm screen.	:DISPlay:ANALysis:TGRaph:ALARm4	alarm
Queries the alarm item graphically displayed to alarm4 of the Analyze:Error/Alarm screen.	:DISPlay:ANALysis:TGRaph:ALARm4?	
Sets an alarm item to be graphically displayed to alarm5 of the Analyze:Error/Alarm screen.	:DISPlay:ANALysis:TGRaph:ALARm5	alarm
Queries the alarm item graphically displayed to alarm5 of the Analyze:Error/Alarm screen.	:DISPlay:ANALysis:TGRaph:ALARm5?	
Sets a trace graph title.	:DISPlay:ANALysis:TGRaph:TITLe	title
Queries the graph title for Analyze:Error/Alarm screen.	:DISPlay:ANALysis:TGRaph:TITLe?	

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Queries Freq. monitor data.	:DISPlay:ANALysis:FMONitor:FREQuency?	
Sets Pause at Freq. monitor.	:DISPlay:ANALysis:FMONitor:PAUSe	boolean
Queries the Pause state at Freq. monitor.	:DISPlay:ANALysis:FMONitor:PAUSe?	

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Sets whether to display a marker on Analyze:Jitter tolerance screen.	:DISPlay:ANALysis:JTOLerance:MDISplay	boolean
Queries the marker display status for Analyze:Jitter tolerance screen.	:DISPlay:ANALysis:JTOLerance:MDISplay?	
Instructs a marker search type for Analyze:Jitter tolerance screen.	:DISPlay:ANALysis:JTOLerance:SEARch	type

Queries the data indicated by marker for Analyze:Jitter tolerance screen.	:DISPlay:ANALysis:JTOLerance:DATA?	
Sets a graph vertical axis scale for Analyze:Jitter tolerance screen.	:DISPlay:ANALysis:JTOLerance:SCALe	numeric
Queries the vertical axis scale for Analyze:Jitter tolerance screen.	:DISPlay:ANALysis:JTOLerance:SCALe?	
Sets a title for Analyze:Jitter tolerance screen.	:DISPlay:ANALysis:JTOLerance:TITLe	title
Queries the graph title for Analyze:Jitter tolerance screen.	:DISPlay:ANALysis:JTOLerance:TITLe?	

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Sets to display a marker on Analyze:Jitter transfer screen.	:DISPlay:ANALysis:JTRansfer:MDISplay	boolean
Queries the marker display status for Analyze:Jitter transfer screen.	:DISPlay:ANALysis:JTRansfer:MDISplay?	
Instructs a marker search type for Analyze:Jitter transfer screen.	:DISPlay:ANALysis:JTRansfer:SEARch	type
Queries the data indicated by marker for Analyze:Jitter transfer screen.	:DISPlay:ANALysis:JTRansfer:DATA?	
Sets a graph vertical axis scale for Analyze:Jitter transfer screen.	:DISPlay:ANALysis:JTRansfer:SCALe	numeric
Queries the vertical axis scale for Analyze:Jitter transfer screen.	:DISPlay:ANALysis:JTRansfer:SCALe?	
Sets a title for Analyze:Jitter transfer screen.	:DISPlay:ANALysis:JTRansfer:TITLe	title
Queries the graph title for Analyze:Jitter transfer screen.	:DISPlay:ANALysis:JTRansfer:TITLe?	

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Sets whether to display a marker on the Analyze:Jitter/Freq. screen.	:DISPlay:ANALysis:JFRequency:MDISplay	boolean
Queries the marker display status for the Analyze:Jitter/Freq. screen.	:DISPlay:ANALysis:JFRequency:MDISplay?	
Instructs a marker search type for the Analyze:Jitter/Freq. screen.	:DISPlay:ANALysis:JFRequency:SEARch	type
Queries the data indicated by the marker for the Analyze:Jitter/Freq. screen.	:DISPlay:ANALysis:JFRequency:DATA?	
Sets a graph vertical axis scale for the Analyze:Jitter/Freq. screen.	:DISPlay:ANALysis:JFRequency:SCALe	numeric
Queries the graph vertical axis scale for the Analyze:Jitter/Freq. screen.	:DISPlay:ANALysis:JFRequency:SCALe?	
Sets a title for the Analyze:Jitter/Freq. screen.	:DISPlay:ANALysis:JFRequency:TITLe	title
Queries the title for the Analyze:Jitter/Freq. screen.	:DISPlay:ANALysis:JFRequency:TITLe?	
Sets a horizontal axis scale for Jitter/Freq. data.	:DISPlay:ANALysis:JFRequency:PPMScale	numeric
Queries the maximum value of the horizontal axis scale for Jitter/Freq. data.	:DISPlay:ANALysis:JFRequency:PPMScale?	
Changes a offset mask display on the Analyze:Jitter/Freq. screen.	:DISPlay:ANALysis:JFRequency:OMASk	boolean

Queries changing state of the offset mask display on the Analyze:Freq.sweep screen.	:DISPlay:ANALysis:JFRequency:OMASk?	

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Sets the marker display for Analyze:Jitter sweep screen.	:DISPlay:ANALysis:JSWeep:MDISplay	boolean
Queries the marker display for Analyze:Jitter sweep screen.	:DISPlay:ANALysis:JSWeep:MDISplay?	
Sets the marker search for Analyze:Jitter sweep screen.	:DISPlay:ANALysis:JSWeep:SEARch	type
Queries the data indicated by marker for Analyze:Jitter sweep screen.	:DISPlay:ANALysis:JSWeep:DATA?	
Sets a graph vertical axis scale for Analyze:Jitter sweep screen.	:DISPlay:ANALysis:JSWeep:SCALe	scale
Queries the graph vertical axis scale for Analyze:Jitter sweep screen.	:DISPlay:ANALysis:JSWeep:SCALe?	
Sets a title for Analyze:Jitter sweep screen.	:DISPlay:ANALysis:JSWeep:TITLe	title
Queries the title for Analyze:Jitter sweep screen.	:DISPlay:ANALysis:JSWeep:TITLe?	
Sets a graph vertical axis scale (lower stage) for the Analyze:Jitter sweep screen.	:DISPlay:ANALysis:JSWeep:SCALe2	scale
Queries the setting condition of graph vertical axis scale (lower stage) for the Analyze:Jitter sweep screen.	:DISPlay:ANALysis:JSWeep:SCALe2?	
Operates Margin display buttons (1) to (5) in the Marker display on the Analyze:Jitter sweep screen.	:DISPlay:ANALysis:JSWeep:MARGin	number boolean
Queries the state of Margin display buttons (1) to (5) in the Marker display on the Analyze:Jitter sweep screen.	:DISPlay:ANALysis:JSWeep:MARGin?	number

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Sets a marker display state for the Analyze:Freq.sweep screen.	:DISPlay:ANALysis:FSWeep:MDISplay	boolean
Queries the marker display state for the Analyze:Freq.sweep screen.	:DISPlay:ANALysis:FSWeep:MDISplay?	
Sets a direction to shift a marker on the Analyze:Freq.sweep screen.	:DISPlay:ANALysis:FSWeep:SEARch	type
Queries the data indicated by marker on the Analyze:Freq. sweep screen.	:DISPlay:ANALysis:FSWeep:DATA?	
Sets the maximum value of graph vertical axis scale (UIp-p) on the Analyze:Freq. sweep screen.	:DISPlay:ANALysis:FSWeep:SCALe	numeric
Queries the maximum value of graph vertical axis scale on the Analyze:Freq sweep screen.	:DISPlay:ANALysis:FSWeep:SCALe?	
Sets a title of Freq. sweep measurement result.	:DISPlay:ANALysis:FSWeep:TITLe	title
Queries the title of Freq. sweep measurement result.	:DISPlay:ANALysis:FSWeep:TITLe?	
Sets a graph horizontal axis scale for the Freq. sweep data.	:DISPlay:ANALysis:FSWeep:PPMScale	numeric

Queries the maximum value of graph horizontal axis scale (ppm) on the Analyze:Freq.sweep screen.	:DISPlay:ANALysis:FSWeep:PPMScale?	
Changes a offset mask display on the Analyze:Freq.sweep screen.	:DISPlay:ANALysis:FSWeep:OMASk	boolean
Queries changing state of the offset mask display on the Analyze:Freq.sweep screen.	:DISPlay:ANALysis:FSWeep:OMASk?	

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Scrolls the frequency monitoring (graph) screen.	:DISPlay:ANALysis:FGRaph:SCRoll	scroll
Moves the marker on the frequency monitoring (graph) screen.	:DISPlay:ANALysis:FGRaph:MARKer	marker
Queries the data indicated by marker on the frequency monitoring (graph) screen.	:DISPlay:ANALysis:FGRaph:DATA?	
Sets the interval of the graph on the frequency monitoring (graph) screen.	:DISPlay:ANALysis:FGRaph:INTerval	numeric suffix
Queries the width of one scale on the time axis on the frequency monitoring (graph) screen.	:DISPlay:ANALysis:FGRaph:INTerval?	
Sets whether to display a marker on the frequency monitoring (graph) screen.	:DISPlay:ANALysis:FGRaph:MDISplay	boolean
Queries the marker display status for the frequency monitoring (graph) screen.	:DISPlay:ANALysis:FGRaph:MDISplay?	
Sets the display starting point of the graph on the frequency monitoring (graph) screen.	:DISPlay:ANALysis:FGRaph:FROM	time
Queries the display starting point of the graph on the frequency monitoring (graph) screen.	:DISPlay:ANALysis:FGRaph:FROM?	
Sets the printing range on the frequency monitoring (graph) screen.	:DISPlay:ANALysis:FGRaph:PRINt	type
Queries the printing range on the frequency monitoring (graph) screen.	:DISPlay:ANALysis:FGRaph:PRINt?	
Sets the title on the frequency monitoring (graph) screen.	:DISPlay:ANALysis:FGRaph:TITLe	title
Queries the title for the frequency monitoring (graph) screen.	:DISPlay:ANALysis:FGRaph:TITLe?	
Sets a graph vertical axis scale for the frequency monitoring (graph) screen.	:DISPlay:ANALysis:FGRaph:SCALe	scale
Queries the vertical axis scale for the frequency monitoring (graph) screen.	:DISPlay:ANALysis:FGRaph:SCALe?	

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Sets whether to display a marker on the Analyze:Wander screen.	:DISPlay:ANALysis:WANDer:MDISplay	boolean
Queries the marker display status for the Analyze:Wander screen.	:DISPlay:ANALysis:WANDer:MDISplay?	
Instructs a marker search type for the Analyze:Wander screen.	:DISPlay:ANALysis:WANDer:SEARch	type
Queries the data indicated by the marker on the Analyze:Wander screen.	:DISPlay:ANALysis:WANDer:DATA?	

Sets a title for the Analyze:Wander screen.	:DISPlay:ANALysis:WANDer:TITLe	title
Queries the title for the Analyze:Wander screen.	:DISPlay:ANALysis:WANDer:TITLe?	
Specifies the vertical axis scale type on Analyze:Wander screen.	:DISPlay:ANALysis:WANDer:STYPe	type
Queries the vertical axis scale type of Analyze:Wander screen.	:DISPlay:ANALysis:WANDer:STYPe?	
Sets the maximum value of graph vertical axis scale for Wander data Log type.	:DISPlay:ANALysis:WANDer:LOG:SCALe	scale
Queries the maximum value of graph vertical axis scale for Wander data Log type.	:DISPlay:ANALysis:WANDer:LOG:SCALe?	
Sets the maximum value of graph vertical axis scale for Wander data Linear type.	:DISPlay:ANALysis:WANDer:LINear:SCALe	scale
Queries the maximum value of graph vertical axis scale for Wander data Linear type.	:DISPlay:ANALysis:WANDer:LINear:SCALe?	
Sets the maximum value of graph horizontal axis scale for Wander data Linear type.	:DISPlay:ANALysis:WANDer:MEAStime	scale
Queries the maximum value of graph horizontal axis scale for Wander data Linear type.	:DISPlay:ANALysis:WANDer:MEAStime?	
Sets the maximum value of graph (when “User” is set) horizontal axis scale for Wander data Linear type.	:DISPlay:ANALysis:WANDer:USER	scale
Queries the maximum value of graph (when “User” is set) horizontal axis scale for Wander data Linear type.	:DISPlay:ANALysis:WANDer:USER?	

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Sets whether to display a marker on the Analyze:Wander.sweep screen.	:DISPlay:ANALysis:WSWeep:MDISplay	boolean
Queries the marker display state on the Analyze:Wander.sweep screen.	:DISPlay:ANALysis:WSWeep:MDISplay?	
Sets a direction to shift a marker on the Analyze:Wander.sweep screen.	:DISPlay:ANALysis:WSWeep:SEARch	type
Queries the data indicated by marker on the Analyze:Wander.sweep screen.	:DISPlay:ANALysis:WSWeep:DATA?	
Specifies a graph vertical axis scale unit on the Analyze:Wander.sweep screen.	:DISPlay:ANALysis:WSWeep:STYPe	type
Queries the graph vertical axis scale unit on the Analyze:Wander.sweep screen.	:DISPlay:ANALysis:WSWeep:STYPe?	
Sets the maximum value of graph vertical axis scale (UIp-p, ns) on the Analyze:Wander sweep screen	:DISPlay:ANALysis:WSWeep:SCALe	numeric
Queries the graph vertical axis scale value (upper stage) on the Analyze:Wander.sweep screen.	:DISPlay:ANALysis:WSWeep:SCALe?	

Sets the minimum value of graph vertical axis scale (lower stage) on the Analyze:Wander.sweep screen.	:DISPlay:ANALysis:WSWeep:SCALe2	numeric
Queries the graph vertical axis scale value (lower stage) on the Analyze:Wander.sweep screen.	:DISPlay:ANALysis:WSWeep:SCALe2?	
Sets a title on the Analyze:Wander.sweep screen.	:DISPlay:ANALysis:WSWeep:TITLe	title
Queries the title of Analyze:Wander.sweep screen.	:DISPlay:ANALysis:WSWeep:TITLe?	
Operates Margin display buttons (1) to (5) in the Marker display on the Analyze:Wander.sweep screen.	:DISPlay:ANALysis:WSWeep:MARGin	number boolean
Queries the statues of Margin display buttons (1) to (5) in the Marker display on the Analyze:Wander.sweep screen.	:DISPlay:ANALysis:WSWeep:MARGin?	number

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Scrolls the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:SCRoll	scroll
Sets a marker display state on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:MARKer	marker
Queries the data indicated by marker on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:DATA?	
Sets an interval of the time axis on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:INTerval	numeric suffix
Queries the width of one scale on the time axis on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:INTerval?	
Sets a marker display state on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:MDISplay	boolean
eries the marker display state on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:MDISplay?	
Sets a direction to shift a marker on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:SEARch	type
Sets a display starting point of the Peak jitter measurement result graph.	:DISPlay:ANALysis:PEAK:FROM	numeric1 numeric2 numeric3 numeric4 numeric5
Queries the display starting point of the Peak jitter graph.	:DISPlay:ANALysis:PEAK:FROM?	
Sets an alarm item of Alarm 1 for graph display on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:ALARm1	alarm
Queries the alarm item of Alarm 1 for graph display on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:ALARm1?	
Sets an alarm item of Alarm 2 for graph display on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:ALARm2	alarm
Queries the alarm item of Alarm 2 for graph display on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:ALARm2?	

Sets an alarm item of Alarm 3 for graph display on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:ALARm3	alarm
Queries the alarm item of Alarm 3 for graph display on the Analyze:Peak jitter screen	:DISPlay:ANALysis:PEAK:ALARm3?	
Sets an alarm item of Alarm 4 for graph display on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:ALARm4	alarm
Queries the alarm item of Alarm 4 for graph display on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:ALARm4?	
Sets an alarm item of Alarm 5 for graph display on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:ALARm5	alarm
Queries the alarm item of Alarm 5 for graph display on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:ALARm5?	
Sets a printing range of the Analyze:Peak jitter measurement result.	:DISPlay:ANALysis:PEAK:PRINt	type
Queries the printing range of the Analyze:Peak jitter measurement result.	:DISPlay:ANALysis:PEAK:PRINt?	
Sets a title for the Peak jitter measurement result.	:DISPlay:ANALysis:PEAK:TITLe	title
Queries the title of Peak jitter measurement result.	:DISPlay:ANALysis:PEAK:TITLe?	
Sets a graph vertical axis display unit for Analyze:Peak jitter measurement result.	:DISPlay:ANALysis:PEAK:DTYPe	type
Queries the graph vertical axis display unit for Analyze:Peak jitter measurement result.	:DISPlay:ANALysis:PEAK:DTYPe?	
Sets a graph vertical axis scale value on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:SCALe	numeric
Queries the graph vertical axis scale value on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:PEAK:SCALe?	

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Queries the data type displayed on the Analyze:Recall screen.	:DISPlay:ANALysis:RECall:TYPE?	
Operates Margin display buttons (1) to (5) in the Marker display on the Analyze:Recall screen.	:DISPlay:ANALysis:RECall:MARGin	number boolean
Queries the display statues of Margin (1) to (5) in the Marker display on the Analyze:Recall screen.	:DISPlay:ANALysis:RECall:MARGin?	number
Queries the data indicated by marker on Analyze:Recall screen (Error/Alarm).	:DISPlay:ANALysis:RECall:TGRaph:DATA?	
Sets the error item subject to graphic Error/Alarm display on Analyze:Recall screen.	:DISPlay:ANALysis:RECall:TGRaph:ERRor	error1 error2
Queries the error item subject to graphic Error/Alarm display on Analyze:Recall screen.	:DISPlay:ANALysis:RECall:TGRaph:ERRor?	

Sets an alarm item to be displayed to alarm1 of the Analyze:Recall screen.	:DISPlay:ANALysis:RECall:TGRaph:ALARm1	alarm
Queries the alarm item displayed to alarm1 of the Analyze:Recall screen.	:DISPlay:ANALysis:RECall:TGRaph:ALARm1?	
Sets an alarm item to be displayed to alarm2 of the Analyze:Recall screen.	:DISPlay:ANALysis:RECall:TGRaph:ALARm2	alarm
Queries the alarm item displayed to alarm2 of the Analyze:Recall screen.	:DISPlay:ANALysis:RECall:TGRaph:ALARm2?	
Sets an alarm item to be displayed to alarm3 of the Analyze:Recall screen.	:DISPlay:ANALysis:RECall:TGRaph:ALARm3	alarm
Queries the alarm item displayed to alarm3 of the Analyze:Recall screen.	:DISPlay:ANALysis:RECall:TGRaph:ALARm3?	
Sets an alarm item to be displayed to alarm4 of the Analyze:Recall screen.	:DISPlay:ANALysis:RECall:TGRaph:ALARm4	alarm
Queries the alarm item displayed to alarm4 of the Analyze:Recall screen.	:DISPlay:ANALysis:RECall:TGRaph:ALARm4?	
Sets an alarm item to be displayed to alarm5 of the Analyze:Recall screen.	:DISPlay:ANALysis:RECall:TGRaph:ALARm5	alarm
Queries the alarm item displayed to alarm5 of the Analyze:Recall screen.	:DISPlay:ANALysis:RECall:TGRaph:ALARm5?	
Queries the trace graph title for Analyze:Recall screen.	:DISPlay:ANALysis:RECall:TGRaph:TITLe?	
Sets whether to display a marker on the Analyze:Recall screen (jitter tolerance).	:DISPlay:ANALysis:RECall:JTOLerance:MDISplay	boolean
Queries the marker display status for the Analyze:Recall screen (jitter tolerance).	:DISPlay:ANALysis:RECall:JTOLerance:MDISplay?	
Instructs a marker search type for the Analyze:Recall screen (jitter tolerance).	:DISPlay:ANALysis:RECall:JTOLerance:SEARch	type
Queries the data indicated by marker on the Analyze:Recall screen (jitter tolerance).	:DISPlay:ANALysis:RECall:JTOLerance:DATA?	
Sets a graph vertical axis scale for the Analyze:Recall screen (jitter tolerance).	:DISPlay:ANALysis:RECall:JTOLerance:SCALe	numeric
Queries the graph vertical axis scale for the Analyze:Recall screen (jitter tolerance).	:DISPlay:ANALysis:RECall:JTOLerance:SCALe?	
Queries the title for the Analyze:Recall screen (jitter tolerance).	:DISPlay:ANALysis:RECall:JTOLerance:TITLe?	
Sets whether to display a marker on the Analyze:Recall screen (jitter transfer).	:DISPlay:ANALysis:RECall:JTRansfer:MDISplay	boolean
Queries the marker display status for the Analyze:Recall screen (jitter transfer).	:DISPlay:ANALysis:RECall:JTRansfer:MDISplay?	
Instructs a marker search type for the Analyze:Recall screen (jitter transfer).	:DISPlay:ANALysis:RECall:JTRansfer:SEARch	type
Queries the data indicated by marker on the Analyze:Recall screen (jitter transfer).	:DISPlay:ANALysis:RECall:JTRansfer:DATA?	
Sets a graph vertical axis scale for the Analyze:Recall screen (jitter transfer).	:DISPlay:ANALysis:RECall:JTRansfer:SCALe	numeric
Queries the graph vertical axis scale for the Analyze:Recall screen (jitter transfer).	:DISPlay:ANALysis:RECall:JTRansfer:SCALe?	

Queries the title for the Analyze:Recall screen (jitter transfer).	:DISPlay:ANALysis:RECall:JTRansfer:TITLe?	
Sets whether to display a marker on the Analyze:Recall screen (Jitter/Freq.).	:DISPlay:ANALysis:RECall:JFRequency:MDISplay	boolean
Queries the marker display status for the Analyze:Recall screen (Jitter/Freq.).	:DISPlay:ANALysis:RECall:JFRequency:MDISplay?	
Instructs a marker search type for the Analyze:Recall screen (Jitter/Freq.).	:DISPlay:ANALysis:RECall:JFRequency:SEARch	type
Queries the data indicated by marker on the Analyze:Recall screen (Jitter/Freq.).	:DISPlay:ANALysis:RECall:JFRequency:DATA?	
Sets a graph vertical axis scale for the Analyze:Recall screen (Jitter/Freq.).	:DISPlay:ANALysis:RECall:JFRequency:SCALe	numeric
Queries the graph vertical axis scale for the Analyze:Recall screen (Jitter/Freq.).	:DISPlay:ANALysis:RECall:JFRequency:SCALe?	
Queries the title for the Analyze:Recall screen (Jitter/Freq.).	:DISPlay:ANALysis:RECall:JFRequency:TITLe?	
Scrolls the Analyze:Recall screen (frequency monitoring graph).	:DISPlay:ANALysis:RECall:FGRaph:SCRoll	scroll
Moves the marker on the Analyze:Recall screen (frequency monitoring graph).	:DISPlay:ANALysis:RECall:FGRaph:MARKer	marker
Queries the data indicated by marker on the Analyze:Recall screen (frequency monitoring graph).	:DISPlay:ANALysis:RECall:FGRaph:DATA?	
Sets the interval of the graph on the Analyze:Recall screen (frequency monitoring graph).	:DISPlay:ANALysis:RECall:FGRaph:INTerval	numeric suffix
Queries the width of one scale on the time axis on the Analysis:Recall screen (frequency monitoring graph).	:DISPlay:ANALysis:RECall:FGRaph:INTerval?	
Sets whether to display a marker on the Analyze:Recall screen (frequency monitoring graph).	:DISPlay:ANALysis:RECall:FGRaph:MDISplay	boolean
Queries the marker display status for the Analyze:Recall screen (frequency monitoring graph).	:DISPlay:ANALysis:RECall:FGRaph:MDISplay?	
Sets the display starting point of the graph on the Analyze:Recall screen (frequency monitoring graph).	:DISPlay:ANALysis:RECall:FGRaph:FROM	time
Queries the display starting point of the graph on the Analyze:Recall screen (frequency monitoring graph).	:DISPlay:ANALysis:RECall:FGRaph:FROM?	
Sets the printing range on the Analyze:Recall screen (frequency monitoring graph).	:DISPlay:ANALysis:RECall:FGRaph:PRINt	type
Queries the printing range on the Analyze:Recall screen (frequency monitoring graph).	:DISPlay:ANALysis:RECall:FGRaph:PRINt?	
Queries the title on the Analyze:Recall screen (frequency monitoring graph).	:DISPlay:ANALysis:RECall:FGRaph:TITLe?	
Sets a graph vertical axis scale for the Analyze:Recall screen (frequency monitoring graph).	:DISPlay:ANALysis:RECall:FGRaph:SCALe	scale

Queries the vertical axis scale for the Analyze:Recall screen (frequency monitoring graph).	:DISPlay:ANALysis:RECall:FGRaph:SCALe?	
Queries the title for Analyze:Recall screen (Jitter sweep).	:DISPlay:ANALysis:RECall:JSWeep:TITLe?	
Sets the marker display for Analyze:Recall screen (Jitter sweep).	:DISPlay:ANALysis:RECall:JSWeep:MDISplay	boolean
Queries the marker display for Analyze:Recall screen (Jitter sweep).	:DISPlay:ANALysis:RECall:JSWeep:MDISplay?	
Sets the marker search for Analyze:Recall screen (Jitter sweep).	:DISPlay:ANALysis:RECall:JSWeep:SEARch	type
Queries the data indicated by marker for Analyze:Jitter sweep screen.	:DISPlay:ANALysis:RECall:JSWeep:DATA?	
Sets a graph vertical axis scale for Analyze:Recall screen (Jitter sweep).	:DISPlay:ANALysis:RECall:JSWeep:SCALe	scale
Queries the graph vertical axis scale for Analyze:Recall screen (Jitter sweep).	:DISPlay:ANALysis:RECall:JSWeep:SCALe?	
Sets a graph vertical axis scale value (lower stage) on the Analyze:Recall (Jitter sweep) screen.	:DISPlay:ANALysis:RECall:JSWeep:SCALe2	scale
Queries the graph vertical axis scale (lower stage) on the Analyze:Recall (Jitter.sweep) screen.	:DISPlay:ANALysis:RECall:JSWeep:SCALe2?	
Queries the title on the Analyze:Recall(Freq. sweep) screen.	:DISPlay:ANALysis:RECall:FSWeep:TITLe?	
Sets a display state of the marker on the Analyze:Recall(Freq. sweep) screen.	:DISPlay:ANALysis:RECall:FSWeep:MDISplay	boolean
Queries the marker display state on the Analyze:Recall(Freq. sweep) screen.	:DISPlay:ANALysis:RECall:FSWeep:MDISplay?	
Sets a direction to shift a marker on the Analyze:Recall(Freq. sweep) screen.	:DISPlay:ANALysis:RECall:FSWeep:SEARch	type
Queries the data indicated by marker on the Analyze:Recall(Freq. sweep) screen.	:DISPlay:ANALysis:RECall:FSWeep:DATA?	
Sets the maximum value of graph vertical axis scale (UIp-p) on the Analyze:Recall(Freq. sweep) screen.	:DISPlay:ANALysis:RECall:FSWeep:SCALe	numeric
Queries the maximum value of graph vertical axis scale on the Analyze:Recall(Freq. sweep) screen.	:DISPlay:ANALysis:RECall:FSWeep:SCALe?	
Sets the maximum value of graph horizontal axis scale (ppm) on the Analyze:Recall(Freq. sweep) screen.	:DISPlay:ANALysis:RECall:FSWeep:PPMScale	numeric
Queries the maximum value of graph horizontal axis scale (ppm) on the Analyze:Recall(Freq. sweep) screen.	:DISPlay:ANALysis:RECall:FSWeep:PPMScale?	
Changes an offset mask display on the Analyze:Recall(Freq. sweep) screen.	:DISPlay:ANALysis:RECall:FSWeep:OMASk	boolean
Queries changing state of the offset mask display on the Analyze:Recall(Freq. sweep) screen.	:DISPlay:ANALysis:RECall:FSWeep:OMASk?	

Sets whether to display a marker on the Analyze:Recall screen (Wander).	:DISPlay:ANALysis:RECall:WANDer:MDISplay	boolean
Queries the marker display status for the Analyze:Recall screen (Wander).	:DISPlay:ANALysis:RECall:WANDer:MDISplay?	
Instructs a marker search type for the Analyze:Recall screen (Wander).	:DISPlay:ANALysis:RECall:WANDer:SEARch	type
Queries the data indicated by the marker on the Analyze:Recall screen (Wander).	:DISPlay:ANALysis:RECall:WANDer:DATA?	
Queries the title for the Analyze:Recall screen (Wander).	:DISPlay:ANALysis:RECall:WANDer:TITLe?	
Specifies the vertical axis scale type on Analyze:RECall screen (Wander).	:DISPlay:ANALysis:RECall:WANDer:STYPe	type
Queries the vertical axis scale type of Analyze:Recall screen (Wander).	:DISPlay:ANALysis:RECall:WANDer:STYPe?	
Sets the maximum value of graph vertical axis scale for Wander data Log type.	:DISPlay:ANALysis:RECall:WANDer:LOG:SCALe	scale
Queries the maximum value of graph vertical axis scale for Wander data Log type.	:DISPlay:ANALysis:RECall:WANDer:LOG:SCALe?	
Sets the maximum value of graph vertical axis scale for Wander data Linear type.	:DISPlay:ANALysis:RECall:WANDer:LINear:SCALe	scale
Queries the maximum value of graph vertical axis scale for Wander data Linear type.	:DISPlay:ANALysis:RECall:WANDer:LINear:SCALe?	
Sets the maximum value of graph horizontal axis scale for Wander data Linear type.	:DISPlay:ANALysis:RECall:WANDer:MEAStime	scale
Queries the maximum value of graph horizontal axis scale for Wander data Linear type.	:DISPlay:ANALysis:RECall:WANDer:MEAStime?	
Sets the maximum value of graph (when “User” is set) horizontal axis scale for Wander data Linear type.	:DISPlay:ANALysis:RECall:WANDer:USER	scale
Queries the maximum value of graph (when “User” is set) horizontal axis scale for Wander data Linear type.	:DISPlay:ANALysis:RECall:WANDer:USER?	
Queries the title for the Analyze:Recall(Wander.sweep) screen.	:DISPlay:ANALysis:RECall:WSWeep:TITLe?	
Sets the marker display state on the Analyze:Recall (Wander.sweep) screen.	:DISPlay:ANALysis:RECall:WSWeep:MDISplay	boolean
Queries the marker display state on the Analyze:Recall (Wander.sweep) screen.	:DISPlay:ANALysis:RECall:WSWeep:MDISplay?	
Sets a direction to shift a marker on the Analyze:Recall (Wander.sweep) screen.	:DISPlay:ANALysis:RECall:WSWeep:SEARch	type
Queries the data indicated by marker on the Analyze:Recall (Wander.sweep) screen.	:DISPlay:ANALysis:RECall:WSWeep:DATA?	

Sets the maximum value of graph vertical axis scale on the Analyze:Recall (Wander.sweep) screen.	:DISPlay:ANALysis:RECall:WSWeep:SCALe	numeric
Queries the graph vertical axis scale (upper stage) on the Analyze:Recall (Wander.sweep) screen.	:DISPlay:ANALysis:RECall:WSWeep:SCALe?	
Sets a graph vertical axis scale value (lower stage) on the Analyze:Recall (Wander.sweep) screen.	:DISPlay:ANALysis:RECall:WSWeep:SCALe2	numeric
Queries the graph vertical axis scale (lower stage) on the Analyze:Recall (Wander. sweep) screen.	:DISPlay:ANALysis:RECall:WSWeep:SCALe2?	
Specifies a graph vertical axis scale unit on the Analyze:Recall (Wander.sweep) screen.	:DISPlay:ANALysis:RECall:WSWeep:STYPe	type
Queries the graph vertical axis scale unit on the Analyze:Recall (Wander.sweep) screen.	:DISPlay:ANALysis:RECall:WSWeep:STYPe?	
Scrolls the Analyze:Recall (Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:SCRoll	scroll
Sets a marker display state on the Analyze:Recall (Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:MARKer	marker
Queries the data indicated by marker on the Analyze:Recall (Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:DATA?	
Sets an interval of the time axis on the Analyze:Peak jitter screen.	:DISPlay:ANALysis:RECall:PEAK:INTerval	numeric suffix
Queries the width of one scale on the time axis on the Analyze:Recall (Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:INTerval?	
Sets a marker display state on the Analyze:Recall (Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:MDISplay	boolean
Queries the marker display state on the Analyze:Recall (Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:MDISplay?	
Sets a direction to shift a marker on the Analyze:Recall (Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:SEARch	type
Sets a display starting point on the Analyze:Recall (Peak jitter) screen graph.	:DISPlay:ANALysis:RECall:PEAK:FROM	numeric1 numeric2 numeric3 numeric4 numeric5
Queries the display starting point on the Analyze:Recall (Peak jitter) screen graph.	:DISPlay:ANALysis:Recall:PEAK:FROM?	
Sets an alarm item of alarm 1 for graph display on the Analyze:Recoll(Peak jitter) screen.	:DISPlay:ANALysis:Recall:PEAK:ALARm1	alarm
Queries the alarm item of alarm 1 for graph display on the Analyze:Recall(Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:ALARm1?	
Sets an alarm item of alarm 2 for graph display on the Analyze:Recall(Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:ALARm2	alarm

Queries the alarm item of alarm 2 for graph display on the Analyze:Recall(Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:ALARm2?	
Sets an alarm item of alarm 3 for graph display on the Analyze:Recall(Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:ALARm3	alarm
Queries the alarm item of alarm 3 for graph display on the Analyze:Recall(Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:ALARm3?	
Sets an alarm item of alarm 4 for graph display on the Analyze:Recall(Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:ALARm4	alarm
Queries the alarm item of alarm 4 for graph display on the Analyze:Recall(Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:ALARm4?	
Sets an alarm item of alarm 5 for graph display on the Analyze:Recall(Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:ALARm5	alarm
Queries the alarm item of alarm 5 for graph display on the Analyze:Recall(Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:ALARm5?	
Sets a printing range on the Analyze:Recall (Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:PRINt	type
Queries the printing range on the Analyze:Recall (Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:PRINt?	
Queries the title on the Analyze:Recall (Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:TITLe?	
Sets a graph vertical axis display unit for the Analyze:Recall (Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:DTYPe	type
Queries the graph vertical axis display unit for the Analyze:Recall (Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:DTYPe?	
Sets a graph vertical axis scale value on the Analyze:Recall (Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:SCALe	numeric
Queries the graph vertical axis scale value on the Analyze:Recall (Peak jitter) screen.	:DISPlay:ANALysis:RECall:PEAK:SCALe?	

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Selects the display items on the Setup screen.	:DISPlay:SETup[:NAME]	sdisplay
Queries the display item on the Setup screen.	:DISPlay:SETup[:NAME]?	

:DISPlay:TMENu[:NAME] <display>

Parameter <display> = <STRING PROGRAM DATA>

"TSEarch"	Trouble search screen
"MANual"	Manual screen
"MANual:JOFF"	Manual screen
"MANual:JON"	Manual:jitter screen
"PSEQuence"	Pointer sequence screen
"PSEQuence:JOFF"	Pointer sequence screen
"PSEQuence:JON"	Pointer sequence:jitter screen
"DELay"	Delay screen
"JTOLerance"	Jitter tolerance screen
"JTRansfer"	Jitter transfer screen
"JFRequency"	Jitter/Freq. screen
"WANDer"	Wander screen
“JSWeep"	Jitter sweep screen
"FSWeep"	Freq. sweep screen
"WSWeep"	Wander sweep screen

Function Sets a subscreen for the Test menu main screen.

Restriction Invalid when,

- :SENSe:TELecom:MMODe is <ISERvice>, and <"DELay"> or <"JTOLerance"> is set.
- :ROUTe:THRough is <ON>, and <"JTOLerance">, <"JTRansfer">, or <"JFRequency"> is set.
- :SENSe:TELecom:MMODe is <ISERvice>, and <"DELay"> or <"JTOLerance"> is set.
- :SOURce:TELecom:BRATe is <M139>, <M45>, <M34>, <M8>, <M2>, or <M1_5>, or :SENSe:TELecom:MMODe is <ISERvice>; and <"PSEQuence:[JOFF]"> or <"PSEQuence:JON"> is set.
- The MU150005A, MU150006A, or MU150007A is not installed; and <“FSWeep”> or <”WSWeep”> is set.

Example use To set "with jitter indication" for Manual subscreen:

> :DISPlay:TMENu:NAME "MANual:JON"

or :DISPlay:TMENu "MANual:JON"

:DISPlay:TMENu[:NAME]?

Response <display> = <STRING RESPONSE DATA>

"TSE"	Trouble search screen
"MAN"	Manual screen
"MAN:JOFF"	Manual screen
"MAN:JON"	Manual:jitter screen
"PSEQ"	Pointer sequence screen
"PSEQ:JOFF"	Pointer sequence screen
"PSEQ:JON"	Pointer sequence:jitter screen
"DEL"	Delay screen
"JTOL"	Jitter tolerance screen
"JTR"	Jitter transfer screen
"JFR"	Jitter/Freq. screen
"WAND"	Wander screen
“JSW"	Jitter sweep screen
"FSW"	Freq. sweep screen
"WSW"	Wander sweep screen

Function Queries the selected subscreen of the Test menu main screen.

Example use > :DISPlay:TMENu:NAME? or :DISPlay:TMENu?

< "MAN:JON"

:DISPlay:RESult[:NAME] <display>

Parameter <display> = <STRING PROGRAM DATA>

"TSEarch"	Trouble search subscreen
"EALarm"	Error/Alarm subscreen
"JUSTificat"	Justification subscreen
"ZOOM"	Zoom subscreen
"PERFormance"	Performance subscreen
"DELay"	Delay subscreen
"JWANder"	Jitter/Wander subscreen
"JTOLerance"	Jitter tolerance subscreen
"JTRansfer"	Jitter transfer subscreen
"JFRequency"	Jitter/Freq. screen
"WANDer"	Wander screen
“JSWeep"	Jitter sweep screen
"B2"	B2 error screen
"FSWeep"	Freq. sweep screen
"WSWeep"	Wander sweep screen

Function Sets a subscreen for the Result main screen.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">, <"MANual:JON">, <"PSEQuence[:JOFF]">, and <"PSEQuence:JON">, and <"EALarm">, <"JUSTificat">, <"ZOOM">, <"PERFormance"> or <"JWANder"> is set.
- :DISPlay:TMENu[:NAME] is <"MANual[:JOFF]">, <"MANual:JON">, <"PSEQuence[:JOFF]"> or <"PSEQuence:JON">, and :SENSe:TELecom:BRATe is <M139>, <M45>, <M34>, <M8>, <M2>, or <M1.5>; and <"JUSTificat"> is set.
- :DISPlay:TMENu[:NAME] is <"PSEQuence[:JOFF]"> or <"PSEQuence:JON">, and :SENSe:TELecom:BRATe is set to <JUSTificat>.
- :DISPlay:TMENu[:NAME] cannot be set to <"MANual:JON"> or <"PSEQuence:JON">, and <"JWANder"> is set.
- :DISPlay:RESult[:NAME] is the value other than the followings for :DISPlay:TMENu[:NAME]

:DISPlay:TMENu[:NAME]	:DISPlay:RESult[:NAME]
TSEarch	TSEarch
DELay	DELay
JTOLerance	JTOLerance
JTRansfer	JTRansfer
JFRequency	JFRequency
JSWeep	JSWeep
WANer	WANDer
WSWeep	WSWeep
FSWeep	FSWeep

- The MU150005A, MU150006A, or MU150007A is not installed; and <“FSWeep”> or <”WSWeep”> is set.

Example use To set the Jitter/Wander subscreen:

> :DISPlay:RESult:NAME "JWANder" or :DISPlay:RESult "JWANder"

:DISPlay:RESult[:NAME]?

Response <display> = <STRING RESPONSE DATA>

"TSE"	Trouble search screen
"EAL"	Error/Alarm screen
"JUST"	Justification screen
"ZOOM"	Zoom screen
"PERF"	Performance screen
"DEL"	Delay screen
"JWAN"	Jitter/Wander screen
"JTOL"	Jitter Tolerance screen
"JTR"	Jitter Transfer screen
"JFR"	Jitter/Freq. screen
"WAND"	Wander screen
“JSWeep"	Jitter sweep screen
"B2"	B2 error screen
"FSW"	Freq. sweep screen
"WSW"	Wander sweep screen

Function Queries the selected subscreen of the Result main screen.

Example use > :DISPlay:RESult:NAME? or :DISPlay:RESult?
< "JWAN"

:DISPlay:RESult:JWANder:MODE <mode>

Parameter <mode> = <CHARACTER PROGRAM DATA>

CURRent	Current measurement result
LAST	Immediately preceding measurement result

Function Sets a display mode for Result:Jitter/Wander screen.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">, <"MANual:JON">, <"PSEQuence[:JOFF]">, and <"PSEQuence:JON">.
- <LAST> is set when :DISPLay:RESult:JWANder:UNIT is <WANDer>.

Example use To display the current measurement result:
> :DISPlay:RESult:JWANder:MODE CURRent

:DISPlay:RESult:JWANder:MODE?

Response <mode> = <CHARACTER RESPONSE DATA>

Function Queries the display mode setting for Result:Jitter/Wander screen.

Example use > :DISPlay:RESult:JWANder:MODE?
< CURR

:DISPlay:RESult:JWANder:UNIT <unit>

Parameter <unit> = <CHARACTER PROGRAM DATA>

PEAKRMS	Peak/RMS
HIT	Hit
WANDer1	Wander(DC-10Hz)
WANDer2	Wander(DC-0.01Hz)
WANDer3	Wander(0.01Hz-10Hz)

Restriction Sets a display data type for Result:Jitter/Wander screen.

Function Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">, <"MANual:JON">, <"PSEQuence[:JOFF]">, and <"PSEQuence:JON">.
- :SENSe:MEASure:JWANder:MSELect is <JITTer>, and <"WANDer1">, <"WANDer2">, or <"WANDer3"> is set.
- :DISPlay:RESult cannot be set to <"JWANder">.
- :SENSe:MEASure:JWANder:MSELect is <WANDer>, and <"PEAK">, <"HIT">, or <"RMS"> is set.
- <WANDer> is set when :SENSe:MEASure:JWANder:MSELect is <JITTer>.

Example use To display the Jitter Peak-Peak measurement result:

> :DISPlay:RESult:JWANder:UNIT PEAKRMS

:DISPlay:RESult:JWANder:UNIT?

Response <unit> = <CHARACTER RESPONSE DATA>

PEAKRMS	Peak/RMS
HIT	Hit
WANDer1	Wander (DC-10Hz)
WANDer2	Wander (DC-0.01Hz)
WANDer3	Wander (0.01Hz-10Hz)

Function Queries the display data type for Result:Jitter/Wander screen.

Example use

> :DISPlay:RESult:JWANder:UNIT?

< PEAKRMS

:DISPlay:RESult:JFRequency:SCRoll <type>

Para□meter <type> = <CHARACTER PROGRAM DATA>

TOP	Jump to the top table
END	Jump to the last table
NEXT	Proceed to the next table
BEFOR	Back to the table before

Function Controls the scroll of the Freq. sweep measurement result table.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"JFRequency">.
- :SENSe:TELecom:BRATe is other than <M139>,<M45>,<M34>,<M8>,<M2>, and <M1_5>.

Example use To display the top table result.

> :DISPlay:RESult:JFRequency:SCRoll TOP

:DISPlay:RESult:JFRequency:OFFSetmask <filter>

Parameter <filter> = <CHARACTER PROGRAM DATA>

FILT1	Filter1
FILT2	Filter2

Function Sets a filter type to display on the Jitter/Freq. measurement result table for the Result screen.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"JFRequency">.
- Setting of Filter(Rx Filter) on the receive side is Single.

Example use To get the Filter 1 result

> :DISPlay:RESult:JFRequency:OFFSetmask FILTer1

:DISPlay:RESult:JFRequency:OFFSetmask?

Response <filter> = <CHARACTER RESPONSE DATA>

Same as :DISPlay:RESult:JFRequency:OFFSetmask.

Function Queries the filter type setting state of Jitter/Freq. measurement result display on the Result screen.

Example use > :DISPlay:RESult:JFRequency:OFFSetmask?

< FILT1

:DISPlay:RESult:FSWeep:SCRoll <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

TOP	Jump to the top table
END	Jump to the last table
NEXT	Proceed to the next table
BEFOR	Back to the table before

Function Queries the filter type setting state of Jitter/Freq. measurement result display on the Result screen.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"FSWeep">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To proceed one table to display the result.

> :DISPlay:RESult:FSWeep:SCRoll NEXT

:DISPlay:RESult:WANDer:DISPtype <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

LOG	Log
LINear	Linear

Function Changes wander measurement result display.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"WANDer">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To display LOG result.

> :DISPlay:RESult:WANDer LOG

:DISPlay:RESult:WANDer:DISPtype?

Response <type> = <CHARACTER RESPONSE DATA>
Same as :DISPlay:RESult:WANDer:DISPtype.
Function Queries the state of wander measurement result display type.
Example use > :DISPlay:RESult:WANDer:DISPtype?
< LIN

:DISPlay:RESult:WANDer:SCRoll <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

TOP	Jump to the top table
END	Jump to the last table
NEXT	Preceed to the next table (1 to 10 units)
BEFOR	Back to the table before

Function Controls the scroll of the Wander measurement result table.
Example use To proceed one table
> :DISPlay:RESult:WANDer:SCRoll NEXT

:DISPlay:RESult:WSWeep:UNIT <unit>

Parameter <unit> = <CHARACTER PROGRAM DATA>

UIPP	UIp-p display
NS	ns display

Function Changes wander sweep measurement result display unit.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WSWeep">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the display data of the Result screen to UIp-p.
> :DISPlay:RESult:WSWeep:UNIT UIPP

:DISPlay:RESult:WSWeep:UNIT?

Response <unit> = <CHARACTER RESPONSE DATA>

UIPP	UIp-p
NS	ns

Function Queries display data in the Result: Wander sweep screen.
Example use > :DISPlay:RESult:WSWeep:UNIT?
< NS

:DISPlay:ANALysis[:NAME] <display>

Parameter <display> = <STRING PROGRAM DATA>

"TSEarch"	Trouble search screen
"EALarm"	Error/Alarm screen
"OHMonitor"	OH monitor screen
"FMONitor"	Freq. monitor screen
"FGRaph"	Frequency screen
"JTOLerance"	Jitter tolerance screen
"JTRansfer"	Jitter transfer screen
"JFRequency"	Jitter/Freq. screen
"JSW"	Jitter sweep screen
"WANDer"	Wander screen
"OHC"	OH capture screen
"OPMeter"	Opt. power meter screen
"RECall"	Recall screen
"FSW"	Freq. sweep screen
"WSW"	Wander sweep screen
"PEAK"	Peak jitter screen

Function Sets a subscreen for the Analyze main screen.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">, <"MANual:JON">, <"PSEQuence[:JOFF]">, and <"PSEQuence:JON">, and <"EALarm">, <"OHMonitor">, <"FMONitor">, <"SOH64">,or <"OHC"> is set.
- :SENSe:TELecom:BRATe is <M45> or <M1_5>, and <"OHMonitor"> is set.
- :SENSe:TELecom:DEMUX:MRATe is <OFF>, and :SENSe:TELecom:FRAMing is <OFF>, and <"OHMonitor"> is set.
- :SENSe:TELecom:BRATe is <M139>, <M45>, <M34>, <M8>, <M2>, or <M1_5>, and <" OHC "> is set.
- :DISPlay:ANALysis[:NAME] is set to the value other than the followings for :DISPlay:TMENu[:NAME].

:DISPlay:TMENu[:NAME]	:DISPlay:ANALysis[:NAME]
TSEarch	TSEarch
DELay	RECall
JTOLerance	JTOLerance RECall
JTRansfer	JTRansfer RECall
JFRequency	JFRequency RECall
JSWeep	JSWeep RECall
WANDer	WANDer RECall
WSWeep	WSWeep RECall
FSWeep	FSWeep RECall

- The MU150005A, MU150006A, or MU150007A is not installed; and <“FSWeep”>, <”WSWeep”>, or <"PEAKjitter"> is set.
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> and <"MANual:JON">; and <"PEAKjitter"> is set.
- The MU150005A, MU150006A, or MU150007A is installed; :SENSe:TELecom:BRATe is other than <M139>, <M45>, <M34>, <M8>, <M2>, and <M1_5>; and <"JFRequency"> is set.

Example use

To set the Jitter tolerance subscreen:

> :DISPlay:ANALysis:NAME "JTOLerance"

or :DISPlay:ANALysis "JTOLerance"

:DISPlay:ANALysis[:NAME]?

Response <display> = <STRING RESPONSE DATA>

"TSE"	Trouble search screen
"EAL"	Error/Alarm screen
"OHM"	OH monitor screen
"FMON"	Freq. monitor screen
"JTOL"	Jitter tolerance screen
"JTR"	Jitter transfer screen
"JFR"	Jitter/Freq. screen
"JSWeep"	Jitter sweep screen
"WAND"	Wander screen
"OHC"	OH capture screen
"REC"	Recall screen
"FSWeep"	Freq. sweep screen
"WSWeep"	Wander sweep screen
"PEAKjitter"	Peak jitter screen

Function Queries the selected subscreen for the Analyze main screen.

Example use > :DISPlay:ANALysis:NAME? or :DISPlay:ANALysis?
< "JTOL"

:DISPlay:ANALysis:TGRaph:DATA?

Response <time>,<alarm1s>,<alarm1c>,<alarm2s>,<alarm2c>,<alarm3s>,<alarm3c>,
<alarm4s>,<alarm4c>,<alarm5s>,<alarm5c>,<error1>,<error2>
<time> = <year>,<month>,<day>,<hour>,<minute>,<second>
Time indicated by marker
<year> = <NR1 NUMERIC RESPONSE DATA>
Year: 0, 1994 to 2093
<month> = <NR1 NUMERIC RESPONSE DATA>
Month: 0, 1 to 12
<day> = <NR1 NUMERIC RESPONSE DATA>
Day: 0, 1 to 31
<hour> = <NR1 NUMERIC RESPONSE DATA>
Hour: 0 to 23
<minute> = <NR1 NUMERIC RESPONSE DATA>
Minute: 0 to 59
<second> = <NR1 NUMERIC RESPONSE DATA>
Second: 0 to 59
<alarm1s> = <STRING RESPONSE DATA>
Alarm 1 occurrence time (sec) of data indicated by marker
Form1
<alarm1c> = <STRING RESPONSE DATA>
Alarm 1 occurrence count of data indicated by marker
Form1
<alarm2s> = <STRING RESPONSE DATA>
Alarm 2 occurrence time (sec) of data indicated by marker
Form1
<alarm2c> = <STRING RESPONSE DATA>
Alarm 2 occurrence count of data indicated by marker
Form1
<alarm3s> = <STRING RESPONSE DATA>
Alarm 3 occurrence time (sec) of data indicated by marker
Form1
<alarm3c> = <STRING RESPONSE DATA>
Alarm 3 occurrence count of data indicated by marker
Form1
<alarm4s> = <STRING RESPONSE DATA>
Alarm 4 occurrence time (sec) of data indicated by marker
Form1
<alarm4c> = <STRING RESPONSE DATA>
Alarm 4 occurrence count of data indicated by marker
Form1
<alarm5s> = <STRING RESPONSE DATA>
Alarm 5 occurrence time (sec) of data indicated by marker
Form1
<alarm5c> = <STRING RESPONSE DATA>
Alarm 5 occurrence count of data indicated by marker
Form1
<error1> = <STRING RESPONSE DATA>
Error count value of data indicated by marker
Form1
<error2> = <STRING RESPONSE DATA>
Error rate value of data indicated by marker
Form2

Function Queries the data indicated by marker on Analyze:Error/alarm screen.

Example use
```
> :DISPlay:ANALysis:TGRaph:DATA?
< 2000,12,25,12,54,30,"          1","          1","          0","          0",
"        104","         10","          1","          1","          1",
"          1","        189"," 3.3E-04"
```

:DISPlay:ANALysis:TGRaph:ERRor <error1>,<error2>

Parameter <error1>,<error2>

<error1> = <STRING PROGRAM DATA>

"B1"		B1 error
"B2"		B2 error
"B3:HP"		HP-B3 error
"B3:LP"		LP-B3 error
"BIP2"		BIP-2 error
"REI:MS"		MS-REI error
"REI:HP"		HP-REI error
"REI:LP"		LP-REI error
"REI:L"	(SONET)	REI-L error
"REI:P"	(SONET)	REI-P error
"REI:V"	(SONET)	REI-V error
“IEC:HP”		HP-IEC error
“REI:HT”		HP-TC-REI error
“OEI:HP”		HP-OEI error
“IEC:LP”		LP-IEC error
“REI:LT”		LP-TC-REI error
“OEI:LP”		LP-OEI error
“BIP2:N2”		N2 BIP-2 error
“BIT:OH”		OH Bit error
"CODE"		Code error
"FRAMe:M139"		139M FAS
"FRAMe:M45"		45M FAS
"FRAMe:M34"		34M FAS
"FRAMe:M8"		8M FAS
"FRAMe:M2"		2M FAS
"FRAMe:M1_5"		1.5M FAS
"REI:M139"		139M REI error
"REI:M45"		45M REI error
"REI:M34"		34M REI error
"CRC4"		CRC-4 error
"EBIT"		E-Bit
"PARITY"		Parity error
"CBIT"		C-Bit
"COUNT"		Count
"BIT"		Bit error
"HIT"		Hit

<error2> = <CHARACTER PROGRAM DATA>

EC	Count
ER	Rate

Function Sets an error item subject to graphic display on Analyze:Error/Alarm screen.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">, <"MANual:JON">, <"PSEQuence[:JOFF]">, and <"PSEQuence:JON">.
- <ER> is set at <"HIT"> setting.

Example use To display the error rate of bit errors:

> :DISPlay:ANALysis:TGRaph:ERRor "BIT",ER

:DISPlay:ANALysis:TGRaph:ERRor?

Response	<error1>,<error2> <error1> = <STRING RESPONSE DATA> <error2> = <CHARACTER RESPONSE DATA>
Function	Queries the error item subject to graphic display on Analyze:Error/Alarm screen.
Example use	> :DISPlay:ANALysis:TGRaph:ERRor? < "HIT",EC

:DISPlay:ANALysis:TGRaph:ALARm1 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>

"ALL"		ALL
"POWer"		Power fail
"LOS"		LOS
"LOF"		LOF
"OOF"		OOF
"AIS:MS"		MS-AIS
"RDI:MS"		MS-RDI
"AIS:AU"		AU-AIS
"LOP:AU"		AU-LOP
"RDI:HP"		HP-RDI
"SLM:HP"		HP-SLM
"AIS:TU"		TU-AIS
"LOP:TU"		TU-LOP
"RDI:LP"		LP-RDI
"SLM:LP"		LP-SLM
"RFI:LP"		LP-RFI
"LOM:TU"		TU-LOM
“TIM:LP”	(SDH)	LP-TIM
“TIM:V”	(SONET)	TIM-V
“UNEQ:LP”	(SDH)	LP-UNEQ
“UNEQ:V”	(SONET)	UNEQ-V
“AIS:LV”		LP-VC-AIS
“FAS:LP”		LP-FAS
“IAIS:LP”		LP-IncAIS
“TRDI:LP”		LP-TC-RDI
“ODI:LP”		LP-ODI
“TIM:HP”	(SDH)	HP-TIM
“TIM:P”	(SONET)	TIM-P
“UNEQ:HP”	(SDH)	HP-UNEQ
“UNEQ:P”	(SONET)	UNEQ-P
“AIS:HV”		HP-VC-AIS
“ISF:HP”		HP-ISF
“FAS:HP”		HP-FAS
“IAIS:HP”		HP-IncAIS
“TRDI:HP”		HP-TC-RDI
“ODI:HP”		HP-ODI
"AIS:M139"		139M AIS
"AIS:M45"		45M AIS
"AIS:M34"		34M AIS
"AIS:M8"		8M AIS
"AIS:M2"		2M AIS
"AIS:M1_5"		1.5M AIS
"LOF:M139"		139M LOF
"LOF:M45"		45M LOF
"LOF:M34"		34M LOF
"LOF:M8"		8M LOF
"LOF:M2"		2M LOF
"LOF:M1_5"		1.5M LOF
"LOF:MF"		MF LOF
"RDI:M139"		139M RDI
"RDI:M45"		45M RDI
"RDI:M34"		34M RDI
"RDI:M8"		8M RDI

"RDI:M2"	2M RDI
"RDI:M1_5"	1.5M RDI
"RDI:MF"	MF RDI
“SYN:OH”	OH sync
“AIS:HG”	HG AIS
“REC:HG”	HG REC
“BAI:S15”	BAIS1.5
“AIS:S15”	SigAIS1.5
“SIG:OOF”	SigOOF
"LCD"	Lost of cell sync
"PATTern"	Sync. loss
"JUNLock"	Jitter Unlock

Function Sets an alarm item to be graphically displayed to alarm1 of the Analyze:Error/Alarm screen.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">, <"MANual:JON">, <"PSEQuence[:JOFF]">, and <"PSEQuence:JON">.

Example use To set to display the Jitter Unlock graph:

> :DISPlay:ANALysis:TGRaph:ALARm1 "JUNLock"

:DISPlay:ANALysis:TGRaph:ALARm1?

Response <alarm> = <STRING RESPONSE DATA>
Function Queries the alarm item graphically displayed to alarm1 of the Analyze:Error/Alarm screen.
Example use > :DISPlay:ANALysis:TGRaph:ALARm1?
< "JUNL"

:DISPlay:ANALysis:TGRaph:ALARm2 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>
: Same as those of :DISPlay:ANALysis:TGRaph:ALARm1.
Function Sets an alarm item to be graphically displayed to alarm2 of the Analyze:Error/Alarm screen.

:DISPlay:ANALysis:TGRaph:ALARm2?

Response <alarm> = <STRING RESPONSE DATA>
Same as those of :DISPlay:ANALysis:TGRaph:ALARm1?
Function Queries the alarm item graphically displayed to alarm2 of the Analyze:Error/Alarm screen.

:DISPlay:ANALysis:TGRaph:ALARm3 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>
Same as those of :DISPlay:ANALysis:TGRaph:ALARm1
Function Sets an alarm item to be graphically displayed to alarm3 of the Analyze:Error/Alarm screen.

:DISPlay:ANALysis:TGRaph:ALARm3?

Response <alarm> = <STRING RESPONSE DATA>
Same as those of :DISPlay:ANALysis:TGRaph:ALARm1?
Function Queries the alarm item graphically displayed to alarm3 of the Analyze:Error/Alarm screen.

:DISPlay:ANALysis:TGRaph:ALARm4 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>
Same as those of :DISPlay:ANALysis:TGRaph:ALARm1
Function Sets an alarm item to be graphically displayed to alarm4 of the Analyze:Error/Alarm screen.

:DISPlay:ANALysis:TGRaph:ALARm4?

Response <alarm> = <STRING RESPONSE DATA>
Same as those of :DISPlay:ANALysis:TGRaph:ALARm1?
Function Queries the alarm item graphically displayed to alarm4 of the Analyze:Error/Alarm screen.

:DISPlay:ANALysis:TGRaph:ALARm5 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>
Same as those of :DISPlay:ANALysis:TGRaph:ALARm1.
Function Sets an alarm item to be graphically displayed to alarm5 of the Analyze:Error/Alarm screen.

:DISPlay:ANALysis:TGRaph:ALARm5?

Response <alarm> = <STRING RESPONSE DATA>
Same as those of :DISPlay:ANALysis:TGRaph:ALARm1?
Function Queries the alarm item graphically displayed to alarm5 of the Analyze:Error/Alarm screen.

:DISPlay:ANALysis:TGRaph:TITLe <title>

Parameter <title> = <STRING PROGRAM DATA>
"Title characters": Title characters (up to 15 characters)
Function Sets a trace graph title.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">, <"MANual:JON">, <"PSEQuence[:JOFF]">, and <"PSEQuence:JON">.

Example use To display "TITLE-DISP" as the trace graph title:
> :DISPlay:ANALysis:TGRaph:TITLe "TITLE-DISP"

:DISPlay:ANALysis:TGRaph:TITLe?

Response <title> = <STRING RESPONSE DATA>
Function Queries the graph title for Analyze:Error/Alarm screen.
> :DISPlay:ANALysis:TGRaph:TITLe?
< "TITLE-DISP "

:DISPlay:ANALysis:FMONitor:FREQuency?

Response <freq>,<ppm>
<freq> = <STRING RESPONSE DATA>
Form10
<ppm> = <STRING RESPONSE DATA>
Form11
<relative>=<STRING RECEPONCE DATA>
FROM13
Function Queries Freq. monitor data.
Example use > :DISPlay:ANALysis:FMONitor:FREQuency?
< " 100.0"," +1000.0"," +100.0"
For no data:
< "----------","--------","----------"

:DISPlay:ANALysis:FMONitor:PAUSe <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Pause OFF
ON or 1 Pause ON
Function Sets Pause at Freq. monitor.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]">, <"MANual:JON">, <"MANual:TCLayer">, <"MANual:TCELl">, <"MANual:RCELl">, <"PSEQuence[:JOFF]">, and <"PSEQuence:JON">.

Example use To set Pause to ON at Freq. monitor.
> :DISPlay:ANALysis:FMONitor:PAUSe ON

:DISPlay:ANALysis:FMONitor:PAUSe?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Pause OFF
1 Pause ON
Function Queries the Pause state at Freq. monitor.
Example use > :DISPlay:ANALysis:FMONitor:PAUSe?
< 1

:DISPlay:ANALysis:JTOLerance:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Marker OFF
ON or 1 Marker ON
Function Sets whether to display a marker on Analyze:Jitter tolerance screen.
Restriction Invalid when,
- :DISPlay:TMENu is other than <"JTOLerance">.
- No analyze data exists.

Example use To set to display the marker:
> :DISPlay:ANALysis:JTOLerance:MDISplay ON

:DISPlay:ANALysis:JTOLerance:MDISplay?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 or 1
Function Queries the marker display status for Analyze:Jitter tolerance screen.
Example use > :DISPlay:ANALysis:JTOLerance:MDISplay?
< 1

:DISPlay:ANALysis:JTOLerance:SEARch <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
BEFore Before search
NEXT Next search
Function Instructs a marker search type for Analyze:Jitter tolerance screen.
Restriction Invalid when,
- :DISPlay:ANALysis:JTOLerance:MDISplay is <OFF>.
- :DISPlay:TMENu is other than <"JTOLerance">.
- No analyze data exists.

Example use To instruct Next search:
> :DISPlay:ANALysis:JTOLerance:SEARch NEXT

:DISPlay:ANALysis:JTOLerance:DATA?

Response <point>,<freq1>,<freq2>,<ampl>
<point> = <NR1 NUMERIC RESPONSE DATA>
Measurement point
1 to 20
<freq1> = <NR2 NUMERIC RESPONSE DATA>
Modulation frequency (numeral)
1.0 to 990.0
<freq2> = <CHARACTER RESPONSE DATA>
Modulation frequency (unit)
HZ, KHZ, MHZ
<ampl> = <STRING RESPONSE DATA>
Jitter tolerance measurement result (UIpp)
Form5
Function Queries the data indicated by marker for Analyze:Jitter tolerance screen.
Example use > :DISPlay:ANALysis:JTOLerance:DATA?
< 15,100,HZ," 15.00"
* When no analyze data exists or marker is set to OFF:
< 0,0.0,HZ,"------"

:DISPlay:ANALysis:JTOLerance:SCALe <numeric>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>

100	100 UIpp
10	10 UIpp
1	1 UIpp

Function Sets a graph vertical axis scale for Analyze:Jitter tolerance screen.

Restriction Invalid when:

- :DISPlay:TMENu[:NAME] is other than <"JTOLerance">.

Example use Set the scale to 10 UIpp:

> :DISPlay:ANALysis:JTOLerance:SCALe 10

:DISPlay:ANALysis:JTOLerance:SCALe?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>

Function Queries the vertical axis scale for Analyze:Jitter tolerance screen.

Example use > :DISPlay:ANALysis:JTOLerance:SCALe?

< 10

:DISPlay:ANALysis:JTOLerance:TITLe <title>

Parameter <title> = <STRING PROGRAM DATA>

"Title characters": Title characters (up to 15 characters)

Function Sets a title for Analyze:Jitter tolerance screen.

Restriction Invalid when:

- :DISPlay:TMENu[:NAME] is other than <"JTOLerance">.

Example use > :DISPlay:ANALysis:JTOLerance:TITLe "TITLE-DISP "

:DISPlay:ANALysis:JTOLerance:TITLe?

Response <title> = <STRING RESPONSE DATA>

Function Queries the graph title for Analyze:Jitter tolerance screen.

Example use > :DISPlay:ANALysis:JTOLerance:TITLe?

< "TITLE-DISP "

:DISPlay:ANALysis:JTRansfer:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>

OFF or 0	Marker OFF
ON or 1	Marker ON

Function Sets to display a marker on Analyze:Jitter transfer screen.

Restriction Invalid when:

- :DISPlay:TMENu is other than <"JTRansfer">.
- No analyze data exists.

Example use To set to display the marker:

> :DISPlay:ANALysis:JTRansfer:MDISplay ON

:DISPlay:ANALysis:JTRansfer:MDISplay?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 or 1
Function Queries the marker display status for Analyze:Jitter transfer screen.
Example use > :DISPlay:ANALysis:JTRansfer:MDISplay?
< 1

:DISPlay:ANALysis:JTRansfer:SEARch <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

BEFore	Before search
NEXT	Next search

Function Instructs a marker search type for Analyze:Jitter transfer screen.
Restriction Invalid when,
- :DISPlay:ANALysis:JTRansfer:MDISplay is <OFF>.
- :DISPlay:TMENu is other than <"JTRansfer">.
- No analyze data exists.

Example use To instruct Next search:
> :DISPlay:ANALysis:JTRansfer:SEARch NEXT

:DISPlay:ANALysis:JTRansfer:DATA?

Response <point>,<freq1>,<freq2>,<ampl>
<point> = <NR1 NUMERIC RESPONSE DATA>
Measurement point 1 to 20
<freq1> = <NR2 NUMERIC RESPONSE DATA>
Modulation frequency (numeral) 1.0 to 990.0
<freq2> = <CHARACTER RESPONSE DATA>
Modulation frequency (unit) HZ, KHZ, MHZ
<ampl> = <STRING RESPONSE DATA>
Jitter transfer measurement result (dB)
Form6
Function Queries the data indicated by marker for Analyze:Jitter transfer screen.
< 15,100.0,HZ," –15.00"
* When no analyze data exists or marker is set to OFF:
< 0,0.0,HZ,"-------"

:DISPlay:ANALysis:JTRansfer:SCALe <numeric>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>

20	20 dB
10	10 dB
1	1 dB

Function Sets a graph vertical axis scale for Analyze:Jitter transfer screen.
Restriction Invalid when:
- :DISPlay:TMENu[:NAME] is other than <"JTRansfer">.

Example use To set the graph vertical axis scale to 10 UIpp:
> :DISPlay:ANALysis:JTRansfer:SCALe 10

:DISPlay:ANALysis:JTRansfer:SCALe?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
Function Queries the vertical axis scale for Analyze:Jitter transfer screen.
Example use > :DISPlay:ANALysis:JTRansfer:SCALe?
< 10

:DISPlay:ANALysis:JTRansfer:TITLe <title>

Parameter <title> = <STRING PROGRAM DATA>
"Title characters": Title characters (up to 15 characters)
Function Sets a title for Analyze:Jitter transfer screen.
Restriction Invalid when:
- :DISPlay:TMENu[:NAME] is other than <"JTRansfer">.

Example use To display "TITLE-DISP" as the jitter transfer measurement:
> :DISPlay:ANALysis:JTRansfer:TITLe "TITLE-DISP"

:DISPlay:ANALysis:JTRansfer:TITLe?

Response <title> = <STRING RESPONSE DATA>
Function Queries the graph title for Analyze:Jitter transfer screen.
Example use > :DISPlay:ANALysis:JTRansfer:TITLe?
< "TITLE-DISP "

:DISPlay:ANALysis:JFRequency:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Marker OFF
ON or 1 Marker ON
Function Sets whether to display a marker on the Analyze:Jitter/Freq. screen.
Restriction Invalid when,
- No analyze data exists.

Example use To set to display the marker for jitter frequency measurement:
> :DISPlay:ANALysis:JFRequency:MDISplay ON

:DISPlay:ANALysis:JFRequency:MDISplay?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Marker OFF
1 Marker ON
Function Queries the marker display status for the Analyze:Jitter/Freq. screen.
Example use > :DISPlay:ANALysis:JFRequency:MDISplay?
< 1

:DISPlay:ANALysis:JFRequency:SEARch <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
BEFore Before search
NEXT Next search

Function Instructs a marker search type for the Analyze:Jitter/Freq. screen.

Restriction Invalid when,
- :DISPlay:ANALysis:JFRequency:MDISplay is <OFF>.

Example use To instruct Before search:
> :DISPlay:ANALysis:JFRequency:SEARch BEFore

:DISPlay:ANALysis:JFRequency:DATA?

Response <brate>,<ppm>,<ampl>
<brate> = <CHARACTER RESPONSE DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<ppm> = <NR1 NUMERIC RESPONSE DATA>
−100 to +100 Step value: 10
<amp1> = <STRING RESPONSE DATA>
Form5 Jitter-to-frequency offset measurement result (UIpp)

Function Queries the data indicated by the marker for the Analyze:Jitter/Freq. screen.

Example use > :DISPlay:ANALysis:JFRequency:DATA?
< M139,+30," 15.00"
* When no analyze data exists or marker is set to OFF:
< 0,0.0,HZ,"------"

:DISPlay:ANALysis:JFRequency:SCALe <numeric>

Parameter <numeric> = <CHARACTER PROGRAM DATA>
2.0 2.0 UIpp
1.0 1.0 UIpp
0.2 0.2 UIpp

Function Sets a graph vertical axis scale for the Analyze:Jitter/Freq. screen.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"JFRequency">.

Example use To set the graph vertical axis scale of jitter frequency measurement to 2.0 UIpp:
> :DISPlay:ANALysis:JFRequency:SCALe 2.0

:DISPlay:ANALysis:JFRequency:SCALe?

Response <numeric> = <NR2 NUMERIC RESPONSE DATA>

Function Queries the graph vertical axis scale for the Analyze:Jitter/Freq. screen.

Example use > :DISPlay:ANALysis:JFRequency:SCALe?
< 2.0

:DISPlay:ANALysis:JFRequency:TITLe <title>

Parameter <title> = <STRING PROGRAM DATA>
"Title characters": Title characters (up to 15 characters)
Function Sets a title for the Analyze:Jitter/Freq. screen.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"JFRequency">.

Example use To set "TITLE-DISP" as the title of jitter frequency measurement:
> :DISPlay:ANALysis:JFRequency:TITLe "TITLE-DISP"

:DISPlay:ANALysis:JFRequency:TITLe?

Response <title> = <STRING RESPONSE DATA>
Function Queries the title for the Analyze:Jitter/Freq. screen.
Example use > :DISPlay:ANALysis:JFRequency:TITLe?
< "TITLE-DISP "

:DISPlay:ANALysis:JFRequency:PPMScale <numeric>

Parameter <numeric> = <CHARACTER PROGRAM DATA>
10,20,30,40,50,60,70,80,90,100
(Unit: db, Character string that does not include "")
Function Sets a horizontal axis scale for Jitter/Freq. data.
Example use To set the maximum value of the horizontal axis scale for Jitter/Freq. data to 80:
> :DISPlay:ANALysis:JFRequency:PPMScale 80

:DISPlay:ANALysis:JFRequency:PPMScale?

Response <numeric> = <CHARACTER RESPONSE DATA>
Function Queries the maximum value of the horizontal axis scale for Jitter/Freq. data.
Example use > :DISPlay:ANALysis:JFRequency:PPMScaLe?
< 80

:DISPlay:ANALysis:JFRequency:OMASk <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>

OFF or 0	Display OFF (button OFF state)
ON or 1	Display ON (button ON state)

Function Changes a offset mask display on the Analyze:Jitter/Freq. screen.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"JFRequency">.
- :SENSe:TELecom:BRATe is other than <M139>, <M45>, <M34>, <M8>, <M2>, and <M1_5>.

Example use To set the offset mask display of Jitter/Freq. measurement to ON.
> :DISPlay:ANALysis:JFRequency:OMASk ON

:DISPlay:ANALysis:JFRequency:OMASk?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>

0	Display OFF
1	Display ON

Function Queries changing state of the offset mask display on the Analyze:Freq.sweep screen.
Example use > :DISPlay:ANALysis:JFRequency:OMASk?
< 1

:DISPlay:ANALysis:JSWeep:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Marker OFF
ON or 1 Marker ON
Function Sets the marker display for Analyze:Jitter sweep screen.
Restriction Invalid when,
No analyze data exists.
Example use To set the marker display for jitter tolerance measurement to ON:
> :DISPlay:ANALysis:JSWeep:MDISplay 1

:DISPlay:ANALysis:JSWeep:MDISplay?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Marker OFF
1 Marker ON
Function Queries the marker display for Analyze:Jitter sweep screen.
Example use > :DISPlay:ANALysis:JSWeep:MDISplay?
< 1

:DISPlay:ANALysis:JSWeep:SEARch <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
BEFore Before search
NEXT Next search
Function Sets the marker search for Analyze:Jitter sweep screen.
Restriction Invalid when,
The marker is set to OFF.
Example use To perform BEFore search for jitter tolerance measurement:
> :DISPlay:ANALysis:JSWeep:SEARch BEFore

:DISPlay:ANALysis:JSWeep:DATA?

Response <point>,<freq1>,<freq2>,<margin>,<amp1>,<result>
<point> = <NR1 NUMERIC RESPONSE DATA>
1 to 20 Measurement point
<freq1> = <NR2 NUMERIC RESPONSE DATA>
0.1 to 990.0 Modulation frequency (numeral)
<freq2> = <CHARACTER RESPONSE DATA>
HZ, KHZ, MHZ Modulation frequency (unit)
<margin> = <NR1 NUMERIC RESPONSE DATA>
0 to 100 (None or value for 5 measurements)
<amp1> = <NR2 NUMERIC RESPONSE DATA>
0.000 to 808.00 Amplitude value (UIp-p) (Value for 1 or 5 measurements)
<result> = <STRING RESPONSE DATA>
Form4 Jitter tolerance measurement result (Value for 1 or 5 measurements)
* The following is output when no jitter sweep data exists or the marker is set to OFF:
Outputs data for a measurement when MP0124A/MP0125A/MP0126A/MP0130A mounted.
< 0,0.0,HZ,0.000, "----------"
Outputs data for 5 measurements when MU150005A/MU150006A/MU150007A/MU150010A mounted.
< 0,0.0,HZ,0,0,0,0,0,0.000,0.000,0.000,0.000,0.000,
"----------","----------","----------","----------","----------"
Function Queries the data indicated by marker for Analyze:Jitter sweep screen.
Example use Outputs data for a measurement when MP0124A/MP0125A/MP0126A/MP0130A mounted.
> :DISPlay:ANALysis:JSWeep:DATA?
< 15,100.0,HZ,80.000," Acceptable"
Outputs data for 5 measurements when MU150005A/MU150006A/MU150007A/MU150010A mounted.
> :DISPlay:ANALysis:JSWeep:DATA?
< 15,100.0,HZ,0,10,20,30,100,80.000,20.000,15.000,12.000,8.000,
" Acceptable"," Acceptable"," Acceptable"," Acceptable"," Acceptable"

:DISPlay:ANALysis:JSWeep:SCALe <scale>

Parameter <scale> = <CHARACTER PROGRAM DATA>

1000	1000UIp-p
100	100UIp-p
10	10UIp-p
1	1UIp-p
0.1	0.1UIp-p
0.01	0.01UIp-p

Function Sets a graph vertical axis scale for Analyze:Jitter sweep screen.

Restriction Invalid when,
:DISPlay:TMENu[:NAME] is other than <"JSWeep">.

Example use To set the graph vertical axis scale for jitter tolerance measurement to 10:
> :DISPlay:ANALysis:JSWeep:SCALe 10

:DISPlay:ANALysis:JSWeep:SCALe?

Response <scale> = <CHARACTER RESPONSE DATA>

Function Queries the graph vertical axis scale for Analyze:Jitter sweep screen.

Example use > :DISPlay:ANALysis:JSWeep:SCALe?
< 10

:DISPlay:ANALysis:JSWeep:TITLe <title>

Parameter <title> = <STRING PROGRAM DATA>
"Title character string": Title character string (up to 15 characters)
The length of the character string must be 0 to 15 characters; "" is possible.
If the length of character string is shorter than 15 characters, space can be padded.

Function Sets a title for Analyze:Jitter sweep screen.

Example use To display "TITLE-DISP" as the title for jitter tolerance measurement:
> :DISPlay:ANALysis:JSWeep:TITLe "TITLE-DISP"

:DISPlay:ANALysis:JSWeep:TITLe?

Response <title> = <STRING RESPONSE DATA>

Function Queries the title for Analyze:Jitter sweep screen.

Example use > :DISPlay:ANALysis:JSWeep:TITLe?
< "TITLE-DISP "

:DISPlay:ANALysis:JSWeep:SCALe2 <scale>

Parameter <scale> = <CHARACTER PROGRAM DATA>

100	100UIp-p
10	10UIp-p
1	1UIp-p
0.1	0.1UIp-p
0.01	0.01UIp-p
0.001	0.001UIp-p

Function Sets a graph vertical axis scale (lower stage) for the Analyze:Jitter sweep screen.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"JSWeep">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the graph vertical axis scale (lower stage) for jitter tolerance measurement to 10.
> :DISPlay:ANALysis:JSWeep:SCALe2 10

:DISPlay:ANALysis:JSWeep:SCALe2?

Response <scale> = <CHARACTER RESPONSE DATA>
Same as :DISPlay:ANALysis:JSWeep:SCALe2.
Function Queries the setting condition of graph vertical axis scale (lower stage) for the Analyze:Jitter sweep screen.
Example use > :DISPlay:ANALysis:JSWeep:SCALe2?
< 10

:DISPlay:ANALysis:JSWeep:MARGin <number>,<boolean>

Parameter <number> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 5
<boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Display OFF
ON or 1 Display ON
Function Operates Margin display buttons (1) to (5) in the Marker display on the Analyze:Jitter sweep screen.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"JSWeep">.
- No measurement data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set Margin (1) to ON in the Marker display of Jitter sweep measurement.
> :DISPlay:ANALysis:JSWeep:MARGin 1,ON

:DISPlay:ANALysis:JSWeep:MARGin? <number>

Parameter <number> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 5
Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Display OFF
1 Display ON
Function Queries the state of Margin display buttons (1) to (5) in the Marker display on the Analyze:Jitter sweep screen.
Example use > :DISPlay:ANALysis:JSWeep:MARGin? 1
< 1

:DISPlay:ANALysis:FSWeep:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Marker OFF
ON or 1 Marker ON
Function Sets a marker display state for the Analyze:Freq.sweep screen.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"FSWeep">.
- No measurement data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To display the marker on the Analyze:Freq.sweep screen.
> :DISPlay:ANALysis:FREQsweep:MDISplay ON

:DISPlay:ANALysis:FSWeep:MDISplay?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Marker OFF
1 Marker ON
Function Queries the marker display state for the Analyze:Freq.sweep screen.
Example use > :DISPlay:ANALysis:FREQsweep:MDISplay?
< 1

:DISPlay:ANALysis:FSWeep:SEARch <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
BEFore Before search (when [<] is pressed)
NEXT Next search (when [>] is pressed)
Function Sets a direction to shift a marker on the Analyze:Freq.sweep screen.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"FSWeep">.
- No measurement data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To shift the marker to the left side of the graph.
> :DISPlay:ANALysis:FSWeep:SEARch BEFore

:DISPlay:ANALysis:FSWeep:DATA?

Response <ppm1>,<ppm2>
<ppm1> = <NR2 NUMERIC RESPONSE DATEA>
-100 to 100 ppm value
<ppm2> = <STRING RESPONSE DATA>
Form6 measurement result (UIp-p)
Function Queries the data indicated by marker on the Analyze:Freq. sweep screen.
Example use To query the data indicated by marker on the screen.
> :DISPlay:ANALysis:FSWeep:DATA
< 80,"80.8"
< 0,"----"
* output when no Freq. sweep data exists or marker is OFF)

:DISPlay:ANALysis:FSWeep:SCALe <numeric>

Parameter <numeric> = <CHARACTER PROGRAM DATA>
100
10
1 (UIp-p)
Function Sets the maximum value of graph vertical axis scale (UIp-p) on the Analyze:Freq. sweep screen.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"FSWeep">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the maximum value of graph vertical axis scale to 100.
> :DISPlay:ANALysis:FSWeep:SCALe 100

:DISPlay:ANALysis:FSWeep:SCALe?

Response <numeric> = <CHARACTER RESPONSE DATA>
Same as :DISPlay:ANALysis:FSWeep:SCALe.
Function Queries the maximum value of graph vertical axis scale on the Analyze:Freq sweep screen.
Example use > :DISPlay:ANALysis:FSWeep:SCALe?
< 100

:DISPlay:ANALysis:FSWeep:TITLe <title>

Parameter <title> = <STRING PROGRAM DATA>
"Title characters" Title characters (up to 15 characters)
* The length of the characters is 0 to 15, and " can be inputted.
When the length is less than 15 characters, "_" (space) is added.
The remaining digits shall be padded with spaces.
Function Sets a title of Freq. sweep measurement result.
Example use To display "TITLE-DISP" in Freq. sweep measurement title.
> :DISPlay:ANALysis:FSWeep:TITLe "TITLE-DISP"

:DISPlay:ANALysis:FSWeep:TITLe?

Response <title> = <STRING RESPONSE DATA>
Same as :DISPlay:ANALysis:FSWeep:TITLe.
Function Queries the title of Freq. sweep measurement result.
Example use To query the title of Analyze:Freq.sweep screen.
> :DISPlay:ANALysis:FSWeep:TITLe?
< "TITLE-DAT "

:DISPlay:ANALysis:FSWeep:PPMScale <numeric>

Parameter <numeric> = <CHARATER PROGRAM DATA>
10,20,30,40,50,60,70,80,90,100(ppm)
Function Sets a graph horizontal axis scale for the Freq. sweep data.
Sets the maximum value of graph horizontal axis scale (ppm) on the Analyze:Freq.sweep screen.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"FSWeep">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the maximum value of graph horizontal axis scale to 80.
> :DISPlay:ANALysis:FSWeep:PPMScale 80

:DISPlay:ANALysis:FSWeep:PPMScale?

Response <numeric> = <CHARACTER RESPONSE DATA>
Same as :DISPlay:ANALysis:FSWeep:PPMScale.
Function Queries the maximum value of graph horizontal axis scale (ppm) on the Analyze:Freq.sweep screen.
Example use > :DISPlay:ANALysis:FSWeep:PPMScale?
< 80

:DISPlay:ANALysis:FSWeep:OMASk <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>

OFF or 0	Display OFF (button OFF state)
ON or 1	Display ON (button ON state)

Function Changes a offset mask display on the Analyze:Freq.sweep screen.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"FSWeep">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the offset mask display of Freq. sweep measurement to ON.

```
> :DISPlay:ANALysis:FSWeep:OMASk ON
```

:DISPlay:ANALysis:FSWeep:OMASk?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>

0	Display OFF
1	Display ON

Function Queries changing state of the offset mask display on the Analyze:Freq.sweep screen.

Example use

```
> :DISPlay:ANALysis:FSWeep:OMASk?
< 1
```

:DISPlay:ANALysis:FGRaph:SCRoll <scroll>

Parameter <scroll> = <CHARACTER PROGRAM DATA>

LEFT	Scroll leftward.
RIGHt	Scroll rightward.
TOP	Move to the top.
BOPPom	Move to the bottom.

Function Scrolls the frequency monitoring (graph) screen.

Restriction Invalid when,

- When no analysis data exists

Example use Scroll rightward.

```
> :DISPlay:ANALysis:FGRaph:SCRoll RIGHt
```

:DISPlay:ANALysis:FGRaph:MARKer <marker>

Parameter <marker> = <CHARACTER PROGRAM DATA>

LEFT	Move leftward by 1 div.
RIGHt	Move rightward by 1 div.

Function Moves the marker on the frequency monitoring (graph) screen.

Restriction Invalid when,

- When no analysis data exists.

Example use Moves the marker rightward by 1 div.

```
> :DISPlay:ANALysis:FGRaph:MARKer RIGHt
```

:DISPlay:ANALysis:FGRaph:DATA?

Response <time> = <year>,<month>,<day>,<hour>,<minute>,[<second>]
<year> = <NR1 NUMERIC RESPONSE DATA>
Year: 0, 1994 to 2093
<month> = <NR1 NUMERIC RESPONSE DATA>
Month: 0, 1 to 12
<day> = <NR1 NUMERIC RESPONSE DATA>
Day: 0, 1 to 31
<hour> = <NR1 NUMERIC RESPONSE DATA>
Hour: 0 to 23
<minute> = <NR1 NUMERIC RESPONSE DATA>
Minute: 0 to 59
<second> = <NR1 NUMERIC RESPONSE DATA>
Second: 0 to 59
<freq> = <STRING RESPONSE DATA>
Frequency value
From10
<ppm> = <STRNG RESPONSE DATA>
ppm value
From11

Function Queries the data indicated by marker on the frequency monitoring (graph) screen.

Example use > :DISPlay:ANALysis:FGRaph:DATA?
< 1994,1,1,11,30,0," 120000.9","–1000.0"
* When no analyze data exists
< "No data"
When marker is OFF:
< 0,0,0,0,0,0,"----------","--------"

:DISPlay:ANALysis:FGRaph:INTerval <numeric>,<suffix>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>
1,15,60
<suffix> = <CHARACTER PROGRAM DATA>
M minute

Function Sets the interval of the graph on the frequency monitoring (graph) screen.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> or <"MANual[:JON]">.

Example use To set the width of one scale at 1 minute:
> :DISPlay:ANALysis:FGRaph:INTerval 1,M

:DISPlay:ANALysis:FGRaph:INTerval?

Response <numeric> = <CHARACTER RESPONSE DATA>
1,15,60
<suffix> = <CHARACTER RESPONSE DATA>
M minute

Function Queries the width of one scale on the time axis on the frequency monitoring (graph) screen.

Example use > :DISPlay:ANALysis:FGRaph:INTerval?
< 1,M

:DISPlay:ANALysis:FGRaph:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Marker OFF
ON or 1 Marker ON
Function Sets whether to display a marker on the frequency monitoring (graph) screen.
Restriction Invalid when,
- When no analysis data exists.

Example use To set the marker display to "ON"
> :DISPlay:ANALysis:FGRaph:MDISplay ON

:DISPlay:ANALysis:FGRaph:MDISplay?

Response <NR1 NUMERIC RESPONSE DATA>
0 or 1
Function Queries the marker display status for the frequency monitoring (graph) screen.
Example use > :DISPlay:ANALysis:FGRaph:MDISplay?
< 1

:DISPlay:ANALysis:FGRaph:FROM <time>

Parameter <time> = <year>,<month>,<day>,<hour>,<minute>[,<second>]
<year> = <DECIMAL NUMERIC PROGRAM DATA>
0,1994 to 2093
<month> = <DECIMAL NUMERIC PROGRAM DATA>
0,1 to 12
<day> = <DECIMAL NUMERIC PROGRAM DATA>
0,1 to 31
<hour> = <DECIMAL NUMERIC PROGRAM DATA>
0 to 23
<minute> = <DECIMAL NUMERIC PROGRAM DATA>
0 to 59
<second> = <DECIMAL NUMERIC PROGRAM DATA>
0 to 59
Function Sets the display starting point of the graph on the frequency monitoring (graph) screen.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> or <"MANual[:JON]">.

Example use When displaying from 11:30, January 1, 1994
> :DISPlay:ANALysis:FGRaph:FROM 1994,1,1,11,30

:DISPlay:ANALysis:FGRaph:FROM?

Response <time> = <NR1 NUMERIC RESPONSE DATA>
<time> = <year>,<month>,<day>,<hour>,<minute>,<second>
Function Queries the display starting point of the graph on the frequency monitoring (graph) screen.
Example use > :DISPlay:ANALysis:FGRaph:FROM?
< 1994,1,1,11,30,0

:DISPlay:ANALysis:FGRaph:PRINt <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

DISPlay	Display
ALL	All
AFTer	After
BEFore	Before

Function Sets the printing range on the frequency monitoring (graph) screen.

Example use To set the currently-displayed screen as the printing range.

> :DISPlay:ANALysis:FGRaph:PRINt DISPlay

:DISPlay:ANALysis:FGRaph:PRINt?

Response <type> = <CHARACTER RESPONSE DATA>

Function Queries the printing range on the frequency monitoring (graph) screen.

Example use > :DISPlay:ANALysis:FGRaph:PRINt?

< DISP

:DISPlay:ANALysis:FGRaph:TITLe <title>

Parameter <title> = <STRING PROGRAM DATA>

"Title character string": Title character string (up to 15 characters)

The length of the character string must be 0 to 15 characters; "" is possible.

Function Sets the title on the frequency monitoring (graph) screen.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> or <"MANual[:JON]">.

Example use To set "TITLE-DISP" as the title of the frequency monitoring (graph).

> :DISPlay:ANALysis:FGRaph:TITLe "TITLE-DISP"

:DISPlay:ANALysis:FGRaph:TITLe?

Response <title> = <STRING RESPONSE DATA>

Function Queries the title for the frequency monitoring (graph) screen.

Example use > :DISPlay:ANALysis:FGRaph:TITLe?

< "TITLE-DISP"

:DISPlay:ANALysis:FGRaph:SCALe <scale>

Parameter <scale> = <DECIMAL NUMERIC PROGRAM DATA>

10	10 ppm
100	100 ppm
1000	1000 ppm

Function Sets a graph vertical axis scale for the frequency monitoring (graph) screen.

Restriction Invalid when,

- DISPlay:TMENu[:NAME] is other than <"MANual[:JOFF]"> or <"MANual[:JON]">.

Example use To set the graph vertical axis of the frequency monitoring (graph) to 10.

> :DISPlay:ANALysis:FGRaph:SCALe 10

:DISPlay:ANALysis:FGRaph:SCALe?

Response <scale> = <NR1 NUMERIC RESPONSE DATA>
Function Queries the vertical axis scale for the frequency monitoring (graph) screen.
Example use > :DISPlay:ANALysis:FGRaph:SCALe?
< 10

:DISPlay:ANALysis:WANDer:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>

OFF or 0	Marker OFF
ON or 1	Marker ON

Function Sets whether to display a marker on the Analyze:Wander screen.
Restriction Invalid when,
- When no analysis data exists.

Example use To set to display the marker for wander measurement:
> :DISPlay:ANALysis:WANDer:MDISplay ON

:DISPlay:ANALysis:WANDer:MDISplay?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>

0	Marker OFF
1	Marker ON

Function Queries the marker display status for the Analyze:Wander screen.
Example use > :DISPlay:ANALysis:WANDer:MDISplay?
< 1

:DISPlay:ANALysis:WANDer:SEARch <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

BEFore	Before search
NEXT	Next search

Function Instructs a marker search type for the Analyze:Wander screen.
Restriction Invalid when,
- :DISPlay:ANALysis:WANDer:MDISplay is <OFF>.

Example use To instruct Before search:
> :DISPlay:ANALysis:WANDer:SEARch BEFore

:DISPlay:ANALysis:WANDer:DATA?

Response <time1>,<time2>
<time1> = <NR1 NUMERIC RESPONSE DATA>
Form8 τ (s)
<time2> = <NR2 NUMERIC RESPONSE DATA>
Form7 (ns)
Function Queries the data indicated by the marker on the Analyze:Wander screen.
Example use > :DISPlay:ANALysis:WANDer:DATA?
< " 10", " 3.0"
* When no analyze data exists or marker is set to OFF:
< "------", "-------"

:DISPlay:ANALysis:WANDer:TITLe <title>

Parameter <title> = <STRING PROGRAM DATA>
"Title characters" Title characters (up to 15 characters)
Function Sets a title for the Analyze:Wander screen.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WANDer">.

Example use To set "TITLE-DISP" as the title of wander measurement:
> :DISPlay:ANALysis:WANDer:TITLe "TITLE-DISP"

:DISPlay:ANALysis:WANDer:TITLe?

Response <title> = <STRING RESPONSE DATA>
Function Queries the title for the Analyze:Wander screen.
Example use > :DISPlay:ANALysis:WANDer:TITLe?
< "TITLE-DISP "

:DISPlay:ANALysis:WANDer:STYPe <type>

Response <type> = <CHARACTER PROGRAM DATA>
LOG Log
LINear Linear
Function Specifies the vertical axis scale type on Analyze:Wander screen.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WANDer">.

Example use To set the vertical axis scale type of Wander screen to Log:
> :DISPlay:ANALysis:WANDer:STYPe LOG

:DISPlay:ANALysis:WANDer:STYPe?

Response <type> = <CHARACTER PROGRAM DATA>
Function Queries the vertical axis scale type of Analyze:Wander screen.
Example use >:DISPlay:ANALysis:WANDer:STYPe?

:DISPlay:ANALysis:WANDer:LOG:SCALe <scale>

Parameter <scale> = <CHARACTER PROGRAM DATA>
1E12 (unit:ns)
1E9
1E6
1E3
Function Sets the maximum value of graph vertical axis scale for Wander data Log type.
Restriction Invalid when,
- DISPlay:TMENu[:NAME] is other than <"WANDer">.
- :DISPlay:ANALysis:WANDer:STYPe <LINear> is set.
- The MU150005A, MU150006A, or MU150007A is not installed; and <1E12> is set.

Example use To set the maximum value of the graph vertical axis scale to 1E6:
> :DISPlay:ANALysis:WANDer:LOG:SCALe 1E6

:DISPlay:ANALysis:WANDer:LOG:SCALe?

Response <scale> = <CHARACTER RESPONSE DATA>
Function Queries the maximum value of graph vertical axis scale for Wander data Log type.
Example use > :DISPlay:ANALysis:WANDer:LOG:SCALe?
< 1E6

:DISPlay:ANALysis:WANDer:LINear:SCALe <scale>

Parameter <scale> = <CHARACTER PROGRAM DATA>
1E12 (Unit: ns)
1E9
1E6
1E3
100
Function Sets the maximum value of graph vertical axis scale for Wander data Linear type.
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WANDer">.
- :DISPlay:ANALysis:WANDer:STYPe <LOG> is set.
- The MU150005A, MU150006A, or MU150007A is not installed; and <1E12> is set.

Example use To set the maximum value of the graph vertical axis scale to 1E6:
> :DISPlay:ANALysis:WANDer:LINear:SCALe 1E6

:DISPlay:ANALysis:WANDer:LINear:SCALe?

Response <scale> = <CHARACTER RESPONSE DATA>
Function Queries the maximum value of graph vertical axis scale for Wander data Linear type.
Example use To query the maximum value of graph vertical axis scale for Wander data Linear type:
> :DISPlay:ANALysis:WANDer:Linear:SCALe?
< 1E6

:DISPlay:ANALysis:WANDer:MEAStime <scale>

Parameter <scale> = <CHARACTER PROGRAM DATA>
120000
12000
1200
120
12
USER
Function Sets the maximum value of graph horizontal axis scale for Wander data Linear type.
Restriction Invalid when,
- :DISPlay:ANALysis:WANDer:STYPe <LOG> is set.
- The MU150005A, MU150006A, or MU150007A is not installed; and <120000> or <USER> is set.

Example use To set the maximum value of the graph horizontal axis scale for Linear type to 1200:
> :DISPlay:ANALysis:WANDer:MEAStime 1200

:DISPlay:ANALysis:WANDer:MEAStime?

Response <scale> = <CHARACTER RESPONSE DATA>
Function Queries the maximum value of graph horizontal axis scale for Wander data Linear type.
Example use To query the maximum value of graph horizontal axis scale:
> :DISPlay:ANALysis:WANDer:MEAStime?
< 1200

:DISPlay:ANALysis:WANDer:USER <scale>

Parameter <scale> = <DECIMAL NUMERIC PROGRAM DATA>
12 to 120000
*If fractions are input, they are omitted as shown below.
1280 → 1200
12006 → 12000

Function Sets the maximum value of graph (when "User" is set) horizontal axis scale for Wander data Linear type.

Restriction Invalid when,
- :DISPlay:ANALysis:WANDer:STYPe <LOG> is set.
- The MU150005A, MU150006A, or MU150007A is not installed.
- :DISPlay:ANALysis:WANDer:MEAStime is other than <USER>.

Example use To set the maximum value of the graph horizontal axis scale for Linear type to 12000:
> :DISPlay:ANALysis:WANDer:USER 12000

:DISPlay:ANALysis:WANDer:USER?

Response <scale> = <CHARACTER RESPONSE DATA>

Function Queries the maximum value of graph (when "User" is set) horizontal axis scale for Wander data Linear type.

Example use To query the maximum value of graph horizontal axis scale:
> :DISPlay:ANALysis:WANDer:USER?
< 12000

:DISPlay:ANALysis:WSWeep:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>

OFF or 0	Marker OFF
ON or 1	Marker ON

Function Sets whether to display a marker on the Analyze:Wander.sweep screen.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WSWeep">.
- No measurement data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To display the marker on the Wander.sweep screen.
> :DISPlay:ANALysis:WSWeep:MDISplay ON

:DISPlay:ANALysis:WSWeep:MDISplay?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>

0	Marker OFF
1	Marker ON

Function Queries the marker display state on the Analyze:Wander.sweep screen.

Example use > :DISPlay:ANALysis:WSWeep:MDISplay?
< 1

:DISPlay:ANALysis:WSWeep:SEARch <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
BEFore Before search
NEXT Next search

Function Sets a direction to shift a marker on the Analyze:Wander.sweep screen.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WSWeep">.
- No measurement data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To shift the marker to the left side of the graph.
> :DISPlay:ANALysis:WSWeep:SEARch BEFore

:DISPlay:ANALysis:WSWeep:DATA?

Response <point>,<freq1>,<freq2>, <margin>,<amp1>,<result>
<point> = <NR1 NUMERIC RESPONSE DATA>
1 to 20 Measurement point
<freq1> = <NR2 NUMERIC RESPONSE DATA>
1.0 to 990.0 Modulation frequency (numeral)
<freq2> = <CHARACTER RESPONSE DATA>
μ HZ,mHZ,HZ Modulation frequency (unit)
<margin> = <NR1 NUMERIC RESPONSE DATA>
0 to 100 Value for five
<amp1> = <STRING RESPONSE DATA>
Form6 Wander sweep measurement result (UIp-p) (Value for five)
<result> = <STRING RESPONSE DATA>
Form4 Wander sweep measurement result (UIp-p) (Value for five)
“ Acceptable”
“Unacceptable”
“----------”

* When no Wander sweep data exist or marker is OFF, the following contents are output.
< 0,0.0,Hz,0,0,0,0,0, "--------", "--------", "--------", "--------", "--------",
"----------", "----------", "----------", "----------", "----------"

Function Queries the data indicated by marker on the Analyze:Wander.sweep screen.

Example use > :DISPlay:ANALysis:WSWeep:DATA?
< 15,100,HZ,0,10,20,50,100," 15.0"," 14.0"," 13.0"," 12.0"," 15.0",
” Acceptable”, ” Acceptable”,” Acceptable”,” Acceptable”,” Acceptable”

:DISPlay:ANALysis:WSWeep:STYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
UIPP UIp-p display
NS ns display

Function Specifies a graph vertical axis scale unit on the Analyze:Wander.sweep screen.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WSWeep">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set vertical axis scale unit to ns.
> :DISPlay:ANALysis:WSWeep:STYPe NS

:DISPlay:ANALysis:WSWeep:STYPe?

Response <type> = <CHARACTER RESPONSE DATA>
UIPP UIp-p display
NS ns display
Function Queries the graph vertical axis scale unit on the Analyze:Wander.sweep screen.
Example use > :DISPlay:ANALysis:WSWeep:STYPe?
< NS

:DISPlay:ANALysis:WSWeep:SCALe <numeric>

Parameter <numeric> = <CHARACTER PROGRAM DATA>
1E11
1E10
1E9
1E8
1E7
1E6
1E5
1E4
1E3
1E2
1E1
1E0
Function Sets the maximum value of graph vertical axis scale (UIp-p, ns) on the Analyze:Wander sweep screen
Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WSWeep">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the graph vertical axis scale Wander sweep measurement to 1E4.
> :DISPlay:ANALysis:WSWeep:SCALe 1E4

:DISPlay:ANALysis:WSWeep:SCALe?

Response <numeric> = <CHARACTER RESPONSE DATA>
Same as :DISPlay:ANALysis:WSWeep:SCALe.
Function Queries the graph vertical axis scale value (upper stage) on the Analyze:Wander.sweep screen.
Example use > :DISPlay:ANALysis:WSWeep:SCALe?
< 1E4

:DISPlay:ANALysis:WSWeep:SCALe2 <numeric>

Parameter <numeric> = <CHARACTER PROGRAM DATA>
1E10
1E9
1E8
1E7
1E6
1E5
1E4
1E3
1E2
1E1
1E0
1E-1

Function Sets the minimum value of graph vertical axis scale (lower stage) on the Analyze:Wander.sweep screen.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WSWeep">.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the graph vertical axis scale value (lower stage) to 1E3.
> :DISPlay:ANALysis:WSWeep:SCALe2 1E3

:DISPlay:ANALysis:WSWeep:SCALe2?

Response <numeric> = <CHARACTER RESPONSE DATA>
Same as :DISPlay:ANALysis:WSWeep:SCALe2.

Function Queries the graph vertical axis scale value (lower stage) on the Analyze:Wander.sweep screen.

Example use > :DISPlay:ANALysis:WSWeep:SCALe2?
< 1E-1

:DISPlay:ANALysis:WSWeep:TITLe <title>

Parameter <title> = <STRING PROGRAM DATA>
"Title characters" Title characters (up to 15 characters)
The length of the characters is 0 to 15, and " can be inputted.
When the length is less than 15 characters, "_" (space) is added.

Function Sets a title on the Analyze:Wander.sweep screen.

Example use To display "TITLE-DISP" in Wander.sweep measurement title.
> :DISPlay:ANALysis:WSWeep:TITLe "TITLE-DISP"

:DISPlay:ANALysis:WSWeep:TITLe?

Response <title> = <STRING RESPONSE DATA>
Same as :DISPlay:ANALysis:WSWeep:TITLe.

Function Queries the title of Analyze:Wander.sweep screen.

Example use > :DISPlay:ANALysis:WSWeep:TITLe?
< "TITLE-DISP "

:DISPlay:ANALysis:WSWeep:MARGin <number>,<boolean>

Parameter <number> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 5
<boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Display OFF
ON or 1 Display ON

Function Operates Margin display buttons (1) to (5) in the Marker display on the Analyze:Wander.sweep screen.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is other than <"WSWeep">.
- No measurement data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set Margin (1) to ON in the Marker display of Wander.sweep measurement.
> :DISPlay:ANALysis:WSWeep:MARGin 1,ON

:DISPlay:ANALysis:WSWeep:MARGin? <number>

Parameter <number> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 5

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Display OFF
1 Display ON

Function Queries the statues of Margin display buttons (1) to (5) in the Marker display on the Analyze:Wander.sweep screen.

Example use > :DISPlay:ANALysis:WSWeep:MARGin? 1
< 1

:DISPlay:ANALysis:PEAK:SCRoll <scroll>

Parameter <scroll> = <CHARACTER PROGRAM DATA>
LEFT Scroll leftward
RIGHt Scroll rightward
TOP Move to the top
BOTTom Move to the bottom

Function Scrolls the Analyze:Peak jitter screen.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is set to other than <"MAN">, <”MAN:JOFF”>, and <”MAN:JON”>.
- The item on the Analyze screen is set to other than “Peak jitter”.
- Other screen is opened with the Analyze screen (Two- or three-disivion screen is selected).
- No measurement data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To scroll rightward
> :DISPlay:ANALysis:PEAK:SCRoll RIGHt

:DISPlay:ANALysis:PEAK:MARKer <marker>

Parameter <marker> = <CHARACTER PROGRAM DATA>

LEFT	Move leftward
RIGHt	Move rightward

Function Sets a marker display state on the Analyze:Peak jitter screen.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is set to other than <"MAN">, <”MAN:JOFF”>, and <”MAN:JON”>.
- The item on the Analyze screen is set to other than “Peak jitter”.
- Other screen is opened with the Analyze screen (Two- or three-disivion screen is selected).
- No measurement data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To move rightward

> :DISPlay:ANALysis:PEAK:MARKer RIGHt

:DISPlay:ANALysis:PEAK:DATA?

Response <time>,<alarm1s>,<alarm1c>,<alarm2s>,<alarm2c>,<alarm3s>,<alarm3c>,
<alarm4s>,<alarm4c>,<alarm5s>,<alarm5c>,<Uipp>, <Ui+p>, <Ui-p>, <Uirms>
<time> = <year>,<month>,<day>,<hour>,<minute>,<second>
Time indicated by the marker
<year> = <NR1 NUMERIC RESPONSE DATA>
0, 1994 to 2093 (year)
<month> = <NR1 NUMERIC RESPONSE DATA>
0, 1 to 12 (month)
<day> = <NR1 NUMERIC RESPONSE DATA>
0, 1 to 31 (day)
<hour> = <NR1 NUMERIC RESPONSE DATA>
0 to 23 (hour)
<minute> = <NR1 NUMERIC RESPONSE DATA>
0 to 59 (minute)
<second> = <NR1 NUMERIC RESPONSE DATA>
0 to 59 (second)
<alarm1s> = <STRING RESPONSE DATA>
Alarm 1 occurrence time (s) of data indicated by marker
Form1
<alarm1c> = <STRING RESPONSE DATA>
Alarm 1 occurrence count of data indicated by marker Form 1
Form1
<alarm2s> = <STRING RESPONSE DATA>
Alarm 2 occurrence time (s) of data indicated by marker
Form1
<alarm2c> = <STRING RESPONSE DATA>
Alarm 2 occurrence count of data indicated by marker Form 1
Form1
<alarm3s> = <STRING RESPONSE DATA>
Alarm 3 occurrence time (s) of data indicated by marker
Form1
<alarm3c> = <STRING RESPONSE DATA>
Alarm 3 occurrence count of data indicated by marker Form 1
Form1
<alarm4s> = <STRING RESPONSE DATA>
Alarm 4 occurrence time (s) of data indicated by marker
Form1
<alarm4c> = <STRING RESPONSE DATA>
Alarm 4 occurrence count of data indicated by marker Form 1
Form1
<alarm5s> = <STRING RESPONSE DATA>
Alarm 5 occurrence time (s) of data indicated by marker
Form1
<alarm5c> = <STRING RESPONSE DATA>
Alarm 5 occurrence count of data indicated by marker Form 1
Form1
<Uipp> = <STRING RESPONSE DATA>
Jitter value indicated by marker (UIp-p)
Form 1 or Form 2 (depending on the display scale)
<Ui+p> = <STRING RESPONSE DATA>
Jitter value indicated by marker (UI+p)
Form 1 or Form 2 (depending on the display scale)
<Ui-p> = <STRING RESPONSE DATA>
Jitter value indicated by marker (UI-p)

Form 1 or Form 2 (depending on the display scale)
<Uirms> = <STRING RESPONSE DATA>
Jitter value indicated by marker (Uirms)
Form 1 or Form 2 (depending on the display scale)
* When no Peak jitter analyze data exists or marker is OFF, the following contents are output.
< 0,0,0,0,0,0,"--------","--------","--------","--------","--------",
"--------","--------","--------","--------","--------","--------"

- When Alarm is other than <"SVPAIS">, <"SVPRDI">, <"SVPLOC">, <"EVPAIS">, <"EVPRDI">, <"EVPLOC">, <"SVCAIS">, <"SVCRDI">, <"SVCLOC">, <"EVCAIS">, <"EVCRDI">, and <"EVCLOC">, "--------" is output to alarm(1～5) count.

< 1994,12,25,12,54,30," 1","--------"," 0","--------",
" 104","--------"," 1","--------"," 1","--------",
" 189",

Function Queries the data indicated by marker on the Analyze:Peak jitter screen.

Example use > :DISPlay:ANALysis:PEAK:DATA?
< 2000,12,25,12,54,30," 1"," 1"," 0"," 0"," 104",
" 10"," 1"," 1"," 1"," 1", " 189",

:DISPlay:ANALysis:PEAK:INTerval <numeric>,<suffix>

Parameter <numeric> = <CHARACTER PROGRAM DATA>
1, 15, 60
<suffix> = <CHARACTER PROGRAM DATA>
M minute
S s

Function Sets an interval of the time axis on the Analyze:Peak jitter screen.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is set to other than <"MAN">, <"MAN:JOFF">, and <"MAN:JON">.
- The item on the Analyze screen is set to other than "Peak jitter".
- Other screen is opened with the Analyze screen (Two- or three-disivion screen is selected).
- No measurement data exists.
- The value is set to other than the followings, according to the Graph resolution set on the System screen.

Graph resolution	Analyze graph interval
1s	1s, 1min, 15min, 60min
1min	1min, 15min, 60min
15min	15min, 60min
60min	60min

- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the width for one scale at 1 minute:
> :DISPlay:ANALysis:PEAK:INTerval 1,M

:DISPlay:ANALysis:PEAK:INTerval?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
Same as :DISPlay:ANALysis:PEAK:INTerval.
<suffix> = <CHARACTER RESPONSE DATA>
Same as :DISPlay:ANALysis:PEAK:INTerval.

Function Queries the width of one scale on the time axis on the Analyze:Peak jitter screen.

Example use > :DISPlay:ANALysis:PEAK:INTerval?
< 1,M

:DISPlay:ANALysis:PEAK:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Marker OFF
ON or 1 Marker ON

Function Sets a marker display state on the Analyze:Peak jitter screen.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is set to other than <"MAN">, <"MAN:JOFF">, and <"MAN:JON">.
- The item on the Analyze screen is set to other than "Peak jitter".
- Other screen is opened with the Analyze screen (Two- or three-disivion screen is selected).
- No measurement data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To display the marker
> :DISPlay:ANALysis:PEAK:MDISplay ON

:DISPlay:ANALysis:PEAK:MDISplay?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Marker OFF
1 Marker ON

Function Queries the marker display state on the Analyze:Peak jitter screen.

Example use > :DISPlay:ANALysis:PEAK:MDISplay?
< 1

:DISPlay:ANALysis:PEAK:SEARch <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
BEFore Before search (when ← is pressed)
NEXT Next search (wheb → is pressed)

Function Sets a direction to shift a marker on the Analyze:Peak jitter screen.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is set to other than <"MAN">, <"MAN:JOFF">, and <"MAN:JON">.
- The item on the Analyze screen is set to other than "Peak jitter".
- Other screen is opened with the Analyze screen (Two- or three-disivion screen is selected).
- No measurement data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To shift the marker to the left side of the graph.
> :DISPlay:ANALysis:PEAK:SEARch BEFore

:DISPlay:ANALysis:PEAK:FROM <numeric1>,<numeric2>,<numeric3>,<numeric4>, <numeric5>[,<numeric6>]

Parameter <DECIMAL NUMERIC PROGRAM DATA>
<numeric1> = 1994 to 2093 (year)
<numeric2> = 1 to 12 (month)
<numeric3> = 1 to 31 (day)
<numeric4> = 0 to 23 (hour)
<numeric5> = 0 to 59 (minute)
<numeric6> = 0 to 59 (second)

* If parameter-specified time does not exists, the closest time after the specified one is set. If the specified time is before the measurement start time, the measurement start time is set. If the specified time is after the logging end time, the logging end time is set. The default of <numeric6> is 0.

Function Sets a display starting point of the Peak jitter measurement result graph.

Restriction Invalid when,
- :DISPlay:TMENu[:NAME] is set to other than <"MAN">, <"MAN:JOFF">, and <"MAN:JON">.
- The item on the Analyze screen is set to other than "Peak jitter".
- Other screen is opened with the Analyze screen (Two- or three-disivion screen is selected).
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To display from 11:30:40, July 28, 2000.
> :DISPlay:ANALysis:PEAK:FROM 2000,7,28,11,30,40

:DISPlay:ANALysis:PEAK:FROM?

Response	<numeric1>,<numeric2>,<numeric3>,<numeric4>,<numeric5>,<numeric6> = <NR1 NUMERIC RESPONSE DATA> Same as :DISPlay:ANALysis:PEAK:FROM. * When no Peak jitter analyze data exists, the following contents are output. < -,-,-,-,-,-
Function	Queries the display starting point of the Peak jitter graph.
Example use	> :DISPlay:ANALysis:PEAK:FROM? < 2000,7,28,11,30,40

:DISPlay:ANALysis:PEAK:ALARm1 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>

"ALL"	ALL
"POWer"	Power fail
"LOS"	LOS
"LOF"	LOF
"OOF"	OOF
"AIS:MS"	MS-AIS
"RDI:MS"	MS-RDI
"AIS:AU"	AU-AIS
"LOP:AU"	AU-LOP
"RDI:HP"	HP-RDI
"SLM:HP"	HP-SLM
"AIS:TU"	TU-AIS
"LOP:TU"	TU-LOP
"RDI:LP"	LP-RDI
"SLM:LP"	LP-SLM
"RFI:LP"	LP-RFI
"LOM:TU"	TU-LOM
“TIM:LP”	(SDH)LP-TIM
“TIM:V”	(SONET)TIM-V
“UNEQ:LP”	(SDH)LP-UNEQ
“UNEQ:V”	(SONET)UNEQ-V
“AIS:LV”	LP-VC-AIS
“FAS:LP”	LP-FAS
“IAIS:LP”	LP-IncAIS
“TRDI:LP”	LP-TC-RDI
“ODI:LP”	LP-ODI
“TIM:HP”	(SDH)HP-TIM
“TIM:P”	(SONET)TIM-P
“UNEQ:HP”	(SDH)HP-UNEQ
“UNEQ:P”	(SONET)UNEQ-P
“AIS:HV”	HP-VC-AIS
“ISF:HP”	HP-ISF
“FAS:HP”	HP-FAS
“IAIS:HP”	HP-IncAIS
“TRDI:HP”	HP-TC-RDI
“ODI:HP”	HP-ODI
"AIS:M139"	139M AIS
"AIS:M45"	45M AIS
"AIS:M34"	34M AIS
"AIS:M8"	8M AIS
"AIS:M2"	2M AIS
"AIS:M1_5"	1.5M AIS
"LOF:M139"	139M LOF
"LOF:M45"	45M LOF
"LOF:M34"	34M LOF
"LOF:M8"	8M LOF
"LOF:M2"	2M LOF
"LOF:M1_5"	1.5M LOF
"LOF:MF"	MF LOF
"RDI:M139"	139M RDI
"RDI:M45"	45M RDI
"RDI:M34"	34M RDI
"RDI:M8"	8M RDI

"RDI:M2"	2M RDI
"RDI:M1_5"	1.5M RDI
"RDI:MF"	MF RDI
“SYN:OH”	OH sync
“AIS:HG”	HG AIS
“REC:HG”	HG REC
“BAI:S15”	BAIS1.5
“AIS:S15”	SigAIS1.5
“SIG:OOF”	SigOOF
"LCD"	Lost of cell sync
"PATTern"	Sync. loss
"JUNLock"	Jitter Unlock

Function Sets an alarm item of Alarm 1 for graph display on the Analyze:Peak jitter screen.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is set to other than <”MAN”>, <”MAN:JOFF”>, and <”MAN;JON”>.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To display Power fail on Alarm 1.

> :DISPlay:ANALysis:PEAK:ALARm1 "POWer"

:DISPlay:ANALysis:PEAK:ALARm1?

Response <alarm> = <STRING RESPONSE DATA>
Same as :DISPlay:ANALysis:PEAK:ALARm1.
Function Queries the alarm item of Alarm 1 for graph display on the Analyze:Peak jitter screen.
Example use > :DISPlay:ANALysis:PEAK:ALARm1?
< "POW"

:DISPlay:ANALysis:PEAK:ALARm2 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>
Same as :DISPlay:ANALysis:PEAK:ALARm1.
Function Sets an alarm item of Alarm 2 for graph display on the Analyze:Peak jitter screen.
Example use To display Power fail on Alarm 2.
> :DISPlay:ANALysis:PEAK:ALARm2 "POWer"

:DISPlay:ANALysis:PEAK:ALARm2?

Response <alarm> = <STRING RESPONSE DATA>
Same as :DISPlay:ANALysis:PEAK:ALARm1.
Function Queries the alarm item of Alarm 2 for graph display on the Analyze:Peak jitter screen.
Example use > :DISPlay:ANALysis:PEAK:ALARm2?
< "JUNLock"

:DISPlay:ANALysis:PEAK:ALARm3 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>
Same as :DISPlay:ANALysis:PEAK:ALARm1.
Function Sets an alarm item of Alarm 3 for graph display on the Analyze:Peak jitter screen.
Example use To display Power fail on Alarm 3.
> :DISPlay:ANALysis:PEAK:ALARm3 "POWer"

:DISPlay:ANALysis:PEAK:ALARm3?

Response <alarm> = <STRING RESPONSE DATA>
Same as :DISPlay:ANALysis:PEAK:ALARm1.
Function Queries the alarm item of Alarm 3 for graph display on the Analyze:Peak jitter screen.
Example use > :DISPlay:ANALysis:PEAK:ALARm3?
< "JUNLock"

:DISPlay:ANALysis:PEAK:ALARm4 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>
Same as :DISPlay:ANALysis:PEAK:ALARm1.
Function Sets an alarm item of Alarm 4 for graph display on the Analyze:Peak jitter screen.
Example use To display Power fail on Alarm 4.
> :DISPlay:ANALysis:PEAK:ALARm4 "POWer"

:DISPlay:ANALysis:PEAK:ALARm4?

Response <alarm> = <STRING RESPONSE DATA>
Same as :DISPlay:ANALysis:PEAK:ALARm1.
Function Queries the alarm item of Alarm 4 for graph display on the Analyze:Peak jitter screen.
Example use > :DISPlay:ANALysis:PEAK:ALARm4?
< "JUNLock"

:DISPlay:ANALysis:PEAK:ALARm5 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>
Same as :DISPlay:ANALysis:PEAK:ALARm1.
Function Sets an alarm item of Alarm 5 for graph display on the Analyze:Peak jitter screen.
Example use To display LOF on Alarm 5.
> :DISPlay:ANALysis:PEAK:ALARm5 "LOF"

:DISPlay:ANALysis:PEAK:ALARm5?

Response <alarm> = <STRING RESPONSE DATA>
Same as :DISPlay:ANALysis:PEAK:ALARm1.
Function Queries the alarm item of Alarm 5 for graph display on the Analyze:Peak jitter screen.
Example use > :DISPlay:ANALysis:PEAK:ALARm5?
< "JUNLock"

:DISPlay:ANALysis:PEAK:PRINt <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

DISPlay	Display
ALL	All
AFTer	After
BEFore	Before

Function Sets a printing range of the Analyze:Peak jitter measurement result.
Restriction Invalid when,
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the currently-displayed screen as the printing range.
> :DISPlay:ANALysis:PEAK:PRINt DISPlay

:DISPlay:ANALysis:PEAK:PRINt?

Response <type> = <CHARACTER RESPONSE DATA>

DISP	Display
ALL	All
AFT	After
BEF	Before

Function Queries the printing range of the Analyze:Peak jitter measurement result.
Example use > :DISPlay:ANALysis:PEAK:PRINt?
< DISP

:DISPlay:ANALysis:PEAK:TITLe <title>

Parameter <title> = <STRING PROGRAM DATA>

"Title characters" Title characters (up to 15 characters)

The length of the characters is 0 to 15, and " can be inputted.

When the length is less than 15 characters, "_" (space) is added.

Function Sets a title for the Peak jitter measurement result.

Example use To display "TITLE-DISP" in Peak jitter graph title.

> :DISPlay:ANALysis:PEAK:TITLe "TITLE-DISP"

:DISPlay:ANALysis:PEAK:TITLe?

Response <title> = <STRING RESPONSE DATA>

Same as :DISPlay:ANALysis:PEAK:TITLe.

Function Queries the title of Peak jitter measurement result.

Example use > :DISPlay:ANALysis:PEAK:TITLe?

< "TITLE-DISP "

:DISPlay:ANALysis:PEAK:DTYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

UIPTp	UIp-p
UIPP	UI+p
UIMP	UI-p
UIRMs	UIrms

Function Sets a graph vertical axis display unit for Analyze:Peak jitter measurement result.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is set to other than <"MAN">, <"MAN:JOFF">, and <"MAN:JON">.
- The item on the Analyze screen is set to other than "Peak jitter".
- Other screen is opened with the Analyze screen (Two- or three-disivion screen is selected).
- Range(Rx range) on receive side is other than 400UI or 800UI, and <UIRMs> is set.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the display unit on the screen to UIp-p.

> :DISPlay:ANALysis:PEAK:DTYPe UITPp

:DISPlay:ANALysis:PEAK:DTYPe?

Response <type> = <CHARACTER RESPONSE DATA>

UIPT	UIp-p
UIPP	UI+p
UIMP	UI-p
UIRM	UIrms

Function Queries the graph vertical axis display unit for Analyze:Peak jitter measurement result.

Example use > :DISPlay:ANALysis:PEAK:DTYPe?

< UIRM

:DISPlay:ANALysis:PEAK:SCALe <numeric>

Parameter <numeric> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.002 to 800.0 step0.02

Function Sets a graph vertical axis scale value on the Analyze:Peak jitter screen.

Restriction Invalid when,

- :DISPlay:TMENu[:NAME] is set to other than <"MAN">, <"MAN:JOFF">, and <"MAN:JON">.
- The item on the Analyze screen is set to other than "Peak jitter".
- Other screen is opened with the Analyze screen (Two- or three-disivion screen is selected).
- The value is set to other than the followings, according to Range(Rx range) on receive side.

Rx Range	UIp-p	UI+p	UI-p	UIrms
2 UI	0.002 to 2.000/0.002	0.002 to 1.000/0.002	0.002 to 1.000/0.002	0.002 to 0.700/0.002
20 UI	0.02 to 20.00/0.02	0.02 to 10.00/0.02	0.02 to 10.00/0.02	0.02 to 7.00/0.02
400 UI	0.4 to 400.0/0.4	0.4 to 200.0/0.4	0.4 to 200.0/0.4	No setting
800 UI	1.0 to 800.0/1.0	1.0 to 400.0/1.0	1.0 to 400.0/1.0	No setting

- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the scale to 0.02
> :DISPlay:ANALysis:PEAK:SCALe 0.02

:DISPlay:ANALysis:PEAK:SCALe?

Response <numeric> = < NON-DECIMAL NUMERIC RESPONSE DATA>

Function Queries the graph vertical axis scale value on the Analyze:Peak jitter screen.

Example use > :DISPlay:ANALysis:PEAK:SCALe?
< 20.0

:DISPlay:ANALysis:RECall:TYPE?

Response <type> = <STRING RESPONSE DATA>

"EAL"	Error/Alarm measurement data
"JTOL"	Jitter tolerance measurement data
"JTR"	Jitter transfer measurement data
"JFR"	Jitter/Freq. measurement data
"WAND"	Wander measurement data
"FGR"	Frequency measurement data
"JSW"	Jitter sweep measurement data
"WSW"	Wander sweep measurement data
"FSW"	Freq. sweep measurement data
"PEAK"	Peak jitter measurement data

Function Queries the data type displayed on the Analyze:Recall screen.
* When no Recall data exists, the following contents are output.
< "No data"

Example use > :DISPlay:ANALysis:RECall:TYPE?
< "EAL"

:DISPlay:ANALysis:RECall:MARGin <number>,<boolean>

Parameter <number> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 5
<boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Display OFF
ON or 1 Display ON

Function Operates Margin display buttons (1) to (5) in the Marker display on the Analyze:Recall screen.

Restriction Invalid when,
- No Recall data exists.

Example use To set Margin (1) to ON in the Marker display on the Recall screen.
> :DISPlay:ANALysis:RECall:MARGin 1,ON

:DISPlay:ANALysis:RECall:MARGin? <number>

Parameter <number> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 5

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Display OFF
1 Display ON

Function Queries the display statues of Margin (1) to (5) in the Marker display on the Analyze:Recall screen.

Example use > :DISPlay:ANALysis:RECall:MARGin? 1
< 1

:DISPlay:ANALysis:RECall:TGRaph:DATA?

Response <time>,<alarm1s>,<alarm1c>,<alarm2s>,<alarm2c>,<alarm3s>,<alarm3c>,
<alarm4s>,<alarm4c>,<alarm5s>,<alarm5c>,<error1>,<error2>
Time indicated by marker
<year> = <NR1 NUMERIC RESPONSE DATA>
Year: 0, 1994 to 2093
<month> = <NR1 NUMERIC RESPONSE DATA>
Month: 0, 1 to 12
<day> = <NR1 NUMERIC RESPONSE DATA>
Day: 0, 1 to 31
<hour> = <NR1 NUMERIC RESPONSE DATA>
Hour: 0 to 23
<minute> = <NR1 NUMERIC RESPONSE DATA>
Minute: 0 to 59
<second> = <NR1 NUMERIC RESPONSE DATA>
Second: 0 to 59
<alarm1s> = <STRING RESPONSE DATA>
Alarm 1 occurrence time (sec) of data indicated by marker
Form1
<alarm1c> = <STRING RESPONSE DATA>
Alarm 1 occurrence count of data indicated by marker
Form1
<alarm2s> = <STRING RESPONSE DATA>
Alarm 2 occurrence time (sec) of data indicated by marker
Form1
<alarm2c> = <STRING RESPONSE DATA>
Alarm 2 occurrence count of data indicated by marker
Form1
<alarm3s> = <STRING RESPONSE DATA>
Alarm 3 occurrence time (sec) of data indicated by marker
Form1
<alarm3c> = <STRING RESPONSE DATA>
Alarm 3 occurrence count of data indicated by marker
Form1
<alarm4s> = <STRING RESPONSE DATA>
Alarm 4 occurrence time (sec) of data indicated by marker
Form1
<alarm4c> = <STRING RESPONSE DATA>
Alarm 4 occurrence count of data indicated by marker
Form1
<alarm5s> = <STRING RESPONSE DATA>
Alarm 5 occurrence time (sec) of data indicated by marker
Form1
<alarm5c> = <STRING RESPONSE DATA>
Alarm 5 occurrence count of data indicated by marker
Form1
<error1> = <STRING RESPONSE DATA>
Error count value of data indicated by marker
Form1
<error2> = <STRING RESPONSE DATA>
Error rate value of data indicated by marker
Form2

Function Queries the data indicated by marker on Analyze:Recall screen (Error/Alarm).

Example use > :DISPlay:ANALysis:RECall:TGRaph:DATA?
< 2000,12,25,12,54,30," 1"," 1"," 0"," 0"," 104",

" 10"," 1"," 1"," 1"," 1", " 189"," 3.3E-04"
* When no analyze data exists:
< "No data"
When marker is OFF:
< 0,0,0,0,0,0,"--------","--------","--------","--------","--------","--------","--------","--------","--------","--------","--------"
< 0,0.0,HZ,"------"

:DISPlay:ANALysis:RECall:TGRaph:ERRor <error1>,<error2>

Parameter	<error1> = <STRING PROGRAM DATA> <error2> = <CHARACTER PROGRAM DATA>
Function	Sets the error item subject to graphic Error/Alarm display on Analyze:Recall screen.
Restriction	Invalid when, • :DISPlay:ANALysis:RECall:TYPE? is other than <"EAL">. • The specified measurement result is not found. • <ER> is set at <"HIT"> setting.
Example use	To display the error rate of bit errors: > :DISPlay:ANALysis:RECall:TGRaph:ERRor "BIT",ER

:DISPlay:ANALysis:RECall:TGRaph:ERRor?

Response <error1> = <STRING RESPONSE DATA>

"B1"		B1 error
"B2"		B2 error
"B3:HP"		HP-B3 error
"B3:LP"		LP-B3 error
"BIP2"		BIP-2 error
"REI:MS"		MS-REI error
"REI:HP"		HP-REI error
"REI:LP"		LP-REI error
"REI:L"	(SONET)	REI-L error
"REI:P"	(SONET)	REI-P error
"REI:V"	(SONET)	REI-V error
“IEC:HP”		HP-IEC error
“REI:HT”		HP-TC-REI error
“OEI:HP”		HP-OEI error
“IEC:LP”		LP-IEC error
“REI:LT”		LP-TC-REI error
“OEI:LP”		LP-OEI error
“BIP2:N2”		N2 BIP-2 error
“BIT:OH”		OH Bit error
"CODE"		Code error
"FRAMe:M139"		139M FAS
"FRAMe:M45"		45M FAS
"FRAMe:M34"		34M FAS
"FRAMe:M8"		8M FAS
"FRAMe:M2"		2M FAS
"FRAMe:M1_5"		1.5M FAS
"REI:M139"		139M REI error
"REI:M45"		45M REI error
"REI:M34"		34M REI error
"CRC4"		CRC-4 error
"EBIT"		E-Bit
"PARITY"		Parity error
"CBIT"		C-Bit
"COUNT"		Count
"BIT"		Bit error
"HIT"		Hit

<error2> = <CHARACTER PROGRAM DATA>

EC	Count
ER	Rate

Function Queries the error item subject to graphic Error/Alarm display on Analyze:Recall screen.

Example use
> :DISPlay:ANALysis:RECall:TGRaph:ERRor?
< "BIT",ER
* When no analyze data exists:
< "No data"

:DISPlay:ANALysis:RECall:TGRaph:ALARm1 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>
: Same as those of :DISPlay:ANALysis:TRGaph:ALARm1.
Function Sets an alarm item to be displayed to alarm1 of the Analyze:Recall screen.
Restriction Invalid when,
• :DISPlay:ANALysis:RECall:TYPE? is other than <"EAL">.
Example use To display Power fail to alarm1:
> :DISPlay:ANALysis:RECall:TGRaph:ALARm1 "POWer"

:DISPlay:ANALysis:RECall:TGRaph:ALARm1?

Response <alarm> = <STRING RESPONSE DATA>
Function Queries the alarm item displayed to alarm1 of the Analyze:Recall screen.
Example use > :DISPlay:ANALysis:RECall:TGRaph:ALARm1?
< "POW"
* When no analyze data exists:
< "No data"

:DISPlay:ANALysis:RECall:TGRaph:ALARm2 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>
: Same as those of :DISPlay:ANALysis:TRGaph:ALARm1.
Function Sets an alarm item to be displayed to alarm2 of the Analyze:Recall screen.
Restriction : Same as those of :DISPlay:ANALysis:RECall:TRGaph:ALARm1

:DISPlay:ANALysis:RECall:TGRaph:ALARm2?

Response <alarm> = <STRING RESPONSE DATA>
: Same as those of :DISPlay:ANALysis:RECall:TRGaph:ALARm1?
Function Queries the alarm item displayed to alarm2 of the Analyze:Recall screen.

:DISPlay:ANALysis:RECall:TGRaph:ALARm3 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>
: Same as those of :DISPlay:ANALysis:RECall:TRGaph:ALARm1
Function Sets an alarm item to be displayed to alarm3 of the Analyze:Recall screen.
Restriction : Same as those of :DISPlay:ANALysis:RECall:TRGaph:ALARm1

:DISPlay:ANALysis:RECall:TGRaph:ALARm3?

Response <alarm> = <STRING RESPONSE DATA>
: Same as those of :DISPlay:ANALysis:RECall:TRGaph:ALARm1?
Function Queries the alarm item displayed to alarm3 of the Analyze:Recall screen.

:DISPlay:ANALysis:RECall:TGRaph:ALARm4 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>
: Same as those of :DISPlay:ANALysis:RECall:TRGaph:ALARm1.
Function Sets an alarm item to be displayed to alarm4 of the Analyze:Recall screen.
Restriction : Same as those of :DISPlay:ANALysis:RECall:TRGaph:ALARm1.

:DISPlay:ANALysis:RECall:TGRaph:ALARm4?

Response <alarm> = <STRING RESPONSE DATA>
: Same as those of :DISPlay:ANALysis:RECall:TRGaph:ALARm1?
Function Queries the alarm item displayed to alarm4 of the Analyze:Recall screen.

:DISPlay:ANALysis:RECall:TGRaph:ALARm5 <alarm>

Response <alarm> = <STRING PROGRAM DATA>
: Same as those of :DISPlay:ANALysis:RECall:TRGaph:ALARm1.
Function Sets an alarm item to be displayed to alarm5 of the Analyze:Recall screen.
: Same as those of :DISPlay:ANALysis:RECall:TRGaph:ALARm1.

:DISPlay:ANALysis:RECall:TGRaph:ALARm5?

Response <alarm> = <STRING RESPONSE DATA>
: Same as those of :DISPlay:ANALysis:RECall:TRGaph:ALARm1?
Function Queries the alarm item displayed to alarm5 of the Analyze:Recall screen.

:DISPlay:ANALysis:RECall:TGRaph:TITLe?

Response <title> = <STRING RESPONSE DATA>
Function Queries the trace graph title for Analyze:Recall screen.
Example use > :DISPlay:ANALysis:RECall:TGRaph:TITLe?
< "TITLE-DISP "
* When no analyze data exists:
< "No data"

:DISPlay:ANALysis:RECall:JTOLerance:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Marker OFF
ON or 1 Marker ON
Function Sets whether to display a marker on the Analyze:Recall screen (jitter tolerance).
Restriction Invalid when,
- :DISPlay:ANALysis:RECall:TYPE? is other than <"JTOL">.

Example use To set to display the marker for jitter tolerance measurement:
> :DISPlay:ANALysis:RECall:JTOLerance:MDISplay 1

:DISPlay:ANALysis:RECall:JTOLerance:MDISplay?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Marker OFF
1 Marker ON
Function Queries the marker display status for the Analyze:Recall screen (jitter tolerance).
> :DISPlay:ANALysis:RECall:JTOLerance:MDISplay?
< 1
Example use * When no analyze data exists:
< "No data"

:DISPlay:ANALysis:RECall:JTOLerance:SEARch <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
BEFore Before search
NEXT Next search

Function Instructs a marker search type for the Analyze:Recall screen (jitter tolerance).

Restriction Invalid when,
- :DISPlay:ANALysis:RECall:TYPE? is other than <"JTOL">.
- :DISPlay:ANALysis:RECall:JTOLerance:MDISplay is <OFF>.

Example use To instruct Before search for jitter tolerance measurement:
> :DISPlay:ANALysis:RECall:JTOLerance:SEARch BEFore

:DISPlay:ANALysis:RECall:JTOLerance:DATA?

Response <point>,<freq1>,<freq2>,<amp1>
<point> = <NR1 NUMERIC RESPONSE DATA>
1 to 20 Measurement point
<freq1> = <NR2 NUMERIC RESPONSE DATA>
0.1 to 990.0 Modulation frequency (numeric value)
<freq2> = <CHARACTER RESPONSE DATA>
HZ, KHZ, MHZ Modulation frequency (unit)
<amp1> = <STRING RESPONSE DATA>
Form5 Jitter tolerance measurement result (UIpp)

Function Queries the data indicated by marker on the Analyze:Recall screen (jitter tolerance).

Example use > :DISPlay:ANALysis:RECall:JTOLerance:DATA?
< 15,100.0,HZ," 15.00"
* When no analyze data exists:
< "No data"
When marker is OFF:
< 0,0.0,HZ,"------"

:DISPlay:ANALysis:RECall:JTOLerance:SCALe <numeric>

Parameter <numeric> = <CHARACTER PROGRAM DATA>
100 100 UIp-p
10 10 UIp-p
1 1 UIp-p

Function Sets a graph vertical axis scale for the Analyze:Recall screen (jitter tolerance).

Restriction Invalid when,
- :DISPlay:ANALysis:RECall:TYPE? is other than <"JTOL">.

Example use To set the graph vertical axis scale of Jitter tolerance measurement to 10 UIp-p:
> :DISPlay:ANALysis:RECall:JTOLerance:SCALe 10

:DISPlay:ANALysis:RECall:JTOLerance:SCALe?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>

Function Queries the graph vertical axis scale for the Analyze:Recall screen (jitter tolerance).

Example use > :DISPlay:ANALysis:RECall:JTOLerance:SCALe?
< 10
* When no analyze data exists:
< "No data"

:DISPlay:ANALysis:RECall:JTOLerance:TITLe?

Response <title> = <STRING RESPONSE DATA>
Function Queries the title for the Analyze:Recall screen (jitter tolerance).
Example use > :DISPlay:ANALysis:RECall:JTOLerance:TITLe?
< "TITLE-DISP "
* When no analyze data exists:
< "No data"

:DISPlay:ANALysis:RECall:JTRansfer:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Marker OFF
ON or 1 Marker ON
Function Sets whether to display a marker on the Analyze:Recall screen (jitter transfer).
Restriction Invalid when,
- :DISPlay:ANALysis:RECall:TYPE? is other than <"JTR">.

Example use To set to display the marker for jitter transfer measurement:
> :DISPlay:ANALysis:RECall:JTRansfer:MDISplay ON

:DISPlay:ANALysis:RECall:JTRansfer:MDISplay?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Marker OFF
1 Marker ON
Function Queries the marker display status for the Analyze:Recall screen (jitter transfer).
Example use > :DISPlay:ANALysis:RECall:JTRansfer:MDISplay?
< 1
* When no analyze data exists:
< "No data"

:DISPlay:ANALysis:RECall:JTRansfer:SEARch <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
BEFore Before search
NEXT Next search
Function Instructs a marker search type for the Analyze:Recall screen (jitter transfer).
Restriction Invalid when,
- :DISPlay:ANALysis:RECall:TYPE? is other than <"JTR">.
- :DISPlay:ANALysis:RECall:JTRansfer:MDISplay is <OFF>.

Example use To instruct Before search:
> :DISPlay:ANALysis:RECall:JTRansfer:SEARch BEFore

:DISPlay:ANALysis:RECall:JTRansfer:DATA?

Response <point>,<freq1>,<freq2>,<amp1>
<point> = <NR1 NUMERIC RESPONSE DATA>
1 to 20 Measurement point
<freq1> = <NR2 NUMERIC RESPONSE DATA>
1.0 to 990.0 Modulation frequency (numeric value)
<freq2> = <CHARACTER RESPONSE DATA>
HZ, KHZ, MHZ Modulation frequency (unit)
<amp1> = <STRING RESPONSE DATA>
Form6 Jitter transfer measurement result (dB)

Function Queries the data indicated by marker on the Analyze:Recall screen (jitter transfer).

Example use > :DISPlay:ANALysis:RECall:JTRansfer:DATA?
< 15,100.0,HZ," −15.00"
* When no analyze data exists:
< "No data"
When marker is OFF:
< 0,0.0,HZ,"------"

:DISPlay:ANALysis:RECall:JTRansfer:SCALe <numeric>

Parameter <numeric> = <CHARACTER PROGRAM DATA>
20 20 dB
10 10 dB
1 1 dB

Function Sets a graph vertical axis scale for the Analyze:Recall screen (jitter transfer).

Restriction Invalid when,
- :DISPlay:ANALysis:RECall:TYPE? is other than <"JTR">.

Example use To set the graph vertical axis scale of Jitter transfer measurement to 10 dB
> :DISPlay:ANALysis:RECall:JTRansfer:SCALe 10

:DISPlay:ANALysis:RECall:JTRansfer:SCALe?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>

Function Queries the graph vertical axis scale for the Analyze:Recall screen (jitter transfer).

Example use > :DISPlay:ANALysis:RECall:JTRansfer:SCALe?
< 10
* When no analyze data exists
< "No data"

:DISPlay:ANALysis:RECall:JTRansfer:TITLe?

Response <title> = <STRING RESPONSE DATA>

Function Queries the title for the Analyze:Recall screen (jitter transfer).

Example use > :DISPlay:ANALysis:RECall:JTRansfer:TITLe?
< "TITLE-DISP "
* When no analyze data exists
< "No data"

:DISPlay:ANALysis:RECall:JFRequency:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Marker OFF
ON or 1 Marker ON
Function Sets whether to display a marker on the Analyze:Recall screen (Jitter/Freq.).
Restriction Invalid when,
- :DISPlay:ANALysis:RECall:TYPE? is other than <"JFR">.

Example use To set to display the marker for jitter frequency measurement:
> :DISPlay:ANALysis:RECall:JFRequency:MDISplay ON

:DISPlay:ANALysis:RECall:JFRequency:MDISplay?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Marker OFF
1 Marker ON
Function Queries the marker display status for the Analyze:Recall screen (Jitter/Freq.).
Example use > :DISPlay:ANALysis:RECall:JFRequency:MDISplay?
< 1
* When no analyze data exists
< "No data"

:DISPlay:ANALysis:RECall:JFRequency:SEARch <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
BEFore Before search
NEXT Next search
Function Instructs a marker search type for the Analyze:Recall screen (Jitter/Freq.).
Restriction Invalid when,
- :DISPlay:ANALysis:RECall:TYPE? is other than <"JFR">.
- :DISPlay:ANALysis:RECall:JFRequency:MDISplay is <OFF>.

Example use To instruct Before search:
> :DISPlay:ANALysis:RECall:JFRequency:SEARch BEFore

:DISPlay:ANALysis:RECall:JFRequency:DATA?

Response <brate>,<ppm>,<ampl>
<brate> = <CHARACTER RESPONSE DATA>
M622, M156, M52, M139, M45, M34, M8, M2, M1_5
<ppm> = <NR1 NUMERIC RESPONSE DATA>
−100 to +100 Step value:1
<amp1> = <STRING RESPONSE DATA>
Form5 Jitter-to-frequency offset measurement result (UIp-p)
Function Queries the data indicated by marker on the Analyze:Recall screen (Jitter/Freq.).
Example use > :DISPlay:ANALysis:RECall:JFRequency:DATA?
< M139,+30," 15.00"
* When no analyze data exists:
< "No data"
When marker is OFF:
< 0,0.0,HZ,"------"

:DISPlay:ANALysis:RECall:JFRequency:SCALe <numeric>

Parameter <numeric> = <CHARACTER PROGRAM DATA>

2.0	2.0 UIp-p
1.0	1.0 UIp-p
0.2	0.2 UIp-p

Function Sets a graph vertical axis scale for the Analyze:Recall screen (Jitter/Freq.).

Restriction Invalid when,

- :DISPlay:ANALysis:RECall:TYPE? is other than <"JFR">.

Example use To set the graph vertical axis scale of Jitter-to-frequency measurement to 2.0 UIp-p:

> :DISPlay:ANALysis:RECall:JFRequency:SCALe 2.0

:DISPlay:ANALysis:RECall:JFRequency:SCALe?

Response <numeric> = <NR2 NUMERIC RESPONSE DATA>

Function Queries the graph vertical axis scale for the Analyze:Recall screen (Jitter/Freq.).

Example use > :DISPlay:ANALysis:RECall:JFRequency:SCALe?

< 2.0

* When no analyze data exists

< "No data"

:DISPlay:ANALysis:RECall:JFRequency:TITLe?

Response <title> = <STRING RESPONSE DATA>

Function Queries the title for the Analyze:Recall screen (Jitter/Freq.).

Example use > :DISPlay:ANALysis:RECall:JFRequency:TITLe?

< "TITLE-DISP "

* When no analyze data exists:

< "No data"

:DISPlay:ANALysis:RECall:FGRaph:SCRoll <scroll>

Parameter <scroll> = <CHARACTER PROGRAM DATA>

LEFT	Scroll leftward.
RIGHt	Scroll rightward.
TOP	Move to the top.
BOPPom	Move to the bottom.

Function Scrolls the Analyze:Recall screen (frequency monitoring graph).

Restriction Invalid when,

- :DISPlay:ANALysis:REcall:TYPE is other than <"FGR">.

Example use Scroll rightward.

> :DISPlay:ANALysis:RECall:FGRaph:SCRoll RIGHt

:DISPlay:ANALysis:RECall:FGRaph:MARKer <marker>

Parameter <marker> = <CHARACTER PROGRAM DATA>
LEFT Move leftward by 1 div.
RIGHt Move rightward by 1 div.
Function Moves the marker on the Analyze:Recall screen (frequency monitoring graph).
Restriction Invalid when,
- :DISPlay:ANALysis:REcall:TYPE is other than <"FGR">.
- :DISPlay:ANALysis:REcall:FGRaph:MDISplay is <OFF>.

Example use Move the marker rightward by 1 div:
> :DISPlay:ANALysis:RECall:FGRaph:MARKer RIGHt

:DISPlay:ANALysis:RECall:FGRaph:DATA?

Response <time> = <year>,<month>,<day>,<hour>,<minute>,[<second>]
<year> = <NR1 NUMERIC RESPONSE DATA>
Year: 0, 1994 to 2093
<month> = <NR1 NUMERIC RESPONSE DATA>
Month: 0, 1 to 12
<day> = <NR1 NUMERIC RESPONSE DATA>
Day: 0, 1 to 31
<hour> = <NR1 NUMERIC RESPONSE DATA>
Hour: 0 to 23
<minute> = <NR1 NUMERIC RESPONSE DATA>
Minute: 0 to 59
<second> = <NR1 NUMERIC RESPONSE DATA>
Second: 0 to 59
<freq> = <STRING RESPONSE DATA>
Frequency value
From10
<ppm> = <STRING RESPONSE DATA>
ppm value
From11
Function Queries the data indicated by marker on the Analyze:Recall screen (frequency monitoring graph).
Example use > :DISPlay:ANALysis:RECall:FGRaph:DATA?
< 1994,1,1,1,30,0," 120000.9","–1000.0"
* When no analyze data exists.
< "No data"
When marker is OFF
< 0,0,0,0,0,0,"----------","--------"

:DISPlay:ANALysis:RECall:FGRaph:INTerval <numeric>,<suffix>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>
1,15,60
<suffix> = <CHARACTER PROGRAM DATA>
M minute
Function Sets the interval of the graph on the Analyze:Recall screen (frequency monitoring graph).
Restriction Invalid when,
- :DISPlay:ANALysis:REcall:TYPE is other than <"FGR">.

Example use To set the width for one scale at 1 minute:
> :DISPlay:ANALysis:RECall:FGRaph:INTerval 1,M

:DISPlay:ANALysis:RECall:FGRaph:INTerval?

Response <numeric> = <CHARACTER RESPONSE DATA>
1,15,60
<suffix> = <CHARACTER RESPONSE DATA>
M minute

Function Queries the width of one scale on the time axis on the Analysis:Recall screen (frequency monitoring graph).

Example use > :DISPlay:ANALysis:RECall:FGRaph:INTerval?
< 1,M
* When no analyze data exists.
< "No data"

:DISPlay:ANALysis:RECall:FGRaph:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Marker OFF
ON or 1 Marker ON

Function Sets whether to display a marker on the Analyze:Recall screen (frequency monitoring graph).

Restriction Invalid when,
- :DISPlay:ANALysis:REcall:TYPE is other than <"FGR">.

Example use To set the marker display to "ON":
> :DISPlay:ANALysis:RECall:FGRaph:MDISplay ON

:DISPlay:ANALysis:RECall:FGRaph:MDISplay?

Response <NR1 NUMERIC RESPONSE DATA>
0 or 1

Function Queries the marker display status for the Analyze:Recall screen (frequency monitoring graph).

Example use > :DISPlay:ANALysis:RECall:FGRaph:MDISplay?
< 1
* When no analyze data exists
< "No data"

:DISPlay:ANALysis:RECall:FGRaph:FROM <time>

Parameter <time> = <year>,<month>,<day>,<hour>,<minute>[,<second>]
<year> = <DECIMAL NUMERIC PROGRAM DATA>
0,1994 to 2093
<month> = <DECIMAL NUMERIC PROGRAM DATA>
0,1 to 12
<day> = <DECIMAL NUMERIC PROGRAM DATA>
0,1 to 31
<hour> = <DECIMAL NUMERIC PROGRAM DATA>
0 to 23
<minute> = <DECIMAL NUMERIC PROGRAM DATA>
0 to 59
<second> = <DECIMAL NUMERIC PROGRAM DATA>
0 to 59

Function Sets the display starting point of the graph on the Analyze:Recall screen (frequency monitoring graph).

Restriction Invalid when,
- :DISPlay:ANALysis:REcall:TYPE is other than <"FGR">.

Example use When displaying from 11:30, January 1, 1994
> :DISPlay:ANALysis:RECall:FGRaph:FROM 1994,1,1,11,30

:DISPlay:ANALysis:RECall:FGRaph:FROM?

Response <time> = <NR1 NUMERIC RESPONSE DATA>
<time> = <year>,<month>,<day>,<hour>,<minute>,<second>

Function Queries the display starting point of the graph on the Analyze:Recall screen (frequency monitoring graph).

Example use > :DISPlay:ANALysis:RECall:FGRaph:FROM?
< 1194,1,1,11,30,0
* When no analyze data exists
< "No data"

:DISPlay:ANALysis:RECall:FGRaph:PRINt <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

DISPlay	Display
ALL	All
AFTer	After
BEFore	Before

Function Sets the printing range on the Analyze:Recall screen (frequency monitoring graph).

Restriction Invalid when,
- :DISPlay:ANALysis:REcall:TYPE is other than <"FGR">.

Example use To set the currently-displayed screen as the printing range.
> :DISPlay:ANALysis:RECall:FGRaph:PRINt DISPlay

:DISPlay:ANALysis:RECall:FGRaph:PRINt?

Response <type> = <CHARACTER RESPONSE DATA>

Function Queries the printing range on the Analyze:Recall screen (frequency monitoring graph).

Example use > :DISPlay:ANALysis:RECall:FGRaph:PRINt?
< DISP
* When no analyze data exists
< "No data"

:DISPlay:ANALysis:RECall:FGRaph:TITLe?

Response <title> = <STRING RESPONSE DATA>
Function Queries the title on the Analyze:Recall screen (frequency monitoring graph).
Example use > :DISPlay:ANALysis:RECall:FGRaph:TITLe?
< "TITLE-DISP"
* When no analyze data exists
< "No data"

:DISPlay:ANALysis:RECall:FGRaph:SCALe <scale>

Parameter <scale> = <DECIMAL NUMERIC PROGRAM DATA>

10	10 ppm
100	100 ppm
1000	1000 ppm

Function Sets a graph vertical axis scale for the Analyze:Recall screen (frequency monitoring graph).
Restriction Invalid when,
- :DISPlay:ANALysis:REcall:TYPE is other than <"FGR">.

Example use To set the graph vertical axis of the frequency monitoring (graph) to 10.
> :DISPlay:ANALysis:RECall:FGRaph:SCALe 10

:DISPlay:ANALysis:RECall:FGRaph:SCALe?

Response <scale> = <NR1 NUMERIC RESPONSE DATA>
Function Queries the vertical axis scale for the Analyze:Recall screen (frequency monitoring graph).
Example use > :DISPlay:ANALysis:RECall:FGRaph:SCALe?
< 10
* When no analyze data exists
< "No data"

:DISPlay:ANALysis:RECall:JSWeep:TITLe?

Response <title> = <STRING RESPONSE DATA>
Function Queries the title for Analyze:Recall screen (Jitter sweep).
Example use > :DISPlay:ANALysis:RECall:JSWeep:TITLe?
< "TITLE-DISP "

:DISPlay:ANALysis:RECall:JSWeep:MDISplay <boolean>

<boolean> = <BOOLEAN PROGRAM DATA>

OFF or 0	Marker OFF
ON or 1	Marker ON

Function Sets the marker display for Analyze:Recall screen (Jitter sweep).
Restriction Invalid when,
- No analyze data exists.

Example use To set the marker display for jitter tolerance measurement to ON:
> :DISPlay:ANALysis:RECall:JSWeep:MDISplay 1

:DISPlay:ANALysis:RECall:JSWeep:MDISplay?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Marker OFF
1 Marker ON
* The following is output when no Recall:Jitter sweep analyze data exists:
< "No data"

Function Queries the marker display for Analyze:Recall screen (Jitter sweep).

Example use
> :DISPlay:ANALysis:RECall:JSWeep:MDISplay?
< 1

:DISPlay:ANALysis:RECall:JSWeep:SEARch <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
BEFore Before search
NEXT Next search

Function Sets the marker search for Analyze:Recall screen (Jitter sweep).

Restriction Invalid when,
The marker is set to OFF.

Example use To perform BEFore search for jitter tolerance measurement:
> :DISPlay:ANALysis:RECall:JSWeep:SEARch BEFore

:DISPlay:ANALysis:RECall:JSWeep:DATA?

Response <point>,<freq1>,<freq2>,<margin>,<amp1>,<result>
<point> = <NR1 NUMERIC RESPONSE DATA>
1 to 20 Measurement point
<freq1> = <NR2 NUMERIC RESPONSE DATA>
0.1 to 990.0 Modulation frequency (numeral)
<freq2> = <CHARACTER RESPONSE DATA>
HZ, KHZ, MHZ Modulation frequency (unit)
<margin> = <NR1 NUMERIC RESPONSE DATA>
0 to 100 (None or value for 5 measurements)
<amp1> = <NR2 NUMERIC RESPONSE DATA>
0.000 to 808.000 Amplitude value (UIpp) (Value for 1 or 5 measurements)
<result> = <STRING RESPONSE DATA>
Form4 Jitter tolerance measurement result (Value for 1 or 5 measurements)
*The following is output when no jitter sweep data exists or the marker is set to OFF:
Outputs data for a measurement when MP0124A/MP0125A/MP0126A/MP0130A mounted.
< 0,0.0,HZ,0.000, "----------"
Outputs data for 5 measurements when MU150005A/MU150006A/MU150007A/MU150010A mounted.
< 0,0.0,HZ,0,0,0,0,0,0.000,0.000,0.000,0.000,0.000,
"----------","----------","----------","----------","----------"

Function Queries the data indicated by marker for Analyze:Jitter sweep screen.

Example use Outputs data for a measurement when MP0124A/MP0125A/MP0126A/MP0130A mounted.
> :DISPlay:ANALysis:RECall:JSWeep:DATA?
< 15,100.0,HZ,80.000," Acceptable"
Outputs data for 5 measurements when MU150005A/MU150006A/MU150007A/MU150010A mounted.
> :DISPlay:ANALysis:RECall:JSWeep:DATA?
< 15,100.0,HZ,0,10,20,30,100,80.000,20.000,15.000,12.000,8.000,
" Acceptable"," Acceptable"," Acceptable"," Acceptable"," Acceptable"

:DISPlay:ANALysis:RECall:JSWeep:SCALe <scale>

Parameter <scale> = <CHARACTER PROGRAM DATA>

1000	1000UIp-p
100	100UIp-p
10	10UIp-p
1	1UIp-p
0.1	0.1UIp-p
0.01	0.01UIp-p

Function Sets a graph vertical axis scale for Analyze:Recall screen (Jitter sweep).

Example use To set the graph vertical axis scale for jitter tolerance measurement to 10:

> :DISPlay:ANALysis:RECall:JSWeep:SCALe 10

:DISPlay:ANALysis:RECall:JSWeep:SCALe?

Response scale> = <CHARACTER RESPONSE DATA>

Function Queries the graph vertical axis scale for Analyze:Recall screen (Jitter sweep).

Example use > :DISPlay:ANALysis:RECall:JSWeep:SCALe?

< 10

:DISPlay:ANALysis:RECall:JSWeep:SCALe2 <scale>

Parameter <scale> = <CHARACTER PROGRAM DATA>

100	100UIp-p
10	10UIp-p
1	1UIp-p
0.1	0.1UIp-p
0.01	0.01UIp-p
0.001	0.001UIp-p

Function Sets a graph vertical axis scale value (lower stage) on the Analyze:Recall (Jitter sweep) screen.

Restriction Invalid when,

- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the graph vertical axis scale of jitter tolerance measurement to 10.

> :DISPlay:ANALysis:RECall:JSWeep:SCALe2 10

:DISPlay:ANALysis:RECall:JSWeep:SCALe2?

Response <scale> = <CHARACTER RESPONSE DATA>

Same as :DISPlay:ANALysis:RECall:JSWeep:SCALe2.

Function Queries the graph vertical axis scale (lower stage) on the Analyze:Recall (Jitter.sweep) screen.

Example use > :DISPlay:ANALysis:RECall:JSWeep:SCALe2?

< 10

:DISPlay:ANALysis:RECall:FSWeep:TITLe?

Response <title> = <STRING RESPONSE DATA>

Same as :DISPlay:ANALysis:RECall:FSWeep:TITLe.

Function Queries the title on the Analyze:Recall(Freq. sweep) screen.

Example use > :DISPlay:ANALysis:RECall:FSWeep:TITLe?

< "TITLE-DAT "

:DISPlay:ANALysis:RECall:FSWeep:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Marker OFF
ON or 1 Marker ON

Function Sets a display state of the marker on the Analyze:Recall(Freq. sweep) screen.

Restriction Invalid when,
- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To display the marker.
> :DISPlay:ANALysis:RECall:FREQsweep:MDISplay ON

:DISPlay:ANALysis:RECall:FSWeep:MDISplay?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Marker OFF
1 Marker ON

Function Queries the marker display state on the Analyze:Recall(Freq. sweep) screen.

Example use > :DISPlay:ANALysis:RECall:FREQsweep:MDISplay?
< 1

:DISPlay:ANALysis:RECall:FSWeep:SEARch <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
BEFore Before search (when ← is pressed.)
NEXT Next search (when → is pressed.)

Function Sets a direction to shift a marker on the Analyze:Recall(Freq. sweep) screen.

Restriction Invalid when,
- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To shift the marker to the left side of the graph.
> :DISPlay:ANALysis:RECall:FSWeep:SEARch BEFore

:DISPlay:ANALysis:RECall:FSWeep:DATA?

Response <ppm1>,<ppm2>,<amp1>
<ppm1> = <NR2 NUMERIC RESPONSE DATEA>
-100 to 100 ppm value
<ppm2> = <STRING RESPONSE DATA>
Form6 measurement result（UIp-p）

Function Queries the data indicated by marker on the Analyze:Recall(Freq. sweep) screen.

Example use To query the data indicated by marker on the screen.。
> :DISPlay:ANALysis:RECall:FSWeep:DATA
< 80,"80.8"
< 0,"----"
* Output when no Freq. sweep data exists or marker is OFF.

:DISPlay:ANALysis:RECall:FSWeep:SCALe <numeric>

Parameter <numeric> = <CHARACTER PROGRAM DATA>
100
10
1

Function Sets the maximum value of graph vertical axis scale (UIp-p) on the Analyze:Recall(Freq. sweep) screen.

Restriction Invalid when,
- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the maximum value of graph vertical axis scale to 100.
> :DISPlay:ANALysis:RECall:FSWeep:SCALe 100

:DISPlay:ANALysis:RECall:FSWeep:SCALe?

Response <numeric> = <CHARACTER RESPONSE DATA>
Same as :DISPlay:ANALysis:RECall:FSWeep:SCALe.

Function Queries the maximum value of graph vertical axis scale on the Analyze:Recall(Freq. sweep) screen.

Example use > :DISPlay:ANALysis:RECall:FSWeep:SCALe?
< 100

:DISPlay:ANALysis:RECall:FSWeep:PPMScale <numeric>

Parameter <numeric> = <CHARATER PROGRAM DATA>
10,20,30,40,50,60,70,80,90,100

Function Sets the maximum value of graph horizontal axis scale (ppm) on the Analyze:Recall(Freq. sweep) screen.

Restriction Invalid when,
- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the maximum value of graph horizontal axis scale of Freq. sweep data to 80.
> :DISPlay:ANALysis:RECall:FSWeep:PPMScale 80

:DISPlay:ANALysis:RECall:FSWeep:PPMScale?

Response <numeric> = <CHARACTER RESPONSE DATA>
Same as :DISPlay:ANALysis:RECall:FSWeep:PPMScale.

Function Queries the maximum value of graph horizontal axis scale (ppm) on the Analyze:Recall(Freq. sweep) screen.

Example use > :DISPlay:ANALysis:RECall:FSWeep:PPMScale?
< 80

:DISPlay:ANALysis:RECall:FSWeep:OMASk <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Display OFF
ON or 1 Display ON

Function Changes an offset mask display on the Analyze:Recall(Freq. sweep) screen.

Restriction Invalid when,
- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the offset mask display of Freq. sweep measurement on the Analyze:Recall(Freq. sweep) screen to ON.
> :DISPlay:ANALysis:RECall:FSWeep:OMASk ON

:DISPlay:ANALysis:RECall:FSWeep:OMASk?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Display OFF
1 Display ON

Function Queries changing state of the offset mask display on the Analyze:Recall(Freq. sweep) screen.

Example use > :DISPlay:ANALysis:RECall:FSWeep:OMASk?
< 1

:DISPlay:ANALysis:RECall:WANDer:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Marker OFF
ON or 1 Marker ON

Function Sets whether to display a marker on the Analyze:Recall screen (Wander).

Restriction Invalid when,
- :DISPlay:ANALysis:RECall:TYPE? is other than <"WAND">.

Example use To set to display the marker for wander measurement:
> :DISPlay:ANALysis:RECall:WANDer:MDISplay ON

:DISPlay:ANALysis:RECall:WANDer:MDISplay?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Marker OFF
1 Marker ON

Function Queries the marker display status for the Analyze:Recall screen (Wander).

Example use > :DISPlay:ANALysis:RECall:WANDer:MDISplay?
< 1
* When no analyze data exists:
< "No data"

:DISPlay:ANALysis:RECall:WANDer:SEARch <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
BEFore Before search
NEXT Next search
Function Instructs a marker search type for the Analyze:Recall screen (Wander).
Restriction Invalid when,
- :DISPlay:ANALysis:RECall:TYPE? is other than <"WAND">.
- :DISPlay:ANALysis:RECall:WANDer:MDISplay is <OFF>.

Example use To instruct Before search:
> :DISPlay:ANALysis:RECall:WANDer:SEARch BEFore

:DISPlay:ANALysis:RECall:WANDer:DATA?

Response <time1>,<time2>
<time1> = <NR1 NUMERIC RESPONSE DATA>
Form8 τ (sec)
<time2> = <NR2 NUMERIC RESPONSE DATA>
Form7 (ns)
Function Queries the data indicated by the marker on the Analyze:Recall screen (Wander).
Example use > :DISPlay:ANALysis:RECall:WANDer:DATA?
< " 10", " 3.0"
* When no analyze data exists:
< "No data"
When marker is OFF:
< "-----", "-------"

:DISPlay:ANALysis:RECall:WANDer:TITLe?

Response <title> = <STRING RESPONSE DATA>
Function Queries the title for the Analyze:Recall screen (Wander).
Example use > :DISPlay:ANALysis:RECall:WANDer:TITLe?
< "TITLE-DISP "
* When no analyze data exists:
< "No data"

:DISPlay:ANALysis:RECall:WANDer:STYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
LOG Log
LINear Linear
Function Specifies the vertical axis scale type on Analyze:RECall screen (Wander).
Restriction Invalid when,
- DISPlay:ANALysis:RECall:TYPE is other than <"WANDer">.

Example use To set the vertical axis scale type of Wander screen to Log:
> :DISPlay:ANALysis:RECall:WANDer:STYPe LOG

:DISPlay:ANALysis:RECall:WANDer:STYPe?

Response <type> = <CHARACTER PROGRAM DATA>
Function Queries the vertical axis scale type of Analyze:Recall screen (Wander).
Example use >:DISPlay:ANALysis:RECall:WANDer:STYPe?

:DISPlay:ANALysis:RECall:WANDer:LOG:SCALe <scale>

Parameter <scale> = <CHARACTER PROGRAM DATA>
1E12 (Unit: ns)
1E9
1E6
1E3

Function Sets the maximum value of graph vertical axis scale for Wander data Log type.

Restriction Invalid when,
- No Recall data exists.
- :DISPlay:ANALysis:WANDer:STYPe <LINear> is set.
- The MU150005A, MU150006A, MU150007A is not installed; and <1E12> is set.

Example use To set the maximum value of the graph vertical axis scale to 1E6:
> :DISPlay:ANALysis:RECall:WANDer:LOG:SCALe 1E6

:DISPlay:ANALysis:RECall:WANDer:LOG:SCALe?

Response <scale> = <CHARACTER RESPONSE DATA>

Function Queries the maximum value of graph vertical axis scale for Wander data Log type.

Example use > :DISPlay:ANALysis:RECall:WANDer:LOG:SCALe?
< 1E6

:DISPlay:ANALysis:RECall:WANDer:LINear:SCALe <scale>

Parameter <scale> = <CHARACTER PROGRAM DATA>
1E12 (Unit: ns)
1E9
1E6
1E3
100

Function Sets the maximum value of graph vertical axis scale for Wander data Linear type.

Restriction Invalid when,
- No Recall data exists.
- :DISPlay:ANALysis:WANDer:STYPe <LOG> is set.
- The MU150005A, MU150006A, or MU150007A is not installed; and <1E12> is set.

Example use To set the maximum value of the graph vertical axis scale to 1E6:
> :DISPlay:ANALysis:RECall:WANDer:LINear:SCALe 1E6

:DISPlay:ANALysis:RECall:WANDer:LINear:SCALe?

Response <scale> = <CHARACTER RESPONSE DATA>

Function Queries the maximum value of graph vertical axis scale for Wander data Linear type.

Example use > :DISPlay:ANALysis:RECall:WANDer:Linear:SCALe?
< 1E6

:DISPlay:ANALysis:RECall:WANDer:MEAStime <scale>

Parameter <scale> = <CHARACTER PROGRAM DATA>
120000
12000
1200
120
12
USER

Function Sets the maximum value of graph horizontal axis scale for Wander data Linear type.

Restriction Invalid when,
- :DISPlay:ANALysis:WANDer:STYPe <LOG> is set.
- The MU150005A, MU150006A, or MU150007A is not installed; and <120000> or <USER> is set.

Example use To set the maximum value of the graph horizontal axis scale for Linear type to 1200:
> :DISPlay:ANALysis:RECall:WANDer:MEAStime 1200

:DISPlay:ANALysis:RECall:WANDer:MEAStime?

Response <scale> = <CHARACTER RESPONSE DATA>

Function Queries the maximum value of graph horizontal axis scale for Wander data Linear type.

Example use To query the maximum value of graph horizontal axis scale:
> :DISPlay:ANALysis:RECall:WANDer:MEAStime?
< 1200

:DISPlay:ANALysis:RECall:WANDer:USER <scale>

Parameter <scale> = <DECIMAL NUMERIC PROGRAM DATA>
12 to 120000
*If fractions are input, they are omitted as shown below.
1280 → 1200
12006 → 12000

Function Sets the maximum value of graph (when "User" is set) horizontal axis scale for Wander data Linear type.

Restriction Invalid when,
- :DISPlay:ANALysis:WANDer:STYPe <LOG> is set.
- The MU150005A, MU150006A, or MU150007A is not installed.
- :DISPlay:ANALysis:WANDer:MEAStime is other than <USER>.

Example use To set the maximum value of the graph horizontal axis scale for Linear type to 12000:
> :DISPlay:ANALysis:RECall:WANDer:USER 12800

:DISPlay:ANALysis:RECall:WANDer:USER?

Response <scale> = <CHARACTER RESPONSE DATA>

Function Queries the maximum value of graph (when "User" is set) horizontal axis scale for Wander data Linear type.

Example use To query the maximum value of graph horizontal axis scale:
> :DISPlay:ANALysis:RECall:WANDer:USER?
< 12000

:DISPlay:ANALysis:RECall:WSWeep:TITLe?

Response <title> = <STRING RESPONSE DATA>
Same as :DISPlay:ANALysis:WSWeep:TITLe.
Function Queries the title for the Analyze:Recall(Wander.sweep) screen.
Example use > :DISPlay:ANALysis:RECall:WSWeep:TITLe?
< "TITLE-DISP "

:DISPlay:ANALysis:RECall:WSWeep:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Marker OFF
ON or 1 Marker ON
Function Sets the marker display state on the Analyze:Recall (Wander.sweep) screen.
Restriction Invalid when,
- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To display the marker.
> :DISPlay:ANALysis:RECall:WSWeep:MDISplay ON

:DISPlay:ANALysis:RECall:WSWeep:MDISplay?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Marker OFF
1 Marker ON
Function Queries the marker display state on the Analyze:Recall (Wander.sweep) screen.
Example use > :DISPlay:ANALysis:RECall:WSWeep:MDISplay?
< 1

:DISPlay:ANALysis:RECall:WSWeep:SEARch <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
BEFore Before search (when ← is pressed.)
NEXT Next search (when → is pressed.)
Function Sets a direction to shift a marker on the Analyze:Recall(Wander.sweep) screen.
Restriction Invalid when,
- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To shift the marker to the left side of the graph.
> :DISPlay:ANALysis:RECall:WSWeep:SEARch BEFore

:DISPlay:ANALysis:RECall:WSWeep:DATA?

Response <point>,<freq1>,<freq2>, <margin>,<amp1>,<result>
<point> = <NR1 NUMERIC RESPONSE DATA>
1 to 20 Measurement point
<freq1> = <NR2 NUMERIC RESPONSE DATA>
1.0 to 990.0 Modulation frequency (numeral)
<freq2> = <CHARACTER RESPONSE DATA>
uHz,mHz,Hz Modulation frequency (unit)
<margin> = <NR1 NUMERIC RESPONSE DATA>
0 to 100 (value for five)
<amp1> = <STRING RESPONSE DATA>
Form16 Wandersweep measuremet result (UIp-p) (value for five)
<result> = <STRING RESPONSE DATA>
Form4 Wandersweep measurement result (value for five)
“ Acceptable”
“Unacceptable”
”----------“
* When no Wandersweep data exists or marker is OFF, the following contents are output.
< 0,0.0,Hz,0,0,0,0,0,"--------", "--------", "--------", "--------", "--------",
"----------", "----------", "----------", "----------", "----------"

Function Queries the data indicated by marker on the Analyze:Recall (Wander.sweep) screen.

Example use > :DISPlay:ANALysis:RECall:WSWeep:DATA?
< 15,100,Hz,0,10,20,50,100," 15.0"," 14.0"," 13.0"," 12.0"," 15.0",
” Acceptable”,” Acceptable”,” Acceptable”,” Acceptable”,” Acceptable”

:DISPlay:ANALysis:RECall:WSWeep:SCALe <numeric>

Parameter <numeric> = <CHARACTER PROGRAM DATA>
1E11
1E10
1E9
1E8
1E7
1E6
1E5
1E4
1E3
1E2
1E1
1E0

Function Sets the maximum value of graph vertical axis scale on the Analyze:Recall (Wander.sweep) screen.

Restriction Invalid when,
- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the graph vertical axis scale to 1E4.
> :DISPlay:ANALysis:RECall:WSWeep:SCALe 1E4

:DISPlay:ANALysis:RECall:WSWeep:SCALe?

Response <numeric> = <CHARACTER RESPONSE DATA>
Same as :DISPlay:ANALysis:WSWeep:SCALe.

Function Queries the graph vertical axis scale (upper stage) on the Analyze:Recall (Wander.sweep) screen.

Example use > :DISPlay:ANALysis:RECall:WSWeep:SCALe?
< 1E4

:DISPlay:ANALysis:RECall:WSWeep:SCALe2 <numeric>

Parameter <numeric> = <CHARACTER PROGRAM DATA>
1E10
1E9
1E8
1E7
1E6
1E5
1E4
1E3
1E2
1E1
1E0
1E-1

Function Sets a graph vertical axis scale value (lower stage) on the Analyze:Recall (Wander.sweep) screen.

Restriction Invalid when,
- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the graph vertical axis scale of Wandersweep measurement on the Recall screen to 1E3.
> :DISPlay:ANALysis:RECall:WSWeep:SCALe2 1E3

:DISPlay:ANALysis:RECall:WSWeep:SCALe2?

Response <numeric> = <CHARACTER RESPONSE DATA>
Same as :DISPlay:ANALysis:RECall:WSWeep:SCALe2.

Function Queries the graph vertical axis scale (lower stage) on the Analyze:Recall (Wander. sweep) screen.

Example use > :DISPlay:ANALysis:RECall:WSWeep:SCALe2?
< 1E-1

:DISPlay:ANALysis:RECall:WSWeep:STYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

UIPP	UIp-p dispaly
NS	ns display

Function Specifies a graph vertical axis scale unit on the Analyze:Recall (Wander.sweep) screen.

Restriction Invalid when,
- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set vertical axis scale unit to ns.
> :DISPlay:ANALysis:RECall:WSWeep:STYPe NS

:DISPlay:ANALysis:RECall:WSWeep:STYPe?

Response <type> = <CHARACTER RESPONSE DATA>

UIPP	UIp-p diaplay
NS	ns display

Function Queries the graph vertical axis scale unit on the Analyze:Recall (Wander.sweep) screen.

Example use > :DISPlay:ANALysis:RECall:WSWeep:STYPe?
< LOG

:DISPlay:ANALysis:RECall:PEAK:SCRoll <scroll>

Parameter <scroll> = <CHARACTER PROGRAM DATA>

LEFT	Scroll leftward
RIGHt	Scroll rightward
TOP	Move to the top
BOTTom	Move to the bottom

Function Scrolls the Analyze:Recall (Peak jitter) screen.

Restriction Invalid when,

- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To scroll rightward

> :DISPlay:ANALysis:RECall:PEAK:SCRoll RIGHt

:DISPlay:ANALysis:RECall:PEAK:MARKer <marker>

Parameter <marker> = <CHARACTER PROGRAM DATA>

LEFT	Move leftward
RIGHt	Move rightward

Function Sets a marker display state on the Analyze:Recall (Peak jitter) screen.

Example use To move rightward

> :DISPlay:ANALysis:RECall:PEAK:MARKer RIGHt

:DISPlay:ANALysis:RECall:PEAK:DATA?

Response <time>,<alarm1s>,<alarm1c>,<alarm2s>,<alarm2c>,<alarm3s>,<alarm3c>,
<alarm4s>, <alarm4c>,<alarm5s>,<alarm5c>, <Uipp>, <Ui+p>, <Ui-p>, <Uirms>
<time> = <year>,<month>,<day>,<hour>,<minute>,<second>
Time indicated by the marker
<year> = <NR1 NUMERIC RESPONSE DATA>
0, 1994 to 2093 (year)
<month> = <NR1 NUMERIC RESPONSE DATA>
0, 1 to 12 (month)
<day> = <NR1 NUMERIC RESPONSE DATA>
0, 1 to 31 (day)
<hour> = <NR1 NUMERIC RESPONSE DATA>
0 to 23 (hour)
<minute> = <NR1 NUMERIC RESPONSE DATA>
0 to 59 (minute)
<second> = <NR1 NUMERIC RESPONSE DATA>
0 to 59 (second)
<alarm1s> = <STRING RESPONSE DATA>
Alarm 1 occurrence time (s) of data indicated by marker
Form1
<alarm1c> = <STRING RESPONSE DATA>
Alarm 1 occurrence count of data indicated by marker
Form1
<alarm2s> = <STRING RESPONSE DATA>
Alarm 2 occurrence time (s) of data indicated by marker
Form1
<alarm2c> = <STRING RESPONSE DATA>
Alarm 2 occurrence count of data indicated by marker
Form1
<alarm3s> = <STRING RESPONSE DATA>
Alarm 3 occurrence time (s) of data indicated by marker
Form1
<alarm3c> = <STRING RESPONSE DATA>
Alarm 3 occurrence count of data indicated by marker
Form1
<alarm4s> = <STRING RESPONSE DATA>
Alarm 4 occurrence time (s) of data indicated by marker
Form1
<alarm4c> = <STRING RESPONSE DATA>
Alarm 4 occurrence count of data indicated by marker
Form1
<alarm5s> = <STRING RESPONSE DATA>
Alarm 5 occurrence time (s) of data indicated by marker
Form1
<alarm5c> = <STRING RESPONSE DATA>
Alarm 5 occurrence count of data indicated by marker
Form1
<Uipp> = <STRING RESPONSE DATA>
Jitter value indicated by marker (UIp-p)
Form 1 or Form 2 (depending on the display scale)
<Ui+p> = <STRING RESPONSE DATA>
Jitter value indicated by marker (UI+p)
Form 1 or Form 2 (depending on the display scale)
<Ui-p> = <STRING RESPONSE DATA>
Jitter value indicated by marker (UI-p)

Form 1 or Form 2 (depending on the display scale)
<Uirms> = <STRING RESPONSE DATA>
Jitter value indicated by marker (Uirms)
Form 1 or Form 2 (depending on the display scale)

* When no Peak jitter analyze data exists or marker is OFF, the following contents are output.
< 0,0,0,0,0,0,"--------","--------","--------","--------","--------",
"--------","--------","--------","--------","--------","--------"

・When Alarm is other than <"SVPAIS">,<"SVPRDI">,<"SVPLOC">,<"EVPAIS">, <"EVPRDI">,<"EVPLOC">, <"SVCAIS">,<"SVCRDI">,<"SVCLOC">, <"EVCAIS">,<"EVCRDI">, or <"EVCLOC">, "--------" is output to alarm (1 to 5) count.
< 2000,12,25,12,54,30," 1","--------"," 0","--------",
" 104","--------"," 1","--------"," 1","--------",
" 189",” 1.41”,” 2.44”,” 0.75”

Function Queries the data indicated by marker on the Analyze:Recall (Peak jitter) screen.

Example use
> :DISPlay:ANALysis:RECall:PEAK:DATA?
< 2000,12,25,12,54,30," 1"," 1"," 0"," 0"," 104",
" 10"," 1"," 1"," 1"," 1"," 189",” 1.41”,
” 2.44”,” 0.75”

:DISPlay:ANALysis:RECall:PEAK:INTerval <numeric>,<suffix>

Parameter <numeric> = <CHARACTER PROGRAM DATA>
1, 15, 60
<suffix> = <CHARACTER PROGRAM DATA>
M minute
S s

Function Sets an interval of the time axis on the Analyze:Peak jitter screen.

Restriction Invalid when,
- No Recall data exists.
- The value is set to other than the followings, according to the Graph resolution set on the System screen.。

Graph resolution	Analyze graph interval
1s	1s, 1min, 15min, 60min
1min	1min, 15min, 60min
15min	15min, 60min
60min	60min

- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the width for one scale at 1 minute:
> :DISPlay:ANALysis:RECall:PEAK:INTerval 1,M

:DISPlay:ANALysis:RECall:PEAK:INTerval?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
Same as :DISPlay:ANALysis:RECall:PEAK:INTerval.
<suffix> = <CHARACTER RESPONSE DATA>
Same as :DISPlay:ANALysis:RECall:PEAK:INTerval.

Function Queries the width of one scale on the time axis on the Analyze:Recall (Peak jitter) screen.

Example use > :DISPlay:ANALysis:RECall:PEAK:INTerval?
< 1,M

:DISPlay:ANALysis:RECall:PEAK:MDISplay <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Marker OFF
ON or 1 Marker ON

Function Sets a marker display state on the Analyze:Recall (Peak jitter) screen.

Restriction Invalid when,
- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To display the marker.
> :DISPlay:ANALysis:RECall:PEAK:MDISplay ON

:DISPlay:ANALysis:RECall:PEAK:MDISplay?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 Marker OFF
1 Marker ON

Function Queries the marker display state on the Analyze:Recall (Peak jitter) screen.

Example use > :DISPlay:ANALysis:RECall:PEAK:MDISplay?
< 1

:DISPlay:ANALysis:RECall:PEAK:SEARch <type>

Parameter <type> = <CHARACTER PROGRAM DATA>
BEFore Before search (when ← is pressed.)
NEXT Next search (when → is pressed.)

Function Sets a direction to shift a marker on the Analyze:Recall (Peak jitter) screen.

Restriction Invalid when,
- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To shift the marker to the left side of the graph
> :DISPlay:ANALysis:RECall:PEAK:SEARch BEFore

:DISPlay:ANALysis:RECall:PEAK:FROM <numeric1>,<numeric2>,<numeric3>,<numeric4>,<numeric5>[,<numeric6>]

Parameter <DECIMAL NUMERIC PROGRAM DATA>
<numeric1> = 1994 to 2093 (year)
<numeric2> = 1 to 12 (month)
<numeric3> = 1 to 31 (day)
<numeric4> = 0 to 23 (hour)
<numeric5> = 0 to 59 (minute)
<numeric6> = 0 to 59 (second)

* If parameter-specified time does not exists, the closest time after the specified one is set. If the specified time is before the measurement start time, the measurement start time is set. If the specified time is after the logging end time, the logging end time is set.The default of <numeric6> is 0.

Function Sets a display starting point on the Analyze:Recall (Peak jitter) screen graph.

Restriction Invalid when,
- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use When displaying from 11:30:40, July 28, 2000.
> :DISPlay:ANALysis:RECall:PEAK:FROM 2000,7,28,11,30,40

:DISPlay:ANALysis:Recall:PEAK:FROM?

Response <numeric1>,<numeric2>,<numeric3>,<numeric4>,<numeric5>,<numeric6>
= <NR1 NUMERIC RESPONSE DATA>
Same as :DISPlay:ANALysis:RECall:PEAK:FROM.
* When no Peak jitter analyze data exists, the following contents are output.
< -,-,-,-,-,-

Function Queries the display starting point on the Analyze:Recall (Peak jitter) screen graph.

Example use > :DISPlay:ANALysis:RECall:PEAK:FROM?
< 2000,7,28,11,30,40

:DISPlay:ANALysis:Recall:PEAK:ALARm1 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>

"ALL"		ALL
"POWer"		Power fail
"LOS"		LOS
"LOF"		LOF
"OOF"		OOF
"AIS:MS"		MS-AIS
"RDI:MS"		MS-RDI
"AIS:AU"		AU-AIS
"LOP:AU"		AU-LOP
"RDI:HP"		HP-RDI
"SLM:HP"		HP-SLM
"AIS:TU"		TU-AIS
"LOP:TU"		TU-LOP
"RDI:LP"		LP-RDI
"SLM:LP"		LP-SLM
"RFI:LP"		LP-RFI
"LOM:TU"		TU-LOM
“TIM:LP”	(SDH)	LP-TIM
“TIM:V”	(SONET)	TIM-V
“UNEQ:LP”	(SDH)	LP-UNEQ
“UNEQ:V”	(SONET)	UNEQ-V
“AIS:LV”		LP-VC-AIS
“FAS:LP”		LP-FAS
“IAIS:LP”		LP-IncAIS
“TRDI:LP”		LP-TC-RDI
“ODI:LP”		LP-ODI
“TIM:HP”	(SDH)	HP-TIM
“TIM:P”	(SONET)	TIM-P
“UNEQ:HP”	(SDH)	HP-UNEQ
“UNEQ:P”	(SONET)	UNEQ-P
“AIS:HV”		HP-VC-AIS
“ISF:HP”		HP-ISF
“FAS:HP”		HP-FAS
“IAIS:HP”		HP-IncAIS
“TRDI:HP”		HP-TC-RDI
“ODI:HP”		HP-ODI
"AIS:M139"		139M AIS
"AIS:M45"		45M AIS
"AIS:M34"		34M AIS
"AIS:M8"		8M AIS
"AIS:M2"		2M AIS
"AIS:M1_5"		1.5M AIS
"LOF:M139"		139M LOF
"LOF:M45"		45M LOF
"LOF:M34"		34M LOF
"LOF:M8"		8M LOF
"LOF:M2"		2M LOF
"LOF:M1_5"		1.5M LOF
"LOF:MF"		MF LOF
"RDI:M139"		139M RDI
"RDI:M45"		45M RDI
"RDI:M34"		34M RDI
"RDI:M8"		8M RDI

"RDI:M2"	2M RDI
"RDI:M1_5"	1.5M RDI
"RDI:MF"	MF RDI
“SYN:OH”	OH sync
“AIS:HG”	HG AIS
“REC:HG”	HG REC
“BAI:S15”	BAIS1.5
“AIS:S15”	SigAIS1.5
“SIG:OOF”	SigOOF
"LCD"	Lost of cell sync
"PATTern"	Sync. loss
"JUNLock"	Jitter Unlock

Function Sets an alarm item of alarm 1 for graph display on the Analyze:Recoll(Peak jitter) screen.

Restriction Invalid when,

- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To display Power fail on Alarm 1.

> :DISPlay:ANALysis:RECall:PEAK:ALARm1 "POWer"

:DISPlay:ANALysis:RECall:PEAK:ALARm1?

Response <alarm> = <STRING RESPONSE DATA>
Same as :DISPlay:ANALysis:RECall:PEAK:ALARm1.
Function Queries the alarm item of alarm 1 for graph display on the Analyze:Recall(Peak jitter) screen.
Example use > :DISPlay:ANALysis:RECall:PEAK:ALARm1?
< "POW"

:DISPlay:ANALysis:RECall:PEAK:ALARm2 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>
Same as :DISPlay:ANALysis:RECall:PEAK:ALARm1.
Function Sets an alarm item of alarm 2 for graph display on the Analyze:Recall(Peak jitter) screen.

:DISPlay:ANALysis:RECall:PEAK:ALARm2?

Response <alarm> = <STRING RESPONSE DATA>
Same as :DISPlay:ANALysis:RECall:PEAK:ALARm1.
Function Queries the alarm item of alarm 2 for graph display on the Analyze:Recall(Peak jitter) screen.

:DISPlay:ANALysis:RECall:PEAK:ALARm3 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>
Same as :DISPlay:ANALysis:RECall:PEAK:ALARm1.
Function Sets an alarm item of alarm 3 for graph display on the Analyze:Recall(Peak jitter) screen.

:DISPlay:ANALysis:RECall:PEAK:ALARm3?

Response <alarm> = <STRING RESPONSE DATA>
Same as :DISPlay:ANALysis:RECall:PEAK:ALARm1.
Function Queries the alarm item of alarm 3 for graph display on the Analyze:Recall(Peak jitter) screen.

:DISPlay:ANALysis:RECall:PEAK:ALARm4 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>
Same as :DISPlay:ANALysis:RECall:PEAK:ALARm1.
Function Sets an alarm item of alarm 4 for graph display on the Analyze:Recall(Peak jitter) screen.

:DISPlay:ANALysis:RECall:PEAK:ALARm4?

Response <alarm> = <STRING RESPONSE DATA>
Same as :DISPlay:ANALysis:RECall:PEAK:ALARm1.
Function Queries the alarm item of alarm 4 for graph display on the Analyze:Recall(Peak jitter) screen.

:DISPlay:ANALysis:RECall:PEAK:ALARm5 <alarm>

Parameter <alarm> = <STRING PROGRAM DATA>
Same as :DISPlay:ANALysis:RECall:PEAK:ALARm1.
Function Sets an alarm item of alarm 5 for graph display on the Analyze:Recall(Peak jitter) screen.

:DISPlay:ANALysis:RECall:PEAK:ALARm5?

Response <alarm> = <STRING RESPONSE DATA>
Same as :DISPlay:ANALysis:RECall:PEAK:ALARm1.
Function Queries the alarm item of alarm 5 for graph display on the Analyze:Recall(Peak jitter) screen.

:DISPlay:ANALysis:RECall:PEAK:PRINt <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

DISPlay	Display
ALL	All
AFTer	After
BEFore	Before

Function Sets a printing range on the Analyze:Recall (Peak jitter) screen.
Restriction Invalid when,
- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the currently-displayed screen as the printing range.
> :DISPlay:ANALysis:RECall:PEAK:PRINt DISPlay

:DISPlay:ANALysis:RECall:PEAK:PRINt?

Response <type> = <CHARACTER RESPONSE DATA>

DISP	Display
ALL	All
AFT	After
BEF	Before

Function Queries the printing range on the Analyze:Recall (Peak jitter) screen.
Example use > :DISPlay:ANALysis:RECall:PEAK:PRINt?
< DISP

:DISPlay:ANALysis:RECall:PEAK:TITLe?

Response <title> = <STRING RESPONSE DATA>
Same as :DISPlay:ANALysis:RECall:PEAK:TITLe.
Function Queries the title on the Analyze:Recall (Peak jitter) screen.
Example use > :DISPlay:ANALysis:RECall:PEAK:TITLe?
< "TITLE-DISP "

:DISPlay:ANALysis:RECall:PEAK:DTYPe <type>

Parameter <type> = <CHARACTER PROGRAM DATA>

UIPTp	UIp-p
UIPP	UI+p
UIMP	UI-p
UIRMs	UIrms

Function Sets a graph vertical axis display unit for the Analyze:Recall (Peak jitter) screen.
Restriction Invalid when,
- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the display unit on the screen to UIp-p.
> :DISPlay:ANALysis:RECall:PEAK:DTYPe UITPp

:DISPlay:ANALysis:RECall:PEAK:DTYPe?

Response <type> = <CHARACTER RESPONSE DATA>
UIPT UIp-p
UIPP UI+p
UIMP UI-p
UIRM UIrms
Function Queries the graph vertical axis display unit for the Analyze:Recall (Peak jitter) screen.
Example use > :DISPlay:ANALysis:RECall:PEAK:DTYPe?
< UIRM

:DISPlay:ANALysis:RECall:PEAK:SCALe <numeric>

Parameter <numeric> = <NON-DECIMAL NUMERIC PROGRAM DATA>
0.002 to 800.0 step0.02
Function Sets a graph vertical axis scale value on the Analyze:Recall (Peak jitter) screen.
Restriction Invalid when,
- No Recall data exists.
- The MU150005A, MU150006A, or MU150007A is not installed.

Example use To set the scale to 0.02
> :DISPlay:ANALysis:RECall:PEAK:SCALe 0.02

:DISPlay:ANALysis:RECall:PEAK:SCALe?

Response <numeric> = < NON-DECIMAL NUMERIC RESPONSE DATA>
Function Queries the graph vertical axis scale value on the Analyze:Recall (Peak jitter) screen.
Example use > :DISPlay:ANALysis:RECall:PEAK:SCALe?
< 800.0

:DISPlay:SETup[:NAME] <sdisplay>

Parameter <sdisplay> = <STRING PROGRAM DATA>
"MAPPing" Mapping screen
"MEMory" Memory screen
"PRINt" Print screen
"SPPData" OH preset data screen
"JTOLerance" Jitter tolerance screen
"JTRansfer" Jitter transfer screen
"JSWeep" Jitter sweep screen
"JWANder" Jitter Wander screen
"WSWeep" Wander sweep screen
"FSWeep" Freq. sweep screen
"JFRequency" Jitter/Freq. screen
"SYSTem" System screen
"FDISk" Floppy disk screen
"STESt" Self-test screen
Function Selects the display items on the Setup screen.
Restriction Invalid when,
- <"STESt"> is set during the measurement set on the Test menu main screen.
- The MU150005A, MU150006A, or MU150007A is not installed; and <"WSWeep"> or <"FSWeep"> is set.

Example use To select "PRINt" as a display item on the Setup screen:
> :DISPlay:SETup:NAME "PRINt" or > :DISPlay:SETup "PRINt"

:DISPlay:SETup[:NAME]?

Response <sdisplay> = <STRING RESPONSE DATA>

"MAPP"	Mapping screen
"MEM"	Memory screen
"PRIN"	Print screen
"SPPD"	OH preset data screen
"JTOLerance"	Jitter tolerance screen
"JTRansfer"	Jitter transfer screen
"JSWeep"	Jitter sweep screen
"JWANder"	Jitter Wander screen
"WSWeep"	Wander sweep screen
"FSWeep"	Freq. sweep screen
"JFRequency"	Jitter/Freq. screen
"SYST"	System screen
"FDIS"	Floppy disk screen
"STES"	Self test screen

Function Queries the display item on the Setup screen.

Example use > :DISPlay:SETup:NAME? or > :DISPlay:SETup?
< "PRIN"

4.4.5 CALCulate subsystem

The CALCulate subsystem is used to make settings on the Performance measurement and to display the measurement results.

Function	Command	Parameter
Page 4-229		
Queries the measurement result corresponding to the parameter.	:CALCulate:DATA?	string
Page 4-232		
Queries a graph data on the frequency monitoring screen.	:CALCulate:FGRaph:DATA?	time
Page 4-233		
Queries the TIE data (TIE raw data) saved in the memory of the measuring instrument. (Output the specified TIE data after the management data.)	:CALCulate:TIE:DATA?	numeric1 numeric2

:CALCulate:DATA? <string>

Parameter <string> = <STRING PROGRAM DATA>
"[CURRent:]<result>" Current measurement result
"LAST:<result>" Immediately previous measurement result
As for <result> contents, see "Contents of Measurement Result Queries" on the next page.

Response <string> = <STRING RESPONSE DATA>
See "Contents of Measurement Result Queries" on the next page.

Function Queries the measurement result corresponding to the parameter.

Example use To query the current Peak-Peak value of the jitter manual measurement:
> :CALCulate:DATA? "CUUrent:JAMPlitude:PTPeak"
or :CALCulate:DATA? "JAMPlitude:PTPeak"
< " 10.00"

Jitter manual measurement

Item	<result>	Response format
Peak to Peak	"JAMPlitude:PTPeak"	Form5
+Peak	"JAMPlitude:PPEak"	Form5
–Peak	"JAMPlitude:MPEak"	Form5
RMS	"JAMPlitude:RMS"	Form5
Hit Count	"JHIT:COUNt"	Form1
Hit Second	"JHIT:SECond"	Form1
Hit %Free Second	"JHIT:FS"	Form3
Status	"JMANual:STATus"	Form9
Status	"JMANual:TSTAtus"	Form9
Status	"JMANual:RTATtus"	Form9
Status	"JMANual:TCLock"	Form14
Status	"JMANual:RCLock"	Form14

Wander manual measurement

Item		<result>	Response format
Wander (DC-10 Hz)	Peak to Peak	"WANDer:PTPeak[:FULL]"	Form7
	+Peak	"WANDer:PPEak[:FULL]"	Form7
	–Peak	"WANDer:MPEak[:FULL]"	Form7
	TIE	"WANDer:TIE[:FULL]"	Form7
Wander (DC-0.01 Hz)	Peak to Peak	"WANDer:PTPeak:LOW"	Form7
	+Peak	"WANDer:PPEak:LOW"	Form7
	–Peak	"WANDer:MPEak:LOW"	Form7
	TIE	"WANDer:TIE:LOW"	Form7
Wander (0.01 Hz-10 Hz)	Peak to Peak	"WANDer:PTPeak:HIGH"	Form7
	+Peak	"WANDer:PPEak:HIGH"	Form7
	–Peak	"WANDer:MPEak:HIGH"	Form7
	TIE	"WANDer:TIE:HIGH"	Form7

Jitter tolerance measurement

Item	<result>	Response format
Measurement result	"JTOLerance:POINt1" : "JTOLerance:POINt20"	Form5 Form4

Jitter transfer measurement

Item	<result>	Response format
Measurement result	"JTRansfer:POINt1" : "JTRansfer:POINt20"	Form6 Form4

Jitter/Freq. measurement

Item	<result>	Response format
Measurement result	"JFRequency:POINt1" : "JFRequency:POINt51"	Form5
Measurement result of Filter2 When Filter is set to Double	"JFRequency:DOUBle:POINt1" : "JFRequency:DOUBle:POINt51"	Form5

Freq. sweep measurement

Item	<result>	Response format
Measurement result	"FSWeep:POINt1" : "FSWeep:POINt51"	Form5

Jitter sweep measurement

Item	<result>	Response format
Measurement result	"JSWeep:LINe1:POINt1" : "JSWeep:LINe5:POINt20"	Form4

Wander (TIE) measurement (LOG)

Item	<result>	Response format
Measurement result	"WANDer:POINt1" : "WANDer:POINt44"	Form8

Wander (TIE) measurement (Linear)

Item	<result>	Response format
Measurement result	"WANDer:LINear:POINt1" : "WANDer:LINear:POINt200"	Form8

Wander sweep measurement

Item	<result>	Response format
Measurement result	"WSWeep:POINt1" : "WSWeep:POINt20"	Form4

:CALCulate:FGRaph:DATA? <time>[,<number>]

Parameter
<time> = <year>,<month>,<day>,<hour>,<minute>[,<second>]
<year> = <DECIMAL NUMERIC PROGRAM DATA>
0,1994 to 2093
<month> = <DECIMAL NUMERIC PROGRAM DATA>
0,1 to 12
<day> = <DECIMAL NUMERIC PROGRAM DATA>
0,1 to 31
<hour> = <DECIMAL NUMERIC PROGRAM DATA>
0 to 23
<minute> = <DECIMAL NUMERIC PROGRAM DATA>
0 to 59
<second> = <DECIMAL NUMERIC PROGRAM DATA>
0 to 59
[<number>] = <DECIMAL NUMERIC PROGRAM DATA>
Number of data to be queried
0 to 3600

Response
<time> = <year>,<month>,<day>,<hour>,<minute>[,<second>]
Year, month, day, minute, and second of read data.
If data of parameter-specified time does not exists, the closest time after the specified one is set.If the specified time is before the measurement start time, the measurement start time is set.If the specified time is after the logging end time, the logging end time is set.
<freq> = <STRING RESPONSE DATA>
Frequency (numeral)
From10
<ppm> = <STRING RESPONSE DATA>
ppm value
From11

Function
Queries a graph data on the frequency monitoring screen.

Example use
> :CALCulate:FGRaph:DATA ? 2000,1,1,11,30,1
< 2000,1,1,11,30,0," 120000.9","–1000.0"

:CALCulate:TIE:DATA? <numeric1>,<numeric2>

Parameter <numeric1>,<numeric2> = <DECIMAL NUMERIC PROGRAM DATA>
1 to 960000

Response <time> = <year>, <month>, <day>, <hour>, <minute>[,<second>]
measurement start time
<interval> = <STRING RESPONSE DATA>
sampling interval
<total> = <STRING RESPONSE DATA>
Number of total samples
<s/n> = <STRING RESPONSE DATA>
Displays the next data's order number of sample
<tie> = <STRING RESPONSE DATA>
Outputs the specified number of TIE raw data with signed integer in ps unit

Function Queries the TIE data (TIE raw data) saved in the memory of the measuring instrument. (Output the specified TIE data after the management data.)

Restriction Invalid when,
- Measurement is being executed.
- MU150005A, MU150006A, or MU150007A is not installed.

Example use To query the samples of the 2nd to 3rd:
> :CALCulate:TIE:DATA? 2,3
< "2000,6,6,8,23,40”,"08:23:40","25.0ms","9600","2","3200","-400"

4.4.6 SYSTem subsystem

The SYSTem subsystem is used to make settings on printer, memory and buzzer.

Function	Command	Parameter
Page 4-235		
Sets whether or not jitter hit occurrence is printed.	:SYSTem:PRINt:JITTer:SET	boolean
Queries whether or not jitter hit occurrence is printed.	:SYSTem:PRINt:JITTer:SET?	
Page 4-235		
Sets whether or not jitter/wander data is printed for the measurement result printing.	:SYSTem:PRINt:LDATa:JWANder	boolean
Queries whether or not jitter/wander data is printed for the measurement result printing.	:SYSTem:PRINt:LDATa:JWANder?	
Page 4-236		
Queries the Analyze memory registration status.	:SYSTem:MEMory:ANALysis:LABel?	numeric
Writes data into the Analyze memory.	:SYSTem:MEMory:ANALysis:STORe	type title
Page 4-237		
Writes data to a file on the current directory of floppy disk.	:SYSTem:MMEMory:RECall	file_name
Page 4-238		
Writes data to a file on the current directory of floppy disk.	:SYSTem:MMEMory:STORe	type file_name

:SYSTem:PRINt:JITTer:SET <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Jitter hit data is not printed.
ON or 1 Jitter hit data is printed.
Function Sets whether or not jitter hit occurrence is printed.
Restriction Invalid when,
• :SYSTem:PRINt:LDATa:SET is <OFF>.
Example use To enable the printing at jitter hit occurrence:
> :SYSTem:PRINt:JITTer:SET ON

:SYSTem:PRINt:JITTer:SET?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 or 1
Function Queries whether or not jitter hit occurrence is printed.
Example use > :SYSTem:PRINt:JITTer:SET?
< 1

:SYSTem:PRINt:LDATa:JWANder <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Jitter/wander data is not printed.
ON or 1 Jitter/wander data is printed.
Function Sets whether or not jitter/wander data is printed for the measurement result printing.
Restriction Invalid when,
• :SYSTem:PRINt:LDATa:SET is <OFF>.
Example use To enable the jitter/wander data printing:
> :SYSTem:PRINt:LDATa:JWANder ON

:SYSTem:PRINt:LDATa:JWANder?

Response <boolean> = <NR1 NUMERIC RESPONSE DATA>
0 or 1
Function Queries whether or not jitter/wander data is printed for the measurement result printing.
Example use > :SYSTem:PRINt:LDATa:JWANder?
< 1

:SYSTem:MEMory:ANALysis:LABel? <numeric>

Parameter <numeric> = <DECIMAL PROGRAM DATA>
1 to 15 Memory No. 1 to No. 15

Response <title>,<gtype>,<stime>,<use>
<title> = <STRING RESPONSE DATA>
Memory name (fixed to 8 characters)
<gtype> = <CHARACTER RESPONSE DATA>
Graph type
EALarm Error/Alarm data
JTOLerance Jitter tolerance data
JTRansfer Jitter transfer data
JFRequency Jitter/Freq.
WANDer Wander data
JSWeep Jitter sweep data
FREQuency Frequency data
WSWeep Wander sweep data
FSWeep Freq. sweep data
PEAK Peak jitter data
<stime> = <STRING RESPONSE DATA>
Measurement starting time (fixed to 19 characters)
"1994.12.25 18:40:30"
<use> = <STRING RESPONSE DATA>
Used memory area (percentage indication)
Form3

Function Queries the Analyze memory registration status.

Example use To query memory No. 1 registration status:
> :SYSTem:MEMory:ANALysis:LABel? 1
< "JITTER ",JTOL,,"2000.12.25 18:40:30"," 30.0000"
* When no data exists at the specified memory:
<"--------", ----, "----------", "--------">

:SYSTem:MEMory:ANALysis:STORe <type>,<title>

Parameter
<type> = <CHARACTER PROGRAM DATA>

EALarm	Error/Alarm data
JTOLerance	Jitter tolerance data
JTRansfer	Jitter transfer data
JFRequency	Jitter/Freq.
WANDer	Wander data
JSWeep	Jitter sweep data
FREQuency	Frequency data
WSWeep	Wander sweep data
FSWeep	Freq. sweep data
PEAK	Peak jitter data

<title> = <STRING PROGRAM DATA>

"ABCabc..."	Memory name (up to 8 characters)

Function
Writes data into the Analyze memory.

Restriction
Invalid when:

- No analyze data exists.
- <EALarm> is set when DISPlay:TMENu is other than <"MANual:JON">, <"MANual[:JOFF]">, <"PSEQuence:JON">, or <"PSEQuence[:JOFF]">.
- The value of <JTOLerance>, <JTRansfer>, <JFRequency>, <WANDer>, <JSWeep>, ,<WSWeep>,<FSWeep>, or <PEAK> and the :DISPlay:TMENu settings do not match.

Example use
To write Jitter tolerance data under a name of "DEMOl" into the Analyze memory:
< :SYSTem:MEMory:ANALysis:STORe JTOLerance,"DEMO1"

:SYSTem:MMEMory:RECall <file_name>[,<memorized>]

Parameter
<file_name> = <STRING PROGRAM DATA>
File name (no identification of capital and small letters, including extension)
The length of the characters is 1 to 12, and " cannot be inputted.
<memorized> = <CHARACTER PROGRAM DATA>

JTOLerance	Recalls to Jitter tolerance screen.
JTRAansfer	Recalls to Jitter transfer screen.
JSWeep	Recalls to Jitter sweep screen.
WSWeep	Recalls toWander sweep screen.
FSWeep	Recalls to Freq sweep screen.

Function
Writes data to a file on the current directory of floppy disk.

Restriction
Invalid when,

- No data exits.

Example use
To write the data in a "DEMO1. CND" file:
> :SYSTem:MMEMory:RECall "DEMO1.CND"

:SYSTem:MMEMory:STORe <type>,<file_name>

Parameter <type> = <STRING PROGRAM DATA>

"CONDition"	Set condition data
"EALarm:EALarm"	Error/Alarm data
"EALarm:EAText"	Error/Alarm data (text format)
"JTOLerance:JTOLerance"	Jitter tolerance screen analyze data (binary format)
"JTOLerance:JTOText"	Jitter tolerance screen analyze data (text format)
"JTRansfer:JTRansfer"	Jitter transfer screen analyze data (binary format)
"JTRansfer:JTRText"	Jitter transfer screen analyze data (text format)
"JFRequency:JFRequency"	Jitter/Freq. screen analyze data (binary format)
"JFRequency:JFRText"	Jitter/Freq. screen analyze data (text format)
"JSWeep:JSWeep"	Jitter sweep screen analyze data (binary format)
"JSWeep:JSWText5"	Jitter sweep screen analyze data (text format)
"FSWeep:FSWeep"	Freq. sweep screen analyze data (binary format)
"FSWeep:FSWText"	Freq. sweep screen analyze data (text format)
"WANDer:WANDer"	Wander screen analyze data (binary format)
"WANDer:WTEXt"	Wander screen analyze data (text format)
“WANDer:TIE”	TIE screen wander data (binary format)
"WSWeep:WSWeep"	Wander sweep screen analyze data (binary format)
"WSWeep:WSWText"	Wander sweep screen analyze data (text format)
"PEAK:PJTData"	Peak jitter screen analyze data (binary format)
"PEAK:PJTText"	Peak jitter screen analyze data (text format)
"RECall:RECall"	Recall data
"RECall:RTEXt"	Recall data (text format)

<file_name> = <STRING PROGRAM DATA>
File name (no identification of capital and small letters, including extension)
Up to 12 characters (excluding " ")

Function Writes data to a file on the current directory of floppy disk.

Restriction Invalid when:

- No analyze data exists.
- <"EALarm:EALarm"> and <"EALarm:EAText"> are set when DISPlay:TMENu is other than <"MANual:JON">, <"MANual[:JOFF]">, <"PSEQuence:JON">, or <"PSEQuence[:JOFF]">.
- The value of the followings and the :DISPlay:TMENu settings do not match:
  "JTOLerance:JTOLerance"
  "JTOLerance:JTOText"
  "JTRansfer:JTRansfer"
  "JTRansfer:JTRText"
  "JFRequency:JFRequency"
  "JFRequency:JFRText"
  "JSWeep:JSWeep"
  "JSWeep:JSWText"
  "FSWeep:FSWeep"
  "FSWeep:FSWText"
  "WANDer:WANDer"
  "WANDer:WTEXt"
  “WANDer:TIE”
  "WSWeep:WSWeep"
  "WSWeep:WSWText"
  "PEAK:PJTData"
  "PEAK:PJTText"

Example use To write Jitter tolerance data in a "DEMO1.TXT" file:

```
> :SYSTem:MMEMory:STORe "JTOLerance:JTOLerance","DEMO1.TXT"
```

4.4.7 TEST subsystem

The TEST subsystem is used for displaying the self-test results, etc.

Function	Command	Parameter
Page 4-239		
Sets the Jitter/Wander items to be tested at main-body function test.	:TEST:CONTent:JWANder	boolean
Queries the setting state of Jitter/Wander items at main-body function test.	:TEST:CONTent:JWANder?	

:TEST:CONTent:JWANder <boolean>

Parameter <boolean> = <BOOLEAN PROGRAM DATA>
OFF or 0 Does not perform Jitter/Wander test.
ON or 1 Performs Jitter/Wander test.

Function Sets the Jitter/Wander items to be tested at main-body function test.

Restriction Invalid when,
- The Jitter unit is not installed.
- :TEST:TYPE is other than <MFT>.
- :TEST:CONTent:TYPE is other than <ISEL>.

Example use To set the Jitter/Wander item to be tested.
>:TEST:CONTent:JWANder ON

:TEST:CONTent:JWANder?

Response <boolean> = <BOOLEAN RESUPONSE DATA>

Function Queries the setting state of Jitter/Wander items at main-body function test.

Example use >:TEST:CONTent:JWANder?
< 1

4.4.8 STATus subsystem

The STATus subsystem is used for controlling (setting and displaying) status registers.

Function	Command	Parameter
Page 4-241		
Queries the Event register content of the TELecom status register.	:STATus:QUEStionable:TELecom[:EVENt]?	
Queries the Condition register content of the TELecom status register.	:STATus:QUEStionable:TELecom:CONDtion?	
Sets mask for the Event Enable Register.	:STATus:QUEStionable:TELecom:ENABle	numeric
Queries the current mask setting of the Event Enable Register.	:STATus:QUEStionable:TELecom:ENABle?	
Sets the Positive Transition Filter.	:STATus:QUEStionable:TELecom:PTRansition	numeric
Queries the current mask setting of the Positive Transition Filter.	:STATus:QUEStionable:TELecom:PTRansition?	
Sets the Negative Transition Filter.	:STATus:QUEStionable:TELecom:NTRansition	numeric
Queries the current mask setting of the Negative Transition Filter.	:STATus:QUEStionable:TELecom:NTRansition?	
Page 4-243		
Queries the Condition register content of the INSTrument status register.	:STATus:OPERation:INSTrument[:EVENt]?	
Queries the Condition register content of the INSTrument status register.	:STATus:OPERation:INSTrument:CONDtion?	
Sets mask for the Event Enable Register.	:STATus:OPERation:INSTrument:ENABle	numeric
Queries the current mask setting of the Event Enable Register.	:STATus:OPERation:INSTrument:ENABle?	
Sets the Positive Transition Filter.	:STATus:OPERation:INSTrument:PTRansitin	numeric
Queries the current mask setting of the Positive Transition Filter.	:STATus:OPERation:INSTrument:PTRansition?	
Sets the Negative Transition Filter.	:STATus:OPERation:INSTrument:NTRansition	numeric
Queries the current mask setting of the Negative Transition Filter.	:STATus:OPERation:INSTrument:NTRansition?	

< TELecom Status Register >

Supplies 139M, 34M, 8M and 2M Status Register summaries and indicates a power loss etc.

:STATus:QUEStionable:TELecom[:EVENt]?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
The sum of bit digit values of set bits is responded.
Function Queries the Event register content of the TELecom status register.
Example use > :STATus:QUEStionable:TELecom:EVENt?
or :STATus:QUEStionable:TELecom?
< 2050 (Indicates that bits 1 and 11 are set.)

:STATus:QUEStionable:TELecom:CONDtion?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
The sum of bit digit values of set bits is responded.
Function Queries the Condition register content of the TELecom status register.
Example use > :STATus:QUEStionable:TELecom:CONDtion?
< 4100 (Indicates that bits 2 and 12 are set.)

:STATus:QUEStionable:TELecom:ENABle <numeric>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>

64	(Bit 6)	Jitter Unlock occurrence
128	(Bit 7)	Jitter Hit count occurrence
256	(Bit 8)	Wander REF LOS occurrence

Set a sum of bit digit values of bits to be set.
Set 0 when all bits are set to false.
Function Sets mask for the Event Enable Register. The Event Register status corresponding to the mask is reported to the TELecom summary bit.
When the Event Enable Register bit is set to 1, the TELecom summary bit becomes true when the corresponding Event bit becomes true.
Example use To set bits 6 and 7:
> :STATus:QUEStionable:TELecom:EBABle 192

:STATus:QUEStionable:TELecom:ENABle?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
The sum of bit digit values of set bits is responded.
Function Queries the current mask setting of the Event Enable Register.
Example use > :STATus:QUEStionable:TELecom:ENABle?
< 192

:STATus:QUEStionable:TELecom:PTRansition <numeric>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>
64 (Bit 6) Jitter Unlock occurrence
128 (Bit 7) Jitter Hit count occurrence
256 (Bit 8) Wander REF LOS occurrence
Set a sum of bit digit values of bits to be set.
Set 0 when all bits are set to false.

Function Sets the Positive Transition Filter.
If the Positive Transition Filter bit is set, 1 is written to the corresponding TELecom Event Register bit when the corresponding TELecom Condition Register bit goes from 0 to 1.

Example use To set bits 6 and 7:
> :STATus:QUEStionable:TELecom:PTRansition 192

:STATus:QUEStionable:TELecom:PTRansition?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
The sum of bit digit values of set bits is responded.

Function Queries the current mask setting of the Positive Transition Filter.

Example use > :STATus:QUEStionable:TELecom:PTRansition?
< 192

:STATus:QUEStionable:TELecom:NTRansition <numeric>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>
64 (Bit 6) Jitter Unlock occurrence
128 (Bit 7) Jitter Hit count occurrence
256 (Bit 8) Wander REF LOS occurrence
Set a sum of bit digit values of bits to be set.
Set 0 when all bits are set to false.

Function Sets the Negative Transition Filter.
If the Negative Transition Filter bit is set, 1 is written to the corresponding TELecom Event Register bit when the corresponding TELecom Condition Register bit goes from 1 to 0.

Example use To set bits 6 and 7:
> :STATus:QUEStionable:TELecom:NTRansition 192

:STATus:QUEStionable:TELecom:NTRansition?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
The sum of bit digit values of set bits is responded.

Function Queries the current mask setting of the Negative Transition Filter.

Example use > :STATus:QUEStionable:TELecom:NTRansition?
< 192

< INSTrument Status Register >

Indicates the end of self-test or log information.

:STATus:OPERation:INSTrument[:EVENt]?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
The sum of bit digit values of set bits is responded.
Function Queries the Condition register content of the INSTrument status register.
Example use > :STATus:OPERation:INSTrument:EVENt?
or :STATus:OPERation:INSTrument?
< 3 (Indicates that bits 0 and 1 are set.)

:STATus:OPERation:INSTrument:CONDtion?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
The sum of bit digit values of set bits is responded.
Function Queries the Condition register content of the INSTrument status register.
Example use > :STATus:OPERation:INSTrument:CONDtion?
< 6 (Indicates that bits 1 and 2 are set.)

:STATus:OPERation:INSTrument:ENABle <numeric>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>
32 (Bit 5) End of jitter measurement
64 (Bit 6) End of wander measurement
Set a sum of bit digit values of bits to be set.
Set 0 when all bits are set to false.
Function Sets mask for the Event Enable Register. The Event Register status corresponding to the mask is reported to the INSTrument summary bit.
When the Event Enable Register bit is set to 1, the INSTrument summary bit becomes true when the corresponding Event bit becomes true.
Example use To set bit 5:
> :STATus:OPERation:INSTrument:EBABle 32

:STATus:OPERation:INSTrument:ENABle?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
The sum of bit digit values of set bits is responded.
Function Queries the current mask setting of the Event Enable Register.
Example use > :STATus:OPERation:INSTrument:ENABle?
< 32

:STATus:OPERation:INSTrument:PTRansition <numeric>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>
32 (Bit 5) End of jitter measurement
64 (Bit 6) End of wander measurement
Set a sum of bit digit values of bits to be set.
Set 0 when all bits are set to false.
Function Sets the Positive Transition Filter.
If the Positive Transition Filter bit is set, 1 is written to the corresponding INSTrument Event Register bit when the corresponding INSTrument Condition Register bit goes from 0 to 1.
Example use To set bit 5:
> :STATus:OPERation:INSTrument:PTRansition 32

:STATus:OPERation:INSTrument:PTRansition?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
The sum of bit digit values of set bits is responded.
Function Queries the current mask setting of the Positive Transition Filter.
Example use > :STATus:OPERation:INSTrument:PTRansition?
< 32

:STATus:OPERation:INSTrument:NTRansition <numeric>

Parameter <numeric> = <DECIMAL NUMERIC PROGRAM DATA>
32 (Bit 5) End of jitter measurement
64 (Bit 6) End of wander measurement
Set a sum of bit digit values of bits to be set.
Set 0 when all bits are set to false.
Function Sets the Negative Transition Filter.
If the Negative Transition Filter bit is set, 1 is written to the corresponding INSTrument Event Register bit when the corresponding INSTrument Condition Register bit goes from 1 to 0.
Example use To set bit 5:
> :STATus:OPERation:INSTrument:NTRansition 32

:STATus:OPERation:INSTrument:NTRansition?

Response <numeric> = <NR1 NUMERIC RESPONSE DATA>
The sum of bit digit values of set bits is responded.
Function Queries the current mask setting of the Negative Transition Filter.
Example use > :STATus:OPERation:INSTrument:NTRansition?

Appendix A Specifications

A.1 Specifications of MP0124A Jitter Unit

* W: Valid when Wander option is installed.

(1/10)

Item	Specifications
Ref Clock Output	
Frequency	2.048 MHz, 8.448 MHz, 34.368 MHz, 139.264 MHz, 155.52 MHz, 622.08 MHz
Level	0.8 ± 0.25Vp-p (AC)
Connector	BNC 50Ω
Ref Clock Input	
Frequency	2.048 MHz ± 50 ppm, 8.448 MHz ± 50 ppm, 34.368 MHz ± 50 ppm, 139.264 MHz ± 50 ppm, 155.52 MHz ± 50 ppm, 622.08 MHz ± 50 ppm
Level	0.8 ± 0.25Vp-p (AC)
Connector	BNC 50Ω
Ext. Mod. Input	
Mod. freq. range	2 Hz to 6 MHz
Waveform	Sine wave
Sensitivity	2 UI range: 2 UIp-p ± 10%/1Vp-p 20 UI range: 20 UIp-p ± 10%/1Vp-p 50 UI range: 50 UIp-p ± 10%/1Vp-p (156 MHz only) 3-range configuration 200 UI range: 200 UIp-p ± 10%/1Vp-p (622 MHz only) 3-range configuration
Connector	BNC 75Ω
Jitter Demod. Output	
Sensitivity	2 UI range: 1Vp-p ± 10%/2 UIp-p 20 UI range: 1Vp-p ± 10%/20 UIp-p
Connector	BNC 75Ω
Ext. Clock Input	
Frequency	2.048 MHz ± 100 ppm, 8.448 MHz ± 100 ppm, 34.368 MHz ± 100 ppm, 139.264 MHz ± 100 ppm, 155.52 MHz ± 100 ppm, 622.08 MHz ± 100 ppm
Level	0.8 ± 0.25Vp-p (AC)
Connector	BNC 50Ω (Installed on the main body of MP1570A)
Wander Ref Clock Output	
Frequency	1.544 MHz, 2.048 MHz
Level	1.125Vo-p ± 34%
Connector	BNC 75Ω

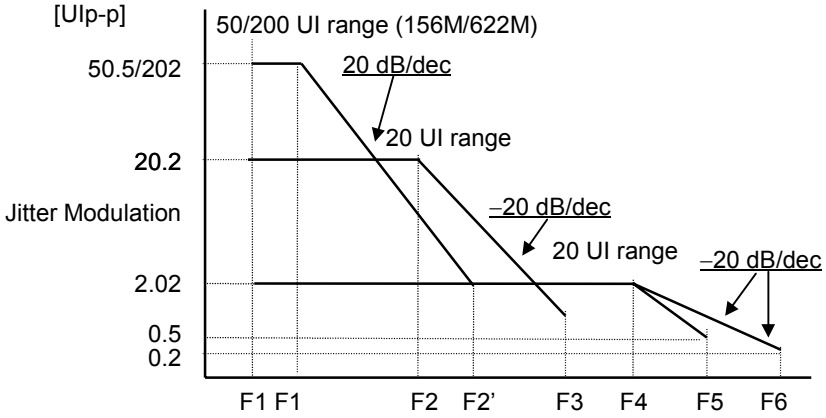
(2/10)

Item	Specifications
Wander Ref Input (*W)	
Frequency	2.048 Mbit/s ± 50 ppm (HDB3), 2.048 MHz ± 50 ppm (CLOCK) 1.544 Mbit/s ± 50 ppm (AMI/B8ZS), 1.544 MHz ± 50 ppm (CLOCK)
Interface	Unbalance: 1.544 MHz, 2.048 MHz (CLOCK); 1.125Vo-p ± 34% G.703 2.048 Mbit/s (HDB3); 2.37 Vo-p ± 10% G.703 Balance: 1.544 Mbit/s, 2.048 Mbit/s; 3.0Vo-p ± 24% ANSI T1, 102-1987
Connector	Unbalance: 75Ω/BNC Balance: 100Ω/Weco310 compatible (1.544 Mbit/s) 120Ω/3-Pole CF (2.048 Mbit/s)
Clock mode	Internal/Lock/Lock (10M) /External
Lock frequency	1.544 MHz ± 50 ppm, 2.048 MHz ± 50 ppm
Lock (10M)	
Frequency	10 MHz ± 50 ppm
Level	0 to + 10 dBm
Connector	50Ω/BNC

(3/10)

Item	Specifications
Frequency Variable	
Frequency	2.048 MHz, 8.448 MHz, 34.368 MHz, 139.264 MHz, 155.52 MHz, 622.08 MHz
Variable range/step	± 999.9 ppm/0.1 ppm (Internal jitter "OFF") ± 70.0 ppm/0.1 ppm (Internal jitter "ON/OFF")
Accuracy	± 0.1 ppm (After calibration at 60 minutes after power on, at 23 ± 5 °C)
Jitter Generation	
Bit rate	2.048 Mbit/s, 8.44 Mbit/s, 34.368 Mbit/s, 139.264 Mbit/s, 155.52 Mbit/s, 622.08 Mbit/s
Mod. signal generator	0.1Hz to 6 MHz 0.1 Hz to 1 Hz/Step 0.1 Hz 1 Hz to 99 Hz/Step 1 Hz 100 Hz to 990 Hz/Step 10 Hz 1 kHz to 9.9 kHz/Step 0.1 kHz 10 kHz to 99 kHz/Step 1 kHz 100 kHz to 990 kHz/Step 10 kHz 1 MHz to 6 MHz/Step 0.1 MHz
Frequency accuracy	± 100 ppm
Jitter ampl. vs range	2 UI (0.000 to 2.020 UIp-p/Step 0.001 UIp-p) 20 UI (0.00 to 20.20 UIp-p/Step 0.01 UIp-p) 50 UI (0.0 to 50.5 UIp-p/Step 0.1 UIp-p) (156 MHz only) ┐ 3-range configuration 200 UI (0.0 to 202.0 UIp-p/Step 0.1 UIp-p) (622 MHz only) ┘ AUTO (only in Auto measurement mode)

(4/10)

Item	Specifications
Frequency Variable Frequency Variable range/step Accuracy	

Bit rate (Mbit/s)	F1 (Hz)	F1' (Hz)	F2* (kHz)	F2'* (kHz)	F3* (kHz)	F4* (kHz)	F5* (kHz)	F6* (kHz)
2.048	0.1	–	1	–	20	27.5	110	–
8.448	0.1	–	2	–	20	105	420	–
34.368	0.1	–	5	–	100	250	1,000	–
139.264	0.1	–	5	–	100	1,000	4,000	–
155.52	0.1	1,000	6.5	25	500	150	–	1,500
622.08	0.1	500	25	50	500	600	–	6,000

* : Typical

Monitor accuracy

2 UI range: ± 5% ± 0.05 UIp-p/at frHz**

20 UI range: ± 5% ± 0.3 UIp-p/at frHz**

50 UI range: ± 5% ± 0.8 UIp-p/at frHz** (156M only)

200 UI range: ± 5% ± 3.2 UIp-p/at frHz** (622M only)

Freq. response error

Additional error referring to error at frHz

0.1 Hz to 2 Hz: ± 10%

2 Hz to 20 Hz: ± 5%

20 Hz to 300 kHz: ± 2%

300 kHz to 1 MHz: ± 3%

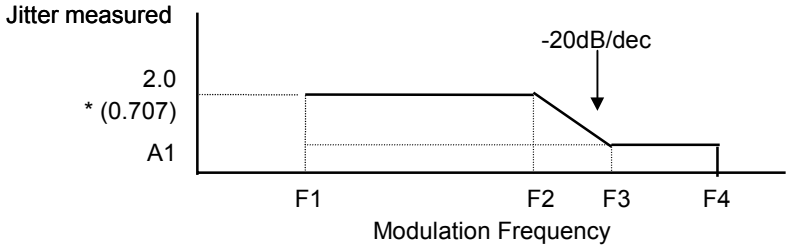
1 MHz to 3 MHz: ± 5%

3 MHz to 6 MHz: ± 10%

** fr=100 kHz (at 2 UI range of 156M/622M)

fr=1 kHz (at others than above)

(5/10)

<table>
<tr><th>Item</th><th>Specifications</th></tr>
<tr><td>Jitter Meas.</td><td></td></tr>
<tr><td>Bit rate</td><td>2.048 Mbit/s ± 50 ppm, 8.448 Mbit/s ± 50 ppm, 34.368 Mbit/s ± 50 ppm,
139.264 Mbit/s ± 50 ppm, 155.52 Mbit/s ± 50 ppm, 622.08 Mbit/s ± 50 ppm</td></tr>
<tr><td>Unit</td><td>UIp-p, UI+p, UI -p/UIrms</td></tr>
<tr><td>Ref signal</td><td>INT/EXT</td></tr>
<tr><td>Meas. range</td><td>2 UI range (0.000 to 2.020 UIp-p /Step 0.001 UIp-p)
20 UI range (0.00 to 20.20 UIp-p /Step 0.01 UIp-p)
2 UI range (0.000 to 0.714 UIrms/Step 0.001 UIrms)
20 UI range (0.00 to 7.14 UIrms/Step 0.01 UIrms)</td></tr>
<tr><td>Meas. coupled</td><td>ON/OFF</td></tr>
<tr><td>Meas. interval</td><td>0.5 to 99.5 s. (0.5 s/step)</td></tr>
<tr><td>Built-in filter</td><td>OFF, HP, HP1, HP2, HP2', LP, HP0+LP, HP1+LP, HP2+LP, HP2'+LP, HP+LP
<table>
<tr><th>Bit rate (bit/s)</th><th>HPO (Hz)</th><th>HP1 (Hz)</th><th>HP2 (Hz)</th><th>HP2’ (Hz)</th><th>HP (Hz)</th><th>LP (Hz)</th></tr>
<tr><td>2.048 Mbit/s</td><td>10</td><td>20</td><td>18 k</td><td>700</td><td>12 k</td><td>100 k</td></tr>
<tr><td>8.448 Mbit/s</td><td>10</td><td>20</td><td>3 k</td><td>80 k</td><td>12 k</td><td>400 k</td></tr>
<tr><td>34.368 Mbit/s</td><td>10</td><td>100</td><td>10 k</td><td>–</td><td>12 k</td><td>800 k</td></tr>
<tr><td>139.264 Mbit/s</td><td>10</td><td>200</td><td>10 k</td><td>–</td><td>12 k</td><td>3.5 M</td></tr>
<tr><td>155.52 Mbit/s</td><td>10</td><td>500</td><td>65 k</td><td>–</td><td>12 k</td><td>1.3 M</td></tr>
<tr><td>622,08 Mbit/s</td><td>10</td><td>1 k</td><td>250 k</td><td>–</td><td>12 k</td><td>5 M</td></tr>
</table></td></tr>
<tr><td>Meas. range vs freq.</td><td>[2 UI range]
 

<table>
<tr><th>Bit rate (bit/s)</th><th>A1 (UIp-p)</th><th>F1 (Hz)</th><th>F2 (Hz)</th><th>F3 (Hz)</th><th>F4 (Hz)</th></tr>
<tr><td>2.048 M</td><td>0.5</td><td>20</td><td>6 k</td><td>25 k</td><td>100 k</td></tr>
<tr><td>8.448 M</td><td>0.5</td><td>20</td><td>10 k</td><td>100 k</td><td>400 k</td></tr>
<tr><td>34.368 M</td><td>0.5</td><td>20</td><td>40 k</td><td>500 k</td><td>800 k</td></tr>
<tr><td>139.264 M</td><td>0.5</td><td>20</td><td>50 k</td><td>1 M</td><td>3.5 M</td></tr>
<tr><td>155.52 M</td><td>0.2</td><td>20</td><td>20 k</td><td>500 k</td><td>1.3 M</td></tr>
<tr><td>622.08 M</td><td>0.2</td><td>20</td><td>200 k</td><td>2 M</td><td>5 M</td></tr>
</table>
* rms: F1=12 kHz</td></tr>
</table>

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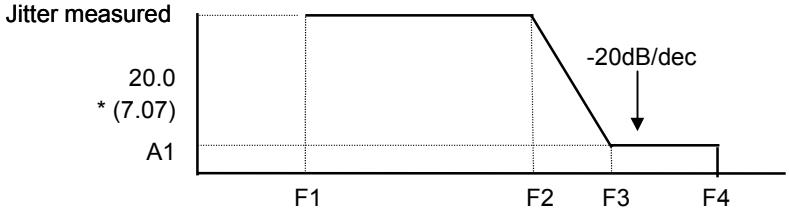
Item	Specifications
	[20 UI range] Jitter measured 

Bit rate (bit/s)	A1 (UIp-p)	F1 (Hz)	F2 (Hz)	F3 (Hz)	F4 (Hz)
2.048 M	0.5	2	450	25 k	18 k
8448 M	0.5	2	200	100 k	70 k
34.368 M	0.5	2	500	500 k	300 k
139.268 M	0.5	2	250	1 M	1.2 M
155.52 M	0.2	2	700	500 k	1.3 M
622.08 M	0.2	2	20k	2 M	5 M

* rms: F1=12 kHz

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<table>
<tr><th>Item</th><th>Specifications</th></tr>
<tr><td>Meas. accuracy</td><td>
[UIp-p, UI+p UI-p]
2 UI range: ± 5% ± W UIp-p/at frHz****
20 UI range: ± 5% ± W UIp-p/at frHz****
<table>
<tr><th></th><th colspan="6">W (UIp-p)***</th></tr>
<tr><th></th><th>2 M</th><th>8 M</th><th>34 M</th><th>139 M</th><th>156 M</th><th>622 M</th></tr>
<tr><td>CMI (2 UI)
(20 UI)</td><td>--
--</td><td>--
--</td><td>--
--</td><td>0.040
0.30</td><td>0.070
0.30</td><td>--
--</td></tr>
<tr><td>HDB3 (2 UI)
(20 UI)</td><td>0.040
0.22</td><td>0.040
0.22</td><td>0.040
0.22</td><td>--
--</td><td>--
--</td><td>--
--</td></tr>
<tr><td>CLOCK (2 UI)
(20 UI)</td><td>0.015
0.20</td><td>0.015
0.20</td><td>0.030
0.20</td><td>0.030
0.20</td><td>0.035
0.20</td><td>0.050
0.20</td></tr>
<tr><td>NRZ (0) (2 UI)
*, ** (20 UI)</td><td>--
--</td><td>--
--</td><td>--
--</td><td>--
--</td><td>0.070
0.30</td><td>0.100
0.30</td></tr>
</table>
(2 UI) → 2 UI range
* +10 to +40°C, Optical with input level:
52 M/156 Mbit/s = –25 to –8 dBm, 622 Mbit/s = –20 to –8 dBm
** SDH Internal:
VC4, Info; PRBS2^{23}–1, Scramble "ON"
at 52 M/156 Mbit/s
When optical input level is lower than –25 dBm, add 0.01 UIp-p for each 1 dB.
at 622 Mbit/s
When optical input level is lower than 20 dBm, add 0.01 UIp-p for each 1 dB.
*** with: HP1 + LP
**** fr=100 kHz (at 2 UI range of 156M/622M)
fr=1 kHz (at others than above)
[UIrms]
2 UI range: ± 5% ± W UIrms/at frHz
20 UI range: ± 5% ± W UIrms/at frHz
<table>
<tr><th></th><th colspan="6">W (UIrms) ***</th></tr>
<tr><th></th><th>2 M</th><th>8 M</th><th>34 M</th><th>139 M</th><th>156 M</th><th>622 M</th></tr>
<tr><td>CMI (2 UI)
(20 UI)</td><td>--</td><td>--</td><td>--</td><td>0.022
0.06</td><td>0.022
0.06</td><td>--</td></tr>
<tr><td>HDB3 (2 UI)
(20 UI)</td><td>0.006
0.04</td><td>0.006
0.04</td><td>0.017
0.04</td><td>--</td><td>--</td><td>--</td></tr>
<tr><td>CLOCK (2 UI)
(20 UI)</td><td>0.005
0.03</td><td>0.005
0.03</td><td>0.005
0.03</td><td>0.005
0.03</td><td>0.017
0.05</td><td>0.027
0.07</td></tr>
<tr><td>NRZ (0) (2 UI)
*, ** (20 UI)</td><td>--</td><td>--</td><td>--</td><td>--</td><td>0.022
0.06</td><td>0.032
0.08</td></tr>
</table>
(2 UI) → 2 UI range
* +10 to +40°C, Optical with input level:
52M/156 Mbit/s = –25 to –8 dBm, 622 Mbit/s = –20 to –8 dBm
** SDH Internal:
VC4, Info; PRBS2^{23}–1, Scramble "ON"
at 52 M/156 Mbit/s
When optical input level is lower than –25 dBm, add 0.002 UIrms for each 1 dB.
at 622 Mbit/s
When optical input level is lower than –20 dBm, add 0.002 UIrms for each 1dB.
*** with: HP1 + LP
**** fr=100 kHz (at 2 UI range of 52M/156M, 622M)
fr=1 kHz (at others than above)
</td></tr>
</table>

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Item	Specifications
Freq. response error	Additional error referring to error at frHz 2 Hz to 20 Hz: ± 5% 20 Hz to 300 kHz: ± 2% 300 kHz to 1 MHz: ± 3% 1 MHz to 3 MHz: ± 5% 3 MHz to 6 MHz: ± 10%
Hit measurement	
Hit count	Counts the number of the jitters which exceed the threshold of the jitter amplitude which has been set.
Hit second	Total of a second when one HIT or more exists
%	Ratio of seconds (when no HIT exists) to the measuring cycle
Hit threshold	2 UI range: 0.05 to 1.0 UIop/Step 0.01 UIop 20 UI range: 0.50 to 10 UIop/Step 0.1 UIop Threshold setting error: Nominal ± 5%
Sensitivity	Typical > 100 ns pulse width Counted
Display range	Hit count, Hit second: 0 to 999999 to 9.9E15, >9.9E15 %: 0.0000 to 100.0000%
Jitter Tolerance	Performs the Jitter Tolerance measurement for a device under test (DUT).
Tolerance table	Max. 20 points (Default or User)
Display	Graphic & Numerical
Mask table	2M, 8M ····· ITU-T G.823 High Q*, Low Q*, User 34M, 139M ····· ITU-T G.823, User 156M, 622M ····· ITU-T G.825, G.958 A/B, User
Error	1second error: Count: 1 > 999 Rate: >1E-3, >1E-4, >1E-5, >1E-6, >1E-7 Default: Judges under the condition in which all the errors and alarms continue for two seconds. * Depends on the clock recovery circuit on the input section in DUT. High Q is used for a NE in which a PLL (in which the quality factor is high) and others are used. Also, low Q is used for others than NE.
Jitter Transfer	Performs the Jitter Transfer measurement for DUT.
Tolerance table	Max. 20 points (Default or User)
Display	Graphic & Numerical
Mask table	2M ····· ITU-T G.742, User 8M ····· ITU-T G.751, User 34M ····· ITU-T G.751, User 139M ····· User 156M, 622M ····· ITU-T G.958 A/B, User * Selectable bandwidth at Jitter Transfer measurement depends on the Mod. frequency as shown below:

Mod. frequency	Selectable bandwidth (–3 dB)
2 to 20 Hz	BW ≤ 10 Hz
20 Hz to	BW ≤ 10 Hz

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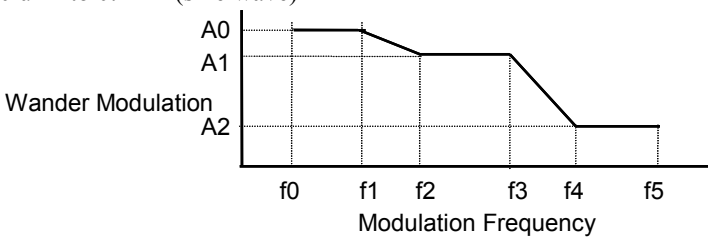
<table>
<tr><th>Item</th><th>Specifications</th></tr>
<tr><td>Jitter/Freq.</td><td>Performs the Jitter/Freq. measurement for DUT.</td></tr>
<tr><td>Frequency offset</td><td>Max. ± 50 ppm/Step 1 to 50 ppm</td></tr>
<tr><td>Meas. interval</td><td>0.5 to 99.5 s.</td></tr>
<tr><td>Built-in filter</td><td>OFF, HP, HP1, HP2, HP2', LP, HP0+LP, HP1+LP, HP2+LP, HP2'+LP, HP+LP
<table>
<tr><th>Bit rate</th><th>HP0 (Hz)</th><th>HP1 (Hz)</th><th>HP2 (Hz)</th><th>HP2' (Hz)</th><th>HP (Hz)</th><th>LP (Hz)</th></tr>
<tr><td>2.048 Mbit/s</td><td>10</td><td>20</td><td>18 k</td><td>700</td><td>12 k</td><td>100 k</td></tr>
<tr><td>8.448 Mbit/s</td><td>10</td><td>20</td><td>3 k</td><td>80 k</td><td>12 k</td><td>400 k</td></tr>
<tr><td>34.368 Mbit/s</td><td>10</td><td>100</td><td>10 k</td><td>–</td><td>12 k</td><td>800 k</td></tr>
<tr><td>139.264 Mbit/s</td><td>10</td><td>200</td><td>10 k</td><td>–</td><td>12 k</td><td>3.5 M</td></tr>
<tr><td>155.52 Mbit/s</td><td>10</td><td>500</td><td>65 k</td><td>–</td><td>12 k</td><td>1.3 M</td></tr>
<tr><td>622.08 Mbit/s</td><td>10</td><td>1 k</td><td>250 k</td><td>–</td><td>12 k</td><td>5 M</td></tr>
</table></td></tr>
<tr><td>Display</td><td>Graphic & Numerical</td></tr>
<tr><td>Wander Generation</td><td></td></tr>
<tr><td>Frequency</td><td>2.048 MHz, 8.448 MHz, 34.368 MHz, 139.264 MHz, 155.52 MHz, 622.08 MHz</td></tr>
<tr><td>Mod. signal generator</td><td>10 uHz to 0.2 Hz (sine wave)</td></tr>
<tr><td>Wander ampl. vs freq.</td><td> 

<table>
<tr><th rowspan="2">Bit rate</th><th colspan="4">Ampl. (UIp-p)</th><th colspan="5">Freq. (Hz)</th></tr>
<tr><th>A0</th><th>A1</th><th>A2</th><th>f0</th><th>f1</th><th>f2</th><th>f3</th><th>f4</th><th>f5</th></tr>
<tr><td>2 M</td><td>40</td><td>–</td><td>20</td><td>10 u</td><td>–</td><td>–</td><td>65 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>8 M</td><td>200</td><td>–</td><td>20</td><td>10 u</td><td>–</td><td>–</td><td>13 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>34 M</td><td>1000</td><td>113</td><td>20</td><td>10 u</td><td>180 u</td><td>1.6 m</td><td>23 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>139 M</td><td>3000</td><td>338</td><td>50</td><td>10 u</td><td>180 u</td><td>1.6 m</td><td>19 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>156 M</td><td>3600</td><td>406</td><td>50</td><td>10 u</td><td>180 u</td><td>1.6 m</td><td>16 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>622 M</td><td>14400</td><td>1620</td><td>200</td><td>10 u</td><td>180 u</td><td>1.6 m</td><td>16 m</td><td>0.13</td><td>0.2</td></tr>
</table></td></tr>
<tr><td>Mod. signal generator</td><td>10 u to 99 uHz/Step 1 uHz
100 u to 990 uHz/Step 10 uHz
1 m to 9 MHz/Step 0.1 MHz
10 m to 99 MHz/Step 1 MHz
100 m to 200 MHz/Step 10 MHz
± 100 ppm</td></tr>
<tr><td>Frequency accuracy
Range</td><td>0.0 to 40.0 UIp-p/Step 0.1 UIp-p (2 Mbit/s)
0.0 to 200.0 UIp-p/Step 0.1 UIp-p (8 Mbit/s)
0 to 1000 UIp-p/Step 1 UIp-p (34 Mbit/s)
0 to 3000 UIp-p/Step 2 UIp-p (139 Mbit/s)
0 to 3600 UIp-p/Step 2 UIp-p (156 Mbit/s)
0 to 14400 UIp-p/Step 10 UIp-p (622 Mbit/s)
± 10% ± Z UIp-p</td></tr>
<tr><td>Accuracy</td><td>Z: 0.5 UIp-p/(2 Mbit/s, 8 Mbit/s)
1.0 UIp-p/(34 Mbit/s, 139 Mbit/s, 156 Mbit/s)
10 UIp-p/(622 Mbit/s)</td></tr>
</table>

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Item	Specifications
Manual Wander Meas. (*W)	
Bit rate	2.048 Mbit/s ± 50 ppm, 8.448 Mbit/s ± 50 ppm, 34.368 Mbit/s ± 50 ppm, 264 Mbit/s ± 50 ppm, 155.52 Mbit/s ± 50 ppm, 622.08 Mbit/s ± 50 ppm
Mode	PP, +P, –P, TIE
Meas. freq. range	<10 Hz
Sampling time	25ms
Meas. range	P-P 0.0 to 3.2E5ns +P, –P 0.0 to 1.6E5ns TIE 0.0 to ± 1.6E5ns
Resolution	0.1 ns
Accuracy	± 5% ± 20 ns (Measurement result: 0.0 to ± 9999ns) ± 5% ± 1E3ns (Measurement result > ± 1E4ns)
Filter table	DC to 0.01 Hz DC to 10 Hz 0.01 Hz to 10 Hz
Wander auto meas.	TIE, MTIE*, TDEV* * For MTIE/TDEV measurement, software (MX150001A Wander (MTIE, TDEV) Measurement Application Software) running on an external PC is required.
Frequency Meas.	
Frequency	2.048 Mbit/s ± 0.1%, 8.448 Mbit/s ± 0.1%, 34.368 Mbit/s ± 0.1%, 139.264 Mbit/s ± 0.1%, 155.52 Mbit/s ± 0.1%, 622.08 Mbit/s ± 0.1%
Resolution	0.1 ppm
Accuracy	±0.1 ppm (After calibration at 60 minutes after power on, at 23 ± 5°C)
Range	[Hz]: Displays up to ± (nominal frequency × 10^{-7}) [ppm]: 0.0 to ± 1000.0 [ppm]
General	
Dimensions/mass	45 (H) × 255 (W) × 167.6 (D) (mm) (Excluding projections)/1.2 kg or less
Temperature	0 to 40 °C Operating –20 to 60 °C Storage

A.2 Specifications of MP0125A Jitter Unit

* W: Valid when Wander option is installed.

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Item	Specifications
Ref Clock Output	
Frequency	1.544 MHz, 44.736 MHz, 155.52 MHz, 622.08 MHz, 51.84 MHz
Level	0.8 ± 0.25Vp-p (AC)
Connector	BNC 50Ω
Ref Clock Input	
Frequency	1.544 MHz ± 50 ppm, 44.736 MHz ± 50 ppm, 155.52 MHz ± 50 ppm, 622.08 MHz ± 50 ppm, 51.84 MHz ± 50 ppm
Level	0.8 ± 0.25Vp-p (AC)
Connector	BNC 50Ω
Ext. Mod. Input	
Mod. freq. range	2 Hz to 6 MHz
Waveform	Sine wave
Sensitivity	2 UI range: 2 UIp-p ± 10%/1Vp-p 20 UI range: 20 UIp-p ± 10%/1Vp-p 50 UI range: 50 UIp-p ± 10%/1Vp-p (156 MHz only) 200 UI range: 200 UIp-p ± 10%/1Vp-p (622 MHz only)] 3-range configuration
Connector	BNC 75Ω
Jitter Demod. Output	
Sensitivity	2 UI range: 1Vp-p ± 10%/2 UIp-p 20 UI range: 1Vp-p ± 10%/20 UIp-p
Connector	BNC 75Ω
Ext. Clock Input	
Frequency	1.544 MHz ± 100 ppm, 44.736 MHz ± 100 ppm, 155.52 MHz ± 100 ppm, 622.08 MHz ± 100 ppm
Level	0.8 ± 0.25Vp-p (AC)
Connector	BNC 50Ω (Installed on the main body of MP1570A)
Wander Ref Clock Output	
Frequency	1.544 MHz, 2.048 MHz
Level	1.125 Vo-p ± 34%
Connector	BNC 75Ω
Wander Ref Clock Input (*W)	
Frequency	2.048 Mbit/s ± 50 ppm (HDB3), 2.048 MHz ± 50 ppm (CLOCK) 1.544 Mbit/s ± 50 ppm (AMI/B8ZS), 1.544M ± 50 ppm (CLOCK)
Interface	Unbalance: 1.544 MHz, 2.048 MHz (CLOCK); 1.125Vo-p ± 34% G.703
Connector	2.048 Mbit/s (HDB3); 2.37 Vo-p ± 10% G.703 Balance: 1.544 Mbit/s, 2.048 Mbit/s; 3.0Vo-p ± 24% ANSI T1, 102-1987 Unbalance: 75Ω/BNC Balance: 100Ω/Weco310 compatible (1.544 Mbit/s), 120Ω/3-Pole C (2.048 Mbit/s)

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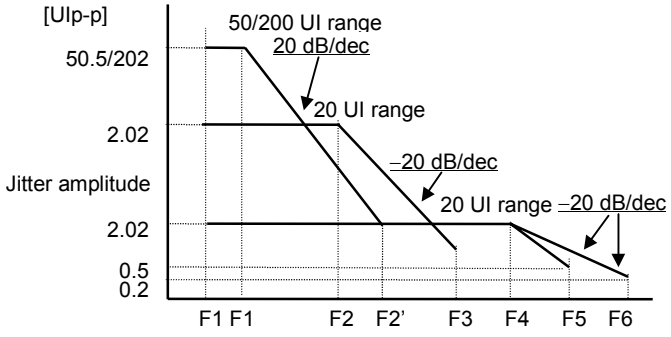
Item	Specifications
Clock mode	Internal/Lock/Lock (10M)/External
Lock frequency	1.544 MHz ± 50 ppm, 2.048 MHz ± 50 ppm
Lock (10M)	
Frequency	10 MHz ± 50 ppm
Level	0 to +10 dBm
Connector	50Ω/BNC
Frequency Variable	
Frequency	1.544 MHz, 44.736 MHz 155.52 MHz, 622.08 MHz, 51.84 MHz
Variable range	±999.9 ppm/0.1 ppm (Internal jitter "OFF") ±70.0 ppm/0.1 ppm (Internal jitter "ON/OFF") ±0.1 ppm (After calibration at 60 minutes after power on, at 23 ± 5°C)
Jitter Generation	
Bit rate	1.544 Mbit/s, 44.736 Mbit/s, 155.52 Mbit/s, 622.08 Mbit/s, 51.84 Mbit/s
Mod. signal generator	0.1 Hz to 6 MHz 0.1 Hz to 1 Hz/Step 0.1 Hz 1 Hz to 99 Hz/Step 1 Hz 100 Hz to 990 Hz/Step 10 Hz 1 kHz to 9.9 kHz/Step 0.1 kHz 10 kHz to 99 kHz/Step 1 kHz 100 kHz to 990 kHz/Step 10 kHz 1 MHz to 6 MHz/Step 0.1 MHz
Frequency accuracy	±100 ppm
Range	2 UI (0.000 to 2.020 UIp-p/Step 0.001 UIp-p) 20 UI (0.00 to 20.20 UIp-p/Step 0.01 UIp-p) 50 UI (0.0 to 50.5 UIp-p/Step 0.1 UIp-p) (156 MHz only)] 3-range configuration 200 UI (0.0 to 202.0 UIp-p/Step 0.1 UIp-p) (622 MHz only)] AUTO (only in Auto measurement mode)
Jitter ampl. vs range	

Bit rate (Mbit/s)	F1 (Hz)	F1' (Hz)	F2* (kHz)	F2'* (kHz)	F3* (kHz)	F4* (kHz)	F5* (kHz)	F6* (kHz)
1.544	0.1	–	0.5	–	10	12.5	50	–
44.736	0.1	–	12.5	–	100	250	1,000	–
51.84	0.1	–	2	–	80	50	–	500
155.52	0.1	1,000	6.5	25	500	150	–	1, 500
622.08	0.1	500	25	50	500	600	–	6, 000

*: Typical

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<table>
<tr><th>Item</th><th>Specifications</th></tr>
<tr><td>Monitor accuracy</td><td>2 UI range: ± 5% ± 0.05 UIp-p/at frHz**
20 UI range: ± 5% ± 0.3 UIp-p/at frHz**
50 UI range: ± 5% ± 0.8 UIp-p/at frHz** (156M only)
200 UI range: ± 5% ± 3.2 UIp-p/at frHz** (622M only)</td></tr>
<tr><td>Freq. response error</td><td>Additional error referring to error at frHz
0.1 Hz to 2 Hz: ± 10%
2 Hz to 20 Hz: ± 5%
20 Hz to 300 kHz: ± 2%
300 kHz to 1 MHz: ± 3%
1 MHz to 3 MHz: ± 5%
3 MHz to 6 MHz: ± 10%
** fr =100 kHz (at 2 UI range of 156M/622M)
fr = 500 Hz (at 20 UI range of 1.5M)
fr = 1 kHz (at others than above)</td></tr>
<tr><td>Jitter Meas.
Bit rate

Unit
Ref signal
Meas. range

Meas. coupled
Meas. interval
Built-in filter</td><td>
1.544 Mbit/s ± 50 ppm, 44.736 Mbit/s ± 50 ppm, 51.84 Mbit/s ± 50 ppm
155.52 Mbit/s ± 50 ppm, 622.08 Mbit/s ± 50 ppm
UIp-p, UI+p, UI-p/UIrms
INT/EXT
2 UI range (0.000 to 2.020 UIp-p/Step 0.001 UIp-p)
20 UI range (0.00 to 20.20 UIp-p/Step 0.01 UIp-p)
2 UI range (0.000 to 0.714 UIrms/Step 0.001 UIrms)
20 UI range (0.00 to 7.14 UIrms/Step 0.01 UIrms)
ON/OFF
0.5 to 99.5 s (0.5 s/step)
OFF, HP, HP1, HP2, HP2', LP, HP0+LP, HP1+LP, HP2+LP, HP2'+LP, HP+LP
<table>
<tr><th>Bit rate</th><th>HP0
(Hz)</th><th>HP1
(Hz)</th><th>HP2
(Hz)</th><th>HP2’
(Hz)</th><th>HP
(Hz)</th><th>LP
(Hz)</th></tr>
<tr><td>1.544 Mbit/s</td><td>10</td><td>10</td><td>8 k</td><td>–</td><td>12 k</td><td>40 k</td></tr>
<tr><td>44.736 Mbit/s</td><td>10</td><td>10</td><td>30 k</td><td>–</td><td>12 k</td><td>400 k</td></tr>
<tr><td>51.48 Mbit/s</td><td>10</td><td>100</td><td>20 k</td><td>–</td><td>12 k</td><td>400 k</td></tr>
<tr><td>155.52 Mbit/s</td><td>10</td><td>500</td><td>65 k</td><td>–</td><td>12 k</td><td>1.3 M</td></tr>
<tr><td>622.08 Mbit/s</td><td>10</td><td>1 k</td><td>250 k</td><td>–</td><td>12 k</td><td>5 M</td></tr>
</table></td></tr>
</table>

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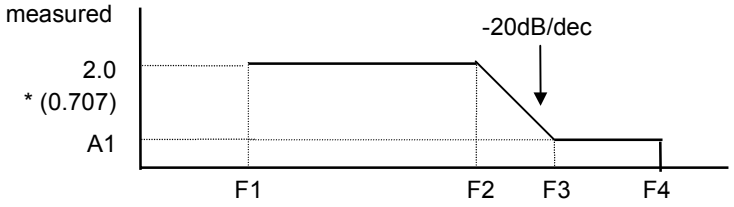
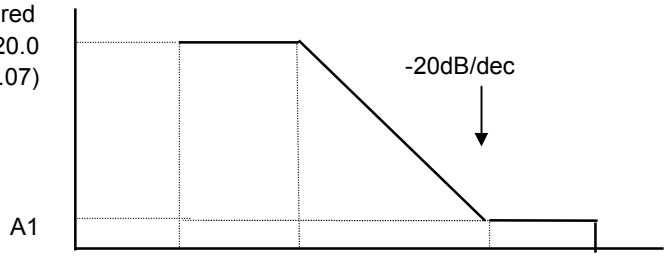
Item	Specifications
Meas. range vs freq.	[2 UI range] Jitter measured 

Bit rate (bit/s)	A1 (UIp-p)	F1 (Hz)	F2 (Hz)	F3 (Hz)	F4 (Hz)
1.544 M	0.5	20	2.5 k	10 k	40 k
44.736 M	0.5	20	40 k	200 k	400 k
51.84 M	0.2	20	5 k	100 k	400 k
155.52 M	0.2	20	20 k	500 k	1.3 M
622.08 M	0.2	20	200 k	2 M	5 M

[20 UI range]
Jitter measured



Bit rate (bit/s)	A1 (UIp-p)	F1 (Hz)	F2 (Hz)	F3 (Hz)	F4 (Hz)
1.544 M	0.5	2	200	10 k	15 k
44.736 M	0.2	2	3 k	200 k	400 k
51.84 M	0.2	2	200	100 k	400 k
155.52 M	0.2	2	700	500 k	1.3 M
622.08 M	0.5	2	20 k	2 M	5 M

* rms: F1 = 12 kHz

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<table>
<tr><th>Item</th><th>Specifications</th></tr>
<tr><td>Meas. accuracy</td><td>
[UIp-p UI＋p, UI-p]
2 UI range: ± 5% ± W UIp-p/at frHz****
20 UI range: ± 5% ± W UIp-p/at frHz****
<table>
<tr><th></th><th colspan="5">W (UIrms)***</th><th colspan="3">W (UIp-p)***</th></tr>
<tr><th></th><th>1.5 M</th><th>45 M</th><th>52 M</th><th>156M</th><th>622M</th><th>1.5M</th><th>45M</th><th>52M</th></tr>
<tr><td>AMI/B8ZS (2 UI)</td><td>0.006</td><td>–</td><td>–</td><td>–</td><td>–</td><td>0.040</td><td>–</td><td>–</td></tr>
<tr><td>(20 UI)</td><td>0.040</td><td>–</td><td>–</td><td>–</td><td>–</td><td>0.22</td><td>–</td><td>–</td></tr>
<tr><td>B3ZS (2 UI)</td><td>–</td><td>0.006</td><td>0.017</td><td>–</td><td>–</td><td>–</td><td>0.040</td><td>0.040</td></tr>
<tr><td>(20 UI)</td><td>–</td><td>0.04</td><td>0.05</td><td>–</td><td>–</td><td>–</td><td>0.22</td><td>0.22</td></tr>
<tr><td>CLOCK (2 UI)</td><td>0.005</td><td>0.005</td><td>0.005</td><td>0.017</td><td>0.027</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>(20 UI)</td><td>0.03</td><td>0.03</td><td>0.03</td><td>0.05</td><td>0.07</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>CMI (2 UI)</td><td>–</td><td>–</td><td>–</td><td>0.022</td><td>–</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>(20 UI)</td><td>–</td><td>–</td><td>–</td><td>0.06</td><td>–</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>NRZ (0) (2 UI)</td><td>–</td><td>–</td><td>0.022</td><td>0.022</td><td>0.032</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>*, ** (20 UI)</td><td>–</td><td>–</td><td>0.06</td><td>0.06</td><td>0.08</td><td>–</td><td>–</td><td>–</td></tr>
</table>
(2UD) →2 UI range
* +10 to +40 °C, Optical with input level = 156 Mbit/s = –25 to –8 dBm,
622 Mbit/s = –20 to –8 dBm
** SDH Internal: VC4, Info; PRBS2^{23}–1, Scramble "ON"
at 52 M/156 Mbit/s
When optical input level is lower than -20 dBm, add 0.01 UIp-p for each 1dB.
at 622 Mbit/s
When optical input level is lower than -20 dBm, add 0.01 UIp-p for each 1dB.
*** with: HP1 + LP
**** fr = 100 kHz (at 2 UI range of 156M/622M)
fr = 1 kHz (at others than above)
</td></tr>
</table>

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Item	Specifications
	[UIrms] 2 UI range: ± 5% ± W UIrms/at frHz**** 20 UI range: ± 5% ± W UIrms/at frHz****

	W (UIp-p)***					W (UIrms)***		
	1.5 M	45 M	52 M	156M	622M	1.5M	45M	52M
AMI/B8ZS (2 UI)	0.040	–	–	–	–	0.060	–	–
(20 UI)	0.22	–	–	–	–	0.04	–	–
B3ZS (2 UI)	–	0.040	0.040	–	–	–	0.006	0.017
(20 UI)	–	0.22	0.22	–	–	–	0.04	0.05
CLOCK (2 UI)	0.015	0.015	0.015	0.035	0.050	–	–	–
(20 UI)	0.20	0.20	0.20	0.20	0.20	–	–	–
CMI (2 UI)	–	–	–	0.070	–	–	–	–
(20 UI)	–	–	–	0.30	–	–	–	–
NRZ (0) (2 UI)	–	–	0.070	0.070	0.100	–	–	–
*, ** (20 UI)	–	–	0.30	0.30	0.30	–	–	–

(2UD) →2 UI range

* +10 to +40 °C, Optical with input level=156 Mbit/s = –25 to –8 dBm,
622 Mbit/s = –20 to –8 dBm

** SDH Internal: VC4, Info; PRBS2^{23}–1, Scramble "ON"
at 52 M/156 Mbit/s
When optical input level is lower than –25 dBm, add 0.002 UIrms for each 1dB.
at 622 Mbit/s
When optical input level is lower than –20 dBm, add 0.002 UIrms for each 1dB.

*** with: HP1 + LP

**** fr = 100 kHz (at 2 UI range of 52M/156M, 622M)
fr = 1 kHz (at others than above)

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Item	Specifications
Additional error referring to error at frHz	Freq. response error 2 Hz to 20 Hz: ± 5% 20 Hz to 300 kHz: ± 2% 300 kHz to 1 MHz: ± 3% 1 MHz to 3 MHz: ± 5% 3 MHz to 6 MHz: ± 10%
Hit measurement	
Hit count	Counts the number of the jitters which exceed the threshold of the jitter amplitude which has been set.
Hit second	Total of a second when one HIT or more exists
Hit-free second	Ratio of seconds (when no HIT exists) to the measuring cycle
Hit threshold	2 UI range: 0.05 to 1.0 UIop/Step 0.01 UIop 20 UI range: 0.50 to 10 UI_{op}/Step 0.1 UIop Threshold setting error: Nominal ± 5% Typical > 100 ns pulse width Counted
Sensitivity	Hit count, Hit second: 0 to 999999 to 9.9E15, >9.9E15
Display range	% : 0.0000 to 100.0000 %
Jitter Tolerance	Performs the Jitter Tolerance measurement for DUT.
Tolerance table	Max. 20 points (Default or User)
Display	Graphic & Numerical
Mask table	1.5M, 45M ・・・・ ITU-T G.824, User 52M ・・・・・・・・・ User 156M, 622M・・・ ITU-T G.825, G.958 A/B, User
Error	1s error: Count: 1 > 999 Rate: >1E-3, >1E-4, >1E-5, >1E-6, >1E-7 Default: Judges under the condition in which all the errors and alarms continue for two seconds.
Jitter Transfer	Performs the Jitter Transfer measurement for DUT.
Transfer table	Max. 20 points (Default or User)
Display	Graphic & Numerical
Mask table	1.5M ・・・・・・・・・ ITU-T G.743, User 45 M ・・・・・・・・・ ITU-T G.752, User 52 M ・・・・・・・・・ User 156M, 622M・・・ ITU-T G.958 A/B, User * Selectable bandwidth at Jitter Transfer measurement depends on the Mod. frequency as shown below:

Mod. frequency	Selectable bandwidth (–3 dB)
2 to 20 Hz	BW ≦ 10 Hz
20 Hz to	BW ≦10 Hz

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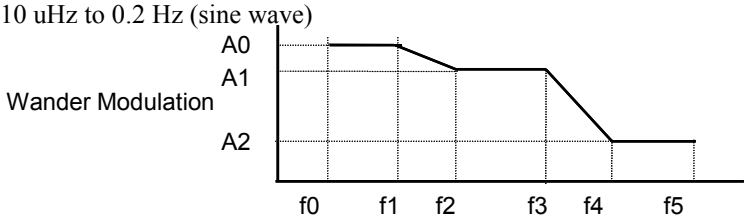
<table>
<tr><th>Item</th><th>Specifications</th></tr>
<tr><td>Jitter/Freq.</td><td>Performs the Jitter/Freq. measurement for DUT.</td></tr>
<tr><td>Frequency offset</td><td>Max. ±50 ppm/Step 1 to 50 ppm</td></tr>
<tr><td>Meas. interval</td><td>0.5 to 99.5 s.</td></tr>
<tr><td>BUIlt-in filter</td><td>OFF, HP, HP1, HP2, HP2', LP, HP0+LP, HP1+LP, HP2+LP, HP2'+LP, HP+LP
<table>
<tr><th>Bit rate</th><th>HP0 (Hz)</th><th>HP1 (Hz)</th><th>HP2 (Hz)</th><th>HP2' (Hz)</th><th>HP (Hz)</th><th>LP (Hz)</th></tr>
<tr><td>1.544 Mbit/s</td><td>10</td><td>10</td><td>8 k</td><td>–</td><td>12 k</td><td>40 k</td></tr>
<tr><td>44.736 Mbit/s</td><td>10</td><td>10</td><td>30 k</td><td>–</td><td>12 k</td><td>400 k</td></tr>
<tr><td>51.84 Mbit/s</td><td>10</td><td>100</td><td>20 k</td><td>–</td><td>12 k</td><td>400 k</td></tr>
<tr><td>155.52 Mbit/s</td><td>10</td><td>500</td><td>65 k</td><td>–</td><td>12 k</td><td>1.3 M</td></tr>
<tr><td>622.08 Mbit/s</td><td>10</td><td>1k</td><td>250 k</td><td>–</td><td>12 k</td><td>5 M</td></tr>
</table></td></tr>
<tr><td>Display</td><td>Graphic & Numerical</td></tr>
<tr><td>Wander Generation</td><td></td></tr>
<tr><td>Frequency</td><td>1.544 MHz, 44.736 MHz, 51.84 MHz, 155.52 MHz, 622.08 MHz</td></tr>
<tr><td>Mod. signal generator</td><td>10 uHz to 0.2 Hz (sine wave)</td></tr>
<tr><td>Wander ampl. vs freq.</td><td> 

<table>
<tr><th rowspan="2">Bit rate</th><th colspan="5">Ampl. (UIp-p)</th><th colspan="4">Freq. (Hz)</th></tr>
<tr><th>A0</th><th>A1</th><th>A2</th><th>f0</th><th>f1</th><th>f2</th><th>f3</th><th>f4</th><th>f5</th></tr>
<tr><td>1.5 M</td><td>40</td><td>–</td><td>20</td><td>10 u</td><td>–</td><td>–</td><td>65 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>45 M</td><td>200</td><td>–</td><td>20</td><td>10 u</td><td>–</td><td>–</td><td>13 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>52 M</td><td>1000</td><td>113</td><td>20</td><td>10 u</td><td>180 u</td><td>1.6 m</td><td>23 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>156 M</td><td>3600</td><td>406</td><td>50</td><td>10 u</td><td>180 u</td><td>1.6 m</td><td>16 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>622 M</td><td>14400</td><td>1620</td><td>200</td><td>10 u</td><td>180 u</td><td>1.6 m</td><td>16 m</td><td>0.13</td><td>0.2</td></tr>
</table></td></tr>
<tr><td>Mod. signal generator</td><td>10 u to 99 uHz/Step 1 uHz
100 u to 990 uHz/Step 10 uHz
1 m to 9 MHz/Step 0.1 MHz
10 m to 99 MHz/Step 1 MHz
100 m to 200 MHz/Step 10 MHz</td></tr>
<tr><td>Frequency accuracy</td><td>± 100 ppm</td></tr>
<tr><td>Range</td><td>0.0 to 40.0 UIp-p/Step 0.1 UIp-p (1.5 Mbit/s)
0 to 1200 UIp-p/Step 1 UIp-p (45 Mbit/s, 52 Mbit/s)
0 to 3600 UIp-p/Step 2 UIp-p (156 Mbit/s)
0 to 14400 UIp-p/Step 10 UIp-p (622 Mbit/s)
± 10% ± Z UIp-p
Z:0.5 UIp-p/(1.5 Mbit/s)</td></tr>
<tr><td>Accuracy</td><td>5.0 UIp-p/(45 Mbit/s, 52 Mbit/s)
10 UIp-p/(156 Mbit/s)
50 UIp-p/(622 Mbit/s)
10 UIp-p/(622 Mbit/s)
50 UIp-p/(622 Mbit/s)</td></tr>
</table>

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Item	Specifications
Manual Wander Meas. (*W)	
Bit rate	1.544 Mbit/s ± 50 ppm, 44.736 Mbit/s ± 50 ppm, 84 Mbit/s ± 50 ppm, 155.52 Mbit/s ± 50 ppm, 622.08 Mbit/s ± 50 ppm
Mode	PP, +P, –P, TIE
Meas. freq. range	＜10 Hz
Sampling time	25 ms
Meas. range	P-P 0.0 to 3.2E5ns +P, –P 0.0 to 1.6E5ns TIE 0.0 to ± 1.6E5ns 0.1ns
Resolution	± 5% ± 20ns (Measurement result: 0.0 to ± 9999ns)
Accuracy	± 5% ± 1E3ns (Measurement result> ± 1E4ns)
Filter table	DC to 0.01 Hz DC to 10 Hz 0.01 Hz to 10 Hz TIE, MTIE*, TDEV*
Wander auto meas.	* For MTIE/TDEV measurement, software (MX150001A Wander (MTIE, TDEV) Measurement Application Software) running on an external PC is required.
Frequency Meas.	
Frequency	1.544 Mbit/s ± 0.1%, 44.736 Mbit/s ± 0.1% 155.52 Mbit/s ± 0.1%, 622.08 Mbit/s ± 0.1%, 51.84 Mbit/s ± 0.1%
Resolution	0.1 ppm
Accuracy	± 0.1 ppm (After calibration at 60 minutes after power on, at 23 ±5 °C)
Range	[Hz] Displays up to ± (nominal frequency × 10^{-7}). [ppm] 0.0 to ± 1000.0 [ppm]
General	
Dimensions/mass	45 (H) × 255 (W) × 167.6 (D) (mm) (Excluding projections)/1.2 kg or less
Temperature	0 to 40 °C Operating –20 to 60 °C Storage

A.3 Specifications of MP0126A Jitter Unit

* W: Valid when Wander option is installed.

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Item	Specifications
Ref Clock Output	
Frequency	1.544 MHz, 44.736 MHz, 2.048 MHz, 8.448 MHz, 34.368 MHz, 139.264 MHz 155.52 MHz, 622.08 MHz, 51.84 MHz
Level	0.8 ± 0.25Vp-p (AC)
Connector	BNC 50Ω
Ref Clock Input	
Frequency	1.544 MHz ± 50 ppm, 44.736 MHz ± 50 ppm, 2.048 MHz ± 50 ppm, 8.448 MHz ± 50 ppm, 34.368 MHz ± 50 ppm, 139.264 MHz ± 50 ppm, 155.52 MHz ± 50 ppm, 622.08 MHz ± 50 ppm, 51.84 MHz ± 50 ppm
Level	0.8 ± 0.25Vp-p (AC)
Connector	BNC 50Ω
Ext. Mod. Input	
Mod. freq. range	2 Hz to 6 MHz
Waveform	Sine wave
Sensitivity	2 UI range: 2 UIp-p ± 10%/1Vp-p 20 UI range: 20 UIp-p ± 10%/1Vp-p 50 UI range: 50 UIp-p ± 10%/1Vp-p (156 MHz only) 3-range configuration 200 UI range:200 UIp-p ± 10%/1Vp-p (622 MHz only) 3-range configuration
Connector	BNC 75Ω
Jitter Demod. Output	
Sensitivity	2 UI range: 1Vp-p ± 10% /2 UIp-p 20 UI range: 1Vp-p ± 10% /20 UIp-p
Connector	BNC 75Ω
Ext. Clock Input	
Frequency	1.544 MHz ± 100 ppm, 44.736 MHz ± 100 ppm, 2.048 MHz ± 100 ppm, 8.448 MHz ± 100 ppm, 34.368 MHz ± 100 ppm, 139.264 MHz100 ppm, 155.52 MHz ± 100 ppm, 622.08 MHz ± 100 ppm
Level	0.8 ± 0.25Vp-p (AC)
Connector	BNC 50Ω (Installed on the main body of MP1570B)
Wander Ref Clock Output	
Frequency	1.544 MHz, 2.048 MHz
Level	1.125Vo-p ± 34%
Connector	BNC 75Ω
Wander Ref Clock Input (*W)	
Frequency	2.048 Mbit/s ± 50 ppm (HDB3), 2.048 MHz ± 50 ppm (CLOCK) 1.544 Mbit/s ± 50 ppm (AMI/B8ZS), 1.544 MHz ± 50 ppm (CLOCK)
Interface	Unbalance: 1.544 MHz, 2.048 MHz (CLOCK); 1.125Vo-p ± 34% G.703 2.048 Mbit/s (HDB3); 2.37Vo-p ± 10%G.703 Balance: 1.544 Mbit/s, 2.048 Mbit/s; 3.0Vo-p ± 24% ANSI T1, 102-1987
Connector	Unbalance: 75Ω/BNC Balance: 100Ω/Weco310 Compatible (1.544 Mbit/s) 120Ω/3-Pole CF (2.048 Mbit/s)

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Item	Specifications
Clock mode	Internal/Lock/Lock (10M)/External
Lock frequency	1.544 MHz ± 50 ppm, 2.048 MHz ± 50 ppm
Lock (10M)	
Frequency	10 MHz ± 50 ppm
Level	0 to + 10 dBm
Connector	50Ω/BNC
Frequency Variable	
Frequency	1.544 MHz, 44.736 MHz, 2.048 MHz, 8.448 MHz, 34.368 MHz, 139.264 MHz, 155.52 MHz, 622.08 MHz, 51.84 MHz
Variable range/step	± 999.9 ppm/ 0.1 ppm (Internal jitter "OFF") ± 70.0 ppm/ 0.1 ppm (Internal jitter "ON/OFF")
Accuracy	± 0.1 ppm (After calibration at 60 minutes after power on, at 23 ±5 °C)
Jitter Generation	
Bit rate	1.544 Mbit/s, 44.736 Mbit/s, 2.048 Mbit/s, 8.448 Mbit/s, 34.368 Mbit/s, 139.264 Mbit/s, 155.52 Mbit/s, 622.08 Mbit/s, 51.84 Mbit/s
Mod. signal generator	0.1 Hz to 6 MHz 0.1 Hz to 1 Hz/Step 0.1 Hz 1 Hz to 99 Hz/Step 1 Hz 100 Hz to 990 Hz/Step 10 Hz 1 kHz to 9.9 kHz/Step 0.1 kHz 10 kHz to 99 kHz/Step 1 kHz 100 kHz to 990 kHz/Step 10 kHz 1 MHz to 6 MHz/Step 0.1 MHz
Frequency accuracy	± 100ppm
Jitter ampl. vs range	2 UI (0.000 to 2.020 UIp-p/Step 0.001 UIp-p) 20 UI (0.00 to 20.20 UIp-p/Step 0.01 UIp-p) 50 UI (0.0 to 50.5 UIp-p/Step 0.1 UIp-p) (156 MHz only) 200 UI (0.0 to 202.0 UIp-p/Step 0.1 UIp-p) (622 MHz only)] 3-range configuration AUTO (only in Auto measurement mode)

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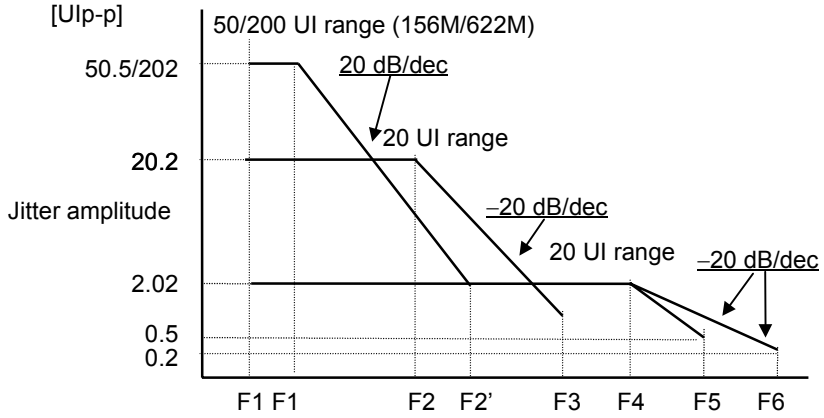
Item	Specifications
Jitter ampl. vs freq.	

Bit rate (Mbit/s)	F1 (Hz)	F1' (Hz)	F2* (kHz)	F2'* (kHz)	F3* (kHz)	F4* (kHz)	F5* (kHz)	F6* (kHz)
1.544	0.1	–	10.5	–	10	12.5	50	–
2.048	0.1	–	1	–	20	27.5	110	–
8.448	0.1	–	2	–	20	105	420	–
34.368	0.1	–	5	–	100	250	1,000	–
139.264	0.1	–	5	–	100	1,000	4,000	–
155.52	0.1	1,000	6.5	25	500	150	–	1,500
622.08	0.1	500	25	50	500	600	–	6, 000

* : Typical

Monitor accuracy

2 UI range: ± 5% ± 0.05 UIp-p/at frHz**
20 UI range: ± 5% ± 0.3 UIp-p/at frHz**
50 UI range: ± 5% ± 0.8 UIp-p/at frHz** (156M only)
200 UI range: ± 5% ± 3.2 UIp-p/at frHz** (622M only)

Freq. response error

Additional error referring to error at frHz
0.1 Hz to 2 Hz: ± 10%
2 Hz to 20 Hz: ± 5%
20 Hz to 300 kHz: ± 2%
300 kHz to 1 MHz: ± 3%
1 MHz to 3 MHz: ± 5%
3 MHz to 6 MHz: ± 10%

** fr=100 kHz (at 2 UI range of 156M/622M)
fr=500 Hz (at 20 UI range of 1.5M)
fr=1 kHz (at others than above)

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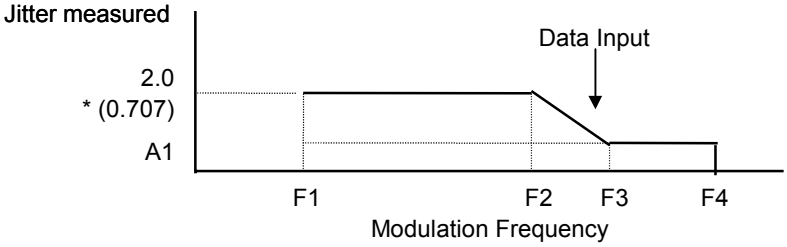
Item	Specifications
Jitter Meas.	
Bit rate	1.544 Mbit/s ± 50 ppm, 44.736 Mbit/s ± 50 ppm, 2.048 Mbit/s ± 50 ppm, 8.448 Mbit/s ± 50 ppm, 34.368 Mbit/s ± 50 ppm, 139.264 Mbit/s ± 50 ppm, 155.52 Mbit/s ± 50 ppm, 622.08 Mbit/s ± 50 ppm, 51.84 Mbit/s ± 5 ppm
Unit	UIp-p, UI+p, UI-p/UIrms
Ref signal	INT/EXT
Meas. range	2 UI range (0.000 to 2.020 UIp-p/Step 0.001 UIp-p) 20 UI range (0.00 to 20.20 UIp-p/Step 0.01 UIp-p) 2 UI range (0.000 to 0.714 UIrms/Step 0.001 UI rms) 20 UI range (0.00 to 7.14 UI rms/Step 0.01 UI rms)
Meas. coupled	ON/OFF
Meas. interval	0.5 to 99.5 s (0.5 s/step)
Built-in filter	OFF, HP, HP1, HP2, HP2', LP, HP0+LP, HP1+LP, HP2+LP, HP2'+LP, HP+LP

Bit rate	HP0 (Hz)	HP1 (Hz)	HP2 (Hz)	HP2' (Hz)	HP (Hz)	LP (Hz)
1.544 Mbit/s	10	10	8 k	–	12 k	40 k
2.048 Mbit/s	10	20	18 k	700	12 k	100 k
8.448 Mbit/s	10	20	3 k	80 k	12 k	400 k
34.368 Mbit/s	10	100	10 k	–	12 k	800 k
44.736 Mbit/s	10	10	30 k	–	12 k	400 k
139.264 Mbit/s	10	200	10 k	–	12 k	3.5 M
51.84 Mbit/s	10	100	20 k	–	12 k	400 k
155.52 Mbit/s	10	500	65 k	–	12 k	1.3 M
622.08 Mbit/s	10	1k	250 k	–	12 k	5 M

Meas. range vs freq.

[2 UI range]



Bit rate (bit/s)	A1 (UIp-p)	F1 (Hz)	F2 (Hz)	F3 (Hz)	F4 (Hz)
1.544 M	0.5	20	2.5 k	10 k	40 k
2.048 M	0.5	20	6 k	25 k	100 k
8.448 M	0.5	20	10 k	100 k	400 k
34.368 M	0.5	20	40 k	500 k	800 k
44.736 M	0.5	20	40 k	200 k	400 k
139.264 M	0.5	20	50 k	1 M	3.5 M
51.84 M	0.5	20	5 k	100 k	400 k
155.52 M	0.2	20	20 k	500 k	1.3 M
622.08 M	0.2	20	200 k	2 M	5 M

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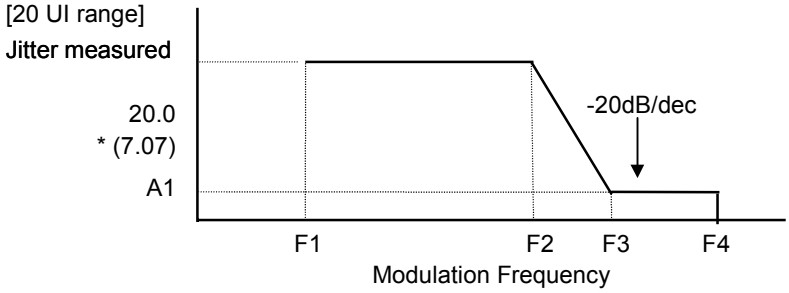
Item	Specifications
	[20 UI range] Jitter measured 

Bit rate (bit/s)	A1 (UIp-p)	F1 (Hz)	F2 (Hz)	F3 (Hz)	F4 (Hz)
1.544 M	0.5	2	200	10 k	15 k
2.048 M	0.5	2	450	25 k	18 k
8.448 M	0.5	2	200	100 k	70 k
34.368 M	0.5	2	500	500 k	300 k
44.736 M	0.5	2	3 k	200 k	400 k
139.264 M	0.5	2	250	1 M	1.2 M
51.84 M	0.5	2	200	100 k	400 k
155.52 M	0.2	2	700	500 k	1.3 M
622.08 M	0.2	2	20 k	2 M	5 M

* rms: F1=12 kHz

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<table>
<tr><th>Item</th><th>Specifications</th></tr>
<tr><td>Meas. accuracy</td><td>
[UIp-p, UI+p UI-p]
2 UI range: ± 5% ± W UIp-p/at frHz****
20 UI range: ± 5% ± W UIp-p/at frHz****
<table>
<tr><th></th><th colspan="9">W (UIp-p) ***</th></tr>
<tr><th></th><th>1.5 M</th><th>2 M</th><th>8 M</th><th>34 M</th><th>45 M</th><th>52 M</th><th>139 M</th><th>156 M</th><th>622 M</th></tr>
<tr><td>AMI/B8ZS (2 UI)</td><td>0.040</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>(20 UI)</td><td>0.22</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>B3ZS (2 UI)</td><td>–</td><td>–</td><td>–</td><td>–</td><td>0.040</td><td>0.040</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>(20 UI)</td><td>–</td><td>–</td><td>–</td><td>–</td><td>0.22</td><td>0.22</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>CLOCK (2 UI)</td><td>0.015</td><td>0.015</td><td>0.015</td><td>0.030</td><td>0.015</td><td>0.015</td><td>0.030</td><td>0.035</td><td>0.050</td></tr>
<tr><td>(20 UI)</td><td>0.20</td><td>0.20</td><td>0.20</td><td>0.20</td><td>0.20</td><td>0.20</td><td>0.20</td><td>0.20</td><td>0.20</td></tr>
<tr><td>CMI (2 UI)</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>0.040</td><td>0.070</td><td>–</td></tr>
<tr><td>(20 UI)</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>0.30</td><td>0.30</td><td>–</td></tr>
<tr><td>HDB3 (2 UI)</td><td>–</td><td>0.040</td><td>0.040</td><td>0.040</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>(20 UI)</td><td>–</td><td>0.22</td><td>0.22</td><td>0.22</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>NRZ (0) (2 UI)</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>0.070</td><td>–</td><td>0.070</td><td>0.100</td></tr>
<tr><td>* ** (20 UI)</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>0.30</td><td>–</td><td>0.30</td><td>0.30</td></tr>
</table>
(2 UI) → 2 UI range
* +10 to +40°C, Optical with input level:
52 M/156 Mbit/s = –25 to –8 dBm, 622 Mbit/s = –20 to –8 dBm
** SDH Internal:
VC4, Info; PRBS2^{23}–1, Scramble "ON"
at 52 M/156 Mbit/s
When optical input level is lower than –25 dBm, add 0.01 UIp-p for each 1dB.
at 62 Mbit/s
When optical input level is lower than –20 dBm, add 0.01 UIp-p for each 1dB.
*** with: HP1 + LP
**** fr=100 kHz (at 2 UI range of 52M/156M, 622M)
fr=1 kHz (at others than above)
</td></tr>
</table>

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<table>
<tr><th>Item</th><th>Specifications</th></tr>
<tr><td></td><td>
[UIrms]
2 UI range: ± 5% ± W UIrms/at frHz****
20 UI range: ± 5% ± W UIrms/at frHz****
<table>
<tr><th></th><th colspan="9">W (UIp-p) ***</th></tr>
<tr><th></th><th>1.5 M</th><th>2 M</th><th>8 M</th><th>34 M</th><th>45 M</th><th>52 M</th><th>139M</th><th>156M</th><th>622M</th></tr>
<tr><td>AMI/B8ZS (2 UI)</td><td>0.006</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>(20 UI)</td><td>0.04</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>B3ZS (2 UI)</td><td>–</td><td>–</td><td>–</td><td>–</td><td>0.006</td><td>0.017</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>(20 UI)</td><td>–</td><td>–</td><td>–</td><td>–</td><td>0.04</td><td>0.05</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>CLOCK (2 UI)</td><td>0.005</td><td>0.005</td><td>0.005</td><td>0.005</td><td>0.005</td><td>0.005</td><td>0.005</td><td>0.017</td><td>0.027</td></tr>
<tr><td>(20 UI)</td><td>0.03</td><td>0.03</td><td>0.03</td><td>0.03</td><td>0.03</td><td>0.03</td><td>0.03</td><td>0.05</td><td>0.07</td></tr>
<tr><td>CMI (2 UI)</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>0.022</td><td>0.022</td><td>–</td></tr>
<tr><td>(20 UI)</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>0.06</td><td>0.06</td><td>–</td></tr>
<tr><td>HDB3 (2 UI)</td><td>–</td><td>0.006</td><td>0.006</td><td>0.017</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>(20 UI)</td><td>–</td><td>0.04</td><td>0.04</td><td>0.04</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>NRZ (0) (2 UI)</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>0.022</td><td>–</td><td>0.022</td><td>0.032</td></tr>
<tr><td>* ** (20 UI)</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>0.06</td><td>–</td><td>0.06</td><td>0.08</td></tr>
</table>
(2 UI) → 2 UI range
* +10 to +40°C, Optical with input level:
52 M/156 Mbit/s = –25 to –8 dBm, 622 Mbit/s = –20 to –8 dBm
** SDH Internal:
VC4, Info; PRBS2^{23}–1, Scramble "ON"
at 52 M/156 Mbit/s
When optical input level is lower than –25 dBm, add 0.002 UIrms for each 1dB.
622 Mbit/s
When optical input level is lower than –20 dBm, add 0.002 UIrms for each 1dB.
*** with: HP1 + LP
**** fr=100 kHz (at 2 UI range of 52 M/156 M, 622 M)
fr=1 kHz (at others than above)
</td></tr>
<tr><td>Freq. response error</td><td>Additional error referring to error at frHz
2 Hz to 20Hz: ± 5%
20 Hz to 300 kHz: ± 2%
300 kHz to 1 MHz: ± 3%
1 MHz to 3 MHz: ± 5%
3 MHz to 6 MHz: ± 10%</td></tr>
<tr><td>Hit measurement</td><td></td></tr>
<tr><td>Hit count</td><td>Counts the number of the jitters which exceed the threshold of the jitter amplitude which has been set.</td></tr>
<tr><td>Hit second</td><td>Total of a second when one HIT or more exists</td></tr>
<tr><td>Hit-free second</td><td>Ratio of seconds (when no HIT exists) to the measuring cycle</td></tr>
<tr><td>Hit threshold</td><td>2 UI range: 0.05 to 1.0 UIop/Step 0.01 UIop
20 UI range: 0.50 to 10 UIop/Step 0.1 UIop</td></tr>
<tr><td>Sensitivity</td><td>Threshold setting error: Nominal 5%
Typical > 100 ns pulse width Counted</td></tr>
<tr><td>Display range</td><td>Hit second, Hit-free second: 0 to 999999 to 9.9E15, >9.9E15
% : 0.0000 to 100.0000%</td></tr>
</table>

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<table>
<tr><th>Item</th><th>Specifications</th></tr>
<tr><td>Jitter Tolerance
Tolerance table
Display
Mask table

Error</td><td>Performs the Jitter Tolerance measurement for DUT.
Max. 20 points (Default or User)
Graphic & Numerical
1.5M, 45M ・・・・ ITU-T G.824, User
2M, 8M・・・・・・・ ITU-T G.823 High Q*, Low Q*, User
34M, 139M・・・・ ITU-T G.823, User
52 M ・・・・・・・・・ User
56M, 622M・・・・ ITU-T G.825, G.958 A/B, User
1s error:
Count: 1 to 999/step 1
Rate: >1E-3, >1E-4, >1E-5, >1E-6, >1E-7
Default: Judges under the condition in which all the errors and alarms continue for two seconds.
* Depends on the clock recovery circuit on the input section in DUT. High Q is used for a NE in which a PLL (in which the quality factor is high) and others are used. Also, low Q is used for others than NE.</td></tr>
<tr><td>Jitter Transfer
Tolerance table
Display
Mask table</td><td>Performs the Jitter Transfer measurement for DUT.
Max. 20 points (Default or User)
Graphic & Numerical
1.5M ・・・・・・・・・ ITU-T G.743, User
45M ・・・・・・・・・ ITU-T G.752, User
2M ・・・・・・・・・・ ITU-T G.742, User
8M ・・・・・・・・・・ ITU-T G.751, User
34M ・・・・・・・・・ ITU-T G.751, User
139M ・・・・・・・・ User
52M ・・・・・・・・・ User
156M, 622M・・・ ITU-T G.958 A/B, User
* Selectable bandwidth at Jitter Transfer measurement depends on the Mod. frequency as shown below:
<table>
<tr><th>Mod. frequency</th><th>Selectable bandwidth (–3 dB)</th></tr>
<tr><td>2 to 20 Hz</td><td>BW ≦ 10 Hz</td></tr>
<tr><td>20 Hz to</td><td>BW ≦10 Hz</td></tr>
</table></td></tr>
<tr><td>Jitter/Freq.
Frequency offset
Meas. interval
Built-in filter

Display</td><td>Performs the Jitter/Freq. measurement for DUT.
Max. ± 50 ppm/ Step 1 to 50 ppm
0.5 to 99.5 s.
OFF, HP, HP1, HP2, HP2', LP, HP0+LP, HP1+LP, HP2+LP, HP2'+LP, HP+LP
<table>
<tr><th>Bit rate</th><th>HP0 (Hz)</th><th>HP1 (Hz)</th><th>HP2 (Hz)</th><th>HP2’ (Hz)</th><th>HP (Hz)</th><th>LP (Hz)</th></tr>
<tr><td>1.544 Mbit/s</td><td>10</td><td>10</td><td>8 k</td><td>–</td><td>12 k</td><td>40 k</td></tr>
<tr><td>2.048 Mbit/s</td><td>10</td><td>20</td><td>18 k</td><td>700</td><td>12 k</td><td>100 k</td></tr>
<tr><td>8.448 Mbit/s</td><td>10</td><td>20</td><td>3 k</td><td>80 k</td><td>12 k</td><td>400 k</td></tr>
<tr><td>34.368 Mbit/s</td><td>10</td><td>100</td><td>10 k</td><td>–</td><td>12 k</td><td>800 k</td></tr>
<tr><td>44.736 Mbit/s</td><td>10</td><td>10</td><td>30 k</td><td>–</td><td>12 k</td><td>400 k</td></tr>
<tr><td>139.264 Mbit/s</td><td>10</td><td>200</td><td>10 k</td><td>–</td><td>12 k</td><td>3.5 M</td></tr>
<tr><td>51.84 Mbit/s</td><td>10</td><td>100</td><td>20 k</td><td>–</td><td>12 k</td><td>400 k</td></tr>
<tr><td>155.52 Mbit/s</td><td>10</td><td>500</td><td>65 k</td><td>–</td><td>12 k</td><td>1.3 M</td></tr>
<tr><td>622,08 Mbit/s</td><td>10</td><td>1k</td><td>250 k</td><td>–</td><td>12 k</td><td>5 M</td></tr>
</table>
Graphic & Numerical</td></tr>
</table>

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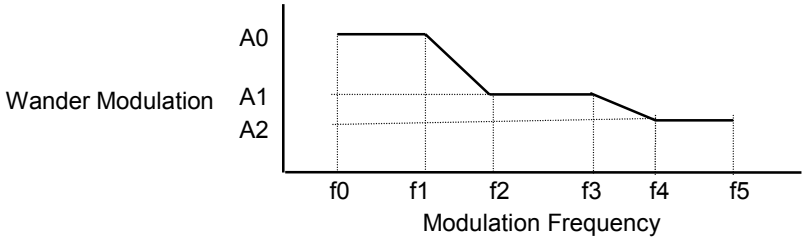
<table>
<tr><th>Item</th><th>Specifications</th></tr>
<tr><td>Wander Generation</td><td>(Wander "ON/OFF")</td></tr>
<tr><td>Frequency</td><td>1.544 MHz, 44.736 MHz, 2.048 MHz, 8.448 MHz, 34.368 MHz, 51.84 MHz,
139.264 MHz, 155.52 MHz, 622.08 MHz</td></tr>
<tr><td>Mod. signal generator</td><td>10uHz to 0.2Hz (sine wave)
 

<table>
<tr><th rowspan="2">Bit rate</th><th colspan="3">Ampl. (UIp-p)</th><th colspan="6">Freq. (Hz)</th></tr>
<tr><th>A0</th><th>A1</th><th>A2</th><th>f0</th><th>f1</th><th>f2</th><th>f3</th><th>f4</th><th>f5</th></tr>
<tr><td>1.5 M</td><td>40</td><td>–</td><td>20</td><td>10 u</td><td>–</td><td>–</td><td>65 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>2 M</td><td>40</td><td>–</td><td>20</td><td>10 u</td><td>–</td><td>–</td><td>65 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>8 M</td><td>200</td><td>–</td><td>20</td><td>10 u</td><td>–</td><td>–</td><td>13 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>34 M</td><td>1000</td><td>113</td><td>20</td><td>10 u</td><td>180 u</td><td>1.6 m</td><td>23 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>45 M</td><td>1200</td><td>135</td><td>20</td><td>10 u</td><td>180 u</td><td>1.6 m</td><td>19 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>139 M</td><td>3000</td><td>338</td><td>50</td><td>10 u</td><td>180 u</td><td>1.6 m</td><td>19 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>52 M</td><td>1200</td><td>135</td><td>20</td><td>10 u</td><td>180 u</td><td>1.6 m</td><td>19 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>156 M</td><td>3600</td><td>406</td><td>50</td><td>10 u</td><td>180 u</td><td>1.6 m</td><td>16 m</td><td>0.13</td><td>0.2</td></tr>
<tr><td>622 M</td><td>14400</td><td>1620</td><td>200</td><td>10 u</td><td>180 u</td><td>1.6 m</td><td>16 m</td><td>0.13</td><td>0.2</td></tr>
</table></td></tr>
<tr><td>Wander ampl. vs Freq.</td><td>10u to 99uHz/Step 1uHz
100u to 990uHz/Step 10uHz
1m to 9 MHz/Step 0.1 MHz
10m to 99 MHz/Step 1 MHz
100m to 200 MHz/Step 10 MHz
± 100 ppm</td></tr>
<tr><td>Frequency accuracy</td><td>0.0 to 40.0 UIp-p/Step 0.1 UIp-p (1.5 Mbit/s, 2 Mbit/s)</td></tr>
<tr><td>Range</td><td>0.0 to 200.0 UIp-p/Step 0.1 UIp-p (8 Mbit/s)
0 to 1000 UIp-p/Step 1 UIp-p (34 Mbit/s)
0 to 1200 UIp-p/Step 1 UIp-p (45 Mbit/s, 52 Mbit/s)
0 to 3000 UIp-p/Step 2 UIp-p (139 Mbit/s)
0 to 3600 UIp-p/Step 2 UIp-p (156 Mbit/s)
0 to 14400 UIp-p/Step 10 UIp-p (622 Mbit/s)
± 10% ± Z UIp-p</td></tr>
<tr><td>Accuracy</td><td>Z:0.5 UIp-p/(1.5 Mbit/s, 2 Mbit/s, 8 Mbit/s)
5.0 UIp-p/(34 Mbit/s, 45 Mbit/s, 52 Mbit/s)
10 UIp-p/(139 Mbit/s, 156 Mbit/s)
50 UIp-p/(622 Mbit/s)</td></tr>
</table>

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Item	Specifications
Manual Wander Meas. (*W)	
Bit rate	1.544 Mbit/s ± 50 ppm, 44.736 Mbit/s ± 50 ppm, 2.048 Mbit/s ± 50 ppm, 8.448 Mbit/s ± 50 ppm, 34.368 Mbit/s ± 50 ppm, 139.264 Mbit/s ± 50 ppm, 155.52 Mbit/s ± 50 ppm, 622.08 Mbit/s ± 50 ppm, 51.84 Mbit/s ± 50 ppm
Mode	P-P, +P, –P, TIE
Meas. freq. range	<10 Hz
Sampling time	25 ms
Meas. range	P-P 0.0 to 3.2E5ns +P, –P 0.0 to 1.6E5ns TIE 0.0 to ± 1.6E5ns
Resolution	1ns
Accuracy	± 5% ± 20ns (Measurement result: 0.0 to ± 9999ns) ± 5% ± 1E3ns (Measurement result> ± 1E4ns)
Filter table	DC to 0.01 Hz DC to 10 Hz 0.01 Hz to 10 Hz TIE, MTIE*, TDEV*
Wander auto meas.	* For MTIE/TDEV measurement, software (MX150001A Wander (MTIE, TDEV) Measurement Application Software) running on an external PC is required.
Frequency Meas.	
Frequency	1.544 Mbit/s ± 0.1%, 44.736 Mbit/s ± 0.1%, 2.048 Mbit/s ± 0.1%, 8.448 Mbit/s ± 0.1%, 34.368 Mbit/s ± 0.1%, 139.264 Mbit/s ± 0.1%, 155.52 Mbit/s ± 0.1%, 622.08 Mbit/s ± 0.1%, 51.84 Mbit/s ± 0.1%
Resolution	0.1 ppm
Accuracy	± 0.1 ppm (After calibration at 60 minutes after power on, at 23 ±5 °C)
Range	[Hz]: Displays up to ± (nominal frequency × 10^{-7}) [ppm]: 0.0 to ± 1000.0 [ppm]
General	
Dimensions/mass	45 (H) × 255 (W) × 167.6 (D) (mm) (Excluding projections)/1.2 kg or less
Temperature	0 to 40 °C Operating –20 to 60 °C Storage

A.4 Specifications of MU150005A, MU150006A, and MU150007A

The following bit rates are valid depending on the plug-in unit installed.

MU150005A ….. 2.048M, 8.448M, 34.368M, 139.264M, 155.52M, 622.08M

MU150006A ….. 1.544M, 44.736M, 155.52M, 622.08M, 51.84M

MU150007A …..1.544M, 2.048M, 8.448M, 34.368M, 44.736M, 51.84M, 139.264M, 155.52M, 622.08M

* W: Valid when Wander option is installed.

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Item	Specifications
Ref Clock Output	
Frequency	1.544 MHz, 44.736 MHz, 2.048 MHz, 8.448 MHz, 34.368 MHz, 139.264 MHz 155.52 MHz, 622.08 MHz, 51.84 MHz
Level	0.8 ± 0.25 Vp-p (AC)
Connector	BNC 50 Ω
Ref Clock Input	
Frequency	1.544 MHz±100 ppm, 44.736 MHz±100 ppm, 2.048 MHz±100 ppm, 8.448 MHz±100 ppm, 34.368 MHz±100 ppm, 139.264 MHz±100 ppm, 155.52 MHz±100 ppm, 622.08 MHz±100 ppm, 51.84 MHz±100 ppm
Level	0.8±0.2 Vp-p(AC)
Connector	BNC 50 Ω
Ext. Mod. Input	
Mod. freq. range	0.1 Hz to 6 MHz
Waveform	Sine wave
Sensitivity	2UI range : 2 UIp-p±0.6 UI / 1 Vp-p at fr=1 kHz 16UI range : 16 UIp-p±4.8 UI / 1 Vp-p at fr=1 kHz 80UI range : 80 UIp-p±24 UI / 1 Vp-p at fr=10 Hz 400UI range : 400 UIp-p±120 UI / 1 Vp-p at fr=10 Hz
Connector	BNC 75 Ω
Jitter Demod. Output	
Sensitivity	2UI range: 1 Vp-p±10%/2 UIp-p 8UI range: 1 Vp-p±10%/8 UIp-p 20UI range: 1 Vp-p±10%/20 UIp-p 400UI range: 1 Vp-p±10%/400 UIp-p (only when 1.5 MHz, 45 MHz, 2 MHz, 8 MHz, 34 MHz, 139 MHz, 156 MHz, or 52 MHz) 800UI range: 1 Vp-p±10%/800 UIp-p (only when 622 MHz) * 8UI can't be setup when the bit rate is 8M.
Connector	BNC 75 Ω
Ext. Clock Input	
Frequency	1.544 MHz ± 100 ppm, 44.736 MHz ± 100 ppm, 2.048 MHz ± 100 ppm, 8.448 MHz ± 100 ppm, 34.368 MHz ± 100 ppm, 139.264 MHz100 ppm, 155.52 MHz ± 100 ppm, 622.08 MHz ± 100 ppm, 51.84 MHz ± 100 ppm
Level	0.8 ± 0.25 Vp-p (AC)
Connector	BNC 50 Ω (Installed on the main body of MP1570B)

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Item	Specifications
Wander Ref Clock Output	
Frequency	1.544 MHz, 2.048 MHz, 5 MHz
Level	1.544 MHz, 2.048 MHz: 1.125 Vo-p±34% 5 MHz: 0.8±0.25 Vp-p
Connector	BNC 75 Ω
Wander Ref Clock Input (*W)	
Frequency	2.048 Mbit/s±50 ppm(HDB3), 2.048 MHz±50 ppm(Clock), 1.544 Mbit/s±50 ppm(AMI/B8ZS), 1.544 MHz±50 ppm(Clock), 64 k+8 kHz±50 ppm, 5 MHz±50 ppm, 10 MHz±50 ppm
Level	Unbalanced 2.048 MHz (Clock): 1.125 Vo-p±34% G.703 2.048 Mbit/s (HDB3): 2.37 Vo-p±10% G.703 64 k+8 kHz (Clock): 1.125 Vo-p±34% 5 MHz, 10 MHz: 0 to +10 dBm Balanced 1.544 Mbit/s, 2.048 Mbit/s: 3.0 Vo-p±24% ANSI T1, 102-1987 1.544 MHz (Clock): 1.125 Vo-p±34% G.703 2.048 MHz (Clock): 1.45 Vo-p±24% G.703
Connector	Unbalanced:75 Ω/BNC Balanced : 100 Ω/Weco310 compatible (1.544 Mbit/s) 120 Ω/3-Pole CF (2.048 Mbit/s)

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Item	Specifications
Clock mode	Internal / Lock / External
Lock frequency	2.048 Mbit/s±50 ppm(HDB3), 2.048 MHz±50 ppm(Clock), 1.544 Mbit/s±50 ppm(AMI/B8ZS), 1.544 MHz±50 ppm(Clock), 64 k+8 kHz±50 ppm, 5 MHz±50 ppm, 10 MHz±50 ppm
Level	Unbalanced 2.048 MHz (Clock): 1.125 Vo-p±34% G.703 2.048 Mbit/s (HDB3): 2.37 Vo-p±10%G.703 5 MHz, 10 MHz: 0 to +10 dBm Balanced 64 k+8 kHz, 1.544 Mbit/s, 2.048 Mbit/s: 3.0 Vo-p±24% ANSI T1, 102-1987 1.544 MHz (Clock): 1.125 Vo-p±34% G.703 2.048 MHz (Clock): 1.45 Vo-p±24% G.703
Frequency Variable	
Frequency	1.544 MHz, 44.736 MHz, 2.048 MHz, 8.448 MHz, 34.368 MHz, 139.264 MHz, 155.52 MHz, 622.08 MHz, 51.84 MHz
Variable range/step	± 999.9 ppm/ 0.1 ppm (Internal jitter "OFF") ± 100.0 ppm/ 0.1 ppm (Internal jitter "ON/OFF")
Accuracy	± 0.1 ppm (After calibration at 60 minutes after power on, at 23 ±5 °C)
Jitter Generation	
Bit rate	1.544 Mbit/s, 44.736 Mbit/s, 2.048 Mbit/s, 8.448 Mbit/s, 34.368 Mbit/s, 139.264 Mbit/s, 155.52 Mbit/s, 622.08 Mbit/s, 51.84 Mbit/s
Mod. signal generator	
Frequency range	0.1 Hz to 6 MHz 0.1 Hz to 1 Hz/Step 0.1 Hz 1 Hz to 99 Hz/Step 1 Hz 100 Hz to 990 Hz/Step 10 Hz 1 kHz to 9.9 kHz/Step 0.1 kHz 10 kHz to 99 kHz/Step 1 kHz 100 kHz to 990 kHz/Step 10 kHz 1 MHz to 6 MHz/Step 0.1 MHz
Frequency accuracy	±100 ppm (±1000 ppm at Frequency range 100 to 990 Hz)
Jitter ampl. vs range	2UI (0.000 to 2.020 UIp-p/Step 0.001 UIp-p) 16UI (0.00 to 16.16 UIp-p/Step 0.01 UIp-p) 80UI (0.0 to 80.8 UIp-p/Step 0.1 UIp-p) 400UI (0.0 to 404.0 UIp-p/Step 0.2 UIp-p) AUTO (only when automatic measurement)

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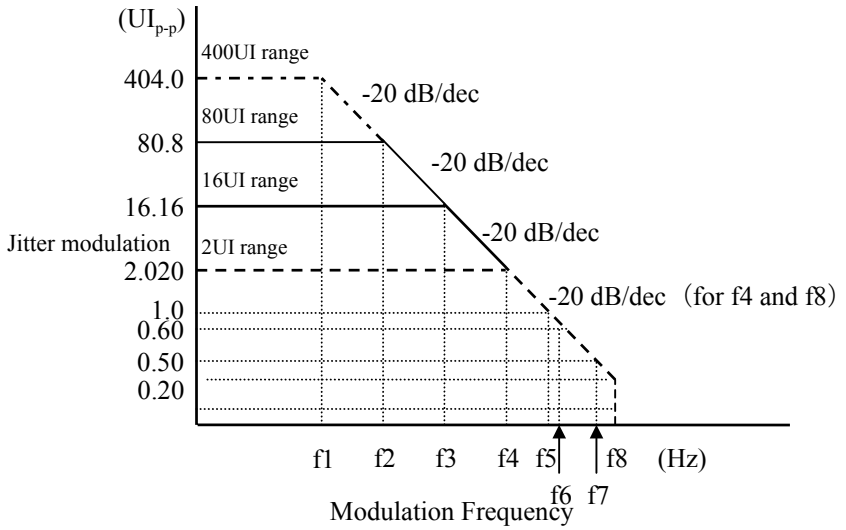
Item	Specifications
Jitter ampl. vs freq.	

400UI range is indicated in " - - - - - - - - - - ".
80UI range is indicated in " ———— ".
16UI range is indicated in " ▬▬▬▬ ".
2UI range is indicated in " ..... "

Bit/s	f1(Hz)	f2(Hz)	f3(kHz)	f4(kHz)	f5(kHz)	f6(kHz)	f7(kHz)	f8(kHz)
1.5 M	130	630	3.2	25	–	–	100	–
2 M	300	1.5 k	7.5	60	–	–	240	–
8 M	1.1 k	5.5 k	28	220	–	–	880	–
34 M	2.5 k	13 k	63	500	–	–	–	5,000
45 M	2.5 k	13 k	63	500	–	–	–	5,000
139 M	9 k	45 k	230	1,800	–	6,000	–	–
52 M	2.5 k	13 k	63	500	–	–	–	5,000
52 M B3ZS	2.5 k	13 k	63	500	–	–	–	5,000
156 M	7.5 k	38 k	190	1,500	–	–	6,000	–
156 M CMI	7.5 k	38 k	190	1,500	–	–	6,000	–
622 M	3 k	15 k	75	600	–	–	–	6,000

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<table>
<tr><th>Item</th><th>Specifications</th></tr>
<tr><td>Monitor accuracy</td><td>2UI range :±Q%±0.02UIp-p
16UI range :±Q%±0.2UIp-p
80UI range :±Q%±1.2UIp-p
400UI range :±Q%±6UIp-p
- Q value depends on the bit rate and frequency range.
<table>
<tr><th>Bit rate(bit/s)</th><th>Variable error Q</th><th>Frequency Range(Hz)</th></tr>
<tr><td rowspan="2">1.544 M</td><td>±12%</td><td>0.1 ～ 2</td></tr>
<tr><td>±8%</td><td>2 ～ 100 k</td></tr>
<tr><td rowspan="2">2.048 M</td><td>±12%</td><td>0.1 ～ 10</td></tr>
<tr><td>±8%</td><td>10 ～ 240 k</td></tr>
<tr><td rowspan="2">8.448 M</td><td>±12%</td><td>0.1 ～ 20</td></tr>
<tr><td>±8%</td><td>20 ～ 880 k</td></tr>
<tr><td rowspan="3">34.368 M</td><td>±12%</td><td>0.1 ～ 100</td></tr>
<tr><td>±8%</td><td>100 ～ 500 k</td></tr>
<tr><td>±12%</td><td>500 k ～ 5 M</td></tr>
<tr><td rowspan="2">44.736 M</td><td>±12%</td><td>0.1 ～ 2</td></tr>
<tr><td>±8%</td><td>2 ～ 5 M</td></tr>
<tr><td rowspan="4">139.264 M</td><td>±12%</td><td>0.1 ～ 100</td></tr>
<tr><td>±8%</td><td>100 ～ 500 k</td></tr>
<tr><td>±12%</td><td>500 k ～ 2 M</td></tr>
<tr><td>±15%</td><td>2 M ～ 6 M</td></tr>
<tr><td rowspan="2">51.84 M</td><td>±12%</td><td>0.1 ～ 300</td></tr>
<tr><td>±8%</td><td>300 ～ 5 M</td></tr>
<tr><td rowspan="3">155.52 M</td><td>±12%</td><td>0.1 ～ 500</td></tr>
<tr><td>±8%</td><td>500 ～ 500 k</td></tr>
<tr><td>±12%</td><td>500 k ～ 6 M</td></tr>
<tr><td rowspan="4">622.08 M</td><td>±12%</td><td>0.1 ～ 1 k</td></tr>
<tr><td>±8%</td><td>1 k ～ 500 k</td></tr>
<tr><td>±12%</td><td>500 k ～ 2 M</td></tr>
<tr><td>±15%</td><td>2 M ～ 6 M</td></tr>
</table>
</td></tr>
</table>

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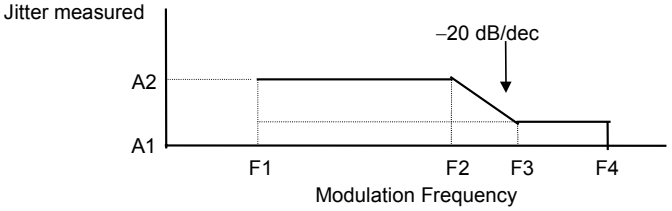
Item	Specifications
Jitter Meas.	
Bit rate	1.544 Mbit/s ±100 ppm, 44.736 Mbit/s ±100 ppm, 2.048 Mbit/s ±100 ppm, 8.448 Mbit/s ±100 ppm, 34.368 Mbit/s ±100 ppm, 139.264 Mbit/s ±100 ppm, 155.52 Mbit/s ±100 ppm, 622.08 Mbit/s ±100 ppm, 51.84 Mbit/s 10 ppm
Unit	UIp-p, UI+p, UI-p/UI_{rms}
Ref signal	Internal / External
Meas. range	2UI range (0.000 to 2.020 UIp-p/Step0.001 UIp-p) 8UI range (0.00 to 8.08 UIp-p/Step0.01 UIp-p) 20UI range (0.00 to 20.20 UIp-p/Step0.01 UIp-p) 400UI range (0.0 to 404.0 UIp-p/Step0.2 UIp-p) 800UI range (0.0 to 808.0 UIp-p/Step0.5 UIp-p) * 400UI range can be measured only when the bit rate is 1.5 M, 45 M, 2 M, 8 M, 34 M, 139 M, 156 M, or 52 M. * 800UI range can be measured only when the bit rate is 622 M. * 8UI can't be setup when the bit rate is 8 M. 2UI range (0.000 to 0.714 UIrms/Step0.001 UIrms) 8UI range (0.00 to 7.14 UIrms/Step0.001 UIrms) 20UI range (0.00 to 7.14 UIrms/Step0.01 UIrms) * RMS measurement cannot be executed when the range is set to 400UI/800UI. * 8UI range can't be setup when the bit rate is 8 M.
Meas. coupled	ON/OFF
Meas. interval	0.5 to 99.5 s (0.5s step)
Built-in filter	LP, HP0+LP, HP1+LP, HP2+LP, HP2'+LP, HP+LP, User

Bit rate	HP0 (Hz)	HP1 (Hz)	HP2 (Hz)	HP2' (Hz)	HP (Hz)	LP (Hz)
1.544 Mbit/s	10	10	8 k	–	12 k	40 k
2.048 Mbit/s	10	20	18 k	700	12 k	100 k
8.448 Mbit/s	10	20	3 k	80 k	12 k	400 k
34.368 Mbit/s	10	100	10 k	–	12 k	800 k
44.736 Mbit/s	10	10	30 k	–	12 k	400 k
139.264 Mbit/s	10	200	10 k	–	12 k	3.5 M
51.84 Mbit/s	10	100	20 k	–	12 k	400 k
155.52 Mbit/s	10	500	65 k	–	12 k	1.3 M
622.08 Mbit/s	10	1 k	250 k	–	12 k	5 M

Meas. range vs freq.

[2UI/8UI range]



Bit rate (Mbit/s)	A1 (UIp-p)	A2 (UIp-p)		F1* (Hz)		F2 (Hz)		F3 (Hz)	F4 (Hz)
	—	Full	Wide	Full	Wide	Full	Wide	—	—
1.544	0.5	8	2	0.1	10	1.25 k	5 k	20 k	40 k
2.048	0.5	8	2	0.1	10	3.75 k	15 k	60 k	100 k
8.448	0.5	—	2	—	10	—	50 k	200 k	400 k
34.368	0.5	8	2	0.1	10	18.75 k	75 k	300 k	800 k
44.736	0.5	8	2	0.1	10	25 k	100 k	400 k	400 k
139.264	0.5	8	2	0.1	10	50 k	200 k	800 k	3.5 M
51.84	0.5	8	2	0.1	10	25 k	100 k	400 k	400 k
155.52	0.4	8	2	0.1	10	25 k	100 k	500 k	1.3 M
622.08	0.3	8	2	0.1	10	75 k	300 k	2 M	5 M

*F1 is 100 Hz at RMS

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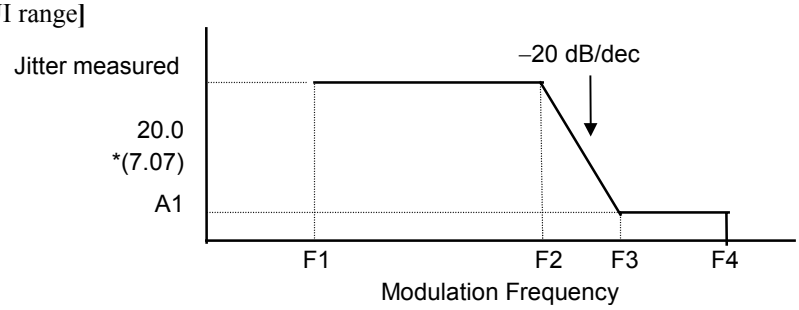
Item	Specifications

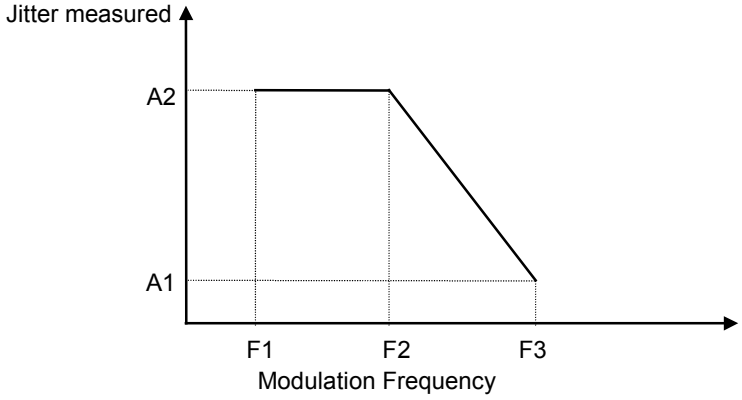
[20UI range**]**



Bit rate (Mbit/s)	A1 (UIp-p)	F1* (Hz)		F2 (Hz)	F3 (Hz)	F4 (Hz)
	—	Full	Wide	—	—	—
1.544	0.67	0.1	1	600	15 k	15 k
2.048	1.67	0.1	1	1.5 k	18 k	18 k
8.448	1.43	0.1	1	5 k	70 k	70 k
34.368	0.5	0.1	1	8 k	300 k	300 k
44.736	0.5	0.1	1	10 k	400 k	400 k
139.264	0.5	0.1	1	20 k	800 k	1.2 M
51.84	0.5	0.1	1	10 k	400 k	400 k
155.52	0.4	0.1	1	10 k	500 k	1.3 M
622.08	0.3	0.1	1	30 k	2 M	5 M

*F1 is 100 Hz at RMS

[400UI/800UI range**]**



Bit rate (Mbit/s)	A1 (UIp-p)	A2 (UIp-p)	F1** (Hz)	F2 (Hz)	F3 (Hz)
1.544	20	400	0.1	10	200
2.048	20	400	0.1	10	200
8.448	20	400	0.1	10	200
34.368	20	400	0.1	10	200
44.736	20	400	0.1	10	200
139.264	20	400	0.1	10	200
51.84	20	400	0.1	10	200
155.52	4	400	0.1	10	1 k
622.08	4	800	0.1	10	2 k

**Full Band only

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Item	Specifications

Meas. accuracy

[UIp-p, UI+p, UI-p]

2UI range: ±5%±W UIp-p/at 1 kHz (other than 156 MHz and 622 MHz)
2UI range: ±R%±W UIp-p (when 156 MHz or 622 MHz)
20UI range: ±5%±W UIp-p/at 1 kHz (other than 156 MHz and 622 MHz)
20UI range: ±R%±W UIp-p (when 156 MHz or 622 MHz)
400UI range: ±5%±W UIp-p/at 10 Hz (other than 156 MHz and 622 MHz)
400UI range: ±R%±W UIp-p (when 156 MHz or 622 MHz)
W value is as follows.

Bit rate (Mbit/s)	Pseudo-random signal							
	HP1+LP				HP2+LP			
	2UI	8UI	20UI	400/800UI	2UI	8UI	20UI	Bit length
1.544	0.040	0.08	0.22	3.5	0.025	0.05	0.15	$2^{20}-1$
2.048	0.040	0.08	0.22	3.5	0.025	0.05	0.15	$2^{15}-1$
8.448	0.040	—	0.22	3.5	0.025	—	0.15	$2^{15}-1$
34.368	0.040	0.08	0.22	3.5	0.025	0.05	0.15	$2^{23}-1$
44.736	0.040	0.08	0.22	3.5	0.025	0.05	0.15	$2^{15}-1$
139.264	0.040	0.08	0.30	5.0	0.025	0.05	0.20	$2^{23}-1$

Bit rate (Mbit/s)	Clock signal						
	HP1+LP				HP2+LP		
	2UI	8UI	20UI	400/800UI	2UI	8UI	20UI
1.544	0.015	0.03	0.10	1.6	0.010	0.02	0.08
2.048	0.015	0.03	0.10	1.6	0.010	0.02	0.08
8.448	0.015	—	0.10	1.6	0.010	—	0.08
34.368	0.030	0.06	0.18	2.8	0.020	0.04	0.15
44.736	0.030	0.06	0.18	2.8	0.020	0.04	0.15
139.264	0.030	0.06	0.22	3.8	0.020	0.04	0.20

Bit rate (Mbit/s)	Structured signal							
	HP1+LP				HP2+LP			
	2UI	8UI	20UI	400/800UI	2UI	8UI	20UI	Container
51.84e	0.070	0.14	0.30	5.0	0.050	0.10	0.20	VC3
51.84o	0.070	0.14	0.30	5.0	0.050	0.10	0.20	VC3
155.52e	0.070	0.14	0.30	5.0	0.025	0.05	0.20	VC4
155.52o	0.070	0.14	0.30	5.0	0.050	0.10	0.20	VC4
622.08	0.100	0.20	0.30	10.0	0.050	0.10	0.20	VC4-4C

PRBS: $2^{23}-1$

Bit rate (Mbit/s)	Clock signal						
	HP1+LP				HP2+LP		
	2UI	8UI	20UI	400/800UI	2UI	8UI	20UI
51.84e	0.050	0.10	0.22	3.8	0.030	0.06	0.20
155.52e	0.050	0.10	0.22	3.8	0.030	0.06	0.20
622.08	0.050	0.10	0.22	5.0	0.030	0.06	0.20

Frequency error (R value)

Additional Error	Freq. Range
±10%	0.1 – 20 Hz
±7%	20 Hz – 300 kHz
±8%	300 kHz – 1 MHz
±10%	1 – 3 MHz
±15%	3 – 5 MHz

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Item	Specifications

[UIrms**]**
2UI range: ±5%±Y UIrms at 1 kHz (other than 156 MHz and 622 MHz)
2UI range: ±R%±Y UIrms (when 156 MHz or 622 MHz)
20UI range:±5%±Y UIrms at 1 kHz (other than 156 MHz and 622 MHz)
20UI range:±R%±Y UIrms (when 156 MHz or 622 MHz)

Y value is as follows.

Bit rate (Mbit/s)	Pseudo-random signal			
	HP+LP			
	2UI	8UI	20UI	Bit length
1.544	0.006	0.02	0.04	$2^{20}-1$
2.048	0.006	0.02	0.04	$2^{15}-1$
8.448	0.006	—	0.04	$2^{15}-1$
34.368	0.008	0.02	0.05	$2^{23}-1$
44.736	0.008	0.02	0.05	$2^{15}-1$
139.264	0.008	0.02	0.05	$2^{23}-1$

Bit rate (Mbit/s)	Clock signal		
	HP+LP		
	2UI	8UI	20UI
1.544	0.004	0.01	0.03
2.048	0.004	0.01	0.03
8.448	0.004	—	0.03
34.368	0.006	0.02	0.04
44.736	0.006	0.02	0.04
139.264	0.006	0.02	0.04

Bit rate (Mbit/s)	Structured signal			
	HP+LP			
	2UI	8UI	20UI	Container
51.84e	0.010	0.02	0.06	VC3
51.84o	0.010	0.02	0.06	VC3
155.52e	0.010	0.02	0.06	VC4C
155.52o	0.010	0.02	0.06	VC4C
622.08	0.012	0.03	0.08	VC4-4C

PRBS: $2^{23}-1$

Bit rate (Mbit/s)	Clock signal		
	HP+LP		
	2UI	8UI	20UI
51.84e	0.008	0.02	0.05
155.52e	0.008	0.02	0.05
622.08	0.010	0.02	0.05

Frequency error (R value)

Additional Error	Frequency Range
±10%	0.1 – 20 Hz
±7%	20 Hz – 300 kHz
±8%	300 kHz – 1 MHz
±10%	1 – 3 MHz
±15%	3 – 5 MHz

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Item	Specifications
Hit measurement	
Hit count	Counts the number of the jitters which exceed the threshold of the jitter amplitude which has been set.
Hit second	Total of a second when one HIT or more exists
Hit-free second	Ratio of seconds (when no HIT exists) to the measuring cycle
Hit threshold	2 UI range: 0.05 to 1.0 UIo-p/Step 0.01 UIo-p 8 UI range: 0.5 to 4.0 UIo-p/Step 0.1 UIo-p 20 UI range: 0.50 to 10 UIo-p/Step 0.1 UIo-p 400UI range :2 to 200 UIo-p/Step 2 UIo-p (Except 622 MHz) 800UI range :4 to 400 UIo-p/Step 4 UIo-p (Only 622 MHz)
Sensitivity	Threshold setting error: Nominal 5% Typical > 100 ns pulse width Counted
Display range	Hit second, Hit-free second: 0 to 999999 to 9.9E15, >9.9E15 % : 0.0000 to 100.0000%
Jitter Tolerance	Performs the Jitter Tolerance measurement for DUT.
Tolerance table	Max. 20 points (Default or User)
Display	Graphic & Numerical
Mask table	1.5M ..... ITU-T G.824, Bellcore499, User 45M ..... ITU-T G.755, G.824, Bellcore499, User 2M, 8M ..... ITU-T G.823 High-Q, G.823 Low-Q, User 34M, 139M ..... ITU-T G.823, User 52M ..... Bellcore253, User 156M, 622M ..... ITU-T G.825o, G.825e, G.958 A, G.958 B, Bellcore253, User * Depends on the clock recovery circuit on the input section in DUT. High Q is used for a NE in which a PLL (in which the quality factor is high) and others are used. Also, low Q is used for others than NE.
Error detect condition	1 second error .....Judges under the condition in which 1 second of the error is detected. The number of the error to be detected can be set as follows. Count : 1 to 99999 Rate : >1E-3, >1E-4, >1E-5, >1E-6, or >1E-7 Onset of errors .....Judges under the condition in which two or more error seconds during 30 seconds period. 1dB power penalty ..Judges under the condition in which 100 or more errors are detected for 1 second. Count .....Judges under the condition in which 1 to 99,999 errors are detected independent of measurement time. Rate .....Judges under the condition in which the error is detected independent of measurement time. The rate of the error to be detected can be set as follows. Rate : >1E-3, >1E-4, >1E-5, >1E-6, or >1E-7 Default .....Judges under the condition in which all the errors and alarms continue for two seconds.
Hold time	Sets time to generate jitter at each point. Range : 1.0 to 99.5 s Step : 0.5 s
Waiting time	Sets time to change a measurement point and generate jitter again. Range : 0.0 to 99.5 s Step : 0.5 s

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<table>
<tr><th>Item</th><th>Specifications</th></tr>
<tr><td>Jitter Transfer</td><td>Performs the Jitter Transfer measurement for DUT.</td></tr>
<tr><td>Tolerance table</td><td>Max. 20 points (Default or User)</td></tr>
<tr><td>Display</td><td>Graphic & Numerical</td></tr>
<tr><td>Mask table</td><td>1.5M .....G.743, Bell253, Bell499, User
45M .....G.755, Bell253, Bell499, User
2M .....G.742, G.735 FIG2 High Q or Low Q, G.735 FIG3
G.736 FIG1 High Q or Low Q, G.736 FIG2
G.737 FIG2 High Q or Low Q, G.737 FIG3
G.738 FIG2 High Q or Low Q, G.738 FIG3
G.739 FIG2 High Q or Low Q, G.739 FIG3
User
8M, 34M.....G.751, User
139M .....User
52M .....Bell253 ANSI T1. 105. 03 or User
156M, 622M.....G.958 A/B, Bell253 ANSI T1. 105. 03, User</td></tr>
<tr><td>Select level bandwidth</td><td>1Hz, 3Hz, 10Hz, 30Hz</td></tr>
<tr><td>Jitter/Freq.</td><td>Performs the Jitter/Freq. measurement for DUT.</td></tr>
<tr><td>Frequency offset</td><td>Max. ± 10 to 100 ppm/ Step 1 to 50 ppm (Max. Sample point 51)</td></tr>
<tr><td>Meas. interval</td><td>0.5 to 99.5 s.</td></tr>
<tr><td>Built-in filter</td><td>LP, HP0+LP, HP1+LP, HP2+LP, HP2'+LP, HP+LP, User</td></tr>
<tr><td></td><td>
<table>
<tr><th>Bit rate</th><th>HP0 (Hz)</th><th>HP1 (Hz)</th><th>HP2 (Hz)</th><th>HP2' (Hz)</th><th>HP (Hz)</th><th>LP (Hz)</th></tr>
<tr><td>1.544 Mbit/s</td><td>10</td><td>10</td><td>8 k</td><td>–</td><td>12 k</td><td>40 k</td></tr>
<tr><td>2.048 Mbit/s</td><td>10</td><td>20</td><td>18 k</td><td>700</td><td>12 k</td><td>100 k</td></tr>
<tr><td>8.448 Mbit/s</td><td>10</td><td>20</td><td>3 k</td><td>80 k</td><td>12 k</td><td>400 k</td></tr>
<tr><td>34.368 Mbit/s</td><td>10</td><td>100</td><td>10 k</td><td>–</td><td>12 k</td><td>800 k</td></tr>
<tr><td>44.736 Mbit/s</td><td>10</td><td>10</td><td>30 k</td><td>–</td><td>12 k</td><td>400 k</td></tr>
<tr><td>139.264 Mbit/s</td><td>10</td><td>200</td><td>10 k</td><td>–</td><td>12 k</td><td>3.5 M</td></tr>
<tr><td>51.84 Mbit/s</td><td>10</td><td>100</td><td>20 k</td><td>–</td><td>12 k</td><td>400 k</td></tr>
<tr><td>155.52 Mbit/s</td><td>10</td><td>500</td><td>65 k</td><td>–</td><td>12 k</td><td>1.3 M</td></tr>
<tr><td>622,08 Mbit/s</td><td>10</td><td>1k</td><td>250 k</td><td>–</td><td>12 k</td><td>5 M</td></tr>
</table>
</td></tr>
<tr><td>Display</td><td>Graphic & Numerical</td></tr>
</table>

(12/17)

Item	Specifications
Jitter sweep	Performs the Jitter Sweep measurement for DUT.
Sweep table	Max. 20 points (Default or User)
Display	Graphic & Numerical
Mask table	1.5M..... G.824, Bell499, User 45M..... G.824, G.755, Bell499, User 2M, 8M ..... G.823 High Q/Low Q, User 34M, 139M ..... G.823, User 52M..... Bell253, User 156M..... G.958 A/B, G.825o, G.825e, G.813, Bell253, User 622M..... G.958 A or B or G.825 or G.813 or Bell253, User
Error detect condition	1 second error .....Judges under the condition in which 1 second of the error is detected. The number of the error to be detected can be set as follows. Count : 1 to 99999 Rate : >1E-3, >1E-4, >1E-5, >1E-6, or >1E-7 Onset of errors .....Judges under the condition in which two or more error seconds during 30 seconds period. 1dB power penalty ..Judges under the condition in which 100 or more errors are detected for 1 second. Count .....Judges under the condition in which 1 to 99,999 errors are detected independent of measurement time. Rate .....Judges under the condition in which the error is detected independent of measurement time. The rate of the error to be detected can be set as follows. Rate : >1E-3, >1E-4, >1E-5, >1E-6, or >1E-7 Default .....Judges under the condition in which all the errors and alarms continue for two seconds.
Hold time	Sets time to generate jitter at each point. Range : 1.0 to 99.5 s Step : 0.5 s
Waiting time	Sets time to change a measurement point and generate jitter again. Range : 0.0 to 99.5 s Step : 0.5 s

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Item	Specifications
Frequency sweep	Performs the Jitter Sweep measurement for DUT.
Frequency	Up to ±10 to ±100 ppm, Step : 1 to 50 ppm
Display	Graphic & Numerical
Error detect condition	1 second error ..... Judges under the condition in which 1 second of the error is detected. The number of the error to be detected can be set as follows. Count : 1 to 99999 Rate : >1E-3, >1E-4, >1E-5, >1E-6, or >1E-7 Onset of errors ..... Judges under the condition in which two or more error seconds during 30 seconds period. 1dB power penalty . Judges under the condition in which 100 or more errors are detected for 1 second. Count ..... Judges under the condition in which 1 to 99,999 errors are detected independent of measurement time. Rate ..... Judges under the condition in which the error is detected independent of measurement time. The rate of the error to be detected can be set as follows. Rate : >1E-3, >1E-4, >1E-5, >1E-6, or >1E-7 Default ..... Judges under the condition in which all the errors and alarms continue for two seconds.
Hold time	Sets time to generate jitter at each point. Range : 1.0 to 99.5 s Step : 0.5 s
Waiting time	Sets time to change a measurement point and generate jitter again. Range : 0.0 to 99.5 s Step : 0.5 s

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Item	Specifications
Wander sweep	Performs the Wander Sweep measurement for DUT.
Sweep table	Max. 20 points (Default or User)
Display	Graphic & Numerical
Mask table	1.5M, 45M ..... G.812 Type2 or G.812 Type3 or G.824 or User 2M, 34M, 139M..... G.812 Type1 or G.813 or G.823, User 8M..... G.812 Type1 or G.813 or User 52M..... User 156M, 622M ..... G.812 Type1 or G.812 Type2 or G.812 Type3 or G.813 or G.825 or User
Error detect condition	Count .....Judges under the condition in which 1 to 99,999 errors are detected independent of measurement time. Rate .....Judges under the condition in which the error is detected independent of measurement time. The rate of the error to be detected can be set as follows. Rate : >1E-3, >1E-4, >1E-5, >1E-6, >1E-7, >1E-8, >1E-9, >1E-10, >1E-11
Margin	0 to 100% Step : 10%

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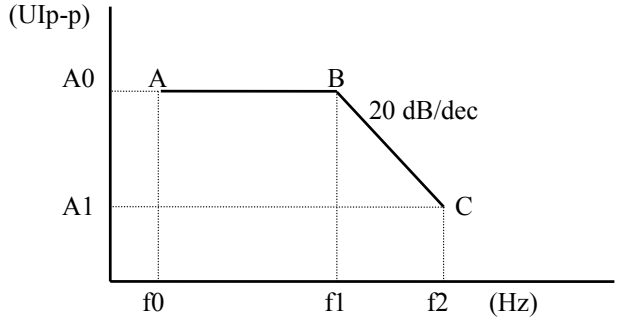
Item	Specifications
Wander generation	(Wander "ON/OFF")
Frequency	1.544 MHz, 44.736 MHz, 2.048 MHz, 8.448 MHz, 34.368 MHz, 51.84 MHz, 139.264 MHz, 155.52 MHz, 622.08 MHz
Internal modulation signal	10 uHz to 10 Hz Sine wave
Amplitude	0 to 400,000UI/step 10UI Display can be switched at ns



Bit rate	f0(Hz)	f1(Hz)	f2(Hz)	A0(UIp-p)	A1(UIp-p)	Step(UIp-p)
1.5 M	10 μ	20 m	10	400,000	800	10
2 M	10 μ	20 m	10	400,000	800	10
8 M	10 μ	200 m	10	400,000	8,000	10
34 M	10 μ	400 m	10	400,000	16,000	10
45 M	10 μ	400 m	10	400,000	16,000	10
139 M	10 μ	2	10	400,000	80,000	10
52 M	10 μ	400 m	10	400,000	16,000	10
52 M B3ZS	10 μ	400 m	10	400,000	16,000	10
156 M	10 μ	2	10	400,000	80,000	10
156 M CMI	10 μ	2	10	400,000	80,000	10
622 M	10 μ	400 m	10	400,000	16,000	10

Frequency range	Step(Hz)
10–99 μ	1 μHz
100–990 μ	10 μHz
1–9.9 m	0.1 mHz
10–99 m	1 mHz
100–990 m	10 mHz
1.0–10.0	0.1 Hz

Accuracy

±Q% of setting±100UIp-p

Error Q	Freq. Range
±8%	10 μHz–0.125 Hz
±12%	0.125–1 Hz
±15%	1–10 Hz

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Item	Specifications	
Wander TDEV generation	Modulates Wander Ref. Output signal to obtain TDEV Mask set beforehand.	
Mask	ANSI T1.101-1994	Section 7.2.2
		Section 7.3.2
	ANSI T1.105-03-1994	Section D.2.1
		Section D.2.2.1
		Section D.2.2.2
	ANSI T1.105.09-1996	
	GR-2830-CORE-1995	
	GR-1244-CORE-1995	Section 4.3
		Section 5.3
		Section 5.4 Stratum 2&3E
		Section 5.4 Stratum 3
	GR-253-CORE-1995	Section 5.4.4.2.4 Figure 5-15
		Section 5.4.4.2.4 Figure 5-16
		Section 5.4.4.3.2
		Section 5.4.5
	ETS 300 462-3-1997	Section 7.2.1
		Section 7.2.2
		Section 7.2.3
		Section 7.2.4
	ETS 300 462-4-1997	Section 6.1
		Section 7.2
		Section 8
	ETS 300 462-5-1996	Section 6.1
		Section 7.2
	ETS 300 462-6-1997	
	G.811-1997	
	G.812-1997	Section 8.1 Table 6
		Section 8.1 Table 7
		Section 9.1 Table 11
		Section 9.1 Table 12
		Section 10 Table 18
		Section 10 Table 19
		Section A.3.1
		Section A.4.1
		Section A.5
	G.813-1996	Section 7.1 Option 1
		Section 7.1 Option 2

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<table>
<tr><th>Item</th><th>Specifications</th></tr>
<tr><td>Wander measurement (*W)</td><td></td></tr>
<tr><td>Bit rate</td><td>1.544 Mbit/s ±100 ppm, 44.736 Mbit/s ±100 ppm,
2.048 Mbit/s ±100 ppm, 8.448 Mbit/s ±100 ppm,
34.368 Mbit/s ±100 ppm, 139.264 Mbit/s ±100 ppm,
155.52 Mbit/s ±100 ppm, 622.08 Mbit/s ±100 ppm,
51.84 Mbit/s ±100 ppm</td></tr>
<tr><td>Mode</td><td>PP, +P, -P, TIE</td></tr>
<tr><td>Frequency</td><td><10 Hz</td></tr>
<tr><td>Sampling time</td><td>40 Hz (320 Hz, 1 Hz, 0.1 Hz, and 5 mHz are valid when MX150001B is installed.)</td></tr>
<tr><td>Measurement range</td><td>PP0.0 to 2E10ns
+P, -P0.0 to 1E10ns
TIE0.0 to ±1E10ns
MTIE*0.0 to 1E10ns
TDEV*0.0 to 1E10ns</td></tr>
<tr><td>Resolution</td><td>0.1ns</td></tr>
<tr><td>Accuracy</td><td>・TIE
±0.5% ±Z0(τ)
The value of Z0(τ) is as follows.
<table><tr><th>Z0(τ) (ns)</th><th>Observation time τ (s)</th></tr><tr><td>2.5+0.0275 τ</td><td>0.05≤ τ ≤1000</td></tr><tr><td>29+0.001 τ</td><td>τ >1000</td></tr></table></td></tr>
<tr><td>Filter table</td><td>DC to 0.01 Hz
DC to 10 Hz
0.01 to 10 Hz</td></tr>
<tr><td>Wander auto meas.</td><td>TIE, MTIE*, TDEV*
*For MTIE/TDEV measurement, software (MX150001A Wander (MTIE, TDEV) Measurement Application Software) running on an external PC is required.</td></tr>
<tr><td>Measurement time</td><td>12s, 120s, 1200s, 12000s, 120000s, User
<table><tr><td>10 to</td><td>100s/Step</td><td>10s</td></tr><tr><td>100 to</td><td>1,000s/Step</td><td>100s</td></tr><tr><td>1,000 to</td><td>10,000s/Step</td><td>1,000s</td></tr><tr><td>10,000 to</td><td>100,000s/Step</td><td>10,000s</td></tr><tr><td>100,000 to</td><td>1,000,000s/Step</td><td>100,000s</td></tr><tr><td>1,000,000 to</td><td>10,000,000s/Step</td><td>1,000,000s</td></tr><tr><td>10,000,000 to</td><td>100,000,000s/Step</td><td>10,000,000s</td></tr></table></td></tr>
<tr><td>Frequency Meas.
Frequency</td><td>1.544 Mbit/s ±1000 ppm, 44.736 Mbit/s ± 1000 ppm, 2.048 Mbit/s ± 1000 ppm, 8.448 Mbit/s ± 1000 ppm, 34.368 Mbit/s ± 1000 ppm, 139.264 Mbit/s ± 1000 ppm, 155.52 Mbit/s ± 1000 ppm, 622.08 Mbit/s ± 1000 ppm, 51.84 Mbit/s ±1000 ppm</td></tr>
<tr><td>Resolution</td><td>0.1 ppm</td></tr>
<tr><td>Accuracy</td><td>± 0.1 ppm (After calibration at 60 minutes after power on, at 23 ±5 °C)
* ”Lock 5M” and “Lock 10M” are excepted</td></tr>
<tr><td>Range</td><td>[Hz]: Displays up to ± (nominal frequency × 10^{-7})
[ppm]: 0.0 to ± 1000.0 [ppm]</td></tr>
<tr><td>General</td><td></td></tr>
<tr><td>Dimensions/mass</td><td>45 (H) × 255 (W) × 167.6 (D) (mm) (Excluding projections)/1.5 kg or less</td></tr>
<tr><td>Temperature</td><td>0 to 40 °C Operating, –20 to 60 °C Storage</td></tr>
</table>

Appendix B Text File Format

B.1 Text File Format

MP1570A can store analysis graph data in a floppy disk in text format. The data can then be edited using spreadsheet software such as Excel.
This section explains the measurement when installing the jitter unit and the text file format related to the wander measurement option.

Notes:

- See MP1570A SONET/SDH/PDH/ATM Analyzer Operation Manual Vol. 1 for details of items other than jitter and wander.
- See MP1570A SONET/SDH/PDH/ATM Analyzer Operation Manual Vol.1 for details of how to use the floppy disk.
- A data file that was stored in text format cannot be recalled to the Analyze:Recall screen. If a data file is to be recalled to the Analyze:Recall screen, save it in binary format.

B.2 Text File Examples of Jitter Tolerance Measurement

Analysis graph data (including the title) is displayed on the Analyze:Jitter tolerance subscreen or the Recall subscreen (when displaying jitter tolerance data).

(a) "ANRITSU;MP1570A;01.00;A;A_JTLR","J-Tolerance No1","G.958 Type A","1sec error;B ;Count;230"↓

(b) "Freq.","Amplitude","Amplitude(Mask)",""

(c)
20.0,10.01,"","",↓
29,0.10.00,"","",↓
43.0,9.00,"","",↓
63.0,8.00,"","",↓
93.0,7.00,"","",↓
130.00,6.00,"","",↓
180.0,3.00,"","",↓
260.0,2.06,"","",↓
360.0,2.07,"","",↓
500.0,2.08,"","",↓
700.0,2.09,"","",↓
1200.0,2.010,"","",↓
2100.0,2.002,"","",↓
3700.0,1.003,"","",↓
6400.0,0.304,"","",↓
10000.0,0.010,"","",↓
"","","","",↓
"","","","",↓
"","","","",↓
"","","","",↓

(d)
100.0,"",1.501,"",↓
6500.0,"",1.501,"",↓
65000.0,"",0.152,"",↓
130000.0,"",0.152,"",↓
"","","","",↓
"","","","",↓

- Each item is separated by a comma.
- Symbol ↓ represents a line feed.

(a) Management information
First item: Management information
Second item: Title characters (15 characters fixed)
Third item: Type of Mask table
Fourth item: Setting state of detection condition for the Jitter Tolerance measurement

(b) The name of the item is shown in the order of frequency, jitter amount, and jitter amount (mask table).

(c) The analysis data is shown in the order of items (shown in (b) above), 20 lines is fixed. The data is shown in the order of items set in the Tolerance table.

(d) The Mask table data is shown in the order of items (shown in (b) above).

Note:

If there are no measurement results, save cannot be performed.

B.3 Text File Examples of Jitter Transfer Measurement

Analysis graph data (including the title) is displayed on the Analyze:Jitter transfer subscreen or the Recall subscreen (when displaying jitter transfer data).

(a) "ANRITSU;MP1570A;01.00;A;A_JTRF","J-Transfer No1 ","G.958 Type A"↓

(b) "Freq.","Gain","Gain(Mask)"↓

(c)
20,+1.01,""↓
29,0.00,""↓
43,-3.01,""↓
63,-4.01,""↓
93,-4.01,""↓
130,-4.01,""↓
180,-4.01,""↓
260,-4.01,""↓
360,-4.01,""↓
500,-4.01,""↓
700,-4.01,""↓
1200,-4.01,""↓
2100,-4.01,""↓
3700,-3.01,""↓
6400,-10.01,""↓
1000000,-21.11,""↓
"","","",↓
"","","",↓
"","","",↓
"","","",↓

(d)
5,"",0.52↓
300,"",0.52↓
3000,"",-19.52↓
1300000,"",-19.52↓

- Each item is separated by a comma.
- Symbol ↓ represents a line feed.

(a) Management information
First item: Management information
Second item: Title characters (15 characters fixed)
Third item: Type of Mask table

(b) The name of the item is shown in the order of frequency, gain, and gain (mask table).

(c) The data is shown in the order of frequency, gain, gain (mask table).
Each line represents 1 measurement point. 20 lines is fixed. If there are fewer than 20 measurement points, dummy lines are inserted.

(d) The Master data is shown in the order of items (shown in (b) above). Four lines is fixed.

Note:

If there are no measurement results, save cannot be performed.

B.4 Text File Examples of Jitter/Freq. Measurement

Analysis graph data (including the title) is displayed on the Analyze:Jitter/Freq. subscreen or the Recall subscreen (when displaying jitter/freq. data).

(a) "ANRITSU;MP1570A;01.00;A;A_JFRQ","J-Frequency No1"↓

(b) “Freq. Offset","Amplitude"↓

(c)
-50,0.101↓
-48,0.102↓
-46,0.103↓
-44,0.104↓
-42,0.105↓
-40,0.106↓
-38,0.127↓
-36,0.148↓
-34,0.169↓
-32,0.181↓
-30,0.202↓
-28,0.203↓
-26,0.204↓
-24,0.205↓
-22,0.206↓
-20,0.207↓
-18,0.228↓
-16,0.249↓
-14,0.260↓
-12,0.281↓
-10,0.302↓
-8,0.323↓
-6,0.344↓
-4,0.365↓
-2,0.386↓
0,0.407↓
+2,0.388↓
+4,0.369↓
+6,0.340↓
+8,0.321↓
+10,0.302↓
+12,0.283↓
+14,0.264↓
+16,0.245↓
+18,0.226↓
+20,0.207↓
+22,0.208↓
+24,0.209↓

(c)

+26,0.200↓
+28,0.201↓
+30,0.202↓
+32,0.183↓
+34,0.164↓
+36,0.145↓
+38,0.126↓
+40,0.107↓
+42,0.108↓
+44,0.109↓
+46,0.100↓
+48,0.101↓
+50,0.102↓

- Each item is separated by a comma.
- Symbol ↓ represents a line feed.

(a) Management information
First item: Management information
Second item: Title characters (15 characters fixed)

(b) Two items, frequency offset and jitter quantity, are displayed.

(c) The analysis data is shown in the order shown in (b) above. Up to 51 items are output according to the frequency offset ascending order.
Frequency offset: (unit: ppm)
The frequency offset value which was set both in Tx offset range and in Tx offset step is output.
Jitter quantity: (unit: Ulpp)
The measured jitter quantity is output.

Note:

If there are no measurement results, save cannot be performed.

B.5 Text File Examples of Wander (TIE) Measurement

Analysis graph data (including the title) is displayed on the Analyze:Wander (TIE) subscreen or the Recall subscreen (when displaying Wander (TIE) data).

(a) "ANRITSU;MP1570A;01.00;A;A_TIE","Wander TIE No1 "↓
(b) "11/Dec/95","08:23:40","12.5ms","37","1"↓
(c) "139M","1.5Mbps(Unbalanced)","1200sec"↓
(d) "Observ. time","TIE"↓
(e) 0.5,-0.5↓
1.0,1.0↓
1.5,1.5↓
2.5,2.5↓
4.0,4.0↓
6.5,-6.5↓
10,10↓
16,16↓
25,25↓
40,40↓
63,-63↓
100,100↓
160,160↓
250,250↓
400,400↓
630,-630↓
1000,1000↓
1.6E3,1600↓
2.5E3,2500↓
4.0E3,4000↓
6.3E3,6300↓
1.0E4,-10000↓
1.6E4,1.6E4↓
2.5E4,2.5E4↓
4.0E4,4.0E4↓
6.3E4,6.3E4↓
1.0E5,1.0E5↓
1.6E5,-1.6E5↓
2.5E5,2.5E5↓
4.0E5,4.0E5↓
6.3E5,6.3E5↓
1.0E6,1.0E6↓
1.6E6,1.6E6↓
2.5E6,2.5E6↓
4.0E6,4.0E6↓
6.3E6,6.3E6↓
1.0E7,1.0E7↓

- Each item is separated by a comma.
- Symbol ↓ represents a line feed.

(a) Management information
First item: Management information
Second item: Title characters (15 characters fixed)

(b) The name of the item is shown in the order of measurement starting date, measurement starting time, sampling interval, number of all samples, and S/N.

(c) The name of the item is shown in the order of Bit rate (Rx), Wander Ref. input, and Observation time.

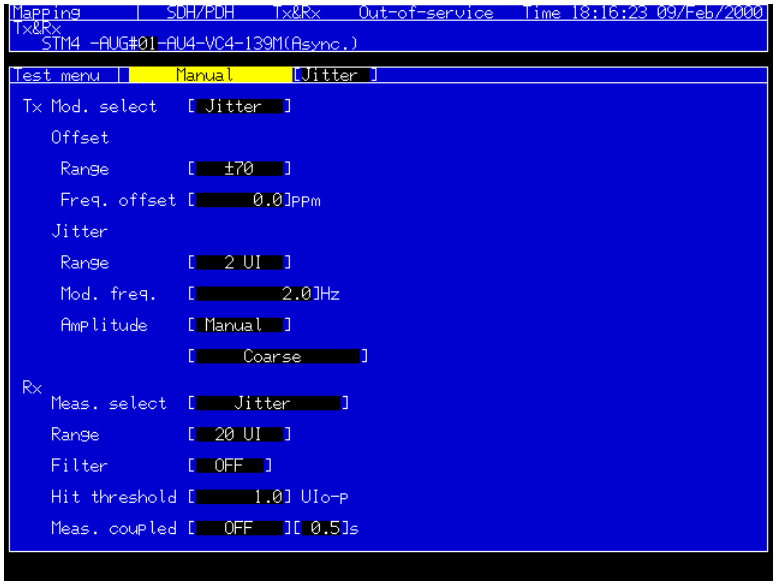
(d) Two items, observation time(s) and wander quantity TIE (ns), are displayed.

(e) The analysis data is shown in the order shown in (b) above.
Up to 37 items are output according to the Observation time(s) ascending order.
Observation time: (unit: sec)
TIE: (unit: ns)

Appendix C Relation Between Screen and Commands

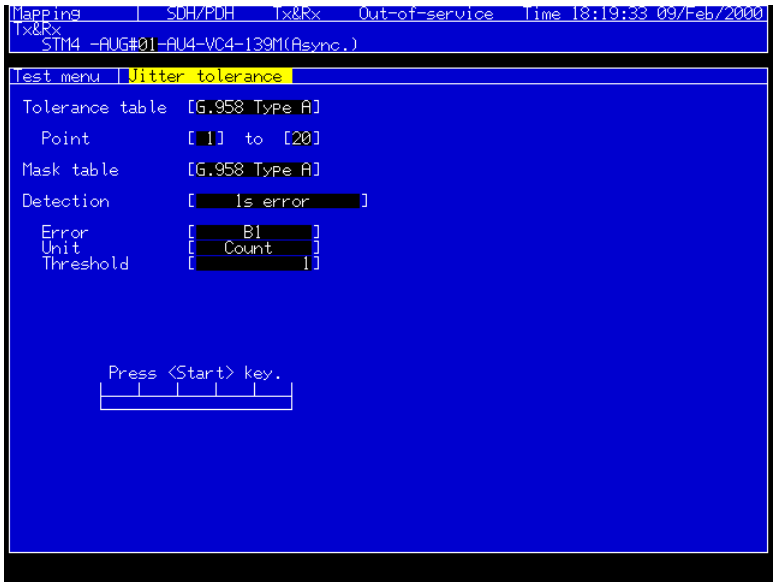
The relation between the program commands and the screen displayed on the panel are shown below.
Refer to Section 4, "REMOTE CONTROL" for details of the program commands.

C.1 Test menu main screen and commands

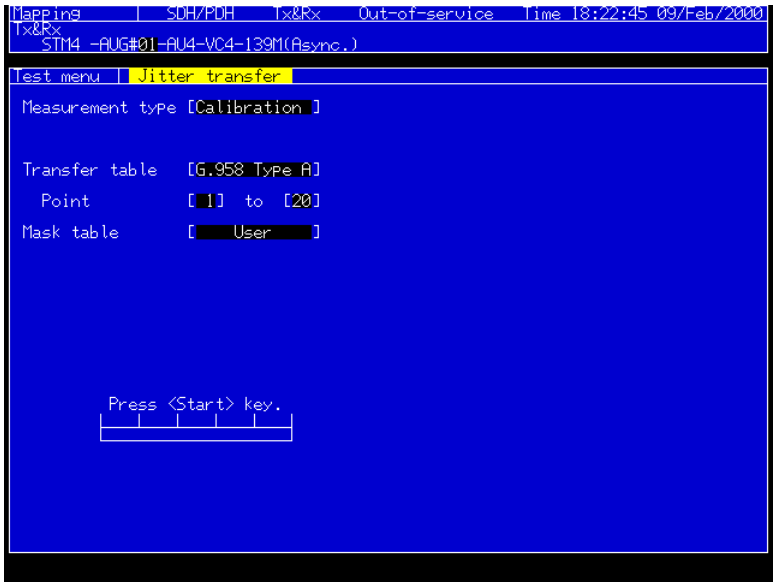


(1):SOURce:TELecom:JWANder:MSELect
(2):SOURce:TELecom:JWANder:ORANge
(3):SOURce:TELecom:OFFSet
(4):SOURce:JITTer:MANual:RANGe
(5):SOURce:JITTer:MANual:FREQuency
(6):SOURce:JITTer:MANual:AMPLitude:TYPE
(7):SOURce:JITTer:MANual:AMPLitude:STEP
(8):SOURce:JITTer:MANual:AMPLitude:DATA
(9):SOURce:JITTer:MANual:AMPLitude:UIPP
(10):SOURce:JITTer:MANual:AMPLitude::MONitor?
(11):SOURce:WANDer:MANual:FREQuency
(12):SOURce:WANDer:MANual:AMPLitude:UIPP
(13):SENSe:MEASuer:JWANder:MSELect
(14):SENSe:JITTer:MANual:RANGe?
(15):SENSe:JITTer:MANual:FILTer
(16):SENSe:JITTer:MANual:THReshold
(17):SENSe:JITTer:MANual:COUPled
(18):SENSe:JITTer:MANual:INTerval

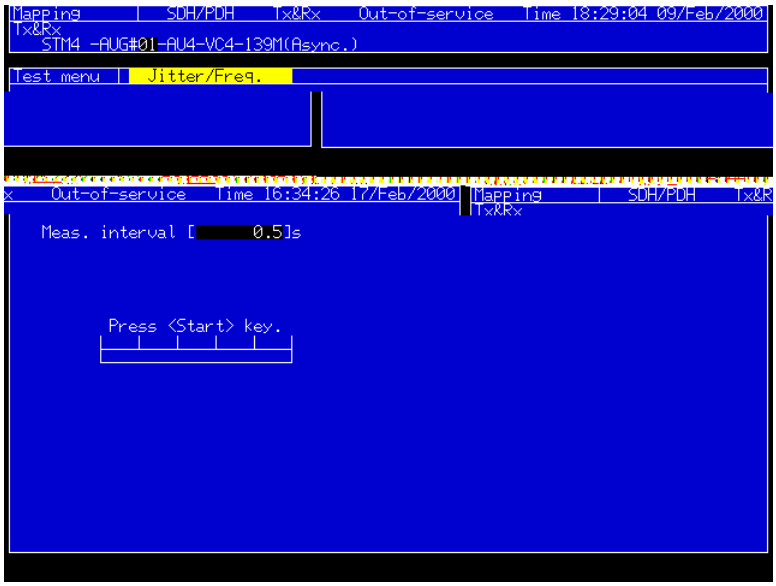
Tolerance subscreen



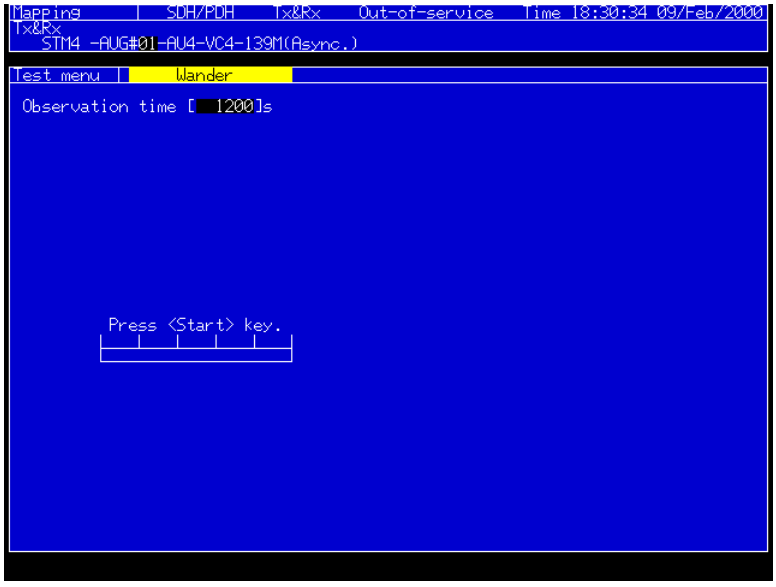
(1):SENSe:JITTer:TOLerance:MASK
(2):SENSe:JITTer:TOLerance:DETection:TYPE
(3):SENSe:JITTer:TOLerance:DETection:ERRor
(4):SENSe:JITTer:TOLerance:DETection:UNIT
(5):SENSe:JITTer:TOLerance:DETection:THReshold:EC
(6):SENSe:JITTer:TOLerance:DETection:THReshold:ER
(7):SENSe:JITTer:TOLerance:MTABle:TYPE
(8):SOURce:JITTer:TOLerance:PTABle:COUNt



(1):SENSe:JITTer:TRANsfer:MODE
(2):SENSe:JITTer:TRANsfer:MASK
(3):SENSe:JITTer:TRANsfer:TYPE
(4):SOURce:JITTer:TRANsfer:PTABle:COUNt
(5):DISPlay:TMENu[:NAME]

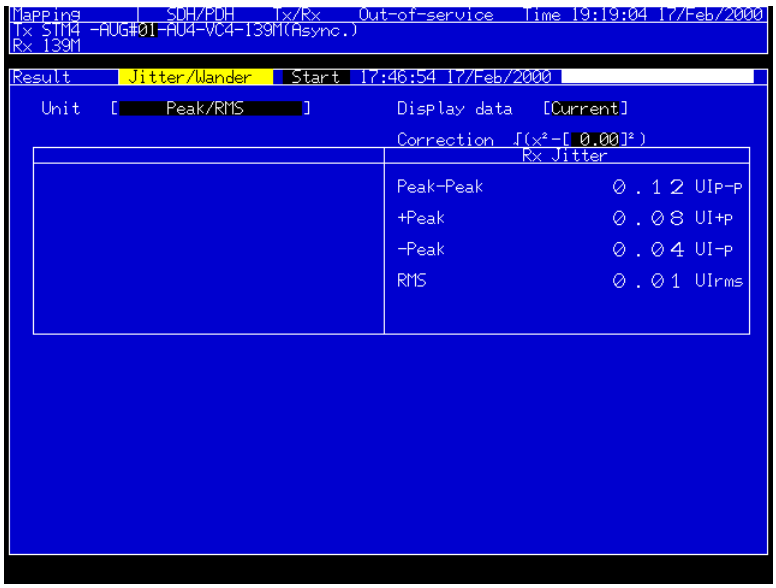


(1):SOURce:JITTer:JFRequency:FREQuency
(2):SOURce:JITTer:JFRequency:STEP
(3):SENSe:JITTer:JFRequency:FILTer
(4):SENSe:JITTer:JFRequency:INTerval
(5):DISPlay:TMENu[:NAME]

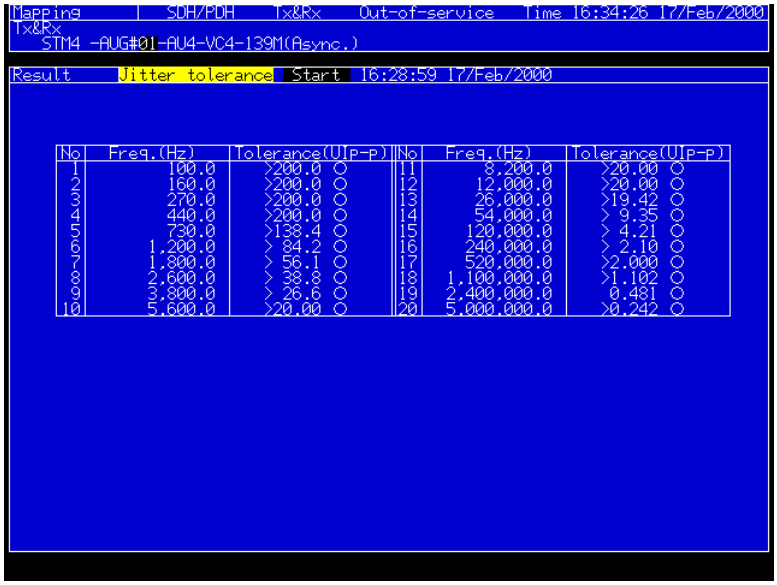


(1):SENSe:WANDer:MANual:COUPled:
(2):SENSe:WANDer:AUTO:INTerval
(3):DISPlay:TMENu[:NAME]

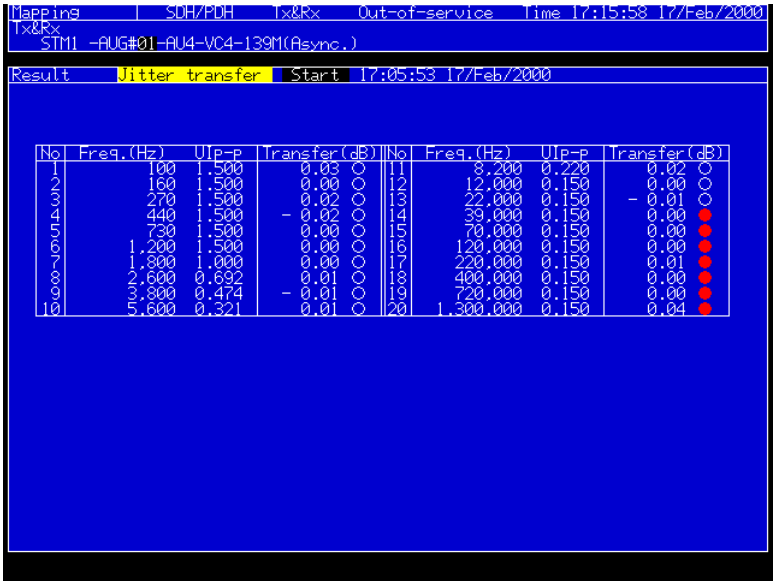
C.2 Result main screen and commands



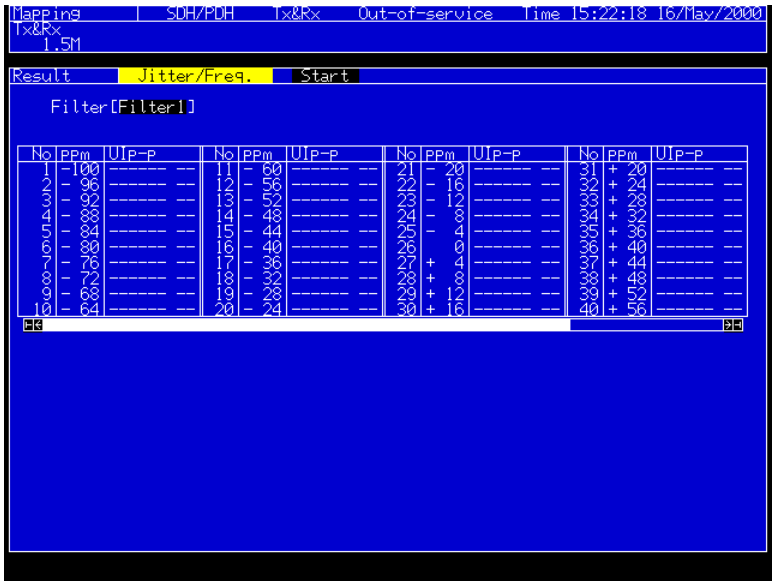
(1):DISPlay:RESult[:NAME]
(2):DISPlay:RESult:JWANder:MODE
(3):DISPlay:RESult:JWANder:UNIT
(4):DISPlay:RESult:JWANder:TIME
(5):SENSe:MEASure:STATe ?
(6):SENSe: JWANder:CORRection:OFFSet



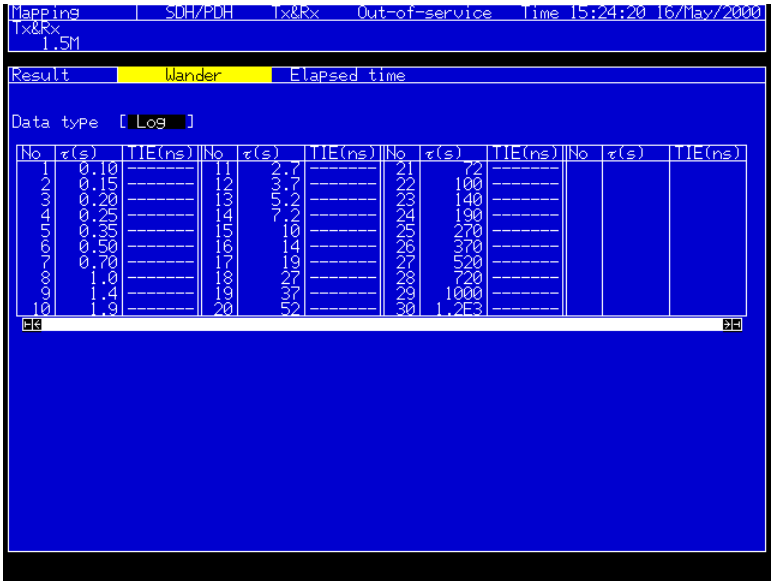
(1):DISPlay:RESult[:NAME]



(1): DISPlay:RESult[:NAME]



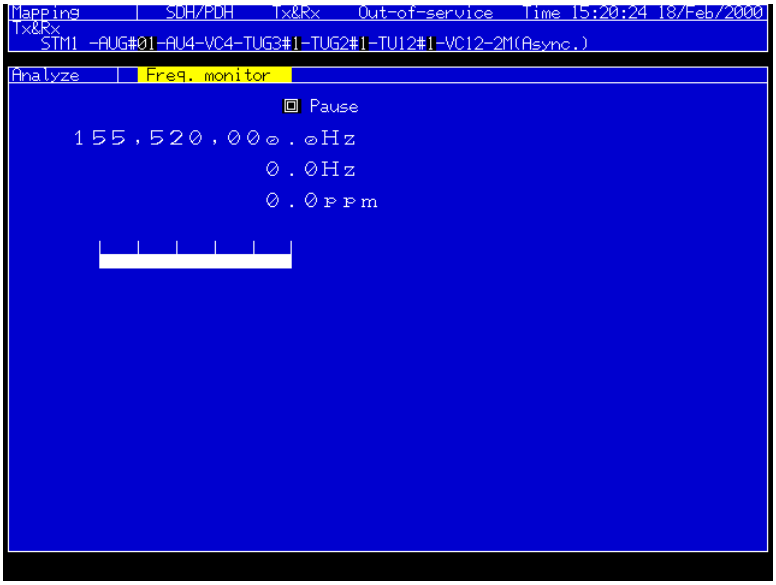
(1):DISPlay:RESult[:NAME]



(1):DISPlay:RESult[:NAME]

C.3 Analyze main screen and commands

Freq. Monitor subscreen

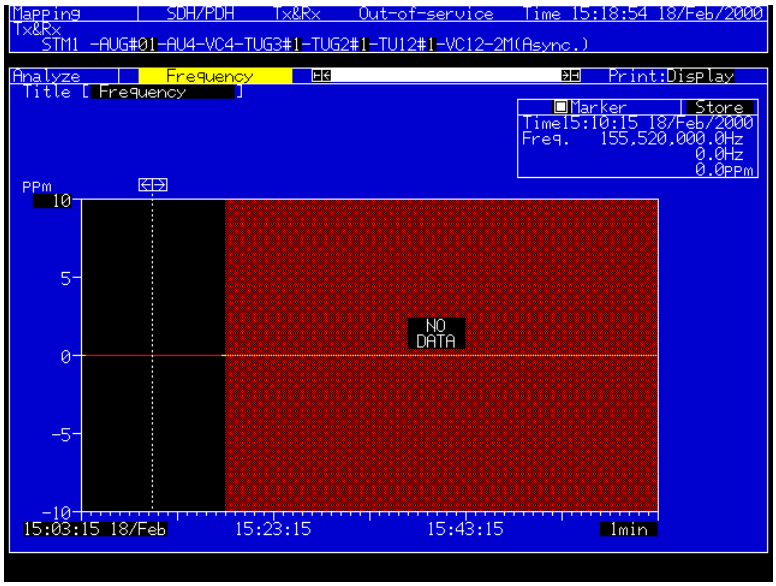


(1):DISPlay:ANALysis:[:NAME]

(2):DISPlay:ANALysis:FMONitor:FREQuency?

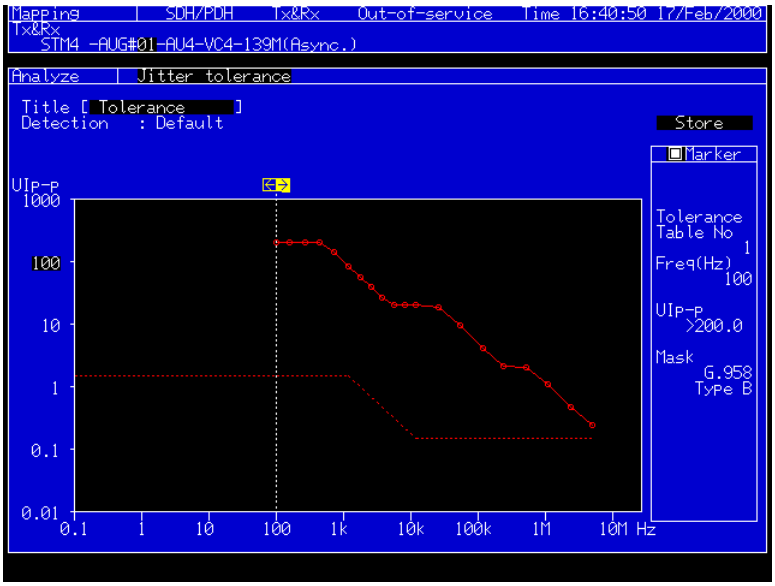
(3):DISPlay:ANALysis:FMONitor:PAUSe

Frequency subscreen



(1):DISPlay:ANALysis:[:NAME]
(2):DISPlay:ANALysis:FGRaph:SCRoll
(3):DISPlay:ANALysis:FGRaph:MARKer
(4):DISPlay:ANALysis:FGRaph:DATA?
(5):DISPlay:ANALysis:FGRaph:INTerval
(6):DISPlay:ANALysis:FGRaph:MDISplay
(7):DISPlay:ANALysis:FGRaph:FROM
(8):DISPlay:ANALysis:FGRaph:PRINt
(9):DISPlay:ANALysis:FGRaph:TITLe
(10):DISPlay:ANALysis:FGRaph:SCALe

Tolerance subscreen



(1): DISPlay:ANALysis:[:NAME]

(2):DISPlay:ANALysis:JTOLerance:TITLe

(3):DISPlay:ANALysis:JTOLerance:MDISplay

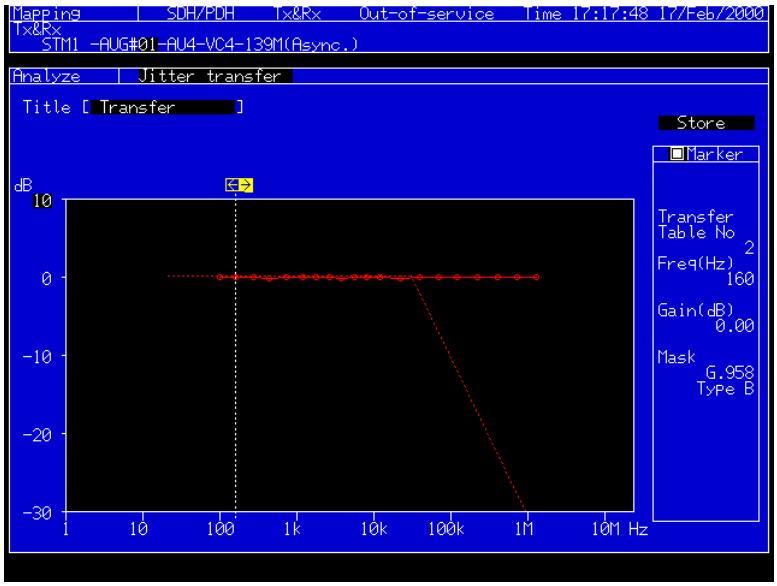
(4):DISPlay:ANALysis:JTOLerance:SEARch

(5):DISPlay:ANALysis:JTOLerance:SCALe

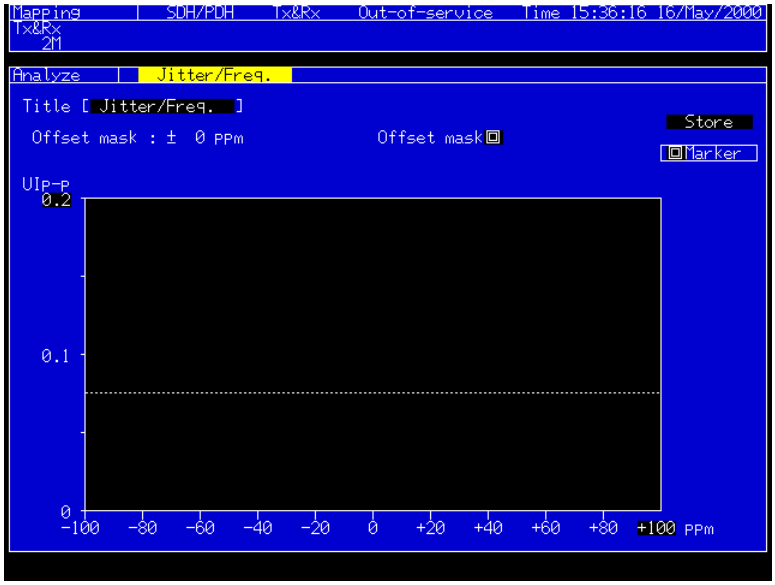
(6):DISPlay:ANALysis:JTOLerance:DATA?

(7):CALCulate:DATA?

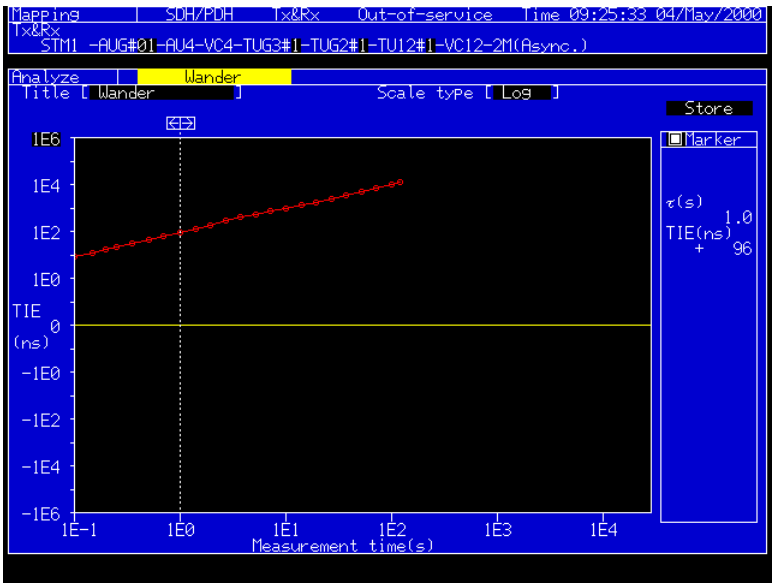
Transfer subscreen



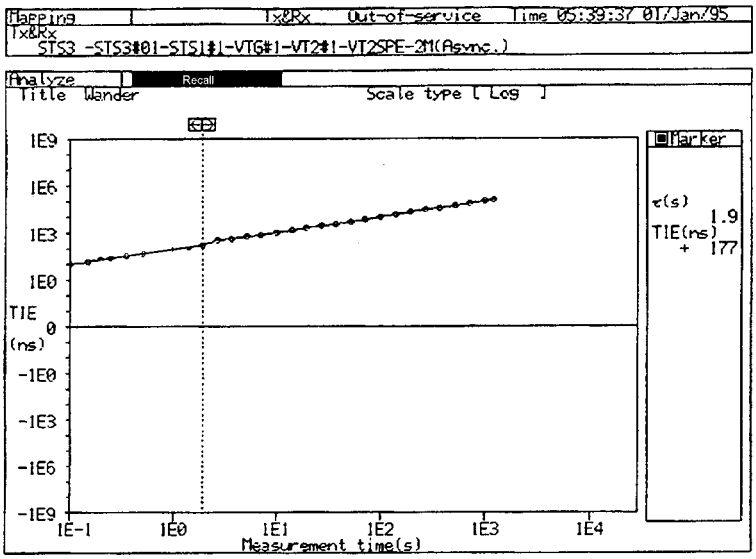
(1):DISPlay:ANALysis:[:NAME]
(2):DISPlay:ANALysis:JTRansfer:TITLe
(3):DISPlay:ANALysis:JTRansfer:MDISplay
(4):DISPlay:ANALysis:JTRansfer:SEARch
(5):DISPlay:ANALysis:JTRansfer:DATA
(6):DISPlay:ANALysis:JTRansfer:SCALe
(7):CALCulate:DATA?



(1):DISPlay:ANALysis:[:NAME]
(2):DISPlay:ANALysis:JFRequency:TITLe
(3):DISPlay:ANALysis:JFRequency:MDSIplay
(4):DISPlay:ANALysis:JFRequency:SEARch
(5):DISPlay:ANALysis:JFRequency:DATA?
(6):DISPlay:ANALysis:JFRequency:SCALe
(7):CALCulate:DATA?



(1):DISPlay:ANALysis:[:NAME]
(2):DISPlay:ANALysis:WANDer:MDISplay
(3):DISPlay:ANALysis:WANDer:SEARch
(4):DISPlay:ANALysis:WANDer:DATA?
(5):DISPlay:ANALysis:WANDer:TITle
(6):DISPlay:ANALysis:WANDer:STYPe
(7):DISPlay:ANALysis:WANDer:SCALe
(8):CALCulate:DATA?
(9):CALCulate:TIE:DATA

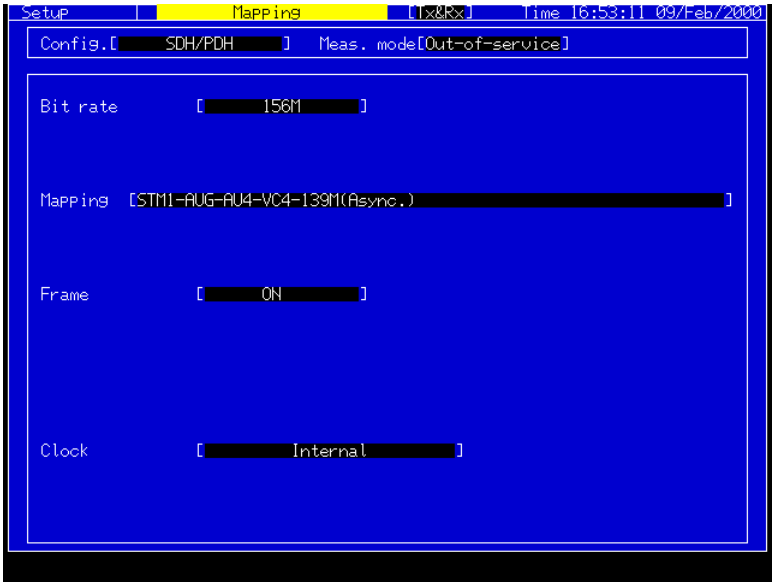


(1):DISPlay:ANALysis[:NAME]
(2):DISPlay:ANALysis:RECall:JTOLerance:MDISplay
(3):DISPlay:ANALysis:RECall:JTOLerance:SEARch
(4):DISPlay:ANALysis:RECall:JTOLerance:DATA?
(5):DISPlay:ANALysis:RECall:JTOLerance:SCALe
(6):DISPlay:ANALysis:RECall:JTOLerance:TITLe
(7):DISPlay:ANALysis:RECall:JTRansfer:MDISplay
(8):DISPlay:ANALysis:RECall:JTRansfer:SEARch
(9):DISPlay:ANALysis:RECall:JTRansfer:DATA?
(10):DISPlay:ANALysis:RECall:JTRansfer:SCALe
(11):DISPlay:ANALysis:RECall:JTRansfer:TITLe
(12):DISPlay:ANALysis:RECall:JFRequency:MDISplay
(13):DISPlay:ANALysis:RECall:JFRequency:SEARch
(14):DISPlay:ANALysis:RECall:JFRequency:DATA?
(15):DISPlay:ANALysis:RECall:JFRequency:SCALe
(16):DISPlay:ANALysis:RECall:JFRequency:TITLe
(17):DISPlay:ANALysis:RECall:FGRaph:PRINt
(18):DISPlay:ANALysis:RECall:FGRaph:MARKer
(19):DISPlay:ANALysis:RECall:FGRaph:SCALe
(20):DISPlay:ANALysis:RECall:FGRaph:TITLe
(21):DISPlay:ANALysis:RECall:WANDer:MDISplay
(22):DISPlay:ANALysis:RECall:WANDer:SEARch
(23):DISPlay:ANALysis:RECall:WANDer:DATA?
(24):DISPlay:ANALysis:RECall:WANDer:TITLe
(25):DISPlay:ANALysis:RECall:WANDer:STYPe
(26):DISPlay:ANALysis:RECall:WANDer:SCALe

(27):DISPlay:ANALysis:RECall:TGRaph:DATA?
(28):DISPlay:ANALysis:RECall:TGRaph:ERRor
(29):DISPlay:ANALysis:RECall:TGRaph:ALARm1
(30):DISPlay:ANALysis:RECall:TGRaph:ALARm2
(31):DISPlay:ANALysis:RECall:TGRaph:ALARm3
(32):DISPlay:ANALysis:RECall:TGRaph:ALARm4
(33):DISPlay:ANALysis:RECall:TGRaph:ALARm5
(34):DISPlay:ANALysis:RECall:TGRaph:TITLe
(35):DISPlay:ANALysis:RECall:TGRaph:SCALe

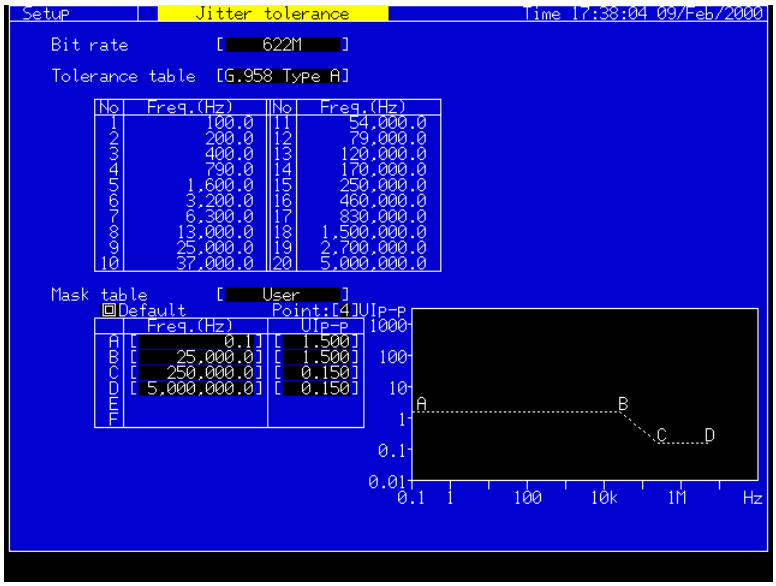
C.4 Setup main screen and commands

Mapping subscreen



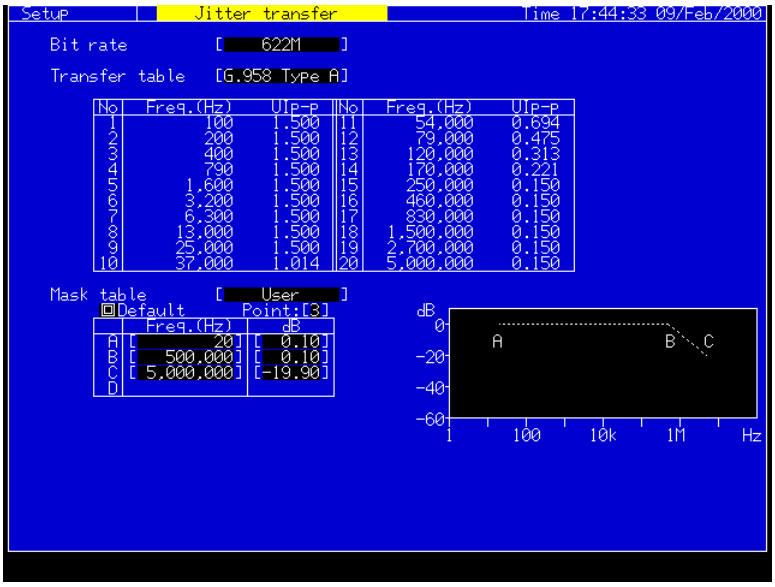
(1):DISPlay:SETup[:NAME]
(2):INSTrument:COUPle
(3):SOURce:TELecom:CLOCk:SOURce
(4):SOURce:JITTer:MANual:MODE
(5):SOURce:WANDer:MANual:MODE
(6):SENSe:MEASuer:JWANder:JITTer:MODE
(7):SENSe:MEASuer:JWANder:WANDer:MODE

Tolerance subscreen



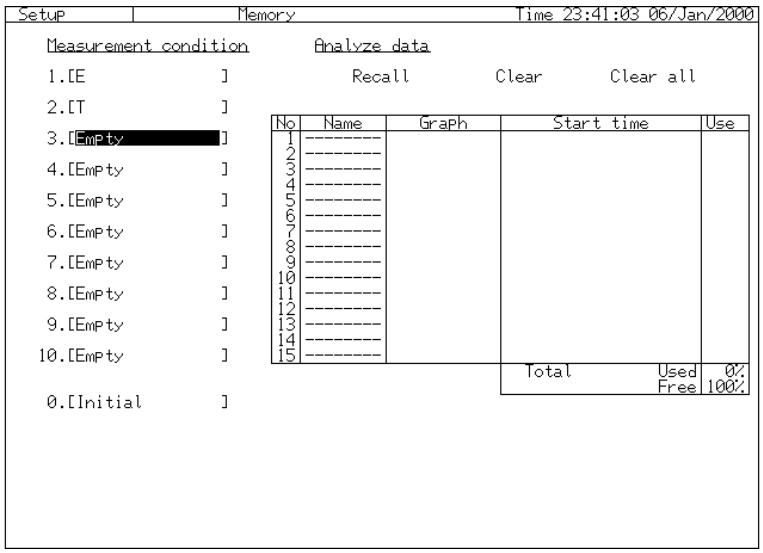
(1):DISPlay:SETup[:NAME]
(2):SOURce:JITTer:TOLerance:PTABle:TYPE
(3):SOURce:JITTer:TOLerance:PTABle:DATA
(4):SOURce:JITTer:TOLerance:PTABle:DEFault
(5):SENSe:JITTer:TRANsfer:MTABle:TYPE
(6):SENSe:JITTer:TRANsfer:MTABle:POINt
(7):SENSe:JITTer:TRANsfer:NTABle:DATA
(8):SENSe:JITTer:TRANsfer:NTABle:DEFault

Transfer subscreen



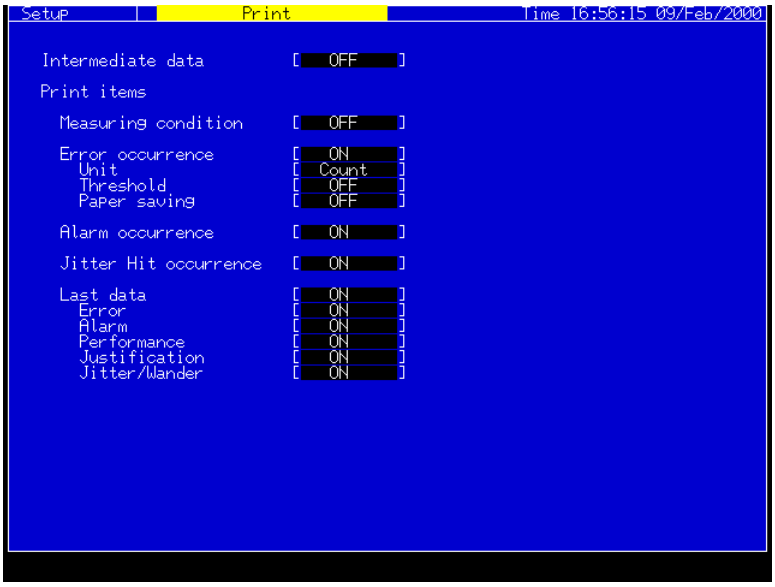
(1):DISPlay:SETup[:NAME]
(2):SOURce:JITTer:TRANsfer:PTABle:TYPE
(3):SOURce:JITTer:TRANsfer:PTABle:DATA
(4):SOURce:JITTer:TRANsfer:PTABle:DEFault
(5):SENSe:JITTer:TOLerance:MTABle:TYPE
(6):SENSe:JITTer:TOLerance:MTABle:POINt
(7):SENSe:JITTer:TOLerance:MTABle:DATA
(8):SENSe:JITTer:TOLerance:MTABle:DEFault

Memory subscreen



(1):DISPlay:SETup[:NAME]
(2):SYSTem:MEMory:ANALsis:LABel
(3):SYSTem:MEMory:ANALysis:STORe

Print subscreen



(1):DISPlay:SETup[:NAME]

(2):SYSTem:PRINt:JITTer:SET

(3):SYSTem:PRINt:LDATa:JWANder

C.5 Front-panel/others commands

Each key	Start /Stop	:SENSe:MEASure:STARt :SENSe:MEASure:STOP :ENSe:MEASure:STATe?
	Measurement Self-checking	:TEST:STARt :TEST:STOP :TEST:STATe?
	On/Off	SYSTem:PRINt:ENABle
	Print	:SYSTem:PRINt:COPY
	Feed	:SYSTem:PRINt:FEED
	History	:SYSTem:LED:HISTory
	History + Reset	:SYSTem:LED:RESet
	Others	:SYSTem:PRINt:TEXT :SYSTem:ERRor? :SYSTem:VERSion? :STARus Subsystem

Appendix D Self-Test Error Code List

As for self-test error codes, refer to the MP1570A Operation Manuals Vol.1.