User's Manual

VC3300
Wireless Communication Tester

YOKOGAWA
Yokogawa Electric Corporation

IM 733020-01E
5th Edition

Thank you for purchasing the VC3300 Wireless Communication Tester.
This user's manual contains useful information about the instrument's functions and operating procedures and lists the handling precautions of the VC3300. To ensure correct use, please read this manual thoroughly before beginning operation. Keep this manual in a safe place for quick reference in the event a question arises.

Three manuals, including this one, are provided as manuals for the VC3300. Please read all of them.

Manual Title	Manual No.	Description
VC3300 Wireless Communication Tester User's Manual	IM 733020-01E	This manual. Explains the functions of the VC3300 and their operating procedures.
VC3300 Wireless Communication Tester GSM/GPRS/EDGE Test Software User's Manual	IM 733021-01E	Explains all the functions and operating procedures including the communication function of the GSM/GPRS/EDGE test software.
VC3300 Wireless Communication Tester WCDMA/HSDPA Test Software User's Manual	IM 733022-01E	Explains all the functions and operating procedures including the communication function of the WCDMA/HSDPA test software.

Notes

- The contents of this manual are subject to change without prior notice as a result of continuing improvements to the instrument's performance and functions. The figures given in this manual may differ from those that actually appear on your screen.
- Every effort has been made in the preparation of this manual to ensure the accuracy of its contents. However, should you have any questions or find any errors, please contact your nearest YOKOGAWA dealer.
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Revisions

1st Edition: February 2006
2nd Edition: May 2006
3rd Edition: June 2006
4th Edition: September 2006
5th Edition: June 2007

5th Edition : June 2007 (YK)

Use of Open Source License Software

This product uses software based on the open source license of GPL (GNU General Public License), etc.

GPL (the GNU General Public License) Provisions

For details on the GPL, see the following URL.

URL http://www.gnu.org/copyleft/gpl.html

Scope of Warranty and Responsibility

YOKOGAWA does not guarantee the operation of the open source software itself in accordance with the GPL and related provisions.

Individual Information of the Open Source Software

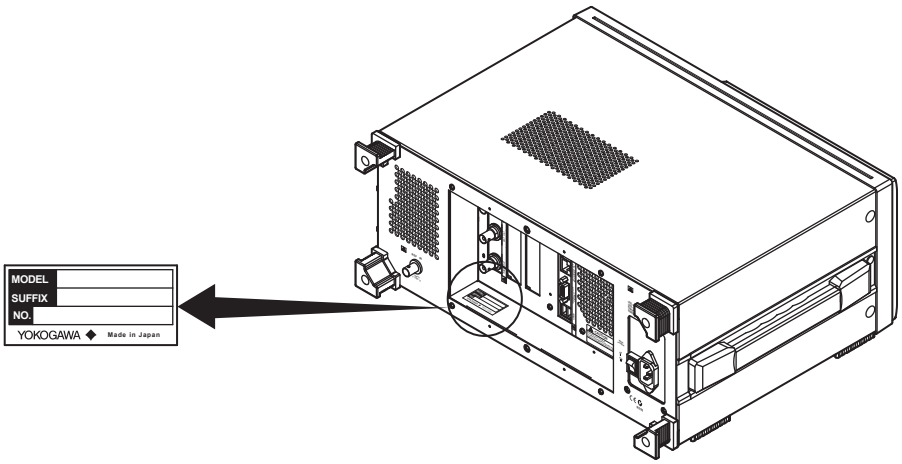
For details on the module names and source codes of the open source software that the VC3300 uses, contact your nearest YOKOGAWA dealer.

Checking the Contents of the Package

Unpack the box and check the contents before operating the instrument. If some of the contents are not correct or missing or if there is physical damage, contact the dealer from which you purchased them.

VC3300

Check that the model name and suffix code given on the name plate on the rear panel match those on your order.



MODEL and SUFFIX Codes

Model/Specification Item	Suffix Code	Description
733020		VC3300 Wireless Communication Tester
Power cord	-D	UL/CSA Standards Power Cord (Part No.: A1006WD) Maximum Rated Voltage: 125 V, Maximum Rated Current: 7 A
	-F	VDE Standards Power Cord (Part No.: A1009WD) Maximum Rated Voltage: 250 V, Maximum Rated Current: 10 A
	-Q	BS Standards Power Cord (Part No.: A1054WD) Maximum Rated Voltage: 250 V, Maximum Rated Current: 10 A
	-R	AS Standards Power Cord (Part No.: A1024WD) Maximum Rated Voltage: 250 V, Maximum Rated Current: 10 A
	-H	GB Standards Power Cord (Part No.: A1064WD) Maximum Rated Voltage: 250 V, Maximum Rated Current: 10 A
Options	/G	GSM Test Software Preinstalled
	/W	WCDMA Test Software Preinstalled
	/E	GSM/GPRS/EDGE Test Software Preinstalled
	/HD1	WCDMA/HSDPA Test Software Preinstalled
	/C1	GP-IB Interface

NO. (Instrument Number)

When contacting the dealer from which you purchased the instrument, please give them this number.

Options

These test softwares can be added to the VC3300 afterwards.

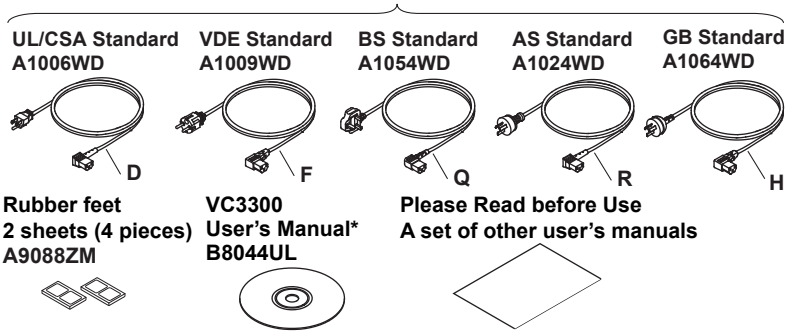
Model	Description	Standard Accessories
733021	GSM Test Software	2 CD-ROMs (part number: B8044UM, B8044UL)*
733022	WCDMA Test Software	2 CD-ROMs (part number: B8044UN, B8044UL)*
733023	GSM/GPRS/EDGE Test Software	2 CD-ROMs (part number: B8044UP, B8044UL)*
733025	WCDMA/HSDPA Test Software	2 CD-ROMs (part number: B8044UR, B8044UL)*
733026	HSDPA Test Software	2 CD-ROMs (part number: B8044US, B8044UL)*

* Includes a CD-ROM used to add the test software to the VC3300 and a CD-ROM containing electronic data (PDF file) of the user's manual.

Standard Accessories

The standard accessories below are supplied with the instrument.

Power Cord (one of the following power cords is supplied according to the instrument's suffix codes)

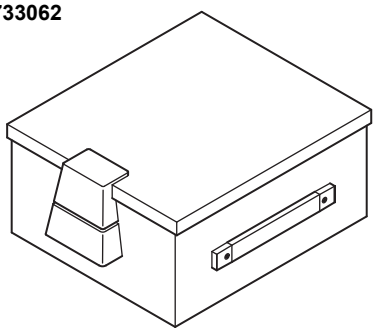


* Contains electronic data (PDF data) of the following user's manuals.
VC3300 Wireless Communication Tester User's Manual
VC3300 GSM/GPRS/EDGE Test Software User's Manual
VC3300 WCDMA/HSDPA Test Software User's Manual
The functions of each test software can be used when the software set is preinstalled (models with the /G, /W, /E, or /HD1 option) or when the Model733021/Model733022/Model 733023/ Model733025/Model733026 is purchased separately.

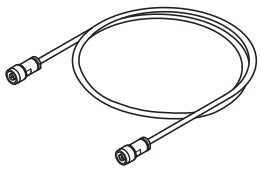
Optional Accessories (Sold Separately)

The optional accessories below are available for purchase separately.

VC-SHIELD shield box
733062



RF cable (type N) 1 m
739821



Test USIM*
733065-E02

* The test USIM is required when measuring in manual mode (signaling) or scenario mode (signaling).

Safety Precautions

This instrument is an IEC safety class I instrument (provided with a terminal for protective earth grounding).
The general safety precautions described in this manual must be observed during all phases of operation. If the instrument is used in a manner not specified in these manuals, the protection provided by the instrument may be impaired. Yokogawa Electric Corporation assumes no liability for the customer's failure to comply with these requirements.

The following symbols are used on this instrument.


Warning: handle with care. Refer to the user's manual or service manual.
This symbol appears on dangerous locations on the instrument which require special instructions for proper handling or use. The same symbol appears in the corresponding place in the manual to identify those instructions.)


Alternating current

ON (power)


OFF (power)


(Standby)

Waste Electrical and Electronic Equipment (WEEE), Directive 2002/96/EC

(This directive is only valid in the EU).
This product complies with the WEEE Directive (2002/96/EC) marking requirement. The following marking indicates that you must not discard this electrical/electronic product in domestic household waste.

Product Category
With reference to the equipment types in the WEEE directive Annex 1, this product is classified as a "Monitoring and Control instrumentation" product.

Do not dispose in domestic household waste. When disposing products in the EU, contact your local Yokogawa Europe B. V. office.

Make sure to comply with the precautions below. Not complying might result in injury or death.

WARNING

Use the Correct Power Supply
Before connecting the power cord, ensure that the source voltage matches the rated supply voltage of the instrument and that it is within the maximum rated voltage of the provided power cord.

Use the Correct Power Cord and Plug
To prevent the possibility of electric shock or fire, be sure to use the power cord supplied by YOKOGAWA. The main power plug must be plugged into an outlet with a protective earth terminal. Do not disable this protection by using an extension cord without protective earth grounding.

Connect the Protective Grounding Terminal
Be sure to connect the protective earth to prevent electric shock before turning ON the power. The power cord that comes with the instrument is a three-prong type power cord. Connect the power cord to a properly grounded three-prong outlet.

Do Not Impair the Protective Grounding
Never cut off the internal or external protective earth wire or disconnect the wiring of the protective earth terminal. Doing so poses a potential shock hazard.

Do Not Operate with Defective Protective Grounding or Fuse
Do not operate the instrument if the protective earth or fuse might be defective. Also, make sure to check them before operation.

Do Not Operate in an Explosive Atmosphere
Do not operate the instrument in the presence of flammable liquids or vapors. Operation in such an environment constitutes a safety hazard.

Do Not Remove Covers
The cover should be removed by YOKOGAWA's qualified personnel only. Opening the cover is dangerous, because some areas inside the instrument have high voltages.

Ground the Instrument before Making External Connections
Securely connect the protective grounding before connecting to the item under measurement or to an external control unit. If you are going to touch the circuit, make sure to turn OFF the circuit and check that no voltage is present.

Be sure to comply with the precautions below. There are limitations to the operating environment.

CAUTION

This product is a Class A (for industrial environment) product. Operation of this product in a residential area may cause radio interference in which case the user is required to correct the interference.

Conventions Used in This Manual

Markings

The following markings are used in this manual.

Improper handling or use can lead to injury to the user or damage to the instrument. This symbol appears on the instrument to indicate that the user must refer to the user's manual for special instructions. The same symbol appears in the corresponding place in the user's manual to identify those instructions. In the manual, the symbol is used in conjunction with the word "WARNING" or "CAUTION."

WARNING Calls attention to actions or conditions that could cause serious or fatal injury to the user, and precautions that can be taken to prevent such occurrences.

CAUTION Calls attentions to actions or conditions that could cause light injury to the user or damage to the instrument or user's data, and precautions that can be taken to prevent such occurrences.

Note Calls attention to information that is important for proper operation of the instrument.

Subheadings

On pages that describe the operating procedures in chapters 4 through 10, the following symbols, displayed characters, and terminology are used to distinguish the procedures from their explanations.

Procedure Only a guide on the items that require operation is given. For details on the menu operation, see section 3.6, "Basic Menu Operation."

Explanation This section describes the setup items and the limitations regarding the procedures. It may not give a detailed explanation of the function. For a detailed explanation of the function, see chapter 2.

Displayed Characters and Terminology Used in the Procedural Explanations

Panel Keys and Soft keys
Bold characters used in the procedural explanations indicate characters that are marked on the panel keys or the characters of the soft keys or menus displayed on the screen.

SHIFT+Key
SHIFT+key means you will press the SHIFT key to turn ON the SHIFT key followed by the operation key. The setup menu marked in purple above the panel key that you pressed appears on the screen.

Unit

k	Denotes 1000. Example: 12 kg, 100 kHz
K	Denotes 1024. Example: 459 KB (file data size)

Contents

1.1 Front Panel and Rear Panel

Front Panel

Rotary knob
Used to set values, move the cursor, and select items in setup operations.

RESET key
Resets the value entered using the rotary knob to default.

SET key
Enters (Confirms) the item or value set using the rotary knob.

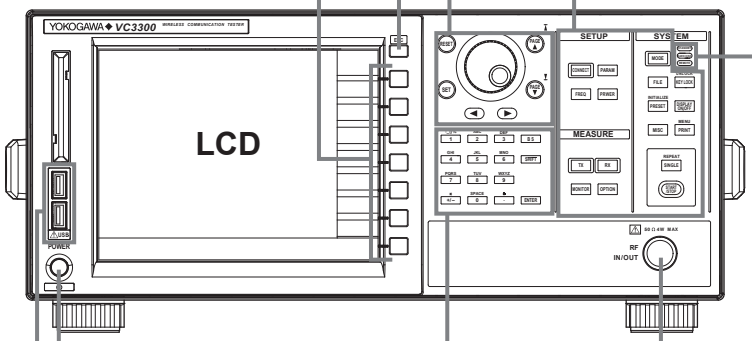
< and > keys
Used to move between digits when entering a value using the rotary knob and when changing a value or moving the cursor.

PAGE UP and PAGE DOWN keys
Used to scroll the file list.

ESC key
Used to clear a setup menu and dialog box.

Setup and execution keys
Keys that are pressed first when entering a setting or executing an operation. Displays various setup menus. For execution keys, the operation of the pressed key is executed. (section 1.2)

Soft keys
Used to select items on the setup menu that appears on the screen.



LED
- STANDBY: Illuminates when only the main power switch is ON (standby mode).
- HARD DISK: Illuminates while the internal hard disk is being accessed.
- REMOTE: Illuminates when the VC3300 is in remote mode.

Power switch
(section 3.4)

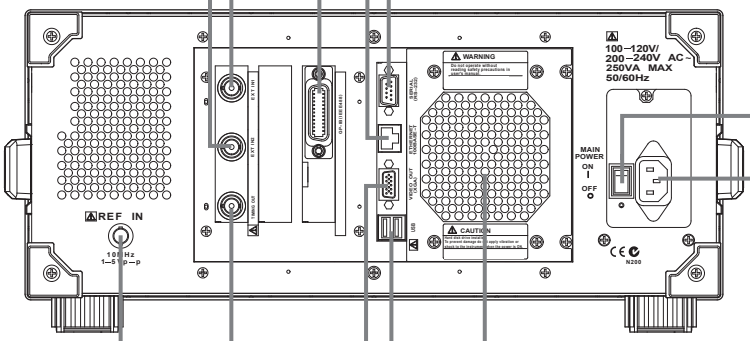
USB port ⚠
(section 5.1)

RF input/output connector
A terminal for connecting the mobile phone and the VC3300 with the RF interface. (section 3.5)

Numeric keys
Used to enter a value, unit, or character string. (section 3.7)

SHIFT key
The keys enter the shifted state when you press the SHIFT key and the SHIFT key illuminates.
The setup menu marked in purple above the setup keys can be selected.
In addition, the purple characters above the numeric keys can be selected.

Rear Panel



EXT IN2 ⚠
Used when applying external signals.
(Section 3.7 and Section 9.4)

EXT IN1 ⚠
Used when applying external signals.
(Section 3.7 and Section 9.4)

GP-IB connector (Option)
Connector used to connect the VC3300 to the controller (PC) using a GP-IB cable. (chapter 10)

Ethernet port (section 6.1)

Serial (RS-232) connector
Used when communicating via the serial interface. (chapter 10)

Main power switch (Section 3.4)

Power connector ⚠
(section 3.3)

Outlet holes (section 3.2)

USB port ⚠
Used when connecting a USB memory. (section 5.1)

Video signal output connector (section 9.3)

Timing signal output terminal ⚠
(section 9.2 in this manual or chapter 4 in the *User's Manual IM733021-01E or IM733022-01E*)

Reference input terminal ⚠
(section 9.1)

1.2 Setup and Execution Keys

References to other user's manuals are denoted as follows:
GSM-Sec. X.X: See section X.X in the *GSM/GPRS/EDGE Test Software User's Manual (IM733021-01E).*
WCDMA-Sec. X.X: See section X.X in the *WCDMA/HSDPA Test Software User's Manual (IM733022-01E).*

SETUP Key

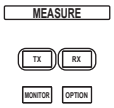
CONNECT Key (WCDMA-Sec. 2.5 or GSM-Sec. 2.5)
Displays the menu used to select and execute the signaling method. However, if the test mode is set to scenario, a menu used to execute the scenario is displayed.

PARAM Key (WCDMA-Sec. 2.2, 3.2, and 3.3 or GSM-Sec. 2.2 and 3.2)
Display the menu used to set parameters other than the frequency and RF power.

FREQ Key (WCDMA-Sec. 2.3 and 3.4 or GSM-Sec. 2.3 and 3.3)
Displays the menu used to set frequency parameters.

POWER Key (WCDMA-Sec. 2.4 and 3.5 or GSM-Sec. 2.4)
Displays the menu used to set RF power parameters.

MEASURE Key



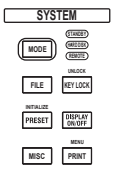
TX Key (WCDMA-Sec. 2.6 and 3.6 or GSM-Sec. 2.6 and 3.5)
Displays the menu used to set the transmitter characteristics (TX characteristics) measurement and the measurement results.

RX Key (WCDMA-Sec. 2.7 and 3.7 or GSM-Sec. 2.7 and 3.6)
Displays the menu used to set the receiver characteristics (RX characteristics) measurement and the measurement results.

MONITOR Key
Displays the spectrum and measured values in WCDMA TXRX mode. Note that the spectrum monitor functions are set using communication commands.

OPTION Key
To be supported in the near future.

SYSTEM Key



MODE Key (WCDMA-Sec. 2.1 and 3.1 or GSM-Sec. 2.1 and 3.1)
Displays the menu used to select the test mode (manual, TXRX or scenario) and the wireless standard (GSM, GPRS, EGPRS, or WCDMA).

FILE Key (See chapter 5)
Displays the menu used to save various data to the internal hard disk or USB memory and load various data to the VC3300.

PRESET Key (See section 8.3)
Displays the menu used to save setup parameters to presets and change the VC3300 settings to the stored preset settings.

INITIALIZE (SHIFT+PRESET) Key (See section 8.4)
Resets the settings to factory default.

MISC Key (See sections 3.8, 6.2, 8.7, and 9.1)
Displays the menu used to set the date/time, set TCP/IP, select the language, set the reference input, etc.

KEY LOCK Key (See section 8.5)
Locks the front panel keys except the power ON/OFF switch and UNLOCK key. The KEY LOCK key illuminates while the keys are locked.

UNLOCK (SHIFT+KEY LOCK) Key (See section 8.5)
Releases the key lock.

DISPLAY ON/OFF Key (See section 8.6)
Turns ON/OFF the LCD backlight.

PRINT Key (See section 8.2)
Prints the screen image data to the specified output destination.

MENU (SHIFT+PRINT) Key (See sections 6.3 and 8.2)
Displays the setup menu for saving/printing screen images.

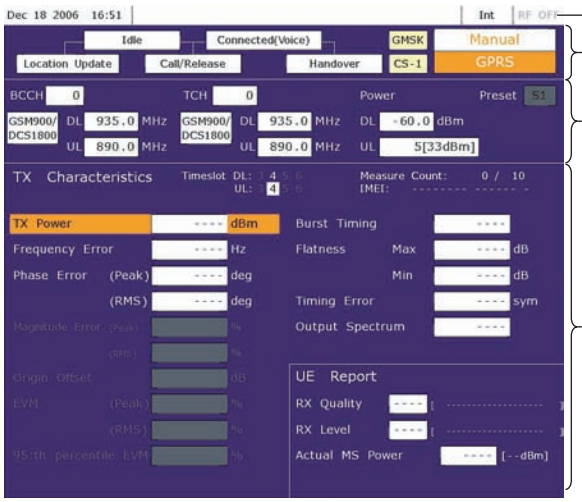
Measurement Keys

SINGLE (REPEAT) Key (See section 4.1)
Selects the measurement mode (single or repeat). The key illuminates when single mode is enabled.

START/STOP Key (See section 4.2)
Starts/stops the measurement. The START/STOP key illuminates while measurement is in progress.

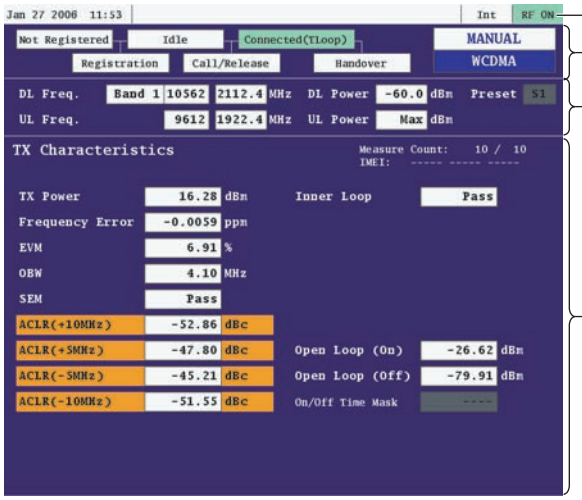
1.3 Display

GSM



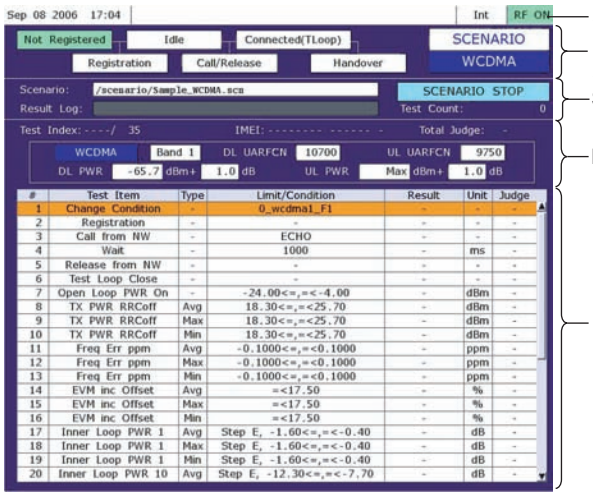
System status display area
Connection status/operation display area
Setting display area
Measured value display area

WCDMA



System status display area
Connection status/operation display area
Setting display area
Measured value display area

Scenario



System status display area
Connection status/operation display area
Setting display area
Preset display area
Scenario display area

System Status Display Area

Displays the date/time, status message, clock in use (Int/Ext), and the RF power output status (ON or OFF). For details on the status messages, see section 11.2.

Connection Status/Operation Display Area

- **Connection Status**
  The background color of the current status turns light green. The background color of other statuses is white.
  - Not Registered (for WCDMA)
  - Idle
  - Idle (attached): Status in which packet communication is possible (successful attachment from a mobile phone)
  - Connected (TLoop): Connected status (test loop)
  - Connected (Voice): Connected status (voice)
  - Connected (Video): Connected status (video)
  - Connected (HSDPA): Connected status (for HSDPA)
  - Connected (Packet): Packet communication status (for GPRS/EDGE)

- **Operation**
  The background color of the current operation turns to a cream color. If the operation fails, the background color turns red. The background color for operations that are not in progress is white.
  - Registration: Registration in progress (for WCDMA)
  - Location Update: Location update in progress (for GSM, GPRS, and EGPRS)
  - Routing Update: Routing area update in progress (for GPRS and EGPRS)
  - Attach request: Processing an attach request from a mobile phone (during packet communication)
  - Detach request: Processing a detach request from a mobile phone (during packet communication)
  - Call/Release: Call or release in progress
  - Handover: Handover in progress

Setting Display Area

Displays the current DL and UL frequencies, DL and UL powers, and the selected preset number. If the test mode is set to scenario, the scenario file name, the result log file name, and the progress status of the scenario (the test sequence number in progress, the total number of test sequences, and the progress as a percentage) are displayed.

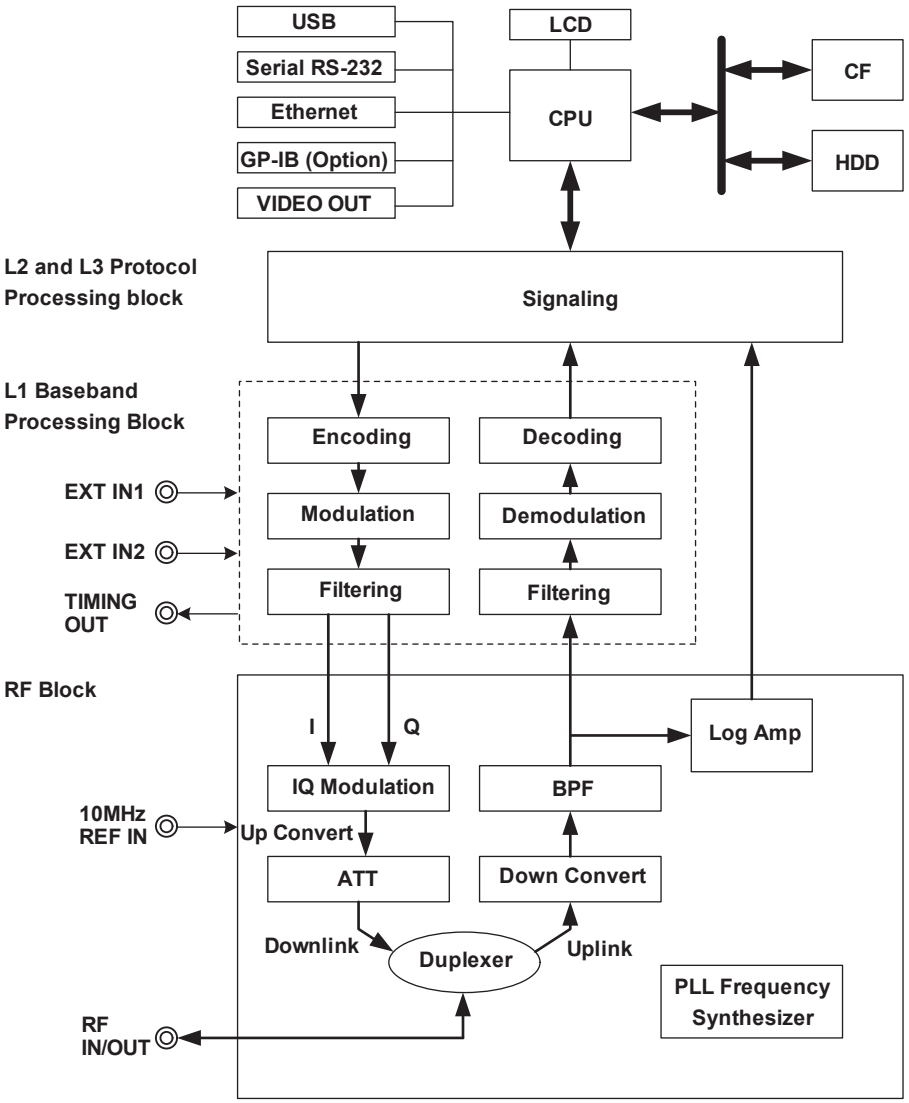
Measured Value Display Area (Measurement Display)

The TX characteristics measurement display and RX characteristics measurement display are available. Each display consists of a list display and detail display. For details, see section 1.1 or 1.2 in the *User's Manual IM733021-01E* or *IM733022-01E*.

Scenarios Display Area (during Scenario Mode)

Displays the test sequences that have been loaded from the scenario file, the measured values, and the judgement results.
In addition, the number of completed scenarios and the number of total judgement results (pass, fail, or abort) can be displayed.

2.1 Block Diagram

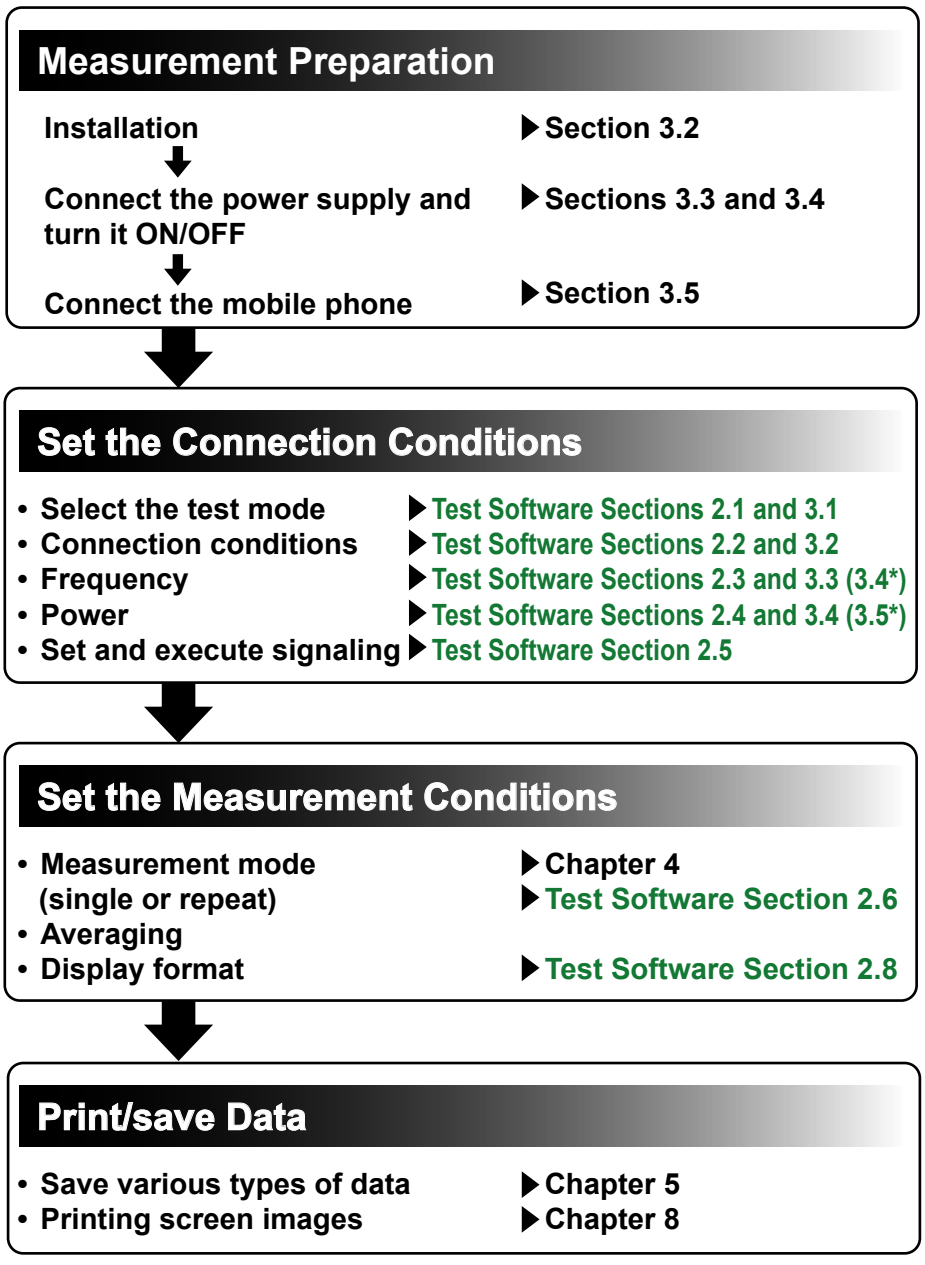


The VC3300 operates various modes. TXRX mode measures only the physical layer. Manual and scenario modes measure also the protocol operation.
In TXRX tester mode, only the L1 baseband processing block and the RF processing block operate (the L2 and L3 protocol processing blocks do not operate) measuring the downlink physical layer signal transmission and uplink physical layer signal reception.
In manual and scenario modes, the operation of the L2 and L3 protocol processing blocks are added to the physical layer processing. Signaling is performed on the mobile station that is connected, and a series of call connection tests and a radio characteristics test which is performed using loopback mode that is controlled by the Test Control protocol are executed.

2.2 Flow of Operation

The general flow of VC3300 operation is given below. For a description of each item, see the relevant section or chapter.

* See the User's Manual IM733021-01E or IM733022-01E for reference sections with "Test Software" written in front. For all other references, see the relevant chapter or section in this manual.



* For IM733022-01E (WCDMA test software)

2.3 Measurements in Manual Mode (Signaling)

In manual mode, the signaling of the protocol software is used to perform call connection function tests and radio characteristics measurements, and the test results and measured values are displayed.

Call Connection Function Test

This test includes registration, location update, call setup from NW, call setup from UE, call release from NW, call release from UE, speech test, frequency handover, inter-RAT handover, test loop (close/open), emergency call, etc.

Radio Characteristics Measurement

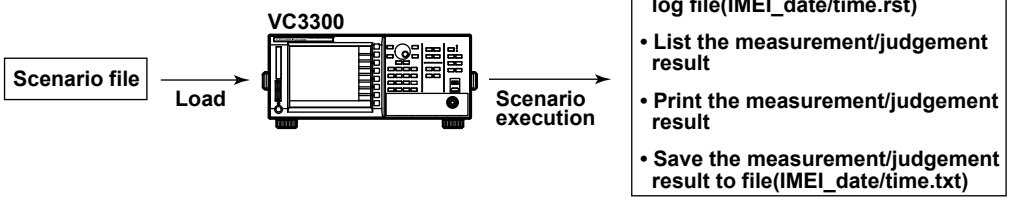
The measurement items vary depending on the communication standard of the item under measurement. For details on the measurement items, see the User's Manual of the respective test software program.

2.4 Measurements in TXRX Mode (without Signaling)

In TXRX mode, the following operations are carried out simultaneously without activating the protocol (no signaling): the transmission of the downlink signals from the VC3300, the reception of the uplink signals from the mobile phone, and the measurement of the radio characteristics. You can perform a receiver characteristics test (RX test) and a transmitter characteristics test (TX test) on the mobile phone without signaling.

2.5 Scenario Mode (Singnaling)

In scenario mode, the VC3300 loads a file (scenario file) containing the test sequence and test conditions and automatically executes the test according to the file.
The VC3300 determines whether the measured values meet predefined criteria. The judgement result is displayed on the screen. Detailed information such as the measured values and judgement criteria can be listed on the result display screen. The information can also be saved automatically to the internal hard disk.



2.6 Other Functions

Saving and Loading Data <<For procedures, see chapter 5.>>

You can save and load various types of data from the internal hard disk or a USB memory connected to the VC3300. You can also copy or delete the saved files and create directories.

FTP Server Function <<For procedures, see chapter 6.>>

You can upload or download files from the VC3300 internal hard disk by accessing the VC3300 using FTP from a PC on the network.
This function can be used on a PC running an FTP client.

Printing Screen Images <<For procedures, see section 8.2.>>

You can print screen images on a network printer.

Saving and Applying Preset Settings <<For procedures, see section 8.3.>>

You can save the settings as a preset and set the VC3300 back to the preset settings by pressing a single key. Up to six presets can be registered.

Initializing Settings <<For procedures, see section 8.4.>>

You can reset the settings to factory default settings.

Turning ON/OFF the Key Lock <<For procedures, see section 8.5.>>

You can disable setup operations using the front panel keys (lock the keys) excluding the operation of turning key lock OFF.

Turning ON/OFF the Display <<For procedures, see section 8.6.>>

You can turn the display OFF by turning the backlight OFF when you do not need to view the display.

Auxiliary I/O <<For procedures, see chapter 9.>>

- **Reference Input**
  The VC3300 has a built-in reference frequency oscillator. However, you can also input a 10-MHz external reference signal to the REF IN terminal on the rear panel and use it as the frequency reference.
- **Timing Signal Output**
  The VC3300 can output timing signals synchronized to the frames and time slots of the output signal, the clock rate, etc. The selectable signals vary depending on the wireless standard. For details, see section 9.4 in this manual and section 4.1 in the *User's Manual IM733021-01E* or *IM733022-01E*.
- **Video Signal Output**
  You can use the video signal output function to display the VC3300 screen on a separate monitor. The resolution is XGA (1024 × 768). Connect a monitor that can display XGA resolution.
- **External Signal Input**
  This input is used when applying an external signal such as in the RX characteristics (BER) measurement in TXRX mode.

Communication Using Commands <<For procedures, see chapter 10.>>

An Ethernet port and serial (RS-232) port are equipped as standard. A GP-IB connector can also be equipped as an option. Remote communication commands can be used to control the VC3300 from a PC and retrieve the measured results into a PC.

DHCP Client Function

This function automatically retrieves information that is required in connecting to the network when the power is turned ON. The following information is retrieved:

- IP address
- Subnet mask
- Broadcast
- Default gateway

3.1 Handling Precautions

Read the Safety Precautions

Safety Precautions

When using the VC3300 for the first time, make sure to read “Safety Precautions” on pages v and vi.

Do Not Remove the Case

Do not remove the case from the instrument. Some sections inside the instrument have high voltages that are extremely dangerous. For internal inspection and adjustment, contact your nearest YOKOGAWA dealer.

Unplug If Abnormal Behavior Occurs

Stop using the instrument if there are any symptoms of trouble such as strange odors or smoke coming from the instrument. If these symptoms occur, immediately turn OFF the power and unplug the power cord. If these symptoms occur, contact your nearest YOKOGAWA dealer.

If the Cooling Fan Stops

If a message “Fan stopped” appears on the display, the cooling fan is stopped. Immediately turn OFF the power switch. If the same message appears when you turn ON the power switch again, it is probably a malfunction. Contact your nearest YOKOGAWA dealer.

Do Not Damage the Power Cord

Nothing should be placed on top of the power cord. The power cord should also be kept away from any heat sources. When unplugging the power cord from the outlet, never pull by the cord itself. Always hold and pull by the plug. If the power cord is damaged, check the part number indicated on page iii and purchase a replacement.

General Handling Precautions

Do Not Place Objects on Top of the Instrument

Never place objects containing water on top of the instrument, otherwise a breakdown may occur.

Do Not Apply Shock or Vibration

Do not apply shock or vibration. If you do, the VC3300 may malfunction. Exercise extra caution because the internal hard disk is sensitive to vibration and shock. In addition, applying shock to the input/output terminal or the connected cable can cause electrical noise to enter or output from the instrument.

Do Not Damage the LCD

The LCD is very vulnerable to scratches. Be careful not to damage the surface with sharp objects. Also, do not apply vibration or shock to it.

Keep Electrically Charged Objects Away from the Instrument

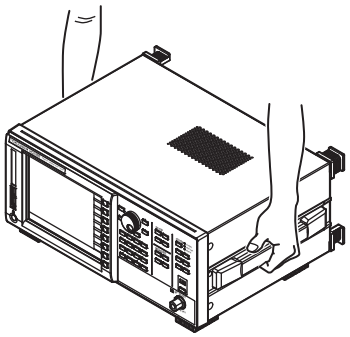
Keep electrically charged objects away from the input connectors. They may damage the internal circuitry.

Unplug during Extended Non-Use

Turn OFF the power switch and remove the power cord from the outlet.

Carry the Instrument Properly

First, remove the power cord and connection cables. The instrument weighs approximately 10 kg. To carry the instrument, hold the handle with both hands as shown in the figure below, and move it with care.



When Wiping off Dirt

When wiping off dirt from the case or operation panel, turn OFF the power switch and remove the power cord from the outlet. Then, gently wipe with a soft dry clean cloth. Do not use chemicals such as benzine or thinner since these may cause discoloring and deformation.

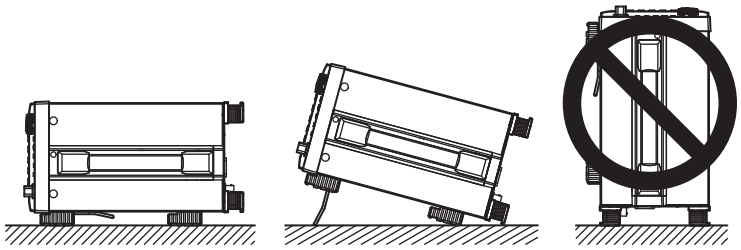
3.2 Installation

Installation Position

WARNING

To prevent fire, never use the instrument with the rear panel facing down. There are vent holes for the cooling fan on the rear panel. Placing the instrument with the rear panel down can cause a fire when the instrument malfunctions. If you must use the instrument with the rear panel down, place a metal plate or a flame-resistive barrier (grade UL94V-1 or higher) beneath the instrument.

- As shown in the figure below, place the instrument in a horizontal position or by using the stand.
- When using the stand, pull the stand forward until it locks (perpendicular to the bottom surface of the instrument). If you are not using the stand, return it to the original position while pressing the leg section of the stand inward.
- If you are installing the instrument on a slippery surface, attach the rubber feet (four pieces) to the feet on the bottom panel.

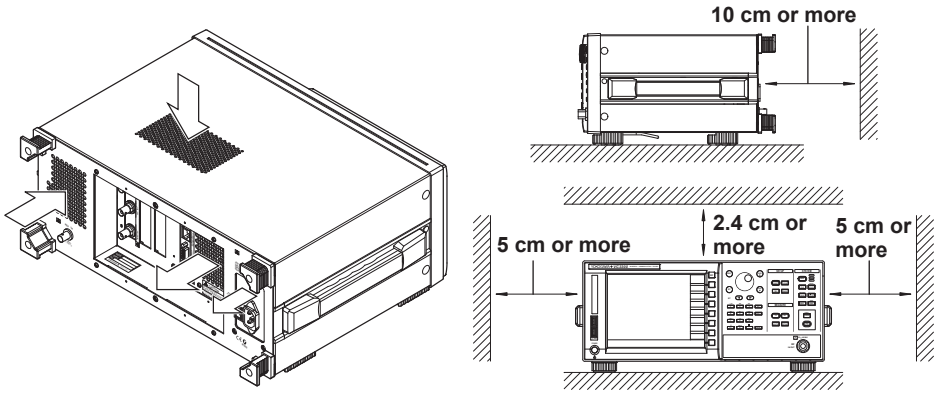


Installation Conditions

Install the instrument in a place that meets the following conditions:

Well-Ventilated Location

Inlet/Vent holes are located on the top and rear of the instrument. In addition, there are vent holes for the cooling fan on the rear panel. To prevent internal overheating, allow for enough space around the instrument (see the figure below) and do not block the inlet and vent holes.



Ambient Temperature and Humidity

Use the instrument in the following environment:

- Ambient temperature: 5 to 40°C
- Ambient humidity: 20 to 80%RH
  No condensation should be present.

Note

- To generate/measure signals accurately, operate the instrument in the 23 ± 5°C temperature range and 55 ± 20%RH.
- Condensation may occur if the instrument is moved to another place where the ambient temperature is higher, or if the temperature changes rapidly. If this happens, let the VC3300 adjust to the new environment for at least one hour before using it.

Do not install the instrument in the following places.

- In direct sunlight or near heat sources.
- Where an excessive amount of soot, steam, dust, or corrosive gas is present.
- Near strong magnetic field sources.
- Near high voltage equipment or power lines.
- Where the level of mechanical vibration is high.
- On an unstable surface.

Storage Location

- We strongly recommend you store the VC3300 in an environment with a temperature between 5 and 40°C and a relative humidity between 20 to 80%RH.
- When storing the VC3300, avoid the following types of locations:
  - In direct sunlight.
  - Where the temperature is 60°C or higher.
  - A place with a relative humidity of 80% or more.
  - Near heat sources
  - Where the level of mechanical vibration is high.
  - Where corrosive or explosive gas is present.
  - Where an excessive amount of soot, dust, salt, and iron are present.
  - Where water, oil, or chemicals may splash.

3.3 Connecting to the Power Supply

Before Connecting the Power Supply

To prevent the possibility of electric shock and damage to the instrument, follow the warnings below.

WARNING

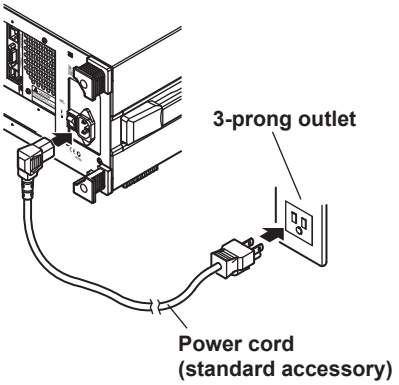
- Before connecting the power cord, ensure that the source voltage matches the rated supply voltage of the instrument and that it is within the maximum rated voltage of the provided power cord.
- Connect the power cord after checking that the main power switch of the instrument is turned OFF.
- Do not cut off the power supply while the power switch on the front panel of the VC3300 is turned ON. Doing so can damage the VC3300.
- To prevent electric shock or fire, always use the power cord supplied by YOKOGAWA.
- Make sure to provide protective grounding to prevent the possibility of electric shock. Connect the power cord to a three-prong power outlet with a protective earth terminal.
- Do not use an extension cord without protective earth ground. Otherwise, the protection function will be compromised.
- Use an AC outlet that complies with the power cord provided and securely connect the protective grounding. If such an AC outlet is unavailable and protective grounding cannot be furnished, do not use the instrument.

Connecting the Power Cord

1. Check that the main power switch on the rear panel of the instrument is turned OFF.
2. Connect the power cord plug to the power connector on the rear panel.
3. Connect the other end of the cord to an outlet that meets the conditions below. The AC outlet must be of a three-prong type with a protective earth ground terminal.

Item	Specifications
Rated supply voltage	100 to 120 VAC/200 to 240 VAC
Permitted supply voltage range	90 to 132 VAC/180 to 264 VAC
Rated power supply frequency	50/60 Hz
Permitted supply voltage frequency range	47 to 63 Hz
Maximum power consumption	250 VA

* The instrument can use a 100-V or a 200-V system for the power supply. Check that the voltage supplied to the instrument is less than or equal to the maximum rated voltage of the provided power cord (see page iii) before using it.



3.4 Turning ON/OFF the Power Switch

Items to Be Checked before Turning ON the Power

- Check that the instrument is installed properly (see section 3.2, “Installing the Instrument”).
- Check that the power cord is connected properly (see section 3.3, “Connecting to the Power Supply”).

WARNING

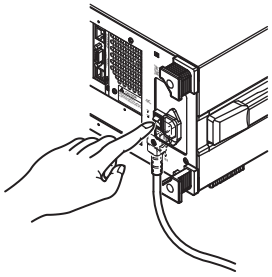
Do not turn the main power switch OFF, remove the power cord, or cut off the power supply when the power switch of the VC3300 is ON (the STANDBY LED on the front panel is OFF). Doing so can damage the VC3300.

Location of the Power Switch and Power-On Procedure

There are two power switches: the main power switch on the rear panel and the power switch on the front panel.

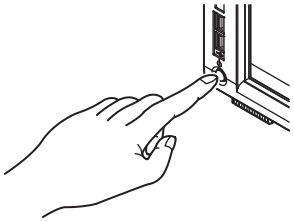
Turning ON the Main Power Switch

Press the ON (I) side of the main power switch on the rear panel. The VC3300 enters standby mode and the STANDBY LED on the front panel illuminates.



Turning ON the Power Switch and the Operation When Turned ON

- **ON Procedure**
  Check that the main power switch on the rear panel is ON, and turn ON the power switch on the front panel. Press once to turn it ON and press again to turn it OFF.



- **Operation When Turned ON**
  Startup procedure and system self test are executed. When the VC3300 starts up correctly, one of the screens described in section 1.3 appears.

Note

- If you turn OFF the main power switch when the VC3300 is running, the VC3300 terminates abnormally. When the power is turned ON the next time, the startup procedure may take longer than usual.
- If the power plug comes loose when the VC3300 is running and you restart the VC3300, it starts up using the settings that existed when the VC3300 was powered down correctly the last time.
- If the power cord comes loose while the internal hard disk is being accessed, the VC3300 may malfunction.
- Allow at least 10 s when turning ON the power switch on the front panel after setting the VC3300 in standby mode.
- If the VC3300 does not carry out the power-on procedure explained on the previous page when the power is turned ON, turn the main power switch OFF. Then, check the following items.
  - Check that the power cord is connected securely (see section 3.3).
  - Check that the voltage supplied to the power outlet is within the permitted voltage range (see section 3.3).
    If the VC3300 still does not work properly when the power is turned ON according to the previous page after checking these items, contact your nearest YOKOGAWA dealer for repairs.
- To initialize all settings to their factory default, press the SHIFT + PRESET (INITIALIZE) key. For details, see section 8.3.

To Make Accurate Measurements

Under the installation condition indicated in section 3.2, allow the instrument to warm up for at least 30 minutes after the power switch is turned ON.

Turning OFF the Power Switch

CAUTION

Do not turn the main power switch OFF on the rear panel or remove the power cord from the outlet while the shutdown program is running. Doing so can damage the VC3300.

Standby Procedure Using the Power Switch and Standby Operation

- **Standby Procedure**
  Press the power switch on the front panel. The STANDBY LED on the front panel illuminates.
- **Standby Operation**
  The shutdown program starts and the termination procedure starts. The screen shows a window indicating that the VC3300 is shutting down. After approximately 20 seconds, the VC3300 display turns OFF, and the VC3300 enters standby mode.

Note

- When turning OFF the power, press the power switch once. Pressing the switch numerous times can cause abnormal termination. If you turn ON the power switch after an abnormal termination, a disk check is performed causing the VC3300 to take longer to start up.
- When you set the VC3300 in standby mode, the setup data existing at that time is saved to the setup data backup area on the internal hard disk. The setup data is retained even if the main power switch is turned OFF or if the power cord is removed. Therefore, when the power switch is turned ON the next time, the VC3300 starts up using the settings stored in the backup area.
  However, note that the following items are not backed up.
  - START/STOP condition (STOP when the power switch is turned ON)
  - LCD backlight ON/OFF (ON when the power switch is turned ON)

Turning OFF the Main Power Switch

Check that the STANDBY LED on the front panel is illuminated. Then, press the main power switch on the rear panel to the OFF (O) side. The VC3300 power turns OFF.

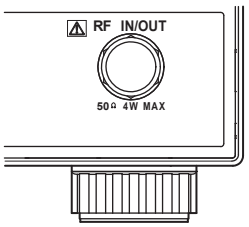
Note

- If you are not using the instrument, turn OFF all power switches according to the procedures given in “Turning the Power Switch OFF.”
- A lithium battery is used to hold the setup data concerning the VC3300 startup. If the voltage level of the lithium battery falls to a given level, a buzzer is sounded, and the message “Maintenance service is required” is displayed on the screen when the power switch is turned ON. If the lithium battery voltage is low, it must be replaced quickly. The user cannot replace the lithium battery. Contact your nearest YOKOGAWA to have the battery replaced.

3.5 Connecting the Mobile Phone

Location of the RF Input/Output Terminal

The terminal is located at the lower right of the front panel.



Connection

An RF cable or antenna coupler is required to connect the mobile phone to the VC3300.

Specifications of the RF Input/Output Terminal

Item	Specifications
Connector type	N
Number of terminals	1
Input impedance	50Ω (Typical*)
Maximum input power	4 W

* Typical value represents a typical or average value. It is not a warranted value.

CAUTION

Do not apply power exceeding 4 W to the RF input/output terminal. This may cause damage to the input/output section.

3.6 Basic Menu Operations

This section explains the basic operating procedure of the setup menu that appears when you press the front panel keys.

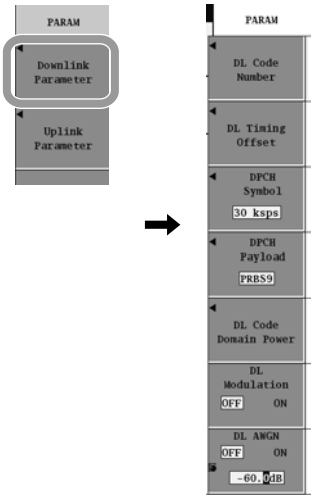
Types of Soft Key Menus

The soft key menus can be grouped according to the symbol at the upper left of each soft key menu as follows:

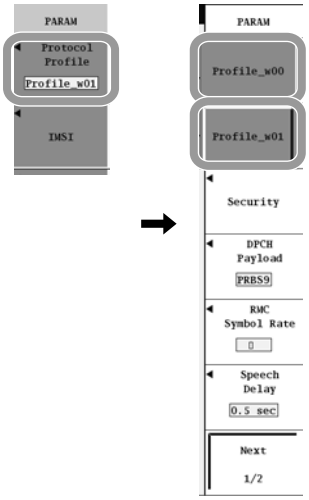
◀ Mark

Press the soft key to display a setup menu, selection menu, ⏲ +Set, or setup window.

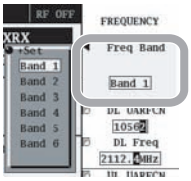
<Setup menu>



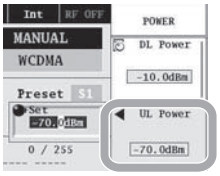
<Selection menu>



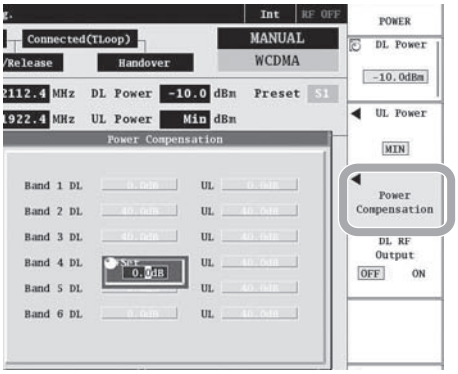
<⏲+Set> (Select an item)



<⏲+Set> (Enter a value)

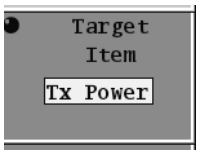


<Setup window>



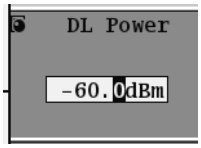
◴ Mark

Turn the rotary knob to select an item.



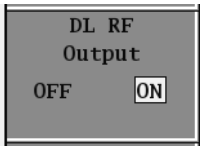
⊠ Mark

Use the rotary knob to set the value. In addition, press the < and > keys to move between the digits of the numeric value or press the numeric keys to enter a value.



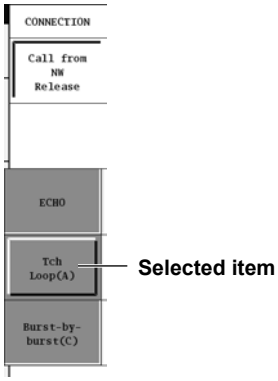
No Symbol (ON/OFF Selection Menu)

Press the soft key to select ON or OFF.



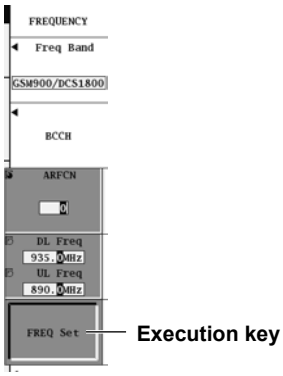
No Symbol (Selection Menu)

Press the soft key to enter the selected item.

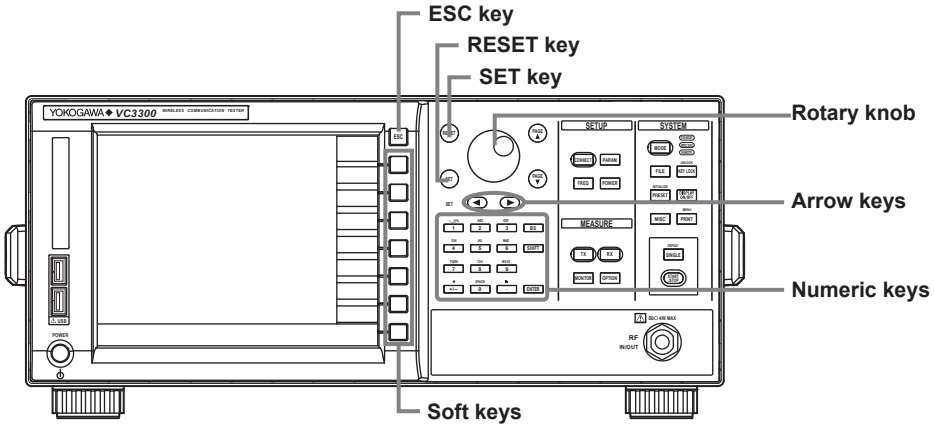


No Symbol (Execution Key)

Press the soft key to execute the operation. (Example: FREQ SET, Load Execute, etc.)

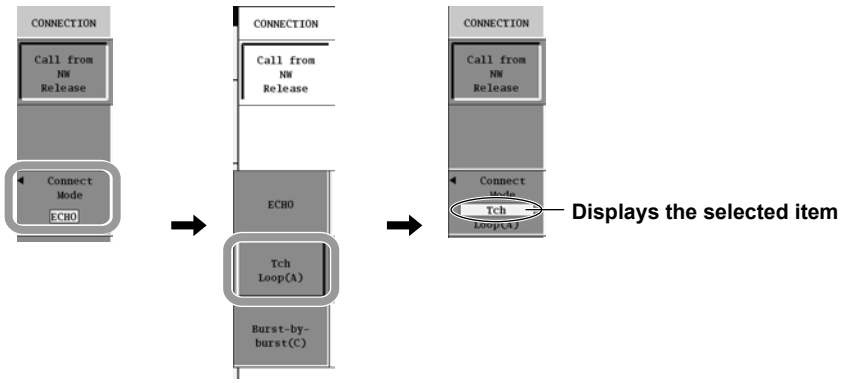


Operation of Each Soft Key Menu



Selection Menu

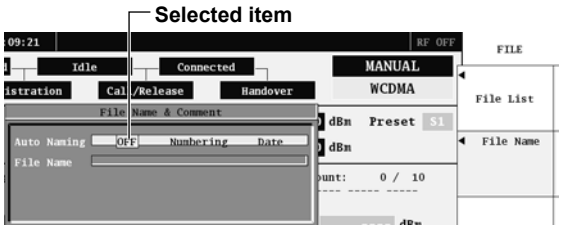
1. Press the soft key corresponding to the item you want to select.
2. The selection is entered.



Setup Window

1. Turn the rotary knob to move the cursor to the item you want to set.
2. Press **SET**. The operation that is carried out when the SET key is pressed varies depending on the setup item.

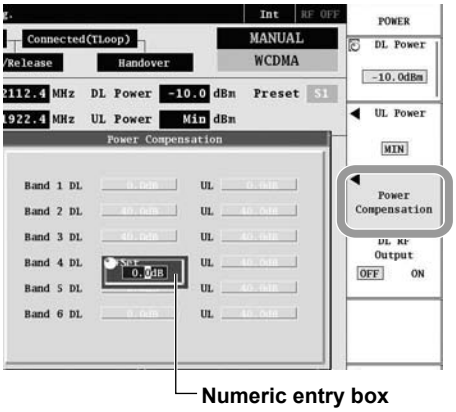
   - When Selecting a Setting
     Press **SET** to switch the selected item.



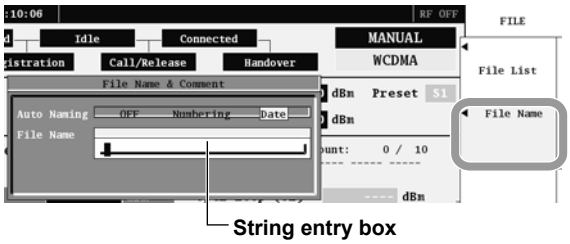
- **When Setting a Value**
  A numeric entry box appears.

  1. Turn the rotary knob to set the value.
  You can move between the digits using the arrow keys. You can also enter the value directly from the numeric keys. For the procedure to enter values using numeric keys, see section 3.7.

  2. Press **SET** to enter the value. To cancel the value, press **ESC**.



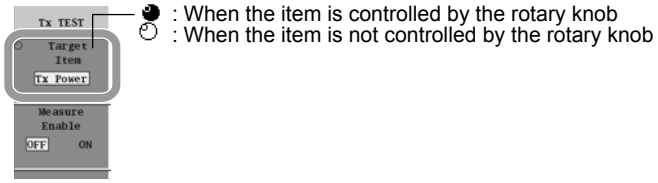
- **When Setting a Character String**
  A string entry box appears. Enter the characters using the numerical key pad. For the procedure to enter characters using numeric keys, see section 3.7.



Mark

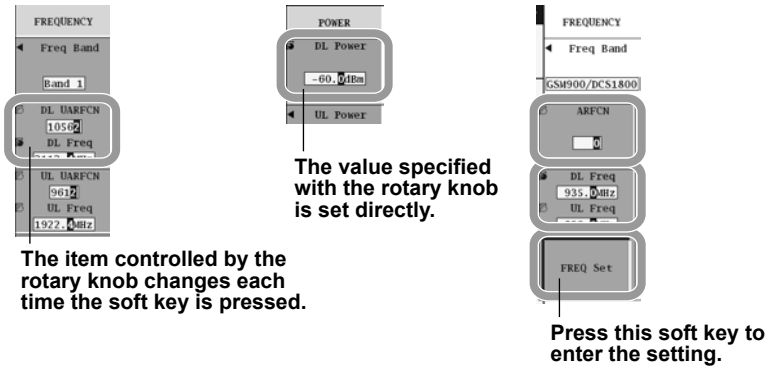
1. Press a soft key.

2. Turn the rotary knob to set the value.



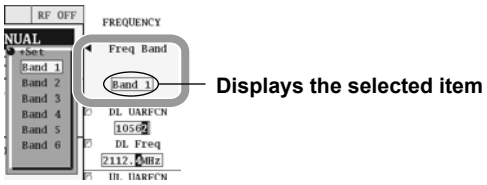
Mark

1. Press a soft key.
2. Turn the rotary knob to set the value. Press the < and > keys to move between the digits of the numeric value or press the numeric keys to enter a value. For the procedure to enter values using numeric keys, see section 3.7.
3. As necessary, press a soft key that enters the setting.



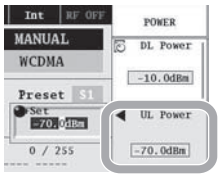
+ Set (Select an item)

1. Press a soft key.
2. Turn the rotary knob to highlight the item or value you want to select.
3. Press **SET** to enter the setting.



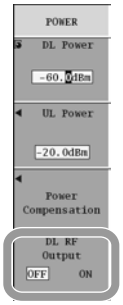
+ Set (Enter a value)

1. Press a soft key.
2. Turn the rotary knob to set the value. Press the < and > keys to move between the digits of the numeric value or press the numeric keys to enter a value. For the procedure to enter values using numeric keys, see section 3.7.
3. Press **SET** to enter the value. To cancel the value, press **ESC**.



No Symbol (ON/OFF Selection Menu)

1. Each time you press the soft key, ON or OFF is selected.



No Symbol (ON/OFF Selection Menu) + ⏲ Mark

- **When the Item Is Controlled by the Rotary Knob**

  1. Each time you press the soft key, ON or OFF is selected.

  2. Turn the rotary knob to set the value.

- **When the Item Is Not Controlled by the Rotary Knob**

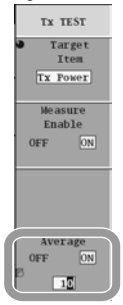
  1. Press a soft key.

  2. Each time you press the soft key, ON or OFF is selected.

  3. Turn the rotary knob to set the value.

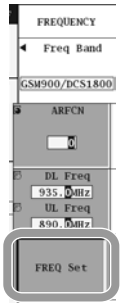
<Item controlled by the rotary knob>

<Item not controlled by the rotary knob>



No Symbol (Execution Key)

1. Press the relevant soft key. The operation is executed.



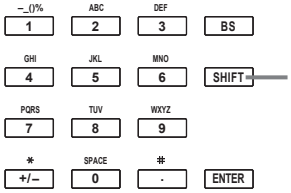
Note

- Press the **ESC** to return to the soft key menu of the previous hierarchy.
- Press **RESET** to set the item back to the initial setting.
- If **Next1/2** is displayed in the setup menu, press it to display the 2/2 menu. Press the **Next2/2** soft key to display the 1/2 menu.

3.7 Entering Values and Character Strings Using the Numeric Keys

You can use the numeric keys or the ENTER key to enter values or use the purple characters marked above the numeric keys to enter character strings (file name, host name, etc.).

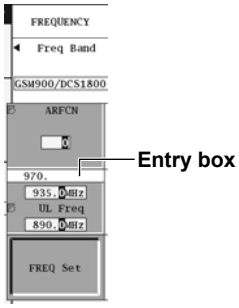
Setting Values



Illuminate the SHIFT key to enter alphabet characters and symbols.

Using the Numeric Keys and ENTER Key

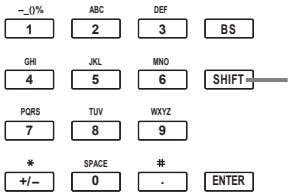
1. Press the soft key for the menu in which a value is to be entered to select it.
2. Press the **numeric keys** to enter the sign, value, and decimal point.
   - When you press a numeric key, an entry box appears with the sign, value, or decimal point of the corresponding numeric key.
   - As necessary, use the **arrow keys** to move to the desired position, erase the entered value using the **BS** key, and reenter the value.



Entry box

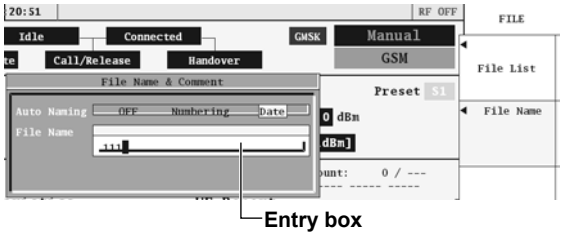
3. Press the **ENTER**. The specified value is displayed within the menu frame, and the value is entered.

Setting the Character String



Illuminate the SHIFT key to enter alphabet characters and symbols.

1. Press the soft key for the menu in which a character string is to be entered to select it.
2. Press the **numeric keys** to enter the character or value.
   - When you press a numeric key, an entry box appears with the character or value of the corresponding numeric key.
   - By pressing **SHIFT** to illuminate the SHIFT key and then pressing a numeric key, the alphabet, symbol, space, or value marked in purple above the key can entered.
   - If the SHIFT key is illuminated and you press the same numeric key repeatedly, the purple character and value above the key switches in order and is entered. For example, each time you press the 8 key, the character or value switches as follows: T, U, V, t, u, v, 8, T and so on. If you press a different numeric key or an arrow key, the character is entered.
   - As necessary, use the **arrow keys** to move to the desired position, erase the entered character using the **BS** key, and reenter the character.



Entry box

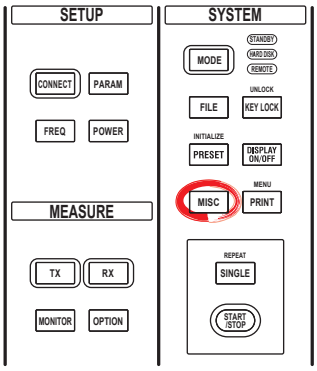
3. Press the **ENTER**. The specified character string is displayed within the menu frame, and the string is entered.

Note

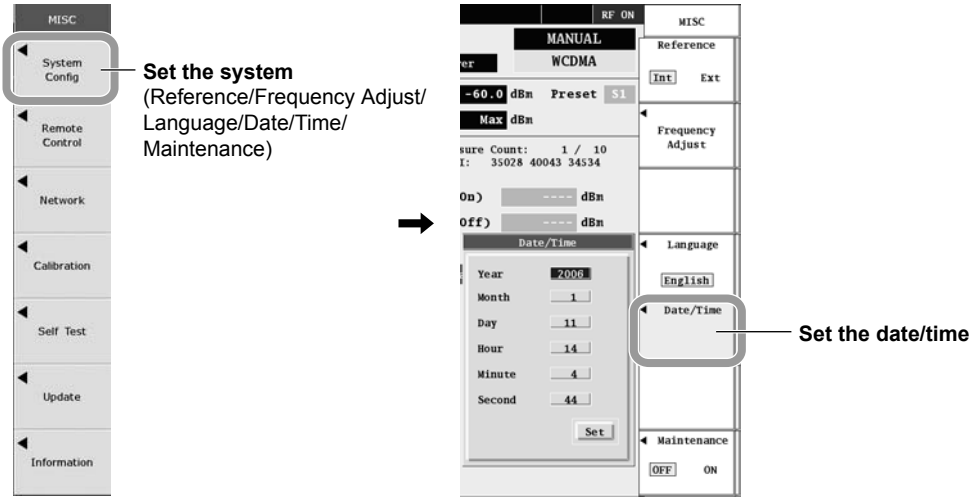
- For setup menus in which a value is entered, pressing the RESET key resets the setting to the initial value.
- The unit of the value setup menu is fixed.
- On the menus in which characters are entered such as a file name, the numeric key is automatically set to the shifted state (SHIFT key illuminates).

3.8 Setting the Date/Time

Procedure



Press **MISC**. A soft key menu or dialog box appears as shown below. Set each item according to the basic operating procedure of section 3.6.



Explanation

Date/Time

You can set the date and time. Set the year using 4 digits and set the hour using a 24-hour clock.

- **Date**
  Year/Month/Day
- **Time**
  Hour/Minute/Second

Activating the Settings

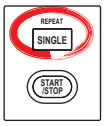
When the **Set** soft key is pressed, the specified date/time is activated (the entered time is displayed at the upper left of the screen). If you exit from the Date/Time menu without pressing the Set soft key, the specified date/time is not activated.

Note

- The date/time setting is backed up with the lithium battery even when the power is turned OFF.
- Leap year information is retained.
- Date/time setting is not initialized even when you initialize the settings.
- You cannot set the date/time while measurement is in progress (START condition). In addition, you cannot start the measurement while the Date/Time menu is displayed.

4.1 Selecting the Measurement Mode

Procedure



Measuring in Single Mode

Press **SINGLE** to illuminate the SINGLE key.

Measuring in Repeat Mode

Press **REPEAT(SHIFT+SINGLE)** to turn OFF the SINGLE key.

Explanation

The two modes below are available. The mode is distinguished with the illumination of the SINGLE key.

Single (Illuminated)

A radio characteristics measurement is made each time you press the SINGLE key. When averaging is ON, the specified average count of measurements is made.
If you press the SINGLE key while the single measurement is in progress, the measurement is aborted, and the measured results up to that point are displayed. The SINGLE key blinks while the measurement is in progress.

Repeat (Not Illuminated)

The measurement is repeated until you press the START/STOP or SINGLE key. When averaging is ON, the average value from the start of the measurement is determined.
If you press the REPEAT (SHIFT+SINGLE) key while the repeat measurement is in progress, the measurement in repeat mode is restarted. If you change the measurement conditions when averaging is ON, the averaging operation is restarted.
If you press the SINGLE key while the repeat measurement is in progress, the measurement mode is set to single, and the measurement is aborted. The screen shows the measured results up to the point when the measurement was aborted.

Note

The SINGLE key is invalid when the test mode is scenario. However, the SINGLE key illuminates, blinks, and turns off according to the measurement status.

Averaging

The averaging function can be used to stabilize the measured value when the value is unstable. The averaging procedure varies depending on the measurement mode as described below.

For the procedure to turn ON/OFF the averaging function, see chapter 2 or 3 in the *User's Manual (IM733021-01E or IM733022-01E).*

- **Arithmetic Average**

  Arithmetic average is performed when the measurement mode is single. Arithmetic average is also performed when the measurement mode is repeat if measurement count n is less than or equal to attenuation constant N.

  The VC3300 displays the average value even when measurement count n is less than or equal to the specified average count N (attenuation constant).

$$An = \frac{1}{n}\{(n-1)A_{n-1} + Xn\}$$

  n: Measurement count (n = N)
  An: n^{th} averaged value
  Xn: n^{th} measured value
  N: Averaging count

- **Exponential Average**

  Exponential average is performed when the measurement mode is repeat. However, when the measurement count is less than or equal to the attenuation constant ($n \leq N$), arithmetic average is performed.

$$An = \frac{1}{N}\{(N-1)A_{n-1} + Xn\}$$

  n: Measurement count (n > N)
  An: n^{th} averaged value
  Xn: n^{th} measured value
  N: Attenuation constant

4.2 Starting/Stopping the Measurement

Procedure

Staring the Measurement

Press **START/STOP** to illuminate the START/STOP key.

Stopping the Measurement

Press **START/STOP** to turn OFF the START/STOP key.

Explanation

The START/STOP key illuminates when you start the measurement. The START/STOP key turns OFF when you stop the measurement. The measurement start/stop operation varies depending on the test mode as follows:

Measurement Start

- **TXRX Mode**
  Starts the downlink signal output and the measurement.
- **Manual Mode**
  Starts the downlink signal output, and waits for a call setup. When a call is established, the VC3300 starts the radio characteristics measurement.
- **Scenario Mode**
  Starts the scenario with the downlink signal output turned ON.

Measurement Stop

- **TXRX Mode**
  Stops the downlink signal output and the measurement.
- **Manual Mode**
  Stops the downlink signal output and the measurement and disconnects the call.
- **Scenario Mode**
  Stops the scenario with the downlink signal output turned ON.

Note

- When the power is turned ON, the VC3300 is in the stopped condition.
- The downlink signal is always output regardless of the start/stop condition in scenario mode.

5.1 Inserting and Removing the USB Memory

CAUTION

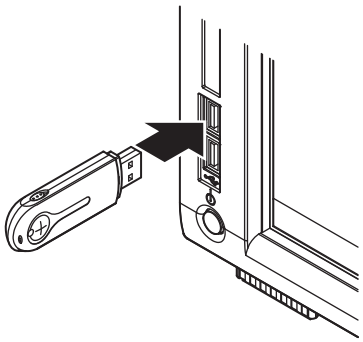
Do not remove the USB memory or turn the power OFF when the access indicator of the USB memory is illuminated. Doing so can damage the USB memory or destroy the data on it.

Procedure

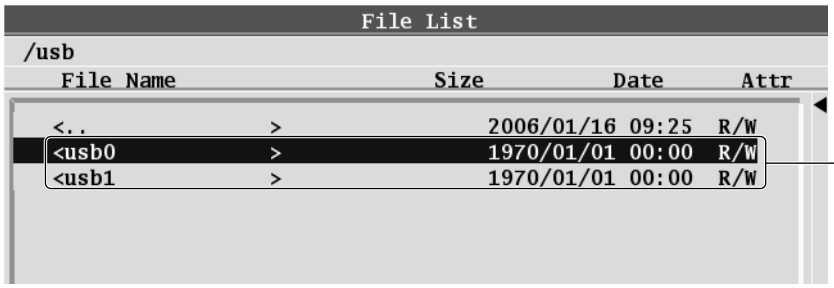
Inserting the USB Memory

1. Insert the USB memory to the USB port on the front or rear panel.

   Be sure to insert the USB memory all the way in the port. Otherwise, the VC3300 may not detect it correctly.

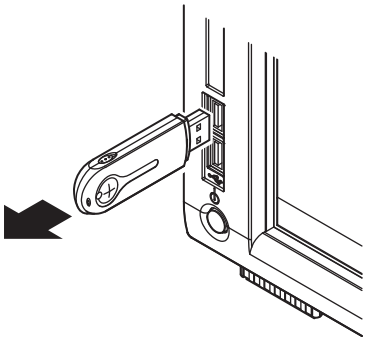


2. When you open the File List window (for example by pressing the **Load** soft key), the USB memory is detected.



Removing the USB Memory

3. Pull the USB memory out from the port.



Note

- The USB memory is displayed in the order of insertion under the <usb> folder in the file list with the names usb0 to usb3.
- If the VC3300 does not detect the USB memory, reinsert the USB memory or power-cycle the VC3300. The VC3300 may not be able to detect the USB memory depending on its type.

Explanation

General Handling Precautions of USB Memories

For the general handling precautions of the USB memory, read the instruction manual that comes with the USB memory.

Formatting the USB Memory

The VC3300 does not provide a function for formatting USB memories. If the VC3300 does not detect the USB memory, format it on your PC. Select FAT or FAT32 for the file system when formatting.

Allowed USB Memory Sizes and USB Memories That Have Been Checked for Compatibility

USB memories below have been tested for compatibitily.

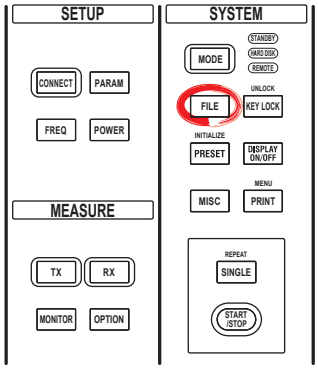
- TB-C128, TB-B128 (by IO Data Device, Inc.)
- PFU-2PG/128 (by Princeton Technology, Ltd.)
- JDS064 (by Lexar Media, Inc.)
- Flash D-Mini 128 (by imation Corp.)

5.2 Loading and Saving the Setup File

CAUTION

Do not turn the power OFF when the access indicator of the internal hard disk (HARD DISK on the front panel) is illuminated in green. Do not remove the USB memory or turn the power OFF when the access indicator of the USB memory is illuminated. Doing so can damage the storage medium or destroy the data on the storage medium.

Procedure



1. Press **FILE**. The following soft key menu appears.

Selecting the File Type

2. Press the **File Item** soft key.

Select **Setup**.

Select the file item
(Setup/Scenario (sec. 7.2)/Result (sec. 7.4))

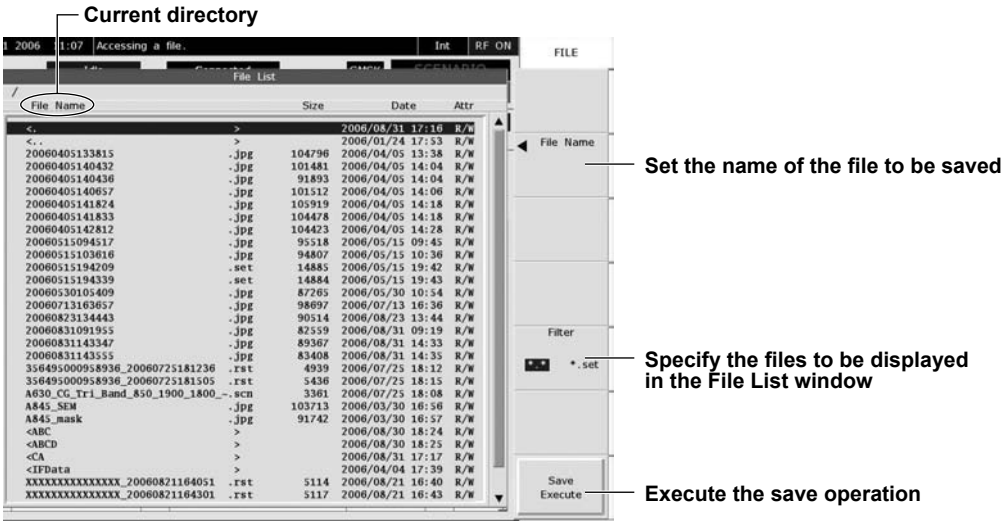
Save the setup file

Load a setup file

Execute copy, delete, make dir, or rename
(See sections 5.3 to 5.5.)

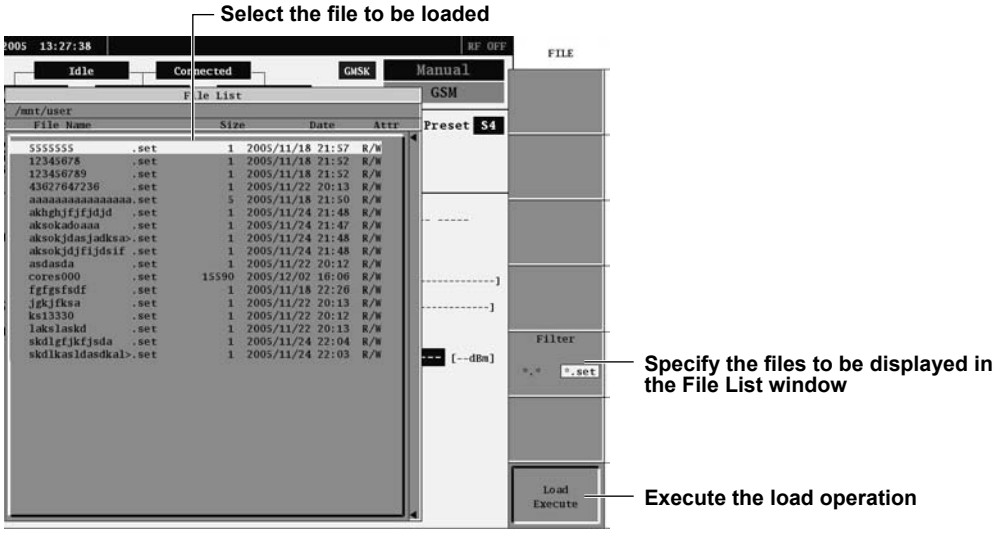
Saving the Setup File

3. Press the **Save** soft key.
   The File List window appears.
4. Set the save destination directory and file name according to steps 6 to 13.
5. Press the **Save Execute** soft key to save the file to the specified directory.



Loading a Setup File

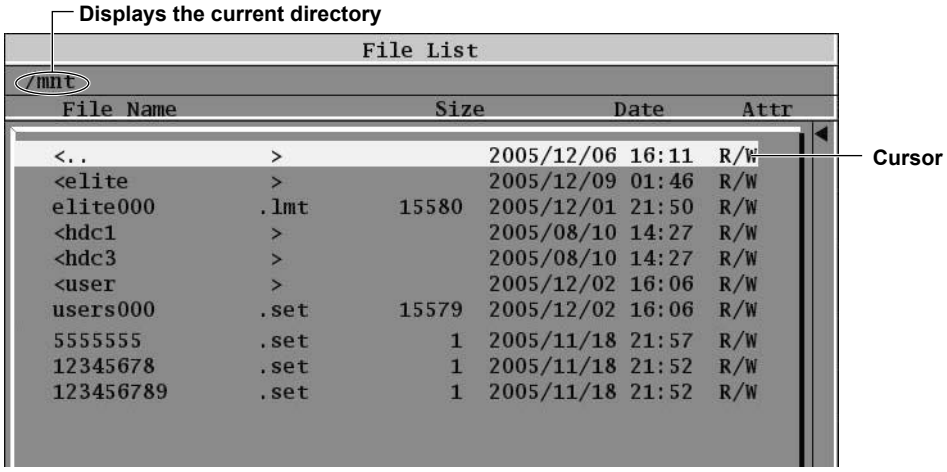
3. Press the **Load** soft key.
4. Display the file to be loaded in the File List window according to steps 6 and 7.
5. Turn the rotary knob to select the file to be loaded, and press the **Load Execute** soft key. The setup parameters of the specified file are loaded.



Changing the Current Directory

6. Turn the rotary knob to move the cursor to the directory you want to make the current directory.

7. Press **SET**. The current directory changes to the selected directory.



Setting the File Name

8. Turn the rotary knob to move the cursor to Auto Naming.

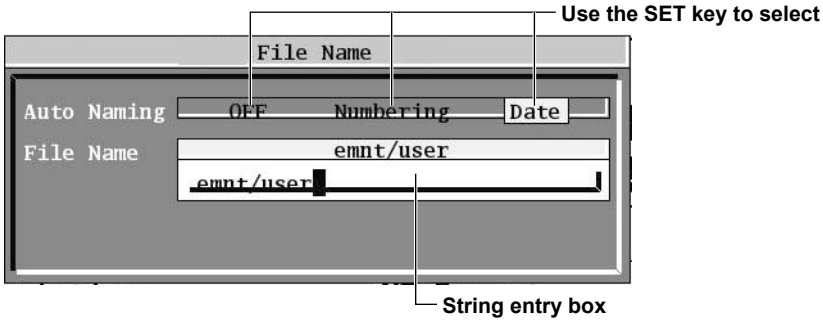
9. Press **SET** several times to select **OFF**, **Numbering**, or **Date**.

10. Turn the rotary knob to move the cursor to File Name.

11. Press **SET**. A string entry box appears.

12. Enter the file name using the numeric key pad.

13. Press the **ENTER** to enter the file name.



Explanation

File Type (File Item)

Select the type of file to be saved or loaded from below. However, Scenario and Result can be selected only when the test mode is Scenario, and the file can only be loaded.

- Setup (setup file)
- Scenario (see section 7.2.)
- Result Log (log file of measured values and judgement. See sections 7.3 and 7.4.)

Setup Parameters That Are Saved

The setup parameters of each key existing at the time of the save operation are saved. However, setup parameters such as the date, time, and communications are not saved.

Number of Bytes Needed to Save the Setup File

Approx. 20 KB

Selecting the Storage Medium and Directory (File List)

Media and directories on which saving and loading are possible are displayed on the File List window. Select the save destination or load source medium/directory.

- **Display examples of media**
  <usb>: USB memory

File Save Destination

The setup file is saved to the current directory on the File List window.

File Name

You can specify the file name using up to 16 characters. The .set extension is automatically added. The characters that can be used are 0-9, A-Z, %, _, (, and).

- **Auto Naming**
  Select from the following three types.
  - OFF: The name specified by File Name is assigned.
  - Numbering: Files are automatically named with 3 digit numbers from 000 to 999. The word “Setup” is added as a common name before the number (example: Setup001.set).
  - Date: Files are automatically named using 14 characters based on the date and time. (The file name specified by File Name is void.)

Year (4)	Month (2)	Day (2)	Hour (2)	Minute (2)	Second (2)

*** The value inside the parentheses is the number of characters.**

Example: 20060130114203.set represents year 2006,
January 30th, hour 11, 42 minutes, and 03 seconds.

Specifying the Files to Be Displayed in the File List Window (Filter)

You can specify the type of files to be displayed.

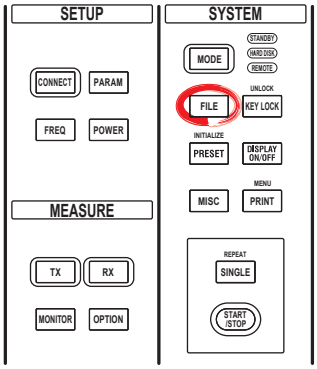
- *.set: Displays only the setup files.
- *.*: Displays all the files in the storage medium/directory.

Note

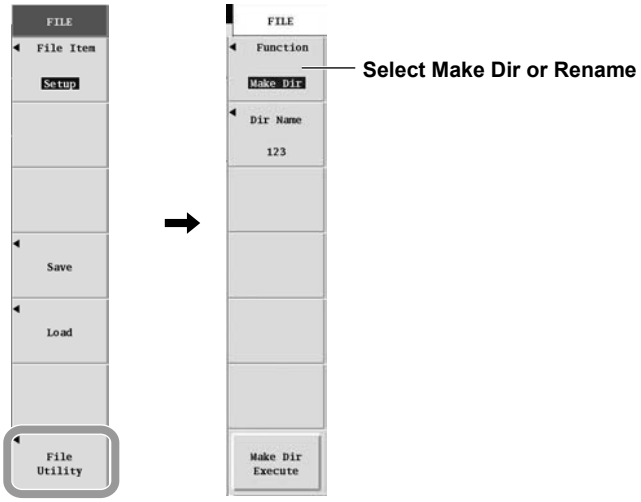
- If the total number of files and directories exceed 50000 in a single directory, the file list is no longer displayed. If the number of files is 50000, it takes approximately 90 seconds until the file list is displayed.
- An error occurs if a key other than the Abort key is pressed while saving or loading a file.
- If you change the extension of the file (using a PC, for example), the file can no longer be loaded.
- Up to 36 characters can be displayed in “Path.”
- File names are not case-sensitive. Comments are case-sensitive. In addition, the following names cannot be used.
  AUX, CON, PRN, NUL, CLOCK
- If the setup parameters that are saved to a file are loaded, the key settings are changed to the loaded information and cannot be undone. It is recommended that you first save the current setup parameters and then load the setup parameters from a file.
- Setup parameters such as the date, time, communications, and language are not saved. Therefore, loading setup data from a file will not change these settings.

5.3 Renaming Files and Directories and Creating Directories

Procedure

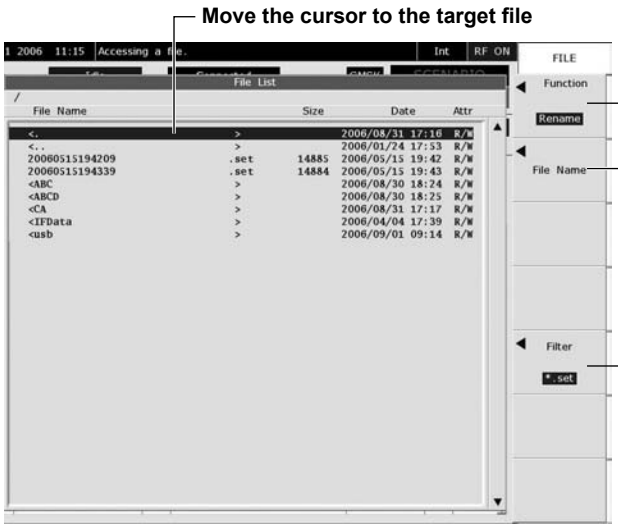


1. Press the **FILE > Utility** soft key. The File List window and following soft key menu appear.



Changing the File or Directory Name

2. Select **Function > Rename**.
3. Turn the rotary knob to move the cursor to the file or directory you want to rename.
4. Press the **File Name** soft key. A string entry box appears.
5. Press **SET** to switch to edit mode and enter the name using the numeric keys.
6. Press the **ENTER** to change the file or directory name.



Creating a Directory

2. Select **Function > Make Dir**.
3. Change the current directory according to the procedure given in section 5.2.
4. Press the **Dir Name** soft key. A string entry box appears.
5. Specify a directory name in the same manner as when editing a file name, then press the **ENTER**.
6. Press the **ESC** to close the text entry box.
7. Press the **Make Dir Execute** soft key to create the directory.

Explanation

Changing the Director or File Name on the Storage Medium (Rename)

Number of Characters and Types That Can Be Used

Setting	Number of Characters	Characters That Can Be Used
Directory name	1 to 16 characters	0 to 9, A to Z, %, _, (,), -
File name	1 to 16 characters	0 to 9, A to Z, %, _, (,), -

* However, a directory name that starts with “ND” (ND000 for example) is not allowed.

Creating a Directory (Make Dir)

You can create a new directory on the storage medium. See above for the assignment of the directory name when creating a new directory.

Specifying the Files to Be Displayed in the File List Window (Filter)

Specify the type of files to be displayed.

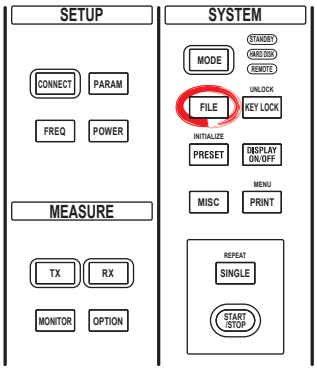
- ***.extension**
  Displays only the data file that was selected in the File Item setup menu.
- ***.***
  Displays all the files in the storage medium.

Note

- You cannot rename a directory/file or create a new directory while the measurement is in progress (START/STOP key is illuminated).
- You cannot change a directory attribute.
- If a file with the same name already exists in the same directory, the file cannot be renamed.
- If a directory with the same name already exists in the same directory, the directory cannot be created.

5.4 Copying Files

Procedure



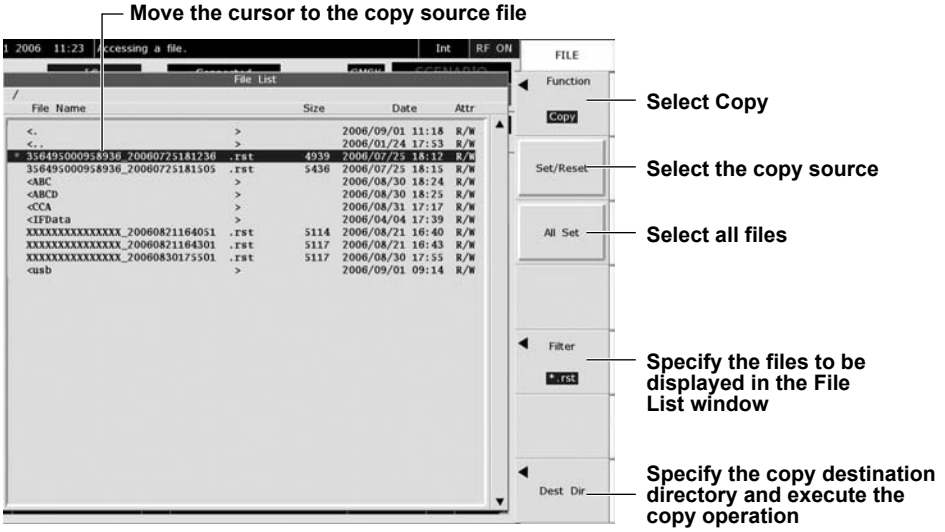
1. Press the **FILE > Utility** soft key. The following soft key menu appears.
2. Press the **Function** soft key to select **Copy**.

Selecting the Copy Source Files

3. Turn the rotary knob to move the cursor to the copy source file, and press the **Set/Reset** soft key. An asterisk is placed to the left of the copy source file. Press the **Set/Reset** soft key again to remove the asterisk.

Selecting the Copy Destination Directory and Executing the Copy Operation

2. Press the **Dest Dir** soft key. The File List window appears.
3. Set the current directory to the copy destination directory according to the procedure given in section 5.2.
4. Press the **Copy Execute** soft key to execute the copy operation.



Explanation

Selecting the Copy Source Files

You can copy all files that have an asterisk to the left of the file name. There are two methods in selecting the files to be copied.

- **Selecting the Files One at a Time (Set/Reset)**
  Press the Set/Reset soft key to place an asterisk mark to the left of the files one at a time.
- **Selecting All the Files at Once (All Set)**
  Press the All Set soft key to place asterisk marks to the left of the selected file names at once.
  If you select a file and press the All Set soft key, asterisk marks are placed by all the files in the directory containing the selected file. Press the All Set soft key again to remove the asterisk.

Specifying the Files to Be Displayed in the File List Window (Filter)

You can specify the type of files to be displayed.

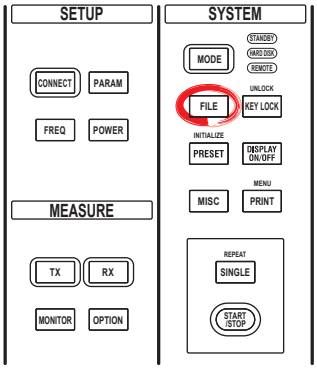
- ***.extension**
  Displays only the data file that was selected in the File Item setup menu.
- ***.***
  Displays all the files in the storage medium.

Note

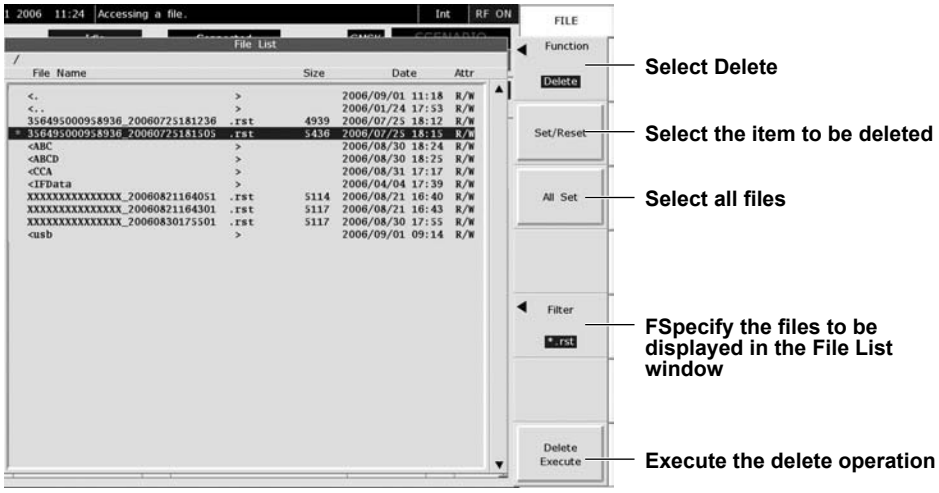
- Files cannot be copied while the measurement is in progress.
- If an error occurs while copying multiple files, the files after the error occurrence are not copied.
- You cannot change a directory attribute.
- You cannot copy files if files with the same file name exist at the copy destination.
- You cannot copy the same files to another directory after copying the files. Select the files to be copied again and copy them.

5.5 Deleting Files and Directories

Procedure



1. Press the **FILE > Utility** soft key. The following soft key menu appears.
2. Press the **Function** soft key to select **Delete**.
3. Turn the rotary knob to select the file or directory you want to delete, and press the **Set/Reset** soft key. An asterisk is placed to the left of the selected file or directory name. Press the **Set/Reset** soft key again to remove the asterisk.
4. Press the **Delete Execute** soft key. The selected file or directory is deleted.



Explanation

Selecting the Files to Be Deleted

You can delete all files that have an asterisk to the left of the file name. There are two ways to select the files to be deleted.

- **Selecting the Files One at a Time (Set/Reset)**
  Press the Set/Reset soft key to place an asterisk mark to the left of the files one at a time.
- **Selecting All the Files at Once (All Set)**
  Press the All Set soft key to place asterisk marks to the left of the selected file names at once.
  If you select a file or directory and press the All Set soft key, asterisk marks are placed by all the files and directories in the directory containing the selected file or directory. Press the All Set soft key again to remove the asterisk.

Specifying the Files to Be Displayed in the File List Window (Filter)

You can specify the type of files to be displayed.

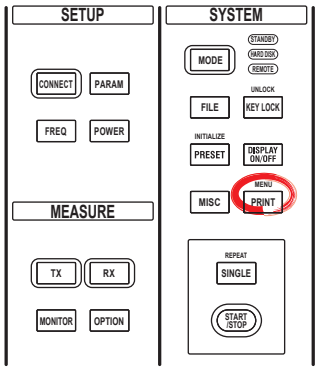
- ***.extension**
  Displays only the data file that was selected in the File Item setup menu.
- ***.***
  Displays all the files in the storage medium.

Note

- Files cannot be deleted while the measurement is in progress.
- Data that is deleted cannot be recovered. Be sure you erase the correct files.
- You can not delete directories if there are files in them.
- If an error occurs while deleting multiple files, the files after the error occurrence are not deleted.
- You cannot change a directory attribute.

5.6 Saving Screen Images

Procedure



Setting the Save Destination and File Name

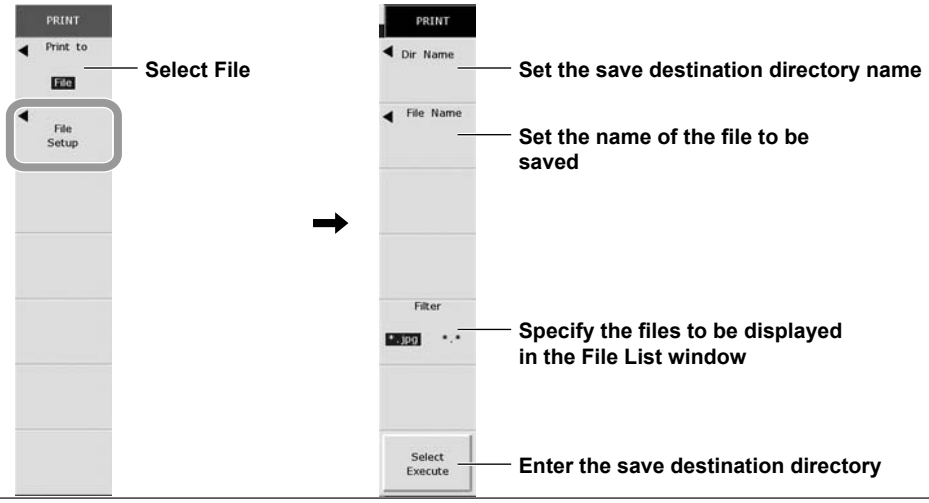
1. Press **MENU(SHIFT+PRINT)**.
2. Press the **Print to** soft key to select the file, and press the File Setup soft key.
   The File List window appears.

Creating a New Save Destination Directory

3. Change the current directory according to the procedure given in section 5.2.
4. Press the **Dir Name** soft key. The Directory Name entry box appears.
   Enter the directory name according to the procedure given in section 3.7.
5. Press **ESC**. The entry box closes.
   The directory name is displayed in the bottom area of the Dir Name soft key.
6. Press the **Select Execute** soft key.
   The save destination directory is entered, and the screen returns to the top menu of the MENU key.

Selecting the Save Destination Directory from Existing Directories

3. Change the current directory according to the procedure given in section 5.2.
4. Turn the **rotary knob** to move the cursor to the desired directory.
   The selected directory name is displayed in the bottom area of the Dir Name soft key.
5. Press the **Select Execute** soft key.
   The save destination directory is entered, and the screen returns to the top menu of the MENU key.



Saving the Screen Image

7. Press the **PRINT** key to save the screen image file to the specified directory.

Explanation

The screen image data can be stored to the internal hard disk or USB memory.

Print to

Select the destination on which the screen image is to be output.

- File: Saves the screen image data to the internal hard disk or USB memory.
- Printer: Prints on the printer. See section 8.1.

Output Format

Data in the following formats can be saved to a specified storage medium. The extension that is automatically attached and the file size (reference value) are indicated below.

Output Data Format	Extension	File Size
JPEG	*.jpg	Approx. 100 KB

File List

The available media and directories are displayed in the File List window.

- **Display Examples of Media**
  <usb>: USB memory

File Save Destination (Dir Name/Select Execute)

The directory shown in the bottom area of the Dir Name soft key is the save destination of the screen image data. Press the Select Execute soft key while a directory is shown in the Dir Name soft key to enter the save destination.
There are two ways of specifying the save destination directory.

- Specify an existing directory: Save to the current directory.
- Specify a new directory: Create a new directory in the current directory.

Setting the File Name

You can specify the file name using up to 16 characters. For a description of the characters that can be used and the auto naming function, see the explanation in section 5.2.

Files to Be Displayed in the File List Window (Filter)

You can specify the type of files to be displayed.

- *.jpg: Displays only jpeg files.
- *.*: Displays all the files in the storage medium/directory.

Note

Up to 16 characters can be entered for the common name. Characters exceeding 16 characters are void.

Notes on Saving Screen Image Data

- The maximum number of files that can be saved when auto naming is enabled is 50000.
- If the total number of files and directories exceed 50000 in a single directory, the file list is no longer displayed. If the number of files is 50000, it takes approximately 90 seconds until the file list is displayed.

6.1 Connecting to the Network

Ethernet Interface Specifications

The VC3300 can connect to a network via the Ethernet interface. An Ethernet port is provided on the rear panel of the VC3300.

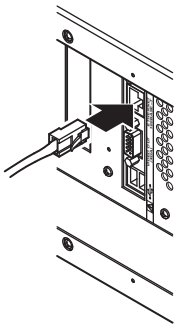
Item	Specifications
Connector type	RJ-45
Communication port	1
Electrical and mechanical specifications	Conforms to IEEE802.3
Transmission system	Ethernet (10BASE-T/100BASE-TX)
Data rate	100 Mbps maximum
Communication protocol	TCP/IP
Supported service	FTP server, DHCP, and DNS

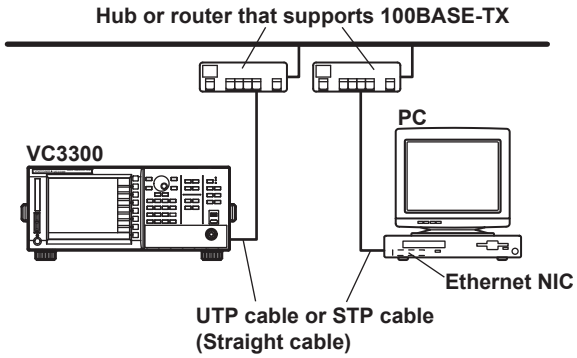
Connection Cable

When connecting to the Ethernet interface, make sure to use a cable of category 5 or better UTP (Unshielded Twisted Pair) cable or an STP (Shielded Twisted Pair) cable.

Connecting to the Network

The Ethernet connector on the VC3300 is a 10BASE-T/100BASE-TX connector (RJ-45). As shown on the next page, connect a UTP cable or an STP cable that is connected to a network switch such as a hub to the ETHERNET port on the rear panel of the VC3300. If the connector type is different, use an adapter or a similar device.
For details, consult your system or network administrator.



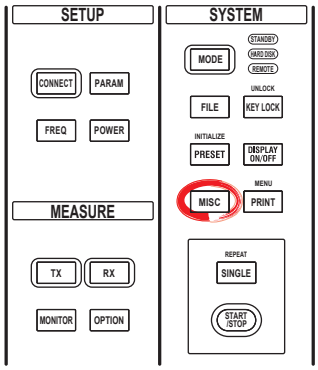


Note

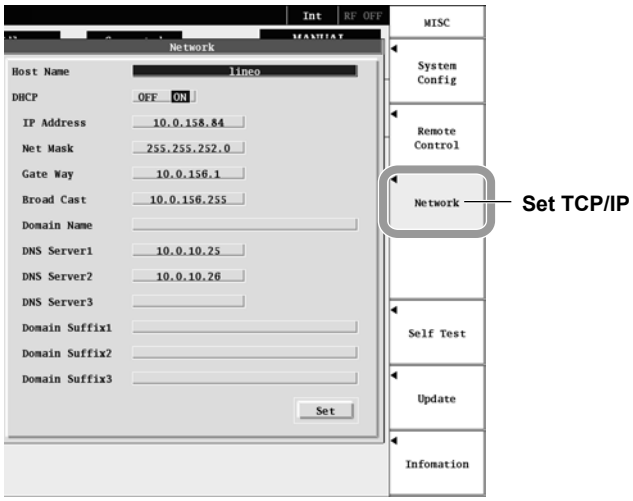
Depending on the reliability of the network or the volume of network traffic, all the transferred data may not be retrieved by the PC.

6.2 Setting TCP/IP

Procedure



Press **MISC**. A soft key menu or dialog box appears as shown below. Set each item according to the basic operating procedure of section 3.6.



Explanation

To use the network function of the VC3300, the TCP/IP parameters must be configured.

DHCP (Dynamic Host Configuration Protocol)

DHCP is a protocol that allocates settings that are needed temporarily to PCs connecting to the network. When DHCP is turned ON, the following settings are automatically assigned.

IP address
Subnet mask
Default gateway
Broadcast
DNS

- To use DHCP, the network must have a DHCP server. Consult your network administrator to see if DHCP can be used.
- If DHCP is switched from OFF to ON, it may take several tens of seconds before the IP address can be retrieved.
- When DHCP is turned ON, different settings may be assigned each time the power is turned ON. When accessing the VC3300 from a PC, you must check the VC3300 TCP/IP settings such as the IP address each time the power is turned ON.

IP Address (Internet Protocol Address)

Set the IP address to assign to the VC3300.

- The IP address is an ID that is assigned to each device on an IP network such as the internet or an intranet.
- The address is a 32-bit value expressed using four octets (each 0 to 255), each separated by a period as in [192.168.111.24].
- Obtain an IP address from your network administrator.
- This parameter is automatically configured in environments using DHCP.

Subnet Mask

You can set the mask value used when determining the subnet network address from the IP address.

- Huge TCP/IP networks such as the Internet are often divided up into smaller networks called sub networks. The subnet mask is a 32 bit value that specifies the number of bits of the IP address used to identify the network address. The portion other than the network address is the host address that identifies individual computers on the network.
- Consult your network administrator for the subnet mask value. You may not need to set the value.
- This parameter is automatically configured in environments using DHCP.

Default Gateway

You can set the IP address of the gateway (default gateway) used to communicate with other networks.

- The default gateway has control functions that handle protocol exchanges when communicating with multiple networks, so that data transmission is carried out smoothly.
- Consult your network administrator for the default gateway value. You may not need to set the value.
- This parameter is automatically configured in environments using DHCP.

Broadcast

You can set the IP address of the broadcast segment (a collection of networks). This is used to send (broadcast) the same packets to all hosts (devices connected to the network) in the specified segment.

- The IP address with the host section set to all 1s in binary notation is called a broadcast address.
- You can set the local broadcast address or the direct broadcast address.
- Consult your network administrator for the broadcast value. You may not need to set the value.
- This parameter is automatically configured in environments using DHCP.

Host Name

The host name specified here is the name of the VC3300 on the network. It is used to map the IP address to the host name on the DNS.
Number of characters: Up to 40 characters.
Characters that can be used: 0-9, A-Z, a-z, and -

DNS (Domain Name System)

DNS is a system used to associate names used on the Internet called host names and domain names to IP addresses. Given AAA.BBBBB.com, AAA is the host name and BBBBB.com is the domain name. Instead of using the IP address, which is a sequence of numbers, a host name and domain name can be used to access the network.

- In the case of the VC3300, the host name of the destination can be specified using a name instead of an IP address when printing a screen image on a network printer (see section 5.3).
- Set the domain name, DNS server address, and domain suffix. In environments that support DHCP, these parameters can also be configured automatically. For details, consult your network administrator.

DNS Server 1 to 3

You can set up to three DNS server addresses: DNS Server 1 (primary), DNS Server 2 (secondary), and DNS Server 3 (tertiary). If the primary DNS server is down, the secondary DNS server is automatically looked up for the mapping of the host name/ domain name and IP address.

Domain Name

You can set the network domain name to which the VC3300 belongs.
Number of characters: Up to 40 characters.
Characters that can be used: 0-9, A-Z, a-z, and -

Domain Suffix 1 to 3

When the IP address corresponding to the server name with the aforementioned domain name is not found, the system may be set up to search using a different domain name. You can enter this alternate domain name as the domain suffix. You can specify up to three domain suffixes, Domain Suffix 1 (primary), Domain Suffix 2 (secondary), and Domain Suffix 3 (tertiary).
Number of characters: Up to 127 characters.
Characters that can be used: 0-9, A-Z, a-z, and -

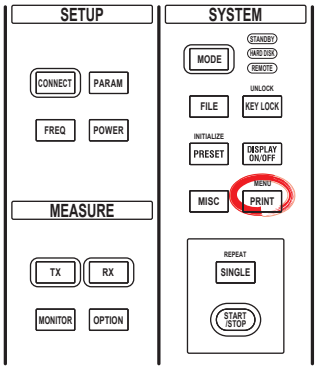
Note

- If you change the network settings, the VC3300 may have to be power cycled.
- If the VC3300 is turned ON with the DHCP function enabled without an Ethernet cable connected, communications and file functions may not operate properly. In this happens, turn DHCP OFF and power cycle the VC3300.
- Network parameters such as the IP address must be specified also on the PC side. For details on the setup, check the manual (help) for your PC or consult your network administrator.
- Check that a connection is possible by using methods such as executing a ping command or searching the host name or IP address on a PC on the network.
- If you set DNS to OFF, DNS is not used. Therefore, the VC3300 on the network cannot be searched using the host name.
- Use this function within a secured network.

6.3 Settings for Printing Screen Images on a Network Printer

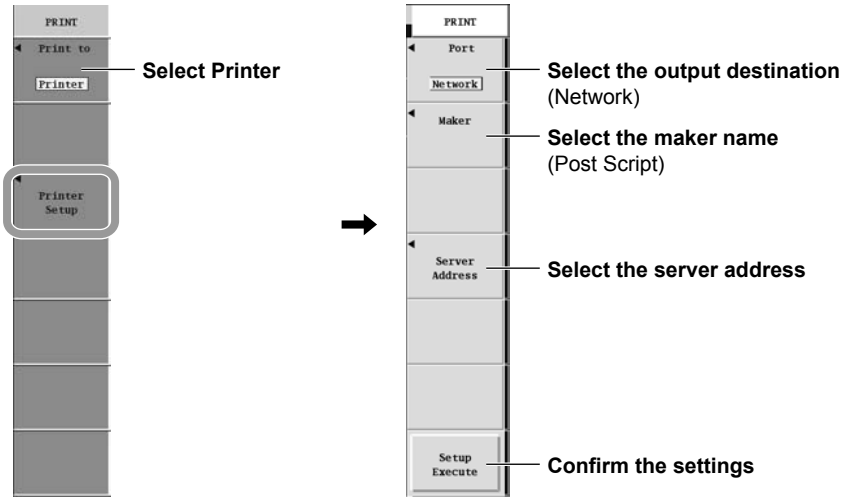
Procedure

To use this function, configure the TCP/IP parameters in advance according to the procedure given in section 6.2.



Setting the Printer

Press **MENU(SHIFT+PRINT)**. A soft key menu or dialog box appears as shown below. Set each item according to the basic operating procedure of section 3.6.



Explanation

The following settings are required to print screen images on a network printer.

Output Port

Set the type of printer on which screen images are to be output.
Network: Outputs to the network printer.

Server Address

In environments in which DNS can be used, you can specify the printer server name on the network (host name and domain name). You can also specify the IP address of the printer server.
Number of characters: Up to 40 characters.
Characters that can be used: 0-9, A-Z, a-z, and -

Printer Driver or Manufacturer (Maker)

Select the manufacturer or the protocol of the printer to be used and the printer driver. The selectable protocols (manufacturers) are as follows:

Protocol (Manufacturer)
PostScript

Printers That Can Be Used

The printers below have been tested for compatibility.

- MICROLINE 9055c (Oki Data Corporation)
- MICROLINE 1035PS (Oki Data Corporation)

Note

- To use this function, configure the TCP/IP parameters in advance according to the procedure given in section 6.2.
- Printing is possible on printers that support the TCP/IP protocol.
- This function cannot be used while the files are being operated.
- Connect only the printers that are allowed.
- For other printers the have been tested for compatibility, contact your nearest YOKOGAWA dealer.
- The VC3300 does not detect “out of paper” and printer errors on the printer. If an error occurs, press the PRINT key again to stop the printing.
- Use this function within a secured network.

6.4 Accessing the VC3300 from a PC or Workstation (FTP Server Function)

Explanation

FTP Server Function

You can use a PC on the network to access the VC3300 via the FTP protocol and carry out the following operations on the public folder* on the VC3300 internal hard disk.

- Download files.
- Upload files.
- Delete files.
- Rename files.
- Create folders.
- Move to different folders.

* The public folder corresponds to the top directory of the VC3300 internal hard disk. It does not appear on the file operation screens on the VC3300.

User Name and Password

User name: anonymous

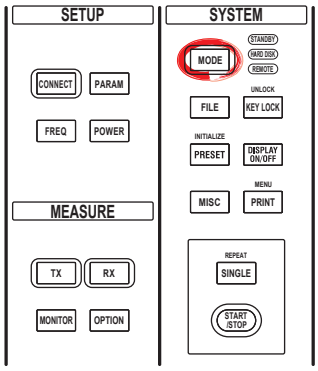
No password is necessary.

Note

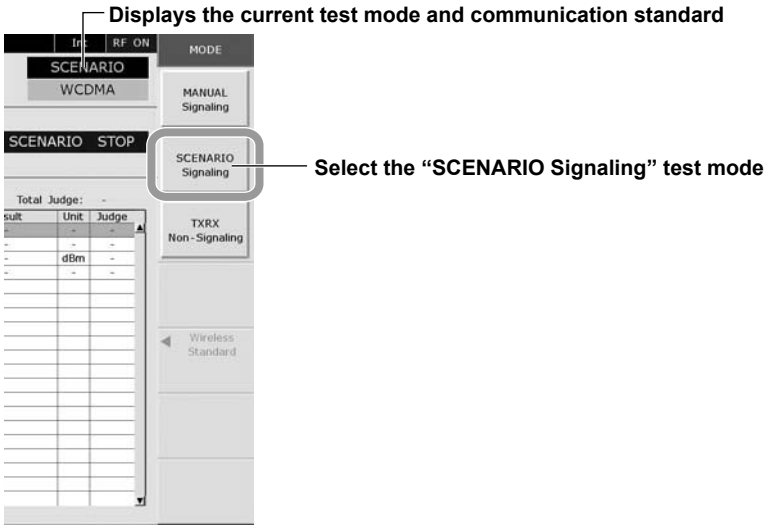
- To use this function, an FTP client is needed on the PC or workstation. In addition, set the TCP/IP parameter in advance as described in section 6.2.
- This function cannot be used when using the network printer function or when performing file operations.
- The FTP server function does not have a user authentication function. Use this function within a secured network.

7.1 Selecting the Test Mode

Procedure



Press **MODE**. A soft key menu or dialog box appears as shown below. Set each item according to the basic operating procedure of section 3.6.



Explanation

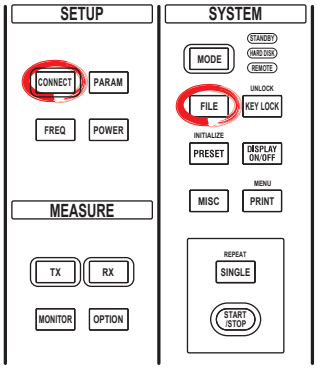
Test Mode

The VC3300 provides the following three test modes.

- Manual mode: In manual mode, the VC3300 performs signaling, and the user manually makes measurements.
- TXRX mode: In TXRX mode, the VC3300 makes measurements without signaling.
- Scenario mode: In scenario mode, the VC3300 automatically performs measurements while signaling according to the procedures specified in the scenario file.

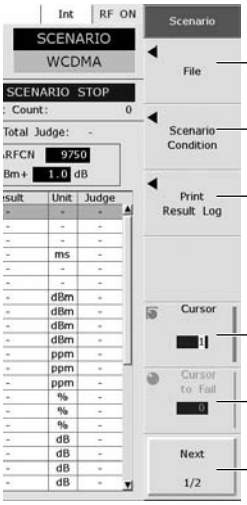
7.2 Loading a Scenario File and Executing the Scenario

Procedure



1. Press **CONNECT**. The following soft key menu appears.

<Screen 1 of 2>



Load a scenario file (steps 2 to 5)

Display the settings (step 6)

Prints the measurement/judgement result (see section 7.4)

Scrolls the sequence list

Scrolls the failed sequence list

Displays the next screen (Next 2/2)

<Screen 2 of 2>

Set the stop condition (step 7)
(Fail or End Scenario)

Display the test count (step 8)

Set the user information (step 10)
(Company Name, User Name)

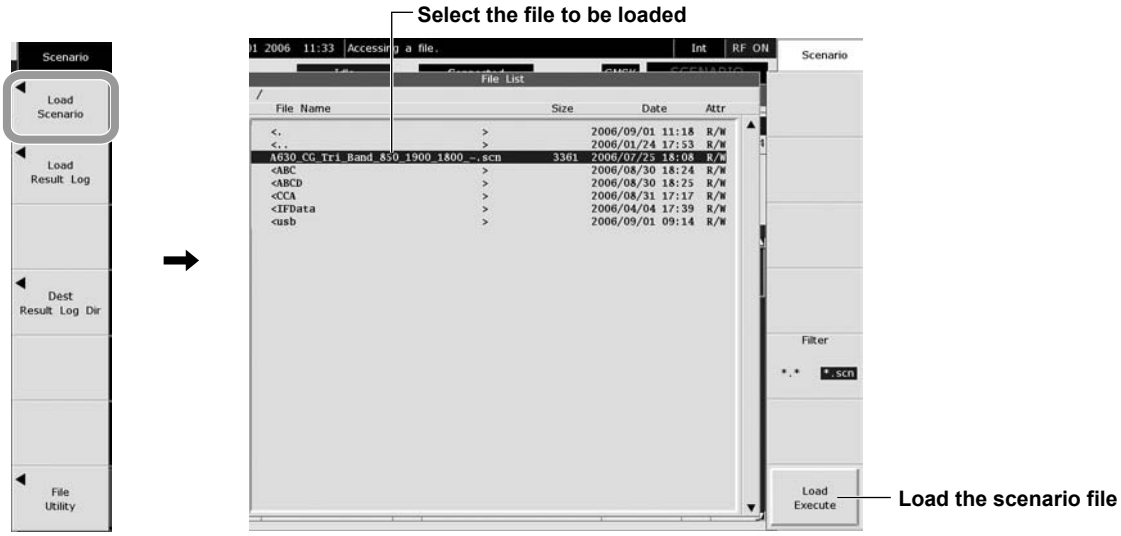
Loading a Scenario File

2. Press the **File** soft key.

3. Press the **Load Scenario** soft key. The File List window appears.
You can also load the scenario file by selecting Scenario using the **File Item** soft key of the **FILE** key menu and specify the file to be loaded using the **Load** soft key.

4. Change the current directory according to the procedure given in section 5.2.

5. Turn the rotary knob to select the file to be loaded, and press the **Load Execute** soft key.
The specified file is loaded.



Displaying the Settings

6. Press the **Scenario Condition** soft key.
The Setting window appears.

Setting the Stop Condition

7. Press the **Stop Condition** soft key in the Next 2/2 menu to select **Fail** or **End** Scenario.

Displaying the Test Counter

8. Press the **Test Counter** soft key in the Next 2/2 menu.
The Test Counter window appears.

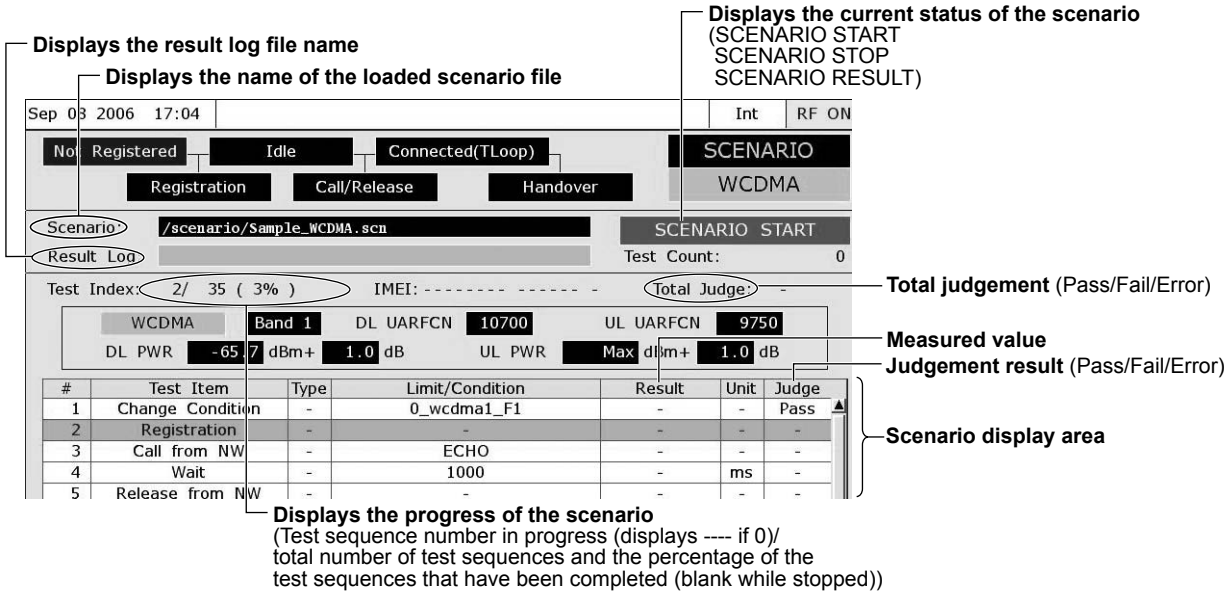
9. Select the **Reset** button and press **SET** to clear the counter. Select the **Cancel** button and press **SET** or press **ESC** to close the Test Counter window without resetting the counter.

Setting the User Information

10. Press the **Operator Information** soft key in the Next 2/2 menu and register the **Company Name** and **User Name**.

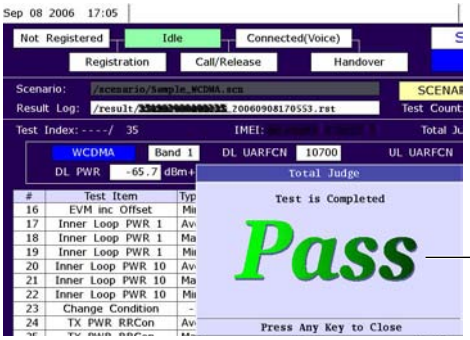
Executing the Scenario

11. Press **START/STOP** on the front panel.
Operate the mobile phone according to the instructions on the screen.



Displaying the Measured Value and Judgement

12. The measured value and judgement for each sequence are displayed under Result and Judge, respectively, in the scenario display area.
When the scenario is finished, the total judgement dialog box appears.



Note

- If a scenario file with a syntax error is loaded, the following error message is displayed on the screen.
  536 Cannot analyze the scenario/result file.
  Error line :** (where ** is the line number at which the error occurred)
- If a protocol error occurs while executing a scenario, the total judgement dialog box (Fail) is displayed, and the scenario is aborted regardless of the stop condition setting.
- If the parameter value is outside the selectable range in a scenario in progress, the following error message is displayed, and the scenario is aborted regardless of the stop condition setting. The pass/fail judgement in this case shows “Error.”
  801 The execution is interrupted by wrong parameter of this command.

Explanation

Loadable Media

A scenario file in a USB memory or the VC3300 internal hard disk can be loaded.

File Type

Select the type of file to be loaded from the following:

- Scenario
- Result Log (log file of measured values and judgement. See sections 7.3 and 7.4.)

Checking the Scenario Condition

You can view the settings in the loaded scenario file.

Displayed Contents
Comment
[Common Parameter] MCC/MNC
[WCDMA Parameter] Profile Integrity Authentication Authentication key Open Loop Power Parameter
[GSM Parameter] GSM Network Test Mode B with ACK Power Control

Setting the Stop Condition

Set the stop condition of the scenario.

- Fail: Aborts the scenario at the test sequence in which the judgement is Fail.
- End Scenario: Executes the scenario to the last test sequence even if there are test sequences in which the judgement is Fail.

Displaying the Test Counter

The number of completed scenarios and the number of total judgement results (pass, fail, or abort) are displayed.

Test Count: Counts the number times the scenarios have been completed.
Pass: Counts the number of times the total judgement was Pass.
Fail: Counts the number of times the total judgement was Fail.
Abort: Counts the number times the scenarios have been aborted.

If you select Reset in the Test Counter window, all counters are cleared.

Setting the User (Operator) Information

The following user information can be saved to the result log file. You can set up to 32 characters for the company name and user name.

- Company name
- User name

Displaying the Measured Value and Judgement

The measured value and judgement (pass/fail/error) are displayed in the Result and Judge columns, respectively, in the scenario display area each time a test sequence is completed. In addition, if a scenario is completed according to the stop condition, the total judgement dialog box is displayed. The total judgement dialog box displays the following three types of results.

- Pass: All test sequences met the criteria.
- Fail: One or more test sequences did not meet the criteria.
- Abort: The scenario was aborted.

Result Log File

When a scenario is complete, the contents of the scenario, the measured values, the judgement, and the like are automatically saved to the internal hard disk as a result log file. The save destination is in the current directory in the File List window. Even if a scenario is aborted, the measurement and judgement results up to that point are saved to the file.

For the procedure to load the result log file, see section 7.3.

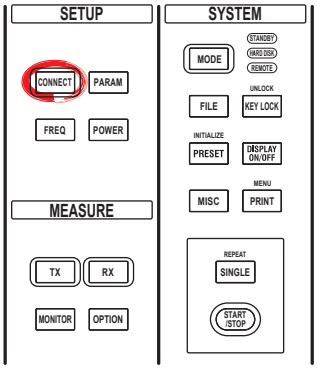
- File name: The IMEI (International Mobile Equipment Identity) of the mobile phone under test + the date/time when the scenario was completed. (Example: 123456789012345_20060603113212 → 15-digit IMEI-2006-June 3rd-11:32:12 am)
- Extension: rst

Note

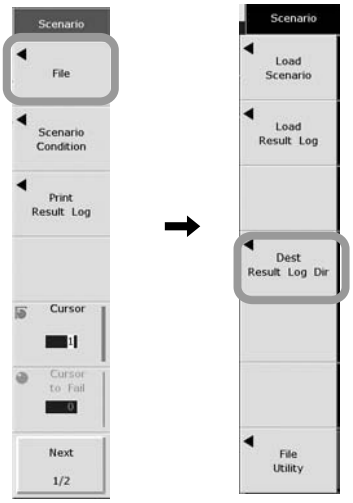
- The FTP server function allows you to upload the scenario file that you created on the PC to the VC3300 internal hard disk.
- A sample scenario file is provided in the sample_scenario folder on the CD-ROM that comes with the package.
- If the IMEI cannot be retrieved, the file name consists only of the date/time when the scenario was completed.
- For the procedure to rename, copy, and delete the scenario files, see section 5.3 to 5.5.

7.3 Setting the Save Destination of the Result Log File

Procedure



1. Press **CONNECT**.
2. Press **File** soft key, and press the **Dest. Result Dir.** soft key in the displayed menu.
   The File List window appears.



Creating a New Save Destination Directory

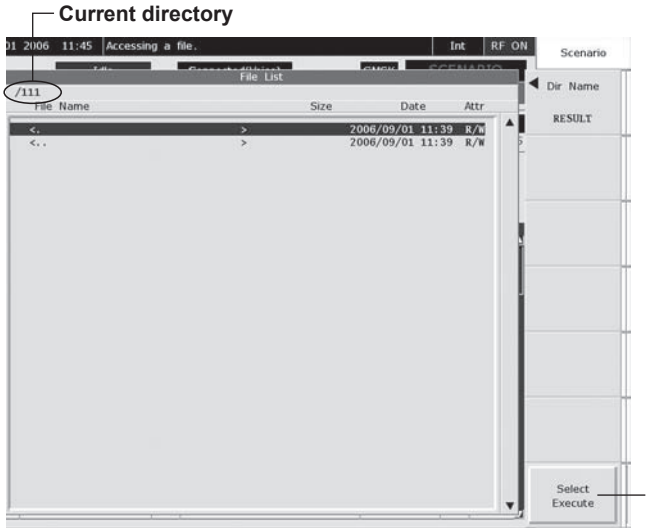
3. Change the current directory according to the procedure given in section 5.2.

4. Press the **Dir Name** soft key. The Directory Name entry box appears.

Enter the directory name according to the procedure given in section 3.7.

5. Press **ESC**. The entry box closes.
The directory name is displayed in the bottom area of the Dir Name soft key.

6. Press the **Select Execute** soft key.
The save destination directory is entered, and the screen returns to the top menu of the CONNECT key.

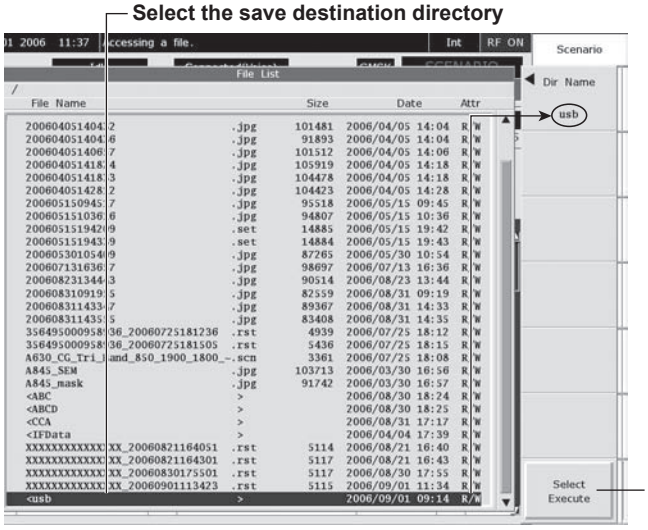


Selecting the Save Destination Directory from Existing Directories

3. Change the current directory according to the procedure given in section 5.2.

4. Turn the **rotary knob** to move the cursor to the desired directory.
The selected directory name is displayed in the bottom area of the Dir Name soft key.

5. Press the **Select Execute** soft key.
The save destination directory is entered, and the screen returns to the top menu of the CONNECT key.



Explanation

The result log file contains information such as the settings of the executed scenarios, measured values, and judgement.
The result log file is automatically saved to the internal hard disk each time a scenario is completed. You can specify the auto save destination directory in one of two ways given below. For details on the file name of the result log file, see section 7.4.

- Specify an existing directory.
- Create a new directory.

7.4 Loading and Printing the Result Log File of the Measured Values and Judgement

Procedure

1. Press **CONNECT**. The following soft key menu appears.

Loading a Result Log File

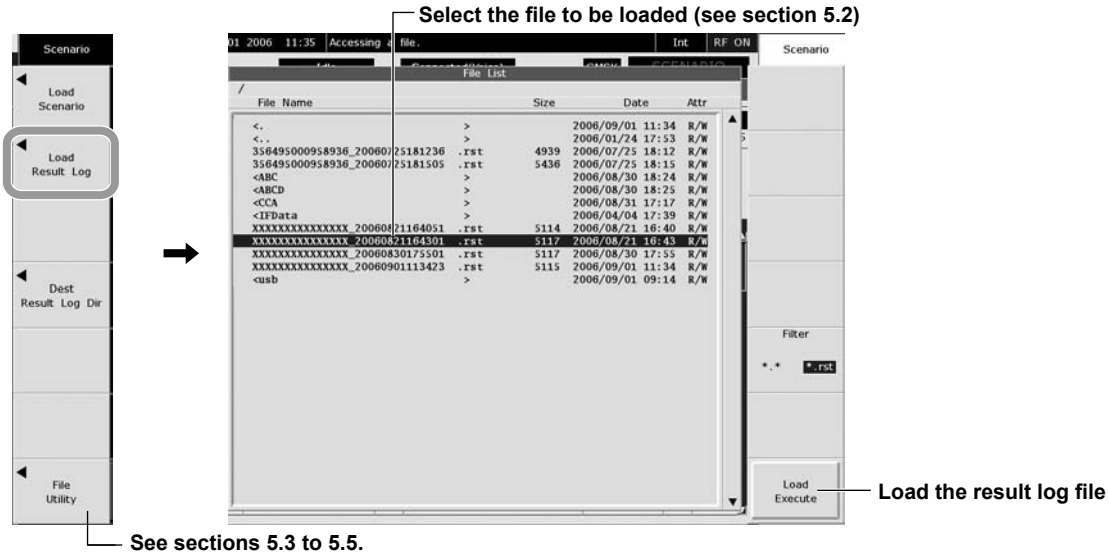
2. Press **File** soft key, and press the **Load Result**. soft key in the displayed menu. The File List window appears.

   You can also load the result log file by selecting Result using the **File Item** soft key of the **FILE** key menu and specify the file to be loaded using the **Load** soft key.

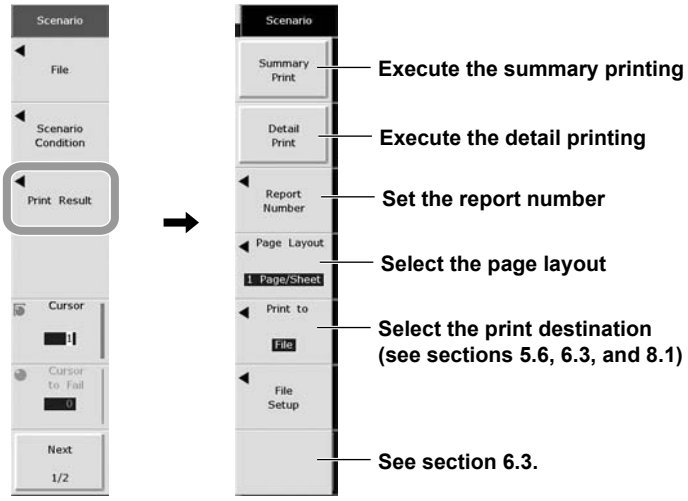
3. Change the current directory according to the procedure given in section 5.2.

4. Turn the **rotary knob** to select the file to be loaded, and press the **Load Execute** soft key.

   The specified result log file is displayed on the screen.



Printing



Note

If a result log file with a syntax error is loaded, the following error message is displayed on the screen.

536 Cannot analyze the scenario/result file.
Error line :** (where ** is the line number at which the error occurred)

Explanation

Loading a Result Log File

The contents of the executed scenario, the measured values, the judgement, and the like are automatically saved to the internal hard disk as a result log file. You can perform the following operations by loading a result log file.

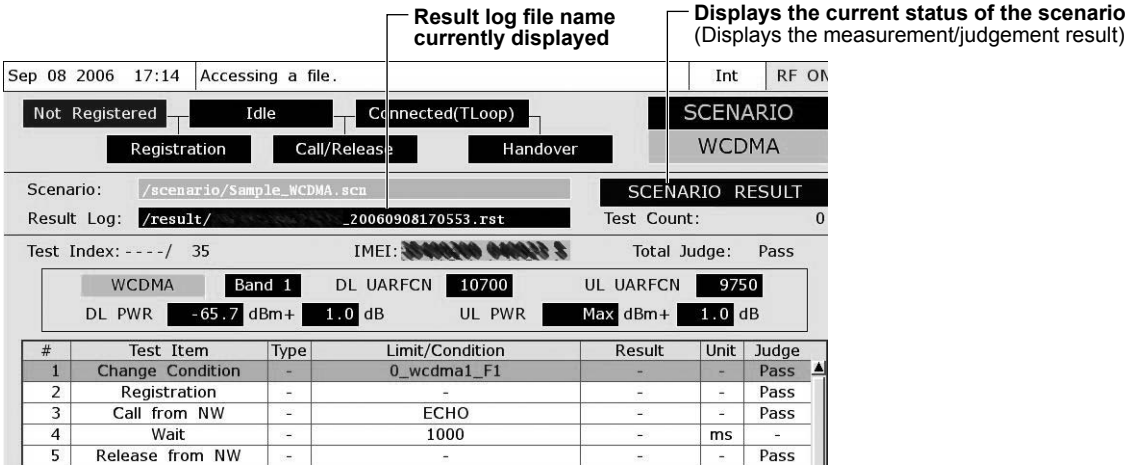
- List the measurement and judgement results on the screen.
- Print the measurement and judgement results or save them to a file.

- File name: The IMEI (International Mobile Equipment Identity) of the mobile phone under test + the date/time when the scenario was completed.
  (Example: 123456789012345_20060603113212 → 15-digit IMEI-2006-June 3rd-11:32:12 am)
- Extension: rst

File Type

Select the type of file to be loaded from the following:

- Scenario (see section 7.2.)
- Result Log (log file of measured values and judgement)



Printing the Result Log File

Printed Items

The contents of the result log file can be printed in report format when the Scenario RESULT screen is displayed.

Setting the Report Number

Set the content to be indicated at the Report No. item of the print format. The report number is printed in both the Summary and Detail formats.

- **Auto Numbering**
  - ON: Indicates the result log file name (excluding the extension).
  - OFF: Indicates the character string specified in the Report Number entry box.

- **Report Numbe**r
  Set the character string up to 32 characters. This item is valid when the Auto Numbering setting is OFF.

Setting the Page Layout

Select from the choices below.

- 1 Page/Sheet: Print 1 page per sheet.
- 2 Pages/Sheet: Print 2 pages per sheet.

Selecting the Print Destination (Print to)

Select the output destination of the print data from the following:

- File: Saves the data in text format on the internal hard disk or USB memory (see section 5.6).
  File name and extension
  - aaaa_bbbb.txt where aaaa is the IMEI of the mobile phone and bbbb is the date/time when the scenario was completed (for Summary print)
  - aaaa_bbbbd.txt where aaaa is the IMEI of the mobile phone and bbbb is the date/time when the scenario was completed (for Detail print)
- Printer: Print on the printer (see sections 6.3 and 8.1)

Setting the File (File Setup)

Set the save destination of the file when the print destination is set to File. Set the save destination directory using the Dir Name and Select Execute soft keys. For details, see section 5.6.

Setting the Printer (Printer Setup)

Set the data output destination (Port), the manufacturer (Maker), and the printer server name (Server Address) when the print destination is set to Printer. For details, see section 6.3.

Executing the Print Operation (Summary/Detail)

Printing can be executed when the current status of the scenario is SCENARIO RESULT. Press any of the following keys to print to the destination specified by Print to.

- Summary: Prints only the measurement items and the judgement result.
- Detail: Prints the measurement items, upper and lower limits, measured values, and the judgement results.

Note

For the procedure to rename, copy, and delete the result log files of measured values and judgement, see section 5.3 to 5.5.

Print Example

- **Summary**

```
Test Report
Report No.          TEST01          <-- When auto numbering is OFF

Date                Sep 04 2006  09:19:48
Scenario File       /scenario/test.scn
Result File         /123456789012345_20060904091948.rst
IMEI                123456789012345
Total Judge         Pass

  Item                    Type  Judge   | Item                    Type  Judge
-------------------------------------------------------------------------------
<WCDMA Band1 DL UARFCN:10700 PWR(DL/UL):-65.7dBm/35.1dBm Comp(DL/UL):6.5dB/7.0dB>
  Change Condition              Pass    | Registration                  Pass
  Test Loop Close               Pass    |  TX PWR RRCoff          Avg   Pass
   Freq Err ppm           Avg   Pass    |  EVM inc Offset         Avg   Pass
   OBW                    Avg   Pass    |  SEM                          Pass
   ACLR +10MHz            Avg   Pass    |  ACLR  +5MHz            Avg   Pass
   ACLR  -5MHz            Avg   Pass    |  ACLR -10MHz            Avg   Pass
<WCDMA Band1 DL UARFCN:10700 PWR(DL/UL):-65.0dBm/-70.1dBm Comp(DL/UL):6.5dB/7.0dB>
  Change Condition              Pass    |  TX PWR RRCon           Avg   Pass
<WCDMA Band1 DL UARFCN:10700 PWR(DL/UL):-106.0dBm/35.1dBm Comp(DL/UL):6.5dB/7.0dB>
  Change Condition              Pass    |  BER                          Pass
<WCDMA Band1 DL UARFCN:10700 PWR(DL/UL):-25.7dBm/35.1dBm Comp(DL/UL):6.5dB/7.0dB>
  Change Condition              Pass    |  BER                          Pass
<WCDMA Band1 DL UARFCN:10700 PWR(DL/UL):-65.7dBm/35.1dBm Comp(DL/UL):6.5dB/7.0dB>
  Change Condition              Pass    | Test Loop Open                Pass
-------------------------------------------------------------------------------

YOKOGAWA VC3300/733020
User Name
Company Name

Serial No.          9999999999
Firmware            2.02
```

Measurement setting

- **Detail**

Test Report
Report No. 123456789012345_20060904091948 **When auto numbering is ON**

Date Sep 04 2006 09:19:48
Scenario File /scenario/test.scn
Result File /123456789012345_20060904091948.rst
IMEI 123456789012345
Total Judge Pass

Item	Type	Condition	Lower Limit	Upper Limit	Result	Judge
<WCDMA Band1 DL UARFCN:10700 PWR(DL/UL):-65.7dBm/35.1dBm Comp(DL/UL):6.5dB/7.0dB>						
Change Condition		0_wcdma1_F1				Pass
Registration						Pass
Test Loop Close						Pass
TX PWR RRCoff	Avg[10]		18.30 dBm	25.70 dBm	24.11 dBm	Pass
Freq Err ppm	Avg[10]		-0.1000 ppm	0.1000 ppm	-0.0095 ppm	Pass
EVM inc Offset	Avg[10]			17.50 %	7.58 %	Pass
OBW	Avg[10]			5.00 MHz	4.22 MHz	Pass
SEM						Pass
ACLR +10MHz	Avg[10]			-42.20 dB	-51.76 dB	Pass
ACLR +5MHz	Avg[10]			-32.20 dB	-44.09 dB	Pass
ACLR -5MHz	Avg[10]			-32.20 dB	-45.06 dB	Pass
ACLR -10MHz	Avg[10]			-42.20 dB	-52.92 dB	Pass
<WCDMA Band1 DL UARFCN:10700 PWR(DL/UL):-65.0dBm/-70.1dBm Comp(DL/UL):6.5dB/7.0dB>						
Change Condition		0_wcdma2				Pass
TX PWR RRCon	Avg[10]			-49.00 dBm	-56.24 dBm	Pass
<WCDMA Band1 DL UARFCN:10700 PWR(DL/UL):-106.0dBm/35.1dBm Comp(DL/UL):6.5dB/7.0dB>						
Change Condition		0_wcdma3				Pass
BER				0.1000 %	0.0000 %	Pass
<WCDMA Band1 DL UARFCN:10700 PWR(DL/UL):-25.7dBm/35.1dBm Comp(DL/UL):6.5dB/7.0dB>						
Change Condition		0_wcdma4				Pass
BER				0.1000 %	0.0000 %	Pass
<WCDMA Band1 DL UARFCN:10700 PWR(DL/UL):-65.7dBm/35.1dBm Comp(DL/UL):6.5dB/7.0dB>						
Change Condition		0_wcdma1_F1				Pass
Test Loop Open						Pass

YOKOGAWA VC3300/733020
User Name
Company Name

Serial No. 9999999999
Firmware 2.02

7.5 Creating a Scenario File

Procedure

1. Create a scenario according to the following file format using a spreadsheet application such as Microsoft Excel.
2. Save the file to a comma-separated format (CSV in the case of Microsoft Excel).
3. Set the file name extension to .scn.

Explanation

Scenario File

A scenario file consists of multiple scenario commands. A scenario is executed according to the contents of this file.

- **Scenario File Name Extension**
  scn
- **Data Format**
  Comma-separated text

File Format

Define a scenario command for each section indicated below.

<Header>	
Title command:	Scenario title
<Common parameter>	
mcc command:	MCC number
mnc command:	MNC number
imsi command:	IMSI number
<gsm_parameter>	
power_control command:	Sets the power control (normal or fast).
<wcdma_parameter>	
profile command:	Sets the protocol to be used.
integrity command:	Turns the integrity function ON/OFF.
authentication command:	Turns the authentication function ON/OFF
authkey command:	Sets the authentication key.
open_loop_pwr_parameter command:	Sets the parameter set that is used in the open loop power measurement.
<wcdma_freqpower>	
User-defined command:	A preset containing the frequency band, downlink frequency channel, downlink power, uplink frequency channel, and uplink/downlink power loss. (For the procedure to define a preset, see appendix 2.)
<gsm_freq_power>	
User-defined command:	A preset containing the frequency band, downlink frequency, downlink power, uplink frequency, uplink/downlink power loss, and uplink power (GAMMA). (For the procedure to define a preset, see appendix 2.)
<sequence>	
Test sequence command:	The test sequence is defined using scenario commands. Up to 2000 sequences can be defined.

For details on the scenario commands, see Appendix 2.

Scenario File Sample (Viewed on Microsoft Excel)

	A	B	C	D	E	F	G	H
1	<header>							
2	comment	sample1						
3								
4	<common_parameter>							
5	mcc	001						
6	mnc	001						
7	imsi	001010000000010						
8								
9	<gsm_parameter>							
10	gsm_network	gsm						
11	power_control	normal						
12	test_mode_b_with_ack	off						
13								
14	<wcdma_parameter>							
15	profile	p01						
16	integrity	on						
17	authentication	on						
18	authkey	aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa						
19	open_loop_pwr_parameter	middle						
20								
21	<wcdma_freqpower>							
22	w1	b1	10700	-65	0	3	3.5	
23								
24	<gsm_freqpower>							
25	g1	gsmdcs	1	1	-65	5	1	1.5
26								
27	<sequence>							
28	change_condition	w1						
29	call_from_nw	echo						
30	w_tx_pwr_rrcon				10	avg	2	-2
31	release_from_nw							

Scenario File Sample (Viewed on a Text Editor)

```
<header>
comment,sample1

<common_parameter>
mcc,001
mnc,01
imsi,001010000000010

<gsm_parameter>
gsm_network,gsm
power_control,normal
test_mode_b_with_ack,off

<wcdma_parameter>
profile,p01
integrity,on
authentication,on
authkey,aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
open_loop_pwr_parameter,middle

<wcdma_freqpower>
w1,b1,10700,-65,0,3,3.5

<gsm_freqpower>
g1,gsmdcs,1,1,-65,5,1,1.5

<sequence>
change_condition,w1
call_from_nw,echo
w_tx_pwr_rrcon,,,,10,avg,2,-2
release_from_nw
```

Transferring the File

To execute a scenario, you must allow the scenario file that has been created on the PC to be loaded into the VC3300 through either of the methods shown below.

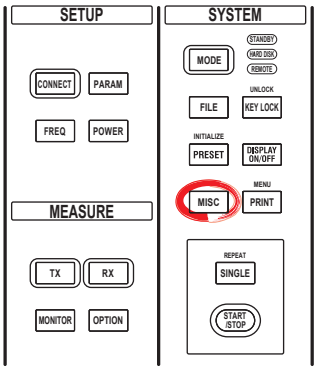
- Copy the file to a USB memory and insert the USB memory into the VC3300 (see section 5.1).
- Upload the file to the VC3300 internal hard disk using the FTP server function (see section 6.4).

Note

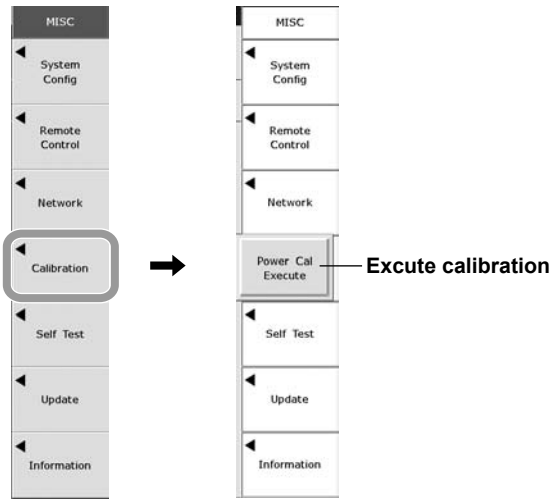
- You can simply change the extension of the result log file name to .scn to be used as a scenario file.
- The contents in a USB memory can be loaded directly into the VC3300.
- A sample scenario file is provided in the sample_scenario folder on the CD-ROM that comes with the package.

8.1 Calibration

Procedure



Press **MISC**. A soft key menu or dialog box appears as shown below. Set each item according to the basic operating procedure of section 3.6.



Explanation

Calibration

The downlink RF power and uplink RF power can be adjusted. You can improve the power accuracy if you execute calibration such as when the ambient temperature changes.

Precautions to Be Taken during Calibration

Do not connect anything to the RF IN/OUT terminal on the front panel. If you do, calibration may not work properly.

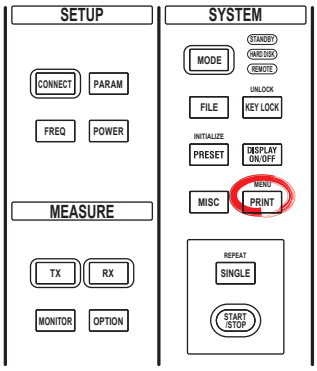
- Allow the VC3300 to warm up for at least 30 minutes after the power is turned ON before performing calibration. If calibration is performed immediately after the power is turned ON, the calibration may be inaccurate due to drift caused by fluctuation in the temperature of the VC3300.
- Perform calibration while the VC3300 is stopped. Calibration cannot be performed if the VC3300 is running.

Note

The VC3300 powers up using the factory default calibration data.

8.2 Printing Screen Images

Procedure

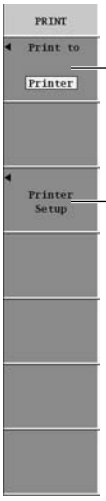


Connecting to the Network

1. After making a network connection (see section 6.1), enter TCP/IP settings (see section 6.2) and settings for printing screen images on a network printer (see section 6.3.).

Setting the Printer

2. Press **MENU(SHIFT+PRINT)**. A soft key menu or dialog box appears as shown below. Set each item according to the basic operating procedure of section 3.6.



Select Printer

See section 6.3.

Executing the Print Operation

3. Press **PRINT**. The screen image is printed on the specified printer.

Explanation

You can also print the screen image on a network printer.* Configure the settings below before executing the print operation described in this section.

- Network connection. See section 6.1.
- TCP/IP settings. See section 6.2.
- Settings for printing screen images to a network printer. See section 6.3.

* Printing is possible on a printer or via a printer server supporting the TCP/IP protocol.

Print to

Select the destination on which the screen image is to be output.

- File: Saves the screen image data to the internal hard disk or USB memory. See section 5.6.
- Printer: Prints on the printer.

Compatible Printers

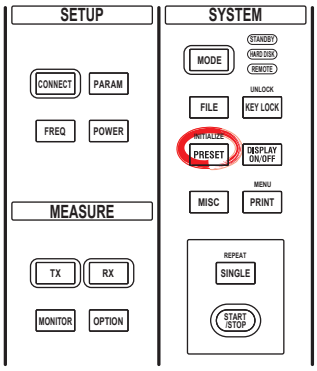
For details on compatible printers, contact your nearest YOKOGAWA dealer.

Note

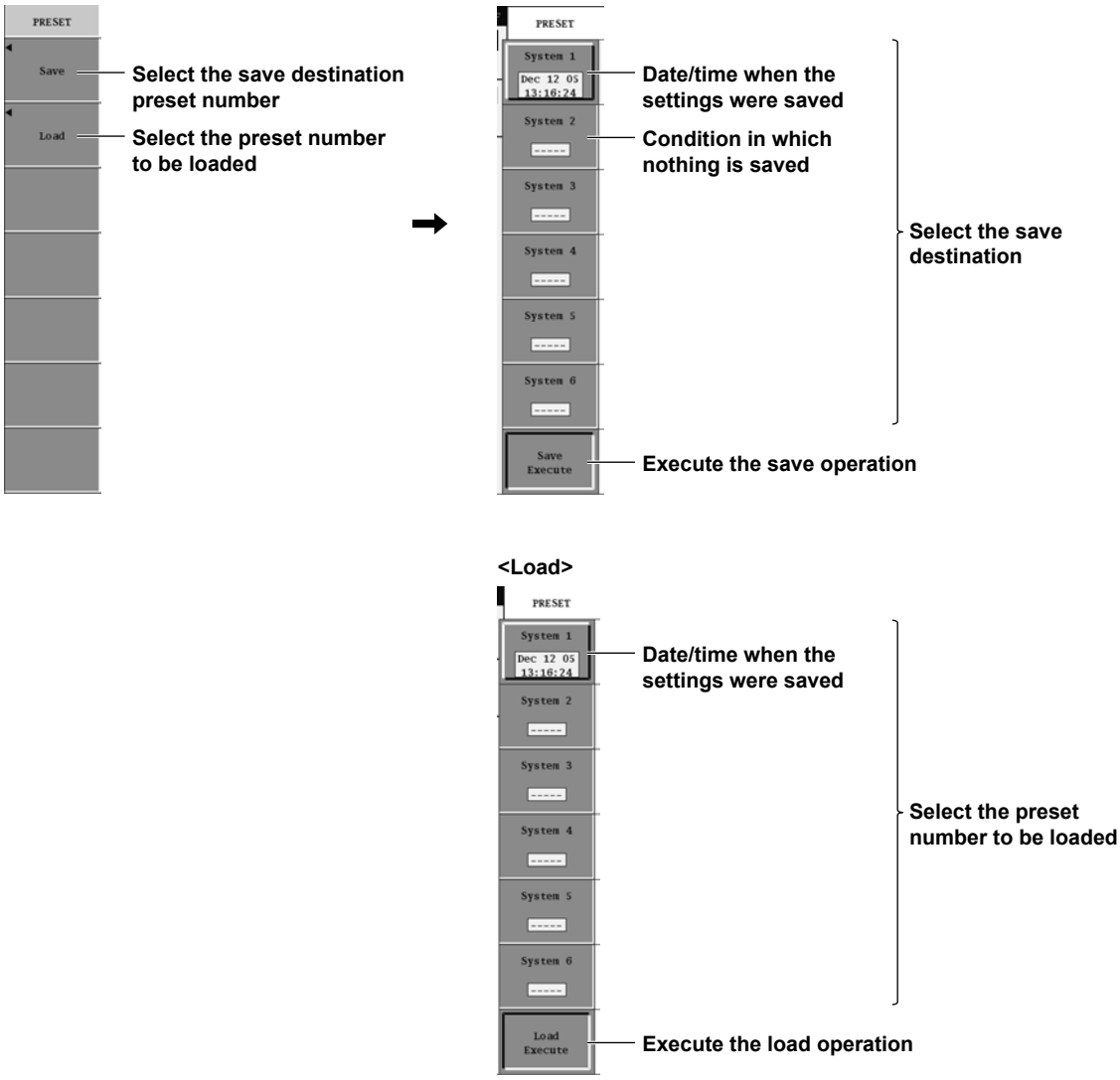
You can print screen images even while the scenario is in progress.

8.3 Saving and Applying Preset Settings

Procedure



Press **PRESET**. A soft key menu or dialog box appears as shown below. Set each item according to the basic operating procedure of section 3.6.



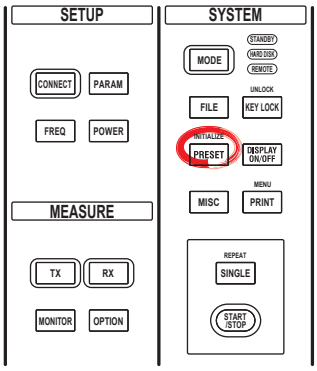
Explanation

The settings that you specify can be saved as preset settings. The VC3300 settings can be set back to the stored preset settings by pressing a single key.

- Six sets of preset settings can be saved.
- If you specify a preset number containing preset settings, the existing settings are overwritten. A confirmation message does not appear.
- The items that are not stored as preset settings are as follows:
  Settings on the menu that appears when the SYSTEM key is pressed. However, the reference input setting is saved.

8.4 Initializing Settings

Procedure



INITIALIZE (SHIFT+PRESET). A soft key menu or dialog box appears as shown below. Set each item according to the basic operating procedure of section 3.6.

Execute the initialization

Note

Check that it is okay to initialize the settings to their factory default before actually initializing the settings. You cannot set the settings back after initialization. It is recommended that the settings be saved (see section 5.2) before executing initialization.

Explanation

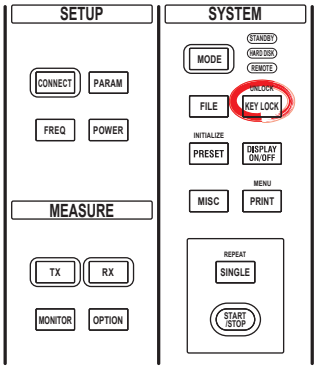
The items specified using keys can be reset to the factory default settings. This is useful when you wish to clear previous settings or start the settings from scratch. For a description of the factory default settings, see appendix 1.

The following settings are not initialized. The current settings are retained.

- Settings on the menu that appears when the SYSTEM key is pressed. However, the reference input setting is retained.

8.5 Turning ON/OFF the Key Lock

Procedure



Turning Key Lock ON

Press **KEYLOCK** to turn the key lock ON.

* The KEYLOCK key illuminates in green.

Turning Key Lock OFF

When the key lock is ON, press **UNLOCK(SHIFT+KEYLOCK)**. The key lock turns OFF.

* The KEYLOCK key turns OFF.

Explanation

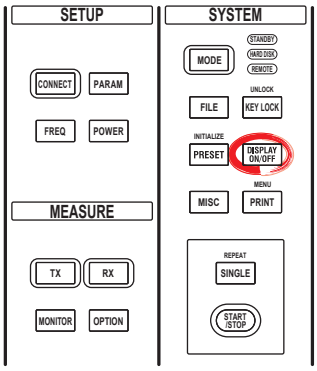
You can disable the setup operation using front panel keys (locks the keys) excluding the operation of turning the power ON/OFF and turning key lock OFF.

Note

If the VC3300 is set to remote mode using the remote command, the key lock is turned ON. For details, see chapter 9.

8.6 Turning ON/OFF the Display (LCD Backlight)

Procedure



Turning the Display OFF

When the display is turned ON, press **DISPLAY ON/OFF**. The LCD backlight turns OFF, and the display turns OFF.

* The DISPLAY ON/OFF key illuminates in green.

Turning the Display ON

When the display is turned OFF, press **DISPLAY ON/OFF**. The LCD backlight turns ON, and the display becomes viewable (turns ON).

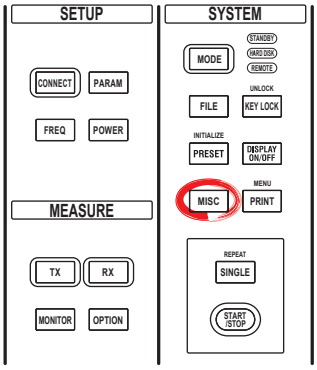
* The DISPLAY ON/OFF key turns OFF.

Explanation

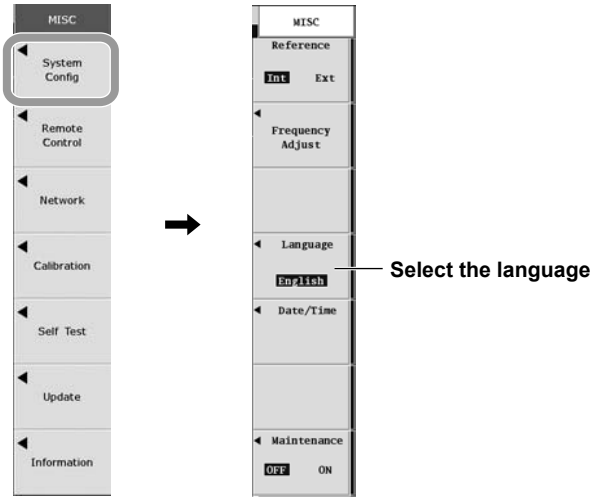
You can turn the display OFF by turning the backlight OFF when you do not need to view the display.

8.7 Selecting the Language

Procedure



Press **MISC**. A soft key menu or dialog box appears as shown below. Set each item according to the basic operating procedure of section 3.6.



Explanation

Selecting the Language

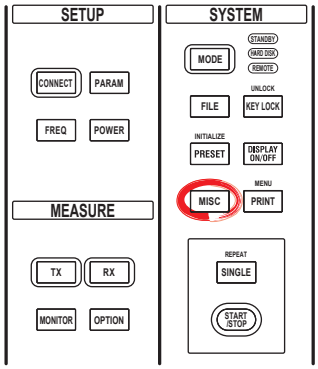
You can select the language of the soft key menu, error messages, etc.
Currently, only English is supported.

9.1 Reference Input

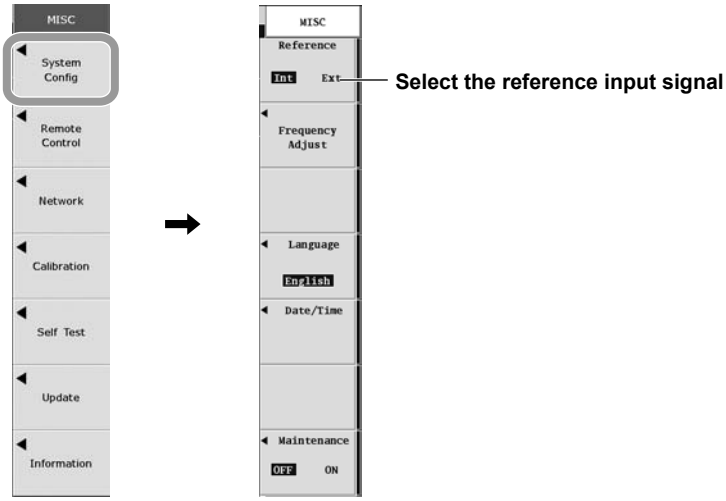
CAUTION

Do not apply a voltage that exceeds the maximum input voltage to the REF IN terminal. If you do, the VC3300 may malfunction.

Procedure



Press **MISC**. A soft key menu or dialog box appears as shown below. Set each item according to the basic operating procedure of section 3.6.



Select the reference input signal

Note

You cannot switch the reference input signal while the measurement is in progress (while the START/STOP key is illuminated).

Explanation

Reference Input

Select the reference input signal.

- Int: Internal reference
- Ext: External reference

You can select whether to use the internal reference or an external reference for the PLL frequency reference. To use an external reference signal, apply a signal that meets the following specifications to the REF IN terminal on the rear panel.

Specifications

Input frequency:	10 MHz ± 3 ppm
Input level:	1 to 5 Vpp
Input impedance:	5 kΩ (Typical*)
Maximum input voltage:	10 Vpp, ±15 VDC
Connector type:	BNC

* Typical value represents a typical or average value. It is not strictly warranted.

9.2 Timing Signal Output

CAUTION

Do not apply external voltage to the TIMING OUT terminal. If you do, the VC3300 may malfunction.

Procedure

For the procedure, see section 4.1 in the *User's Manual IM733021-01E* or *IM733022-01E*.

Explanation

Select the timing signal or clock signal to be output from the TIMING OUT terminal on the rear panel from the following:

WCDMA

- Frame Timing: Outputs a timing signal (10-ms cycle, positive pulse with a width of approx. 66.7 μs) of a frame synchronized to PCCPCH.
- Slot Timing: Outputs a timing signal (667-μs cycle, positive pulse with a width of approx. 66.7 μs) of a time slot synchronized to PCCPCH.
- Chip Clock: Outputs the chip clock (3.84 MHz) that is synchronized to the downlink signal.
- Chip Clock×5: Outputs a clock (19.2 MHz) that is 5 times the chip clock (3.84 MHz) that is synchronized to the downlink signal.

GSM

- Frame Timing: Outputs the timing signal (positive pulse with a period of 4.615 ms and width of 3.7 μs) of the downlink frame.
- Bit Clock: Outputs the bit clock (270.833 kHz)

Specifications

Output Level: +3.3 V LVCMOS level
Output impedance: 50 Ω(Typical*)
Connector type: BNC

* Typical value represents a typical or average value. It is not strictly warranted.

9.3 Video Signal Output

CAUTION

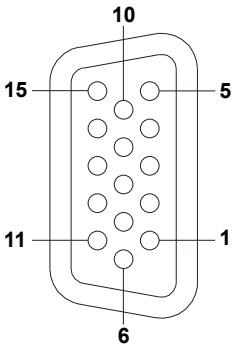
- Connect the cable after turning OFF the VC3300 and the monitor.
- Do not short the VIDEO OUT connector or apply external voltage to it. If you do, the VC3300 may malfunction.

VIDEO OUT Connector

The VC3300 display can be output to a monitor through the video signal output. An XGA monitor can be connected.

Specifications

Standard: VESA
Connector type: 15-pin D-Sub receptacle
Resolution: XGA (1024×768, horizontal synchronization 48.4 kHz, and vertical synchronization 60 Hz)
Colors: 256 colors



D-Sub 15-pin receptacle

Pin No.	Signal Name
1	Red
2	Green
3	Blue
4	—
5	GND
6	GND
7	GND
8	GND
9	—
10	GND
11	—
12	—
13	Horizontal sync signal
14	Vertical sync signal
15	—

Connecting the Monitor

1. Turn OFF the VC3300 and the monitor.
2. Connect the VC3300 and the monitor using an analog RGB cable.
3. The screen of the VC3300 appears on the monitor when both the VC3300 and the monitor are turned ON.

Note

- The RGB video signal is constantly output from the VIDEO OUT connector.
- The monitor screen may flicker if the VC3300 or another instrument is brought close to the monitor.
- The edge of the screen may drop out depending on the monitor type.

9.4 External Signal Input (EXT IN1 and EXT IN2)

CAUTION

Do not apply a voltage that exceeds the maximum input voltage to the EXT IN1 and EXT IN2 terminals. If you do, the VC3300 may malfunction.

EXT IN1/EXT IN2

This input is used when applying an external signal such as in the RX characteristics (BER) measurement in TXRX mode.

Specifications

Input level:	TTL level (V_L(max) = 0.8 V, V_H(min) = 2.0 V)
Maximum input voltage:	–1 V to +6 V
Input impedance:	10 kΩ or more
Connector type:	BNC

10.1 Ethernet Interface

Specifications and Functions of the Ethernet Interface

Reception Function

You can specify the same settings as those specified by front panel key operations.
Receives output requests for setup information.

Transmit

Outputs setup information and measurement results.

Ethernet Interface Specifications

Number of communication ports:	1
Electrical and mechanical specifications:	Conforms to IEEE802.3
Transmission system:	Ethernet (10BASE-T/100BASE-TX)
Data rate:	10 Mbps/100 Mbps
Communication protocol:	TCP/IP
Connector type:	RJ45 connector
Port number used:	16380/tcp

Connection Procedure

Connect a UTP cable or an STP cable to the 10BASE-T/100BASE-TX port on the rear panel.
For details on the connection of the VC3300 to a network, the TCP/IP settings, and other related information, see chapter 6.

10.2 Serial (RS-232) Interface

Specifications and Functions of the Serial Interface

Reception Function

You can specify the same settings as those specified by front panel key operations.
Receives output requests for setup information.

Transmit

Outputs setup information and measurement results.

Serial (RS-232) Interface Specifications

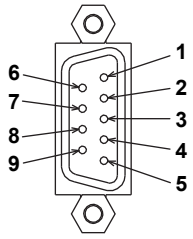
Electrical characteristics: Conforms to the EIA-574 standard (for the 9-pin interface of the EIA-232 (RS-232) standard)

Connection:	Point-to-point
Transmission mode:	Full-duplex
Synchronization:	Start-stop synchronization
Baud rate:	9600, 19200, 38400, 57600, and 115200
Start bit:	1 bit (fixed)
Data length:	7 or 8 bits
Parity:	Even, odd, or no parity
Stop bit:	1 or 2 bits
Connector:	DELC-J9PAF-13L6 (JAE or equivalent)
Flow control:	Select hardware handshaking using RS/CS or no flow control

Connection Procedure

When you connect the VC3300 to a PC, you must set the VC3300 so that the handshaking method, baud rate, data format, and other parameters match those on the PC side.
For setting details, see page 9-5. In addition, use an interface cable that meets the specifications of the VC3300.

Connector and Signal Names

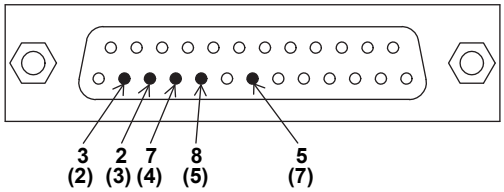


DELC-J9PAF-13L6 or equivalent

2	RD (Received Data):	Received data from the PC. Signal direction: Input
3	SD (Send Data):	Transmitted data to the PC. Signal direction: Output
5	SG (Signal Ground):	Signal ground.
7	RS (Request to Send):	Handshaking used to receive data from the PC. Signal direction: Output
8	CS (Clear to Send):	Handshaking used to send data to the PC. Signal direction: Input

* Pins 1, 4, 6, and 9 are not used.

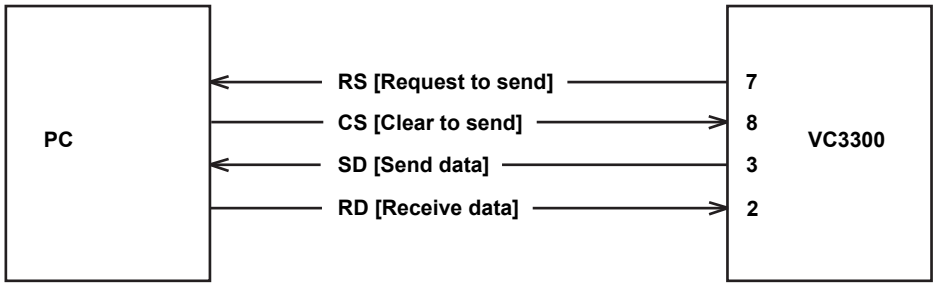
9-pin to 25-pin Adapter and Signal Names



The numbers inside the parentheses are pin numbers for the 25-pin connector.

Signal Direction

The figure below shows the direction of the signals used by the serial interface of the VC3300.



RS-232 Standard Signals and Their JIS and CCITT Abbreviations

Signal Table

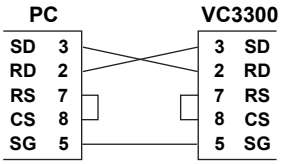
Pin No. (9-pin connector)	Abbreviation			Name
	RS-232	CCITT	JIS	
5	AB (GND)	102	SG	Signal ground
3	BA (TXD)	103	SD	Send data
2	BB (RXD)	104	RD	Receive data
7	CA (RTS)	105	RS	Request to send
8	CB (CTS)	106	CS	Clear to send

Signal Wiring Example

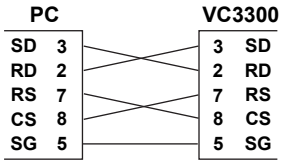
The pin numbers are for the 9-pin connector.

In general, use a cross cable.

• OFF-OFF/XON-XON



• Hard(CS-RS)



Combination of Handshaking Methods

When using the serial interface for transferring data, it is necessary for equipment on both sides to agree on a set of rules to ensure the proper transfer of data. This procedure is called handshaking. Because there are various handshaking methods that can be used between the VC3300 and the PC, one must make sure that the same method is chosen by both the VC3300 and the PC.

You can select the following two methods on the VC3300.

- none
- hard

When None Is Used

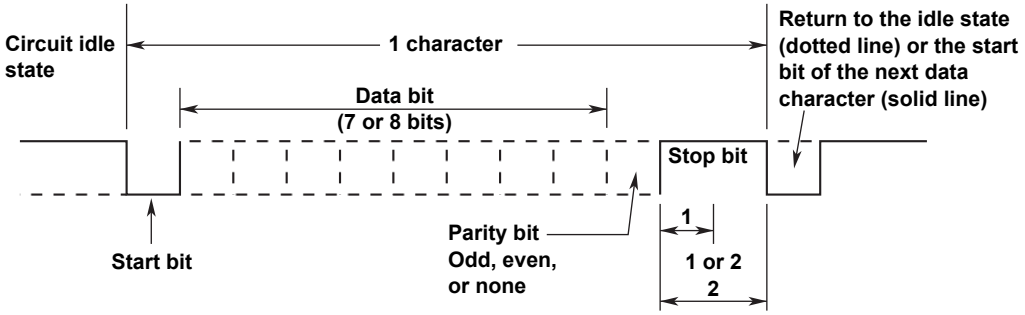
- **Data Transmission Control**
  There is no handshaking between the VC3300 and the PC.
- **Data Reception Control**
  There is no handshaking between the VC3300 and the PC.
  RS = True (fixed).

When Hard (Hardware) Is Used

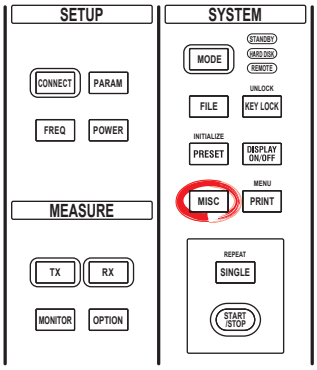
- **Data Transmission Control**
  Hardware handshaking is performed between the VC3300 and the PC.
- **Data Reception Control**
  Hardware handshaking is performed between the VC3300 and the PC.

Combination of Data Formats

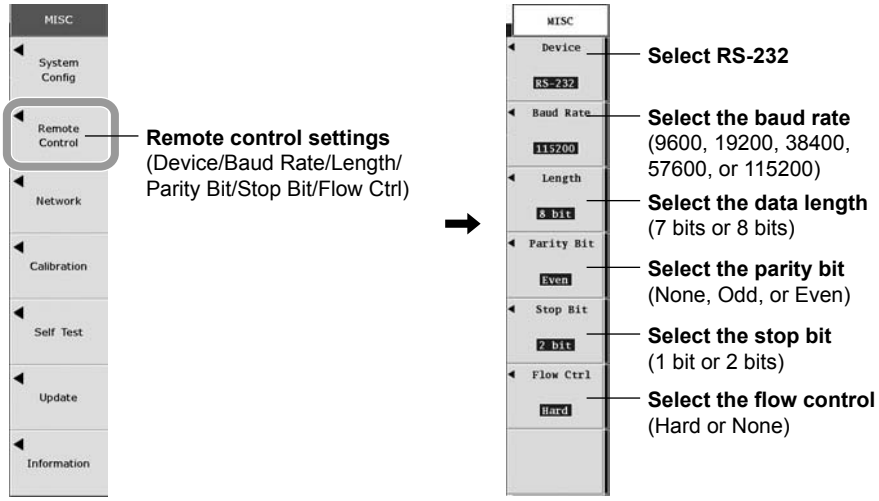
The serial interface of the VC3300 performs communications using start-stop synchronization. In start-stop synchronization, characters are transmitted one at a time. Each character consists of a start bit, data bits, a parity bit, and a stop bit (see the following figure).



Procedure



Press **MISC**. A soft key menu or dialog box appears as shown below. Set each item according to the basic operating procedure of section 3.6.



Explanation

Device

Set the device to RS-232.

Baud Rate

Select the baud rate from the following:
9600, 19200, 384000, 57600, and 115200

Data Length

Select the data length from below.
7 bits or 8 bits

Parity Bit

Select the parity bit from the following:
Odd, Even, or None

Stop Bit

Select the stop bit from the following:
1 bit or 2 bits

Flow Control

Select the flow control from the following:
Hard and None

10.3 GP-IB Interface

Specifications and Functions of the GP-IB Interface

Listener function

You can specify the same settings as those specified by front panel key operations.
Receives output requests for setup information.

Talker function

Outputs setup information and measurement results.

Note

Talk-only, listen-only, and controller functions are not available on this instrument.

GP-IB Interface Specifications

Electrical and mechanical specifications:	Conforms to IEEE St'd 488-1978
Functional specifications:	See table below.
Protocol:	Conforms to IEEE St'd 488.2-1992
Code:	ISO (ASCII) code
Mode:	Addressable mode
Address setting:	The address can be set in the range from 0 to 30 on the GP-IB setting screen that is played using the MISC key.
Clear remote mode:	Clear remote mode by pressing the UNLOCK (SHIFT+KEYLOCK) key (except when Local Lockout is enabled by the controller).

Functional specifications

Function	Subset Name	Description
Source handshaking	SH1	Full source handshaking capability
Acceptor handshaking	AH1	Full acceptor handshaking capability
Talker	T6	Basic talker capability, serial polling, untalk on MLA (My Listen Address), and no talk-only capability
Listener	L4	Basic listener capability, unlisten on MTA (My Talk Address), and no listen-only capability.
Service request	SR1	Full service request capability
Remote local	RL1	Full remote/local capability
Parallel polling	PP0	No parallel polling capability
Clear device	DC1	Full device clear capability
Device trigger	DT0	No device trigger capability
Controller	C0	No controller functions
Electrical characteristic	E2	3 state driver

Note

The GP-IB controllers below have been tested for compatibility.

- **USB interface**
  GPIB-USB-B (by National Instruments Corporation)
- **PC card interface**
  PCMCIA-GPIB (by National Instruments Corporation)
- **PCI borad interface**
  PCI-GPIB (by National Instruments Corporation)

Switching between Remote and Local Modes

When switching from local to remote mode

Receiving an REN (Remote Enable) message from the controller when the instrument is in the local mode causes the instrument to switch to the remote mode.

- The REMOTE LED turns ON (see page 1-1).
- All keys other than the UNLOCK (SHIFT+KEYLOCK) key are locked.
- The settings that existed in the local mode are maintained even when the instrument switches to the remote mode.

When switching from remote to local mode

Pressing the UNLOCK (SHIFT+KEYLOCK) key when the instrument is in the remote mode causes the instrument to switch to the local mode. However, this act is invalid if the instrument has been set to Local Lockout mode (see page 10-10) by the controller.

- The REMOTE indicator turns OFF.
- Key operations are enabled.
- The settings that existed in the remote mode are maintained even when the instrument switches to the local mode.

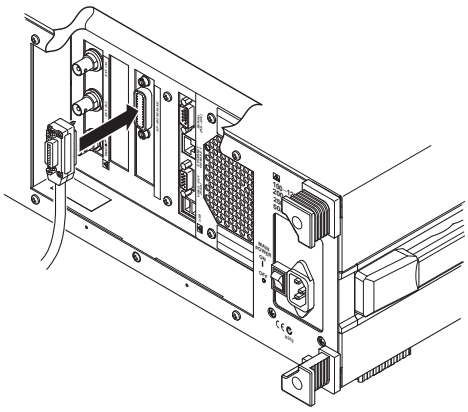
Connecting the GP-IB Cable

GP-IB Cable

The GP-IB connector used on this instrument is a 24-pin connector that conforms to the IEEE St'd 488-1978. Use a GP-IB cable that conforms to this standard.

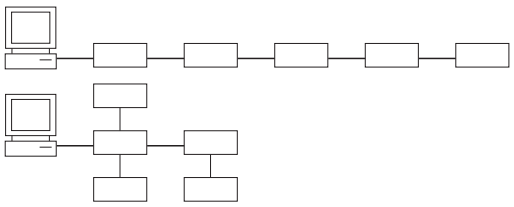
Connection Procedure

Connect the cable as shown below.



Precautions to Be Taken during Connection

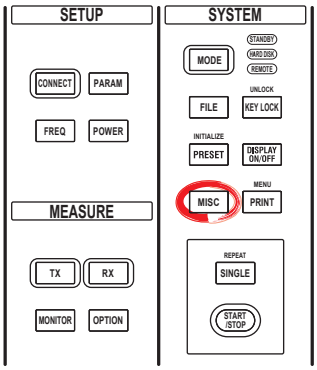
- Firmly tighten the screws on the GP-IB cable connector.
- Multiple devices can be connected to a single GP-IB system. However, no more than 15 devices (including the controller) can be connected to a single system.
- When connecting multiple devices, each device must have its own unique address.
- Use a cable of length 2 m or less for connecting the devices.
- Make sure the total cable length does not exceed 20 m.
- When communicating, have at least two-thirds of the devices turned ON.
- When connecting multiple devices, connect them in a star or linear configuration (see the figure below). Loop and parallel configurations are not allowed.



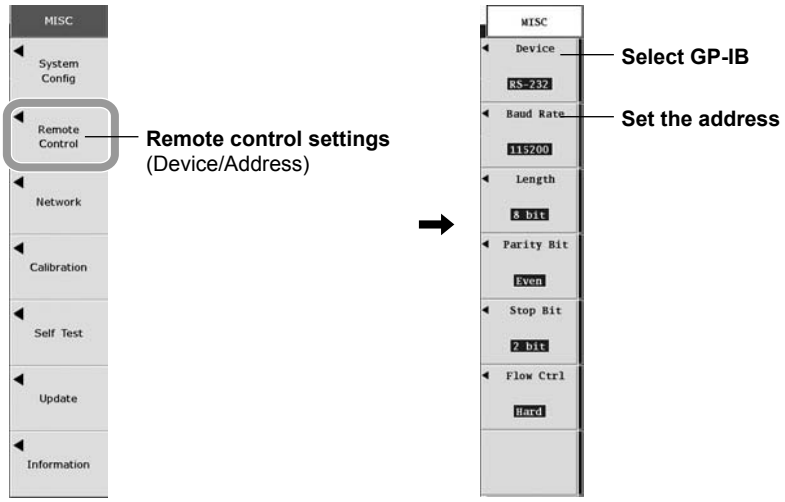
CAUTION

When connecting or disconnecting communication cables, make sure to turn OFF the PC and the VC3300. Otherwise, erroneous operation or damage to the internal circuitry may result.

Procedure



Press **MISC**. A soft key menu or dialog box appears as shown below. Set each item according to the basic operating procedure of section 3.6.



Explanation

Carry out the following settings when using a controller to set information that can be specified through key operation on the VC3300 or when outputting setup data to the controller.

Setting the address

Set the address of the VC3300 within the following range:
0 to 30
Each device that can be connected via GP-IB has a unique address within the GP-IB system. This address is used to distinguish the device from others. Therefore, when you connect the VC3300 to a PC, for example, make sure to assign a unique address to the VC3300.

Note

Do not change the address while the controller or other devices are using the GP-IB system.

Responses to Interface Messages

Responses to Interface Messages

Responses to a uni-line message

- **IFC (Interface Clear)**
  Clears the talker and listener functions.
- **REN (Remote Enable)**
  Switches between the remote and local modes.

  IDY (Identify) is not supported.

Responses to a multi-line message (address command)

- **GTL (Go To Local)**
  Switches to the local mode.
- **SDC (Selected Device Clear)**
  Clears the program message (command) being received and the output queue (see page 10-33).

  GET (Group Execute Trigger), PPC (Parallel Poll Configure) and TCT (Take Control) are not supported.

Responses to a multi-line message (universal command)

- **LLO (Local Lockout)**
  Disables the UNLOCK (SHIFT+KEYLOCK) key on the front panel to prohibit switching to the local mode.
- **DCL (Device Clear)**
  Same operation as the SDC message.
- **SPE (Serial Poll Enable)**
  Sets the talker function on all devices on the bus to serial polling mode. The controller polls the devices in order.
- **SPD (Serial Poll Disable)**
  Clears the serial polling mode of the talker function on all devices on the bus.

  PPU (Parallel Poll Unconfigure) is not supported.

What Is an Interface Message

Interface messages are also referred to as interface commands or bus commands. They are commands that are issued by the controller. They are classified as follows:

Uni-line messages

A single control line is used to transmit uni-line messages. The following three types of messages are available:

- IFC (Interface Clear)
- REN (Remote Enable)
- IDY (Identify)

Multi-line messages

Eight data lines are used to transmit multi-line messages. The messages are classified as follows:

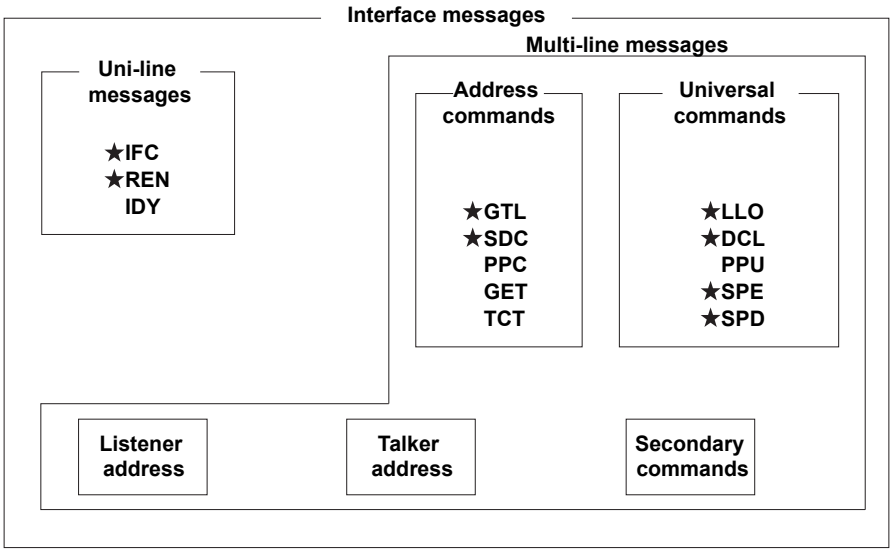
- **Address command**
  These commands are valid when the instrument is designated as a listener or as a talker. The following five commands are available:

  Commands that are valid on an instrument that is designated as a listener
  - GTL (Go To Local)
  - SDC (Selected Device Clear)
  - PPC (Parallel Poll Configure)
  - GET (Group Execute Trigger)

  Commands that are valid on an instrument that is designated as a talker
  - TCT (Take Control)

- **Universal command**
  These commands are valid on all instruments regardless of the listener and talker designations. The following five commands are available:
  - LLO (Local Lockout)
  - DCL (Device Clear)
  - PPU (Parallel Poll Unconfigure)
  - SPE (Serial Poll Enable)
  - SPD (Serial Poll Disable)

In addition, listener address, talker address, and secondary commands are also considered interface messages.



Interface messages that VC3300 supports are indicated with ★ marks.

Note

The differences between SDC and DCL

In multi-line messages, SDC messages are those that require talker or listener designation and DCL messages are those that do not require the designation. Therefore, SDC messages are directed at a particular instrument while DCL messages are directed at all instruments on the bus.

10.4 Before Programming

10.4.1 Messages

Message

Messages are used to exchange information between the controller and the instrument. Messages that are sent from the controller to the instrument are called program messages and messages that are sent back from the instrument to the controller are called response messages.

If a program message contains a message unit that requests a response (a query), the instrument returns a response message upon receiving the program message. A single response message is always returned in response to a single program message.

Program Messages

The program message format is shown below.

<Program Message Unit>

A program message consists of one or more program message units; each unit corresponds to one command. The instrument executes the received commands in order.

Each program message unit is separated by a semicolon.

For details regarding the format of the program message unit, see the next section.

Example `:SYSTem:MODE TXRX;STANdard WCDMa<PMT>`

Unit Unit

<PMT>

<PMT> is a program message terminator.

NL (New Line): Same as LF (Line Feed). ASCII code "0AH"

Program Message Unit Format

The program message unit format is shown below.

<Program Header>

The program header indicates the command type. For details, see page 10-13.

<Program Data>

If certain conditions are required in executing a command, program data are added. A space (ASCII code "20H") separates the program data from the header. If there are multiple sets of program data, they are separated by commas.

For details, see page 10-15.

Example `:SYSTem:MODE TXRX<PMT>`

Header Data

Response Messages

<Response Message Unit>

A response message consists of one or more response message units; each response message unit corresponds to one response.

Response message units are separated by a semicolon.

Example

`:SYSTem:MODE TXRX;STANdard WCDMa<RMT>`

Unit Unit

<RMT>

<RMT> is a response message terminator. It is NL.

Response Message Unit Format

The response message unit format is shown below.

<Response Header>

A response header sometimes precedes the response data. A space separates the data from the header. For details, see page 10-14.

<Response Data>

Response data contain the content of the response. If there are multiple sets of data, they are separated by commas. For details, see page 10-15.

Example

`100.00E-3<RMT> :SYSTem:MODE TXRX<RMT>`

Data Header Data

If there are multiple queries in a program message, responses are made in the same order as the queries. In most cases, a single query returns a single response message unit, but there are a few queries that return multiple units. The first response message unit always corresponds to the first query, but the nth response unit may not necessarily correspond to the nth query. Therefore, if you want to make sure that every response is retrieved, divide the program messages into individual messages.

10.4.2 Commands

Commands

There are three types of commands (program headers) that are sent from the controller to the instrument. They differ in their program header formats.

Common Command Header

The header format of a common command is shown below. An asterisk (*) is always placed in the beginning of a command.

An example of a common command: `*CLS`

Compound Header

The format of a compound header is shown below. A colon (:) must be used to specify a lower hierarchy.

Example of a compound header `:SYSTem:MODE`

Simple Header

These commands are functionally independent and do not have a hierarchy.

An example of a simple header: `:STARt`

Note

A <mnemonic> is a character string made up of alphanumeric characters.

When Concatenating Commands

Command Group

A command group is a group of commands that have common compound headers arranged in a hierarchy. A command group may contain sub-groups.

Example Group of commands related to the system

```
:SYSTem:MODE
:SYSTem:STANdard
:SYSTem:REFerence
:SYSTem:PLLLock?
```

When Concatenating Commands of the Same Group

The instrument stores the hierarchical level of the command that is currently being executed, and performs analysis on the assumption that the next command sent will also belong to the same level. Therefore, common header sections can be omitted for commands belonging to the same group.

Example
```
:SYSTem:MODE MANual;
STANdard GSM<PMT>
```

When Concatenating Commands of Different Groups

If the following command does not belong to the same group, a colon is placed in front of the header.

Example
```
:SYSTem:MODE MANual;:MISC:
DISPlay ON<PMT>
```

When Concatenating Simple Headers

If a simple header follows another command, a colon is placed in front of the simple header (cannot be omitted).

Example
```
:SYSTem:MODE MANual;
:STARt<PMT>
```

When Separating Commands with <PMT>

If a terminator is used to separate two commands, each command is a separate message. Therefore, the common header must be specified for each command even when commands belonging to the same command group are being concatenated.

Example
```
:SYSTem:MODE MANual<PMT>
:SYSTem:STANdard GSM<PMT>
```

Upper-Level Query

An upper-level query is a query in which a question mark is appended to the highest level command of a group. Execution of an upper-level query allows all settings in the group to be received at once. Some query groups which are comprised of more than three hierarchical levels can output all the lower level settings.

Example
```
:WMANual:FREQuency? ->
:WMAN:FREQ:BAND B1;
DLFR 2.1124E+03;
DLCH 10562;ULFR 2.1124E+03;
ULCH 9612;FDST 0<RMT>
```

The response to an upper-level query can be transmitted as a program message back to the instrument. In this way, the settings that existed when the upper-level query was made can be restored. However, settings that cannot be specified depending on the current condition may be included in the response message. Therefore, keep in mind that you may not necessarily be able to send a response message as a program message without making any change.

Header Interpretation Rules

The instrument interprets the header that is received according to the rules below.

- Mnemonics are not case sensitive.
  Example `DISPlay` can also be written as `display` or `Display`.
- The lower-case section of the header can be omitted.
  Example `DISPlay` can also be written as `DISPl` or `DISP`.
- The question mark at the end of a header indicates that it is a query. The question mark cannot be omitted.
  Example The shortest abbreviation for `DISPlay?` is `DISP?`.
- If the <x> (value) at the end of a mnemonic is omitted, it is interpreted as a 1.
  Example If `FILTer<x>` is written as `FILT`, it means `FILTer1`.

10.4.3 Responses

Responses

When the controller sends a message unit that has a question mark in its program header (query), the instrument returns a response message to the query. A response message is returned in one of the following two forms.

- Response Consisting of a Header and Data
  If the response can be used as a program message without any change, it is returned with a command header attached.
  Example
  ```
  :SYSTem:REFerence?<PMT> ->
  :SYSTem:REFerence INTernal<RMT>
  ```
- Response Consisting of Data Only
  If the response cannot be used as a program message unless changes are made to it (query-only command), only the data section is returned. However, there are query-only commands that return responses with the header attached.

When You Wish to Return a Response without a Header

Responses that return both header and data can be set so that only the data section is returned. Use the `COMMunicate:HEADer` command for this task.

Abbreviated Form

The response header is normally returned with the lower-case section removed. Naturally, the full form of the header can also be used. Use the `COMMunicate:VERBose` command for this task.

10.4.4 Data

Data

Data contain conditions and values that are written after the header. A space is used to separate the header and data. Data is classified as below.

Data	Meaning
<Decimal>	A value expressed as a decimal number (Example: Downlink power -> :GMANual:POWer:DLPower -60)
<Register>	A value expressed as binary, octal, decimal or hexadecimal. (Example: Extended event enable register -> STATus:EESE #FFFF)
<Character data>	A predefined character (mnemonic). Select from the options given in braces (curly brackets). (Example: System mode -> :SYSTem:MODE {TXRX|MANual}
<Boolean>	Indicates ON and OFF. Set using ON, OFF, or a value (Example: Turn OFF remove -> :COMMunicate:REMote OFF)
<String data>	An arbitrary character string (Example: Printer server name -> :MISC:PRINter:NETWork:SERVer "192.168.0.1")

<Decimal>

<Decimal> indicates a value expressed as a decimal number, as shown in the table below. Decimal values are given in the NR form as specified in the ANSI X3.42-1975.

Symbol	Meaning	Example		
<NR1>	Integer	125	-1	+1000
<NR2>	Fixed-point number	125.0	-.90	+001.
<NR3>	Floating-point number	125.0E+0	-9E-1	+.1E4
<NRf>	Any of the forms <NR1> to <NR3> is allowed.			

- The instrument can receive decimal values that are sent from the controller in any of the forms, <NR1> to <NR3>. This is represented by <NRf>.
- For response messages that the instrument returns to the controller, a specific form <NR1> to <NR3> is defined for each query. The same form is used regardless of the size of the value.
- For the <NR3> format, the “+” sign after the “E” can be omitted. However, the “–” sign cannot be omitted.
- The range that can be specified for the exponent is E–15 to E+15. An error occurs if this range is exceeded.
- If a value has more significant digits than the available resolution, the value is rounded.

<Register>

<Register> is a value expressed as binary, octal, decimal or hexadecimal. It is used when each bit of the value has a particular meaning.

Syntax	Example
<NRf>	1
#H<Hexadecimal value made up of 0 to 9 and A to F>	#HOF
#Q<Octal value made up of the digits 0 to 7>	#Q777
#B<Binary value made up of the digits 0 and 1>	#B001100

- Program messages support <NRf>.
- Response message only support <NR1>.

<Character Data>

<Character data> are predefined character strings (mnemonic). It is mainly used to indicate options and is chosen from the character strings given in braces (curly brackets). For interpretation rules, refer to “Header Interpretation Rules” on page 10-14.

Syntax	Example
{INTernal|EXTernal}	INTERNAL

As with the header, the COMMunicate:VERBose command can be used to select whether to return the response in the full form or in the abbreviated form.

<Boolean>

<Boolean> is data that indicates ON or OFF. It is expressed in one of the following forms.

Syntax	Example			
{ON|OFF|<NRf>}	ON	OFF	1	0

- When <Boolean> is expressed in the <NRf> form, OFF is selected if the rounded integer value is 0, and ON for all other cases.
- A response message is returned with a 1 if the value is ON and 0 if the value is OFF.

<String Data>

Unlike the predefined character strings of <Character data>, <String data> is an arbitrary character string. The character string is enclosed in single quotation marks or double quotation marks.

Syntax	Example	
<String data>	'ABC'	"IEEE488.2-1987"

- If the character string contains a double quotation mark, it is represented by two consecutive double quotation marks. This rule also applies to a single quotation mark.
- A response message is always enclosed in double quotation marks.
- <String data> is an arbitrary character string. Therefore, the instrument assumes that the remaining program message units are part of the character string if the last single or double quotation mark is missing. As a result, no error may be detected.

10.4.5 Synchronization with the Controller

Synchronizing with Overlap Commands

- **Using the *WAI Command**

  The `*WAI` command holds the subsequent commands until the overlap command is completed.

  Example `:MEASURE;*WAI;:WTXRx:RESult:TXPower:AVERage?<PMT>`

  Because "`*WAI`" is executed immediately before "`WTXRx:RESult:TXPower:AVERage?`," "`WTXRx:RESult:TXPower:AVERage?`" is not executed until the measurement is complete.

- **Using the *OPC Command**

  The `*OPC` command sets the OPC bit, bit 0 of the standard event register (see page10-35), to 1 when the overlap operation is completed.

  Example `*ESE 1;*ESR?;*SRE 32;:MEASure;*OPC<PMT>`
  (Read the response to `*ESR?`)
  (Wait for a service request)
  `:WTXRx:RESult:TXPower:AVERage?<PMT>`

  "`*ESE 1`" and "`*SRE 32`" indicate that a service request is generated only when the OPC bit is 1.
  "`*ESR?`" clears the standard event register.
  In the example above, "`:WTXRx:RESult:TXPower:AVERage?`" is not executed until a service request is generated.

- **Using the *OPC? Query**

  The `*OPC?` query generates a response when an overlap operation is completed.

  Example `:MEASure;*OPC?<PMT>`
  (Read the response to `*OPC?`)
  `:WTXRx:RESult:TXPower:AVERage?<PMT>`

  Because "`*OPC?`" does not generate a response until the overlap operation is completed, the measurement will have been completed by the time the response to "`*OPC?`" is read.

10.5 A List of Commands

Command	Function	Page
COMMunicate Group		
:COMMunicate?	Queries all settings related to communications.	10-20
:COMMunicate:HEADer	Sets whether to attach a header to the response data or queries the current setting.	10-20
:COMMunicate:LOCKout	Sets or clears local lockout.	10-20
:COMMunicate:REMote	Sets remote/local or queries the current setting.	10-20
:COMMunicate:VERBose	Sets whether to use abbreviated or unabbreviated form for response data.	10-20
CONNect Group		
:CONNect	Executes the call connection.	10-20
FHOVer Group		
:FHOVer	Executes the frequency handover (select a preset).	10-20
FILE Group		
:FILE:SAVE?	Queries all settings related to the file save operation.	10-20
:FILE:SAVE:TYPE	Sets the type of file to be saved or queries the current setting.	10-20
:FILE:SAVE:NAME	Sets the name of the file to be saved or queries the current setting.	10-20
:FILE:SAVE:EXECute	Executes the file operation.	10-20
:FILE:LOAD?	Queries all settings related to file load operation.	10-21
:FILE:LOAD:TYPE	Sets the type of file to be loaded or queries the current setting.	10-21
:FILE:LOAD:NAME	Sets the name of the file to be loaded or queries the current setting.	10-21
:FILE:LOAD:EXECute	Executes the file load operation.	10-21
:FILE:MKDir:NAME	Sets the name of the directory to be created or queries the current setting.	10-21
:FILE:MKDir:EXECute	Executes the make directory operation.	10-21
:FILE:COPY?	Queries all settings related to the file copy operation.	10-21
:FILE:COPY:SNAMe	Sets the name of the copy source file or queries the current setting.	10-21
:FILE:COPY:DNAMe	Sets the name of the copy destination file or queries the current setting.	10-21
:FILE:COPY:EXECute	Executes the file copy operation.	10-21
:FILE:DELete:NAME	Sets the name of the file to be deleted or queries the current setting.	10-21
:FILE:DELete:EXECute	Executes the file delete operation.	10-21
:FILE:RMDir:NAME	Sets the name of the directory to be deleted or queries the current setting.	10-21
:FILE:RMDir:EXECute	Executes the directory delete operation.	10-21
:FILE:CDIRectory	Sets the current directory or queries the current setting.	10-22
:FILE:DIRList?	Queries the file list of the current directory.	10-22
FMHOver Group		
:FMHOver	Executes the frequency handover (manual setting)	10-22
HALT Group		
:HALT	Halts the measurement.	10-22
MEASure Group		
:MEASure	Starts the measurement.	10-22
MISC Group		
:MISC?	Queries all settings related to MISC.	10-22
:MISC:CLOCk?	Queries all settings related to the clock.	10-22
:MISC:CLOCk:YEAR	Sets the year or queries the current setting.	10-22
:MISC:CLOCk:MONTh	Sets the month or queries the current setting.	10-22
:MISC:CLOCk:DAY	Sets the day or queries the current setting.	10-23
:MISC:CLOCk:HOUR	Sets the hour or queries the current setting.	10-23
:MISC:CLOCk:MINute	Sets the minute or queries the current setting.	10-23
:MISC:CLOCk:SECond	Sets the second or queries the current setting.	10-23

Command	Function	Page
:MISC:PRINter?	Queries all settings related to the printer.	10-23
:MISC:PRINter:NETWork?	Queries all settings related to the network printer.	10-23
:MISC:PRINter:NETWork:MAKer	Sets the network printer maker name or queries the current setting.	10-23
:MISC:PRINter:NETWork:SERVer	Sets the network printer server name or queries the current setting.	10-23
:MISC:PRINter:SET	Executes the writing of the printer settings.	10-23
:MISC:HCOPy?	Queries all settings related to the printing of screen image data.	10-23
:MISC:HCOPy:DEST	Sets the print destination of the screen image or queries the current setting.	10-23
:MISC:HCOPy:FNAMe	Set the file name for saving the screen image or queries the current setting.	10-23
:MISC:HCOPy:EXECute	Executes the printing of the screen image.	10-23
:MISC:LANG	Sets the language or queries the current setting.	10-23
:MISC:KEYLock	Turns ON/OFF the key lock or queries the current setting.	10-24
:MISC:DISPlay	Turns ON/OFF the display or queries the current setting.	10-24
:MISC:INITialize	Initializes the setup information.	10-24
:MISC:PRESet?	Queries all settings related to presets.	10-24
:MISC:PRESet:MODE	Sets the preset mode or queries the current setting.	10-24
:MISC:PRESet:NUMBer	Sets the preset number or queries the current setting.	10-24
:MISC:PRESet:INFO?	Queries the preset information.	10-24
:MISC:PRESet:EXECute	Executes the preset.	10-24
RELease Group		
:RELease	Executes the call release.	10-24
SCENario Group		
:SCENario?	Queries all settings related to the scenario.	10-24
:SCENario:LOADfile?	Queries all settings related to the loading of the scenario.	10-24
:SCENario:LOADfile:SCENario	Executes the loading of the scenario file and queries the file name.	10-25
:SCENario:LOADfile:RESult	Executes the loading of the result file and queries the file name.	10-25
:SCENario:RESDir	Sets the save destination directory of the result file or queries the current setting.	10-25
:SCENario:OINFormation?	Queries all settings related to the user information.	10-25
:SCENario:OINFormation:COMPany	Sets the company name of the user information or queries the current setting.	10-25
:SCENario:OINFormation:USER	Sets the user name of the user information or queries the current setting.	10-25
:SCENario:SCONdition	Sets the scenario stop condition or queries the current setting.	10-25
:SCENario:PRINt?	Queries all settings related to the scenario printing.	10-25
:SCENario:PRINt:SUMMary	Prints the summary.	10-25
:SCENario:PRINt:DETail	Executes the result printing (detail).	10-25
:SCENario:PRINt:DEST	Sets the print destination or queries the current setting.	10-26
:SCENario:PRINt:FILE:DIRectory	Sets the save destination directory of the result print file or queries the current setting.	10-26
:SCENario:PRINt:REPortnumber:AUTO	Sets the auto numbering of the report number or queries the current setting.	10-26
:SCENario:PRINt:REPortnumber:NUMBer	Sets the number when auto numbering of the report number is OFF or queries the current setting.	10-26
:SCENario:PRINt:PGLayout	Sets the print page layout or queries the current setting.	10-26
:SCENario:COMMent?	Queries the scenario comment.	10-26
:SCENario:CPARam?	Queries all settings related to the common parameters.	10-26
:SCENario:CPARam:MCC?	Queries the MCC.	10-26
:SCENario:CPARam:MNC?	Queries the MNC.	10-26
:SCENario:WPARam?	Queries all settings related to the WCDMA parameters.	10-26
:SCENario:WPARam:PROFile?	Queries the profile.	10-26
:SCENario:WPARam:INTegrity?	Queries whether Integrity is turned ON or OFF.	10-27
:SCENario:WPARam:AUTHent?	Queries whether the authentication key is turned ON or OFF.	10-27
:SCENario:WPARam:AKEY?	Queries the authentication key.	10-27
:SCENario:WPARam:OLPParam?	Queries the measurement parameter of the open loop power.	10-27
:SCENario:GPARam?	Queries all settings related to the GSM parameters.	10-27
:SCENario:GPARam:GSMNetwork?	Queries the GSM Network setting.	10-27
:SCENario:GPARam:TMBack?	Queries the TestMode with Ack setting for the EGPRS connection.	10-27
:SCENario:GPARam:ULPControl?	Queries the uplink power control method.	10-27
:SCENario:TCOunter?	Queries all the test counters.	10-27
:SCENario:TCOunter:TCOunt?	Queries the number of times the test was executed.	10-27

Command	Function	Page
:SCENario:TCOunter:PASS?	Queries the number of times the test result was Pass.	10-27
:SCENario:TCOunter:FAIL?	Queries the number of times the test result was Fail.	10-27
:SCENario:TCOunter:ABORt?	Queries the number of times the test was aborted.	10-27
:SCENario:TCOunter:RESet	Resets all test counters.	10-27
:SCENario:RESult:TJUDgment?	Queries the execution result of the scenario.	10-28
:SCENario:STATe?	Queries the current status of the scenario.	10-28
SHOVer Group		
:SHOVer	Executes inter-RAT handovers.	10-28
STARt Group		
:STARt	Starts the downlink signal output and measurement.	10-28
STATus Group		
:STATus?	Queries all settings related to the communication status function.	10-28
:STATus:CONDition?	Queries the contents of the condition register.	10-28
:STATus:EESE	Sets the extended event enable register or queries the current setting.	10-28
:STATus:EESR?	Queries the extended event register and clears the register.	10-28
:STATus:ERRor?	Queries the code and description of the error that occurred.	10-28
:STATus:FILTer<x>	Sets the transition filter or queries the current setting.	10-28
:STATus:QENable	Sets whether to store messages other than errors to the error queue or queries the current setting.	10-29
:STATus:QMESsage	Sets whether to attach the message to the STATus:ERRor? response or queries the current setting.	10-29
STOP Group		
:STOP	Stops the downlink signal output and measurement.	10-29
SYSTem Group		
:SYSTem?	Queries all settings related to the system.	10-29
:SYSTem:MODE	Sets the system mode or queries the current setting.	10-29
:SYSTem:STANdard	Sets the wireless standard or queries the current setting.	10-29
:SYSTem:GSMNetwork	Sets the GSM Network setting or queries the current setting.	10-29
:SYSTem:SDSTination	Sets the inter-RAT handover destination or queries the current setting.	10-29
:SYSTem:REFerence	Sets the reference clock or queries the current setting.	10-29
:SYSTem:TIMOut:WCDMa	Sets the signal (WCDMA) to output from the TIMING OUT terminal or queries the current setting.	10-29
:SYSTem:TIMOut:GSM	Sets the signal (GSM) to output from the TIMING OUT terminal or queries the current setting.	10-30
:SYSTem:FADJust	Sets the frequency adjustment or queries the current setting.	10-30
:SYSTem:PLLLock?	Queries the PLL lock status.	10-30
:SYSTem:STATe:PROTocol?	Queries the protocol status.	10-30
:SYSTem:STATe:CONNect?	Queries the call direction.	10-31
Common Command Group		
*CAL?	Executes the calibration of the power accuracy and queries the result.	10-31
*CLS	Clears the standard event register, extended event register, and error queue.	10-31
*ESE	Sets the standard event enable register or queries the current setting.	10-31
*ESR?	Queries the standard event register and clears the register.	10-31
*IDN?	Queries the instrument model.	10-31
*OPC	Sets the OPC bit to 1 after the completion of the specified overlap command.	10-31
*OPC?	Creates a response after the completion of the specified overlap command.	10-32
*OPT?	Queries the installed options.	10-32
*RST	Executes the initialization of settings.	10-32
*SRE	Sets the service request enable register or queries the current setting.	10-32
*STB?	Queries the status byte register.	10-32
*TST?	Performs a self-test and queries the result.	10-32
*WAI	Holds the subsequent command until the completion of the specified overlap operation.	10-32

10.6 Command Description

This manual lists the response messages in the examples in the abbreviated form.

10.6.1 COMMunicate Group

:COMMunicate?

Function Queries all settings related to communications.
Syntax :COMMunicate?
Example :COMMunicate? -> :COMM:HEAD 1;VERB 0

:COMMunicate:HEADer

Function Sets whether (ON/OFF) to include a header in the response to a query or queries the current setting.
Syntax :COMMunicate:HEADer {<Boolean>}
:COMMunicate:HEADer?
Example :COMMunicate:HEADer ON
:COMMunicate:HEADer? -> :COMM:HEAD 1

:COMMunicate:LOCKout

Function Sets or clears local lockout.
Syntax :COMMunicate:LOCKout {<Boolean>}
:COMMunicate:LOCKout?
Example :COMMUNICATE:LOCKOUT ON
:COMMUNICATE:LOCKOUT? ->
:COMMUNICATE:LOCKOUT 1
Description This command is dedicated to the Ethernet interface (option).

:COMMunicate:REMote

Function Sets remote/local or queries the current setting. ON is remote mode.
Syntax :COMMunicate:REMote {<Boolean>}
:COMMunicate:REMote?
Example :COMMunicate:REMote OFF
:COMMunicate:REMote? -> :COMM:REM 0
Description This command is for the serial (RS-232) or Ethernet interface.

:COMMunicate:VERBose

Function Sets the response messages to full form or abbreviated form or queries the current setting.
Syntax :COMMunicate:VERBose {<Boolean>}
:COMMunicate:VERBose?
Example :COMMunicate:VERBose OFF
:COMMunicate:VERBose? -> :COMM:VERB 0

10.6.2 CONNect Group

:CONNect

Function Executes the call connection.
Syntax :CONNect
Example :CONNect
Description This command is valid in manual mode.

10.6.3 FHOVer Group

:FHOVer

Function Executes the frequency handover (select a preset).
Syntax :FHOVer
Example :FHOVer
Description
- For WCDMA, the frequency is switched according to the contents of the preset number of the frequency handover destination specified by :WMANual:FREQuency:FDSTination.
- For GSM, the frequency is switched according to the contents of the preset number of the frequency handover destination specified by :GMANual:FREQuency:FDSTination.
- This command is valid in manual mode.

10.6.4 FILE Group

:FILE:SAVE?

Function Queries all settings related to the saving of files.
Syntax :FILE:SAVE?
Example :FILE:SAVE? -> :FILE:SAVE:TYPE SETU;
NAME "/setup.set"

:FILE:SAVE:TYPE

Function Sets the type of file to be saved or queries the current setting.
Syntax :FILE:SAVE:TYPE {SETUp}
:FILE:SAVE:TYPE?
Example :FILE:SAVE:TYPE SETUp
:FILE:SAVE:TYPE? ->
:FILE:SAVE:TYPE SETU

:FILE:SAVE:NAME

Function Sets the name of the file to be saved or queries the current setting.
Syntax :FILE:SAVE:NAME <filename>
:FILE:SAVE:NAME?
Example :FILE:SAVE:NAME "/setup.set"
:FILE:SAVE:NAME? ->
:FILE:SAVE:NAME "/setup.set"

:FILE:SAVE:EXECute

Function Executes the file save operation.
Syntax :FILE:SAVE:EXECute
Example :FILE:SAVE:EXECute

:FILE:LOAD?

Function Queries all settings related to the loading of files.
Syntax :FILE:LOAD?
Example :FILE:LOAD? -> :FILE:LOAD:TYPE SETU;
NAME "/setup.set"

:FILE:LOAD:TYPE

Function Sets the type of file to be loaded or queries the current setting.
Syntax :FILE:LOAD:TYPE
{SETUp|SCENario|RESult}
:FILE:LOAD:TYPE?
Example :FILE:LOAD:TYPE SETUp
:FILE:LOAD:TYPE? ->
:FILE:LOAD:TYPE SETU
Description The settings and responses are as follows.
SETUp : Setup file
SCENario : Scenario file
RESult : Results file

:FILE:LOAD:NAME

Function Sets the name of the file to be loaded or queries the current setting.
Syntax :FILE:LOAD:NAME <filename>
:FILE:LOAD:NAME?
Example :FILE:LOAD:NAME "/setup.stp"
:FILE:LOAD:NAME? ->
:FILE:LOAD:NAME "/setup.stp"

:FILE:LOAD:EXECute

Function Executes the file load operation.
Syntax :FILE:LOAD:EXECute
Example :FILE:LOAD:EXECute

:FILE:MKDir:NAME

Function Sets the name of the directory to be created or queries the current setting.
Syntax :FILE:MKDir:NAME <dirname>
:FILE:MKDIr:NAME?
Example :FILE:MKDir:NAME "/tmpdir"
:FILE:MKDIr:NAME? ->
:FILE:MKD:NAME "/tmpdir"

:FILE:MKDir:EXECute

Function Creates the directory.
Syntax :FILE:MKDir:EXECute
Example :FILE:MKDir:EXECute

:FILE:COPY?

Function Queries all settings related to the copying of files.
Syntax :FILE:COPY?
Example :FILE:COPY? -> :FILE:COPY:SNAM
"/srcfile";DNAM "/dstfile"

:FILE:COPY:SNAMe

Function Sets the copy source file name or queries the current setting.
Syntax :FILE:COPY:SNAMe <filename>
:FILE:COPY:SNAMe?
Example :FILE:COPY:SNAMe "/srcfile"
:FILE:COPY:SNAMe? -> :FILE:COPY:SNAM
"/srcfile"

:FILE:COPY:DNAMe

Function Sets the copy destination file name or queries the current setting.
Syntax :FILE:COPY:DNAMe <filename>
:FILE:COPY:DNAMe?
Example :FILE:COPY:DNAMe "/dstfile"
:FILE:COPY:DNAMe? ->
:FILE:COPY:DNAM "/dstfile"

:FILE:COPY:EXECute

Function Executes the file copy operation.
Syntax :FILE:COPY:EXECute
Example :FILE:COPY:EXECute

:FILE:DELete:NAME

Function Sets the name of the file to be deleted or queries the current setting.
Syntax :FILE:DELete:NAME <filename>
:FILE:DELete:NAME?
Example :FILE:DELete:NAME "/delfile"
:FILE:DELete:NAME? ->
:FILE:DEL:NAME "/delfile"

:FILE:DELete:EXECute

Function Executes the file delete operation.
Syntax :FILE:DELete:EXECute
Example :FILE:DELete:EXECute

:FILE:RMDir:NAME

Function Sets the name of the directory to be deleted or queries the current setting.
Syntax :FILE:RMDir:NAME <dirname>
:FILE:RMDir:NAME?
Example :FILE:RMDir:NAME "/deldir"
:FILE:RMDir:NAME? ->
:FILE:RMD:NAME "/deldir"

:FILE:RMDir:EXECute

Function Executes the directory delete operation.
Syntax :FILE:RMDir:EXECute
Example :FILE:RMDir:EXECute

:FILE:CDIRectory

Function Sets the current directory or queries the current setting.

Syntax :FILE:CDIRectory <dirname>
:FILE:CDIRectory?

Example :FILE:CDIRectory "/cdir"
:FILE:CDIRectory? ->
:FILE:CDIR "/cdir"

:FILE:DIRList?

Function Queries the file list of the current directory.

Syntax :FILE:DIRList?

Example :FILE:DIRList? ->
:FILE:DIRL "dir/ file1 file2"

Description The file list main contain a line feed (LF) character.

10.6.5 FMHOver Group

:FMHOver

Function Executes the frequency handover (manual setting)

Syntax :FHOVer

Example :FHOVer

Description
- For WCDMA, the frequencies are switched to the values specified by :WMANual:FREQuency:TMP:BAND, :WMANual:FREQuency:TMP:DLFReq, :WMANual:FREQuency:TMP:DLCH, :WMANual:FREQuency:TMP:ULFReq, and :WMANual:FREQuency:TMP:ULCH.
- For GSM, the frequencies are switched to the values specified by :GMANual:PARam:FMHOver:TCH:CHANnel, :GMANual:PARam:FMHOver:TCH:DLFReq, :GMANual:PARam:FMHOver:TCH:ULFReq, and :GMANual:PARam:FMHOver:ULPower.
- This command is valid in manual mode.

10.6.6 HALT Group

:HALT

Function Halts the measurement.

Syntax :HALT

Example :HALT

Description Use this command to abort the measurement in the middle of a repeat or single measurement.

10.6.7 MEASure Group

:MEASure

Function Starts the measurement. This is an overlap command.

Syntax :MEASure

Example :MEASure

Description
- Use this command to restart the measurement when the measurement has been paused by the :HALT command or after a single measurement has completed.
- If you execute :STARt in TXRX mode, you do not need to execute this command. The measurement starts automatically.
- If you execute :STARt in manual mode, you do not need to execute this command. The measurement starts automatically when the call connects.

10.6.8 MISC Group

:MISC?

Function Queries all settings related to MISC.

Syntax :MISC?

Example :MISC? -> :MISC:CLOC:YEAR 2005;
MONT 12;DAY 7;HOUR 9;MIN 6;SEC 19;:
MISC:PRIN:NETW:MAK "";SERV "";:MISC:
HCOP:DEST FILE;FNAM "";:MISC:
LANG ENG;KEYL OFF;DISP ON;PRES:
MODE LOAD;NUMB S1

:MISC:CLOCk?

Function Queries all settings related to the clock.

Syntax :MISC:CLOCk?

Example :MISC:CLOCk? -> :MISC:CLOC:YEAR 2005;
MONT 11;DAY 19;HOUR 16;MIN 45;SEC 51

:MISC:CLOCk:YEAR

Function Sets the year or queries the current setting.

Syntax :MISC:CLOCk:YEAR <number>
:MISC:CLOCk:YEAR?

Example :MISC:CLOCk:YEAR 2006
:MISC:CLOCk:YEAR? ->
:MISC:CLOC:YEAR 2006

:MISC:CLOCk:MONTh

Function Sets the month or queries the current setting.

Syntax :MISC:CLOCk:MONTh <number>
:MISC:CLOCk:MONTh?

Example :MISC:CLOCk:MONTh 1
:MISC:CLOCk:MONTh? ->
:MISC:CLOC:MONT 1

:MISC:CLOCk:DAY

Function Sets the day or queries the current setting.

```
Syntax  :MISC:CLOCk:DAY <number>
        :MISC:CLOCk:DAY?
Example :MISC:CLOCk:DAY 1
        :MISC:CLOCk:DAY? -> :MISC:CLOC:DAY 1
```

:MISC:CLOCk:HOUR

Function Sets the time or queries the current setting.

```
Syntax  :MISC:CLOCk:HOUR <number>
        :MISC:CLOCk:HOUR?
Example :MISC:CLOCk:HOUR 0
        :MISC:CLOCk:HOUR? ->
        :MISC:CLOC:HOUR 0
```

:MISC:CLOCk:MINute

Function Sets the minute or queries the current setting.

```
Syntax  :MISC:CLOCk:MINute <number>
        :MISC:CLOCk:MINute?
Example :MISC:CLOCk:MINute 0
        :MISC:CLOCk:MINute? ->
        :MISC:CLOC:MIN 0
```

:MISC:CLOCk:SECond

Function Sets the second or queries the current setting.

```
Syntax  :MISC:CLOCk:SECond <number>
        :MISC:CLOCk:SECond?
Example :MISC:CLOCk:SECond 0
        :MISC:CLOCk:SECond? ->
        :MISC:CLOC:SEC 0
```

:MISC:PRINter?

Function Queries all settings related to the printer.

```
Syntax  :MISC:PRINter?
Example :MISC:PRINter? ->
        :MISC:PRIN:NETW:MAK "";SERV ""
```

:MISC:PRINter:NETWork?

Function Queries all settings related to the network printer.

```
Syntax  :MISC:PRINter:NETWork?
Example :MISC:PRINter:NETWork? ->
        :MISC:PRIN:NETW:MAK "";SERV ""
```

:MISC:PRINter:NETWork:MAKer

Function Sets the network printer maker name or queries the current setting.

```
Syntax  :MISC:PRINter:NETWork:MAKer <String>
        :MISC:PRINter:NETWork:MAKer?
Example :MISC:PRINter:NETWork:
        MAKer "YOKOGAWA"
        :MISC:PRINter:NETWork:MAKer? ->
        :MISC:PRIN:NETW:MAK "YOKOGAWA"
```

:MISC:PRINter:NETWork:SERVer

Function Sets the network printer server name or queries the current setting.

```
Syntax  :MISC:PRINter:NETWork:SERVer <String>
        :MISC:PRINter:NETWork:SERVer?
Example :MISC:PRINter:NETWork:
        SERVer "YOKOGAWA"
        :MISC:PRINter:NETWork:SERVer? ->
        :MISC:PRIN:NETW:SERV "YOKOGAWA"
```

:MISC:PRINter:SET

Function Executes the writing of the printer settings.

```
Syntax  :MISC:PRINter:SET
Example :MISC:PRINter:SET
```

:MISC:HCOPy?

Function Queries all settings related to the printing of screen image data.

```
Syntax  :MISC:HCOPy?
Example :MISC:HCOPy? ->
        :MISC:HCOP:DEST FILE;FNAM ""
```

:MISC:HCOPy:DEST

Function Sets the print destination of the screen image or queries the current setting.

```
Syntax  :MISC:HCOPy:DEST {FILE|PRINter}
        :MISC:HCOPy:DEST?
Example :MISC:HCOPy:DEST PRINter
        :MISC:HCOPy:DEST? ->
        :MISC:HCOP:DEST PRIN
```

Description The settings and responses are as follows.

- FILE : Outputs to internal hard disk or USB memory
- PRINter : Outputs to printer

:MISC:HCOPy:FNAMe

Function Set the file name for saving the screen image or queries the current setting.

```
Syntax  :MISC:HCOPy:<path>
        :MISC:HCOPy:FNAMe?
Example :MISC:HCOPy:
        :MISC:HCOPy:FNAMe?
```

:MISC:HCOPy:EXECute

Function Executes the printing of the screen image.

```
Syntax  :MISC:HCOPy:EXECute
Example :MISC:HCOPy:EXECute
```

:MISC:LANG

Function Sets the language or queries the current setting.

```
Syntax  :MISC:LANG {ENGlish}
        :MISC:LANG?
Example :MISC:LANG ENGlish
        :MISC:LANG? -> :MISC:LANG ENG
```

:MISC:KEYLock

Function Turns ON/OFF the key lock or queries the current setting.

```
Syntax  :MISC:KEYLock {ON|OFF}
        :MISC:KEYLock?
Example :MISC:KEYLock OFF
        :MISC:KEYLock? -> :MISC:KEYL OFF
```

:MISC:DISPlay

Function Turns ON/OFF the display or queries the current setting.

```
Syntax  :MISC:DISPlay {ON|OFF}
        :MISC:DISPlay?
Example :MISC:DISPlay ON
        :MISC:DISPlay? -> :MISC:DISP ON
```

:MISC:INITialize

Function Initializes the setup information.

```
Syntax  :MISC:INITialize
Example :MISC:INITialize
```

:MISC:PRESet?

Function Queries all settings related to presets.

```
Syntax  :MISC:PRESet?
Example :MISC:PRESet? -> :MISC:PRES:
        MODE LOAD;NUMB S1
```

:MISC:PRESet:MODE

Function Sets the preset mode or queries the current setting.

```
Syntax  :MISC:PRESet:MODE {LOAD|SAVE}
        :MISC:PRESet:MODE?
Example :MISC:PRESet:MODE LOAD
        :MISC:PRESet:MODE? ->
        :MISC:PRES:MODE LOAD
```

Description The settings and responses are as follows.

LOAD : Sets the preset mode to Load

SAVE : Sets the preset mode to Save

After setting the preset mode with this command, you can load or save by executing the `:MISC:PRESet:EXECute` command.

:MISC:PRESet:NUMBer

Function Sets the preset number or queries the current setting.

```
Syntax  :MISC:PRESet:NUMBer {S1|S2|S3|S4|S5
        |S6}
        :MISC:PRESet:NUMBer?
Example :MISC:PRESet:NUMBer S1
        :MISC:PRESet:NUMBer? ->
        :MISC:PRES:NUMB S1
```

:MISC:PRESet:INFO?

Function Queries the preset information.

```
Syntax  :MISC:PRESet:INFO?
Example :MISC:PRESet:INFO? ->
        :MISC:PRES:INFO "-----"
```

:MISC:PRESet:EXECute

Function Executes preset.

```
Syntax  :MISC:PRESet:EXECute
Example :MISC:PRESet:EXECute
```

10.6.9 RELease Group

:RELease

Function Executes the call release.

```
Syntax  :RELease
Example :RELease
```

Description This command is valid in manual mode.

10.6.10 SCENario Group

:SCENario?

Function Queries all settings related to the scenario.

```
Syntax  :SCENario?
Example :SCENario? -> :SCEN:LOAD:SCEN "/
        scenario.scn";RES "/result.rst";
        :SCEN:RESD "/";OINF:COMP "YOKOGAWA";
        USER "VCUSER";:SCEN:SCON ENDS;PRIN:
        DEST PRIN;FILE:DIR "/";:SCEN:PRIN:
        REP:AUTO ON;NUMB "REPORT1";:SCEN:
        PRIN:PGL P1;:SCEN:COMM "comment";
        CPAR:MCC "001";MNC "01";:SCEN:WPAR:
        PROF P01;INT ON;AUTH ON;AKEY "AAAAAAA
        AAAAAAAAAAAAAAAAAAAAAAA";
        OLPP MIDD;:SCEN:GPAR:GSMN GSM;
        TMB OFF;ULPC NORM;:SCEN:TCO:TCO 0;
        PASS 0;FAIL 0;ABOR 0
```

:SCENario:LOADfile?

Function Queries all settings related to the loading of the scenario.

```
Syntax  :SCENario:LOADfile?
Example :SCENario:LOADfile? ->
        :SCEN:LOAD:SCEN "/scenario.scn";
        RES "/result.rst"
```

:SCENario:LOADfile:SCENario

Function Executes the loading of the scenario file and queries the file name.

```
Syntax  :SCENario:LOADfile:SCENario
        <filename>
        :SCENario:LOADfile:SCENario?
Example :SCENario:LOADfile:SCENario
        "/scenario.scn"
        :SCENario:LOADfile:SCENario? ->
        :SCEN:LOAD:SCEN "/scenario.scn"
```

Description Specify the file name using a full path.

:SCENario:LOADfile:RESult

Function Executes the loading of the result file and queries the file name.

```
Syntax  :SCENario:LOADfile:RESult <filename>
        :SCENario:LOADfile:RESult?
Example :SCENario:LOADFile:RESult
        "/result.rst"
        :SCENario:LOADfile:RESult? ->
        :SCEN:LOAD:RES "/result.rst"
```

Description Specify the file name using a full path.

:SCENario:RESDir

Function Sets the save destination directory of the result file or queries the current setting.

```
Syntax  :SCENario:RESDir <dirname>
        :SCENario:RESDir?
Example :SCENario:RESDir "/result"
        :SCENario:RESDir? ->
        :SCEN:RESD "/result"
```

Description Specify the directory using a full path.

:SCENario:OINFormation?

Function Queries all settings related to the user information.

```
Syntax  :SCENario:OINFormation?
Example :SCENario:OINFormation? ->
        :SCEN:OINF:COMP "YOKOGAWA";
        USER "VCUSER"
```

:SCENario:OINFormation:COMPany

Function Sets the company name of the user information or queries the current setting.

```
Syntax  :SCENario:OINFormation:COMPany
        <String>
        :SCENario:OINFormation:COMPany?
Example :SCENario:OINFormation:
        COMPany "YOKOGAWA"
        :SCENario:OINFormation:COMPany? ->
        :SCEN:OINF:COMP "YOKOGAWA"
```

:SCENario:OINFormation:USER

Function Sets the user name of the user information or queries the current setting.

```
Syntax  :SCENario:OINFormation:USER <String>
        :SCENario:OINFormation:USER?
Example :SCENario:OINFormation:USER "VCUSER"
        :SCENario:OINFormation:USER? ->
        :SCEN:OINF:USER "VCUSER"
```

:SCENario:SCONdition

Function Sets the scenario stop condition or queries the current setting.

```
Syntax  :SCENario:SCONdition
        {FAIL|ENDScenario}
        :SCENario:SCONdition?
Example :SCENario:SCONdition ENDScenario
        :SCENario:SCONdition? ->
        :SCEN:SCON ENDS
```

Description The settings and responses are as follows.

- FAIL : Ends the scenario on a test sequence whose judgment results are Fail
- ENDScenario : Executes until the last scenario, then ends

:SCENario:PRINt?

Function Queries all settings related to the scenario printing.

```
Syntax  :SCENario:PRINt?
Example :SCENario:PRINt? ->
        :SCEN:PRIN:DEST PRIN;FILE:DIR "/";
        :SCEN:PRIN:REP:AUTO ON;NUMB "";
        :SCEN:PRIN:PGL P1
```

:SCENario:PRINt:SUMMary

Function Prints the summary.

```
Syntax  :SCENario:PRINt:SUMMary
Example :SCENario:PRINt:SUMMary
```

:SCENario:PRINt:DETail

Function Executes the result printing (detail).

```
Syntax  :SCENario:PRINt:DETail
Example :SCENario:PRINt:DETail
```

:SCENario:PRINt:DEST

Function Sets the print destination or queries the current setting.

Syntax
```
:SCENario:PRINt:DEST {FILE|PRINter}
:SCENario:PRINt:DEST?
```

Example
```
:SCENario:PRINt:DEST FILE
:SCENario:PRINt:DEST? ->
:SCEN:PRIN:DEST FILE
```

Description The settings and responses are as follows.

FILE : Outputs to internal hard disk or USB memory

PRINter : Outputs to printer

:SCENario:PRINt:FILE:DIRectory

Function Sets the save destination directory of the result print file or queries the current setting.

Syntax
```
:SCENario:PRINt:FILE:DIRectory
<dirname>
:SCENario:PRINt:FILE:DIRectory?
```

Example
```
:SCENario:PRINt:FILE:
DIRectory "/print"
:SCENario:PRINt:FILE:DIRectory? ->
:SCEN:PRIN:FILE:DIR "/print"
```

Description Specify the directory using a full path.

:SCENario:PRINt:REPortnumber:AUTO

Function Sets the auto numbering of the report number or queries the current setting.

Syntax
```
:SCENario:PRINt:REPortnumber:AUTO
{ON|OFF}
:SCENario:PRINt:REPortnumber:AUTO?
```

Example
```
:SCENario:PRINt:REPortnumber:AUTO ON
:SCENario:PRINt:REPortnumber:AUTO? ->
:SCEN:PRIN:REP:AUTO ON
```

:SCENario:PRINt:REPortnumber:NUMBer

Function Sets the number when auto numbering of the report number is OFF or queries the current setting.

Syntax
```
:SCENario:PRINt:REPortnumber:NUMBer
<String>
:SCENario:PRINt:REPortnumber:NUMBer?
```

Example
```
:SCENario:PRINt:REPortnumber:
NUMBer "REPORT1"
:SCENario:PRINt:REPortnumber:
NUMBer? -> :SCEN:PRIN:REP:
NUMB "REPORT1"
```

:SCENario:PRINt:PGLayout

Function Sets the print page layout or queries the current setting.

Syntax
```
:SCENario:PRINt:PGLayout {P1|P2}
:SCENario:PRINt:PGLayoutr?
```

Example
```
:SCENario:PRINt:PGLayout P1
:SCENario:PRINt:PGLayoutr? ->
:SCEN:PRIN:PGL P1
```

Description The settings and responses are as follows.

P1 : Prints 1 page per

P2 : Prints 2 pages per

:SCENario:COMMent?

Function Queries the scenario comment.

Syntax
```
:SCENario:COMMent?
```

Example
```
:SCENario:COMMent? ->
:SCEN:COMM "comment"
```

Description You can also make the same query using : SCENario:TITLe?.

:SCENario:CPARam?

Function Queries all settings related to the common parameters.

Syntax
```
:SCENario:CPARam?
```

Example
```
:SCENario:CPARam? ->
:SCEN:CPAR:MCC "001";MNC "01"
```

:SCENario:CPARam:MCC?

Function Queries the MCC.

Syntax
```
:SCENario:CPARam:MCC?
```

Example
```
:SCENario:CPARam:MCC? ->
:SCEN:CPAR:MCC "001"
```

:SCENario:CPARam:MNC?

Function Queries the MNC.

Syntax
```
:SCENario:CPARam:MNC?
```

Example
```
:SCENario:CPARam:MNC? ->
:SCEN:CPAR:MNC "01"
```

:SCENario:WPARam?

Function Queries all settings related to the WCDMA parameters.

Syntax
```
:SCENario:WPARam?
```

Example
```
:SCENario:WPARam? -> :SCEN:WPAR:
PROF P01;INT ON;AUTH ON;
AKEY "AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
A";OLPP MIDD
```

:SCENario:WPARam:PROFile?

Function Queries the profile.

Syntax
```
:SCENario:WPARam:PROFile?
```

Example
```
:SCENario:WPARam:PROFile? ->
:SCEN:WPAR:PROF P01
```

Description The response is one of the following: {P00|P01}.

P00 : Profile_w00

P01 : Profile_w01

:SCENario:WPARam:INTegrity?

Function Queries whether Integrity is turned ON or OFF.
Syntax :SCENario:WPARam:INTegrity?
Example :SCENario:WPARam:INTegrity? ->
:SCEN:WPAR:INT ON

:SCENario:WPARam:AUTHent?

Function Queries whether the authentication key is turned ON or OFF.
Syntax :SCENario:WPARam:AUTHent?
Example :SCENario:WPARam:AUTHent? ->
:SCEN:WPAR:AUTH ON

:SCENario:WPARam:AKEY?

Function Queries the authentication key.
Syntax :SCENario:WPARam:AKEY?
Example :SCENario:WPARam:AKEY? ->
:SCEN:WPAR:AKEY "AAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAA"

:SCENario:WPARam:OLPParam?

Function Queries the measurement parameter of the open loop power.
Syntax :SCENario:WPARam:OLPParam?
Example :SCENario:WPARam:OLPParam? ->
:SCEN:WPAR:OLPP MIDD
Description The response is one of the following: {UPPer|MIDDle|SENSitivity}.
UPPer : RXUpper End
MIDDle : RXMiddle
SENSitivity : RXSensitivity

:SCENario:GPARam?

Function Queries all settings related to the GSM parameters.
Syntax :SCENario:GPARam?
Example :SCENario:GPARam? ->
:SCEN:GPAR:GSMN GSM;TMB OFF;ULPC NORM

:SCENario:GPARam:GSMNetwork?

Function Queries the GSM Network setting.
Syntax :SCENario:GPARam:GSMNetwork?
Example :SCENario:GPARam:GSMNetwork? ->
:SCEN:GPAR:GSMN GSM
Description The response is one of the following: {GSM|GPRS|EGPRS}.

:SCENario:GPARam:TMBack?

Function Queries the TestMode with Ack setting for the EGPRS connection.
Syntax :SCENario:GPARam:TMBack?
Example :SCENario:GPARam:TMBack? ->
:SCEN:GPAR:TMB OFF

:SCENario:GPARam:ULPControl?

Function Queries the uplink power control method.
Syntax :SCENario:GPARam:ULPControl?
Example :SCENario:GPARam:ULPControl? ->
:SCEN:GPAR:ULPC NORM
Description The response is one of the following: {NORMa|FAST}.
NORMal: Changes the uplink power using SACCH.
FAST : Changes the uplink power using an assignment command.

:SCENario:TCOunter?

Function Queries all the test counters.
Syntax :SCENario:TCOunter?
Example :SCENario:TCOunter? ->
:SCEN:TCO:TCO 0;PASS 0;FAIL 0;ABOR 0

:SCENario:TCOunter:TCOunt?

Function Queries the number of times the test was executed.
Syntax :SCENario:TCOunter:TCOunt?
Example :SCENario:TCOunter:TCOunt? ->
:SCEN:TCO:TCO 0

:SCENario:TCOunter:PASS?

Function Queries the number of times the test result was Pass.
Syntax :SCENario:TCOunter:PASS?
Example :SCENario:TCOunter:PASS? ->
:SCEN:TCO:PASS 0

:SCENario:TCOunter:FAIL?

Function Queries the number of times the test result was Fail.
Syntax :SCENario:TCOunter:FAIL?
Example :SCENario:TCOunter:FAIL? ->
:SCEN:TCO:FAIL 0

:SCENario:TCOunter:ABORt?

Function Queries the number of times the test was aborted.
Syntax :SCENario:TCOunter:ABORt?
Example :SCENario:TCOunter:ABORt? ->
:SCEN:TCO:ABOR 0

:SCENario:TCOunter:RESet

Function Resets all test counters.
Syntax :SCENario:TCOunter:RESet
Example :SCENario:TCOunter:RESet

:SCENario:RESult:TJUDgment?

Function Queries the execution result of the scenario.
Syntax :SCENario:RESult:TJUDgment?
Example :SCENario:RESult:TJUDgment? ->
:SCEN:RES:TJUD PASS
Description The response is one of the following: {NOEXec|PASS|FAIL|ERRor}.
NOEXec : No scenario is executing.
PASS : All sequences met the criterion.
FAIL : Some sequences did not meet the criterion.
ERRor : A setting or other error occurred during a scenario.

:SCENario:STATe?

Function Queries the current status of the scenario.
Syntax :SCENario:STATe?
Example :SCENario:STATe? -> :SCEN:STAT STOP
Description The response is one of the following: {STOP|STARt|RESult}.
STOP : No scenario is executing.
STARt : Scenario executing
RESult : Scenario results displaying

10.6.11 SHOVer Group

:SHOVer

Function Executes an inter-RAT handover.
Syntax :SHOVer
Example :SHOVer
Description Executes an inter-RAT handover to the wireless standard specified by :SYSTem:SDSTination. This command is valid in manual mode.
STOP : No scenario is executing.
STARt : Scenario executing
RESult : Scenario results displaying

10.6.12 STARt Group

:STARt

Function Starts the downlink signal output and measurement.
Syntax :STARt
Example :STARt
Description In TXRX and manual modes, this command starts the RF signal output.

10.6.13 STATus Group

:STATus?

Function Queries all settings related to the communication status function.
Syntax :STATus?
Example :STATus? -> :STAT:EESE 0;FILT1 NEV;
FILT2 NEV;FILT3 NEV;FILT4 NEV;
FILT5 NEV;FILT6 NEV;FILT7 NEV;
FILT8 NEV;FILT9 NEV;FILT10 NEV;
FILT11 NEV;FILT12 NEV;FILT13 NEV;
FILT14 NEV;FILT15 NEV;FILT16 NEV;
QEN 1;QMES 1

:STATus:CONDition?

Function Queries the contents of the condition register.
Syntax :STATus:CONDition?
Example :STATus:CONDition? -> :STAT:COND 0

:STATus:EESE

Function Sets the extended event enable register or queries the current setting.
Syntax :STATus:EESE {<Register>}
:STATus:EESE?
<Register> = 0 to 65535
Example :STATus:EESE #B00000000
:STATus:EESE? -> :STAT:EESE 0

:STATus:EESR?

Function Queries the content of the extended event register and clears the register.
Syntax :STATus:EESR?
Example :STATus:EESR? -> :STAT:EESR 0

:STATus:ERRor?

Function Queries the error code and message information (top of the error queue).
Syntax :STATus:ERRor?
Example :STATus:ERRor? -> 0,"No error"
Description
- When there is no error, 0 (No error) is returned.
- The message cannot be returned in Japanese.
- You can specify whether to add the message using the :STATus:QMESsage command.

:STATus:FILTer<x>

Function Sets the transition filter or queries the current setting.
Syntax :STATus:FILTer<x> {RISE|FALL|BOTH|NEVer}
:STATus:FILTer<x>?
<x> = 1 to 16
Example :STATus:FILTer2 RISE
:STATus:FILTer2? -> :STAT:FILT2 RISE
Description Specify how each bit of the condition register is to change to set the event. If RISE is specified, the event is set when the bit changes from 0 to 1.

:STATus:QENable

Function Sets whether or not to store messages other than errors to the error queue (ON/OFF) or queries the current setting.

```
Syntax  :STATus:QENable {<Boolean>}
        :STATus:QENable?
Example :STATus:QENable ON
        :STATus:QENable? -> :STAT:QEN 1
```

:STATus:QMESsage

Function Sets whether or not to attach message information to the response to the :STATus:ERRor? query (ON/OFF) or queries the current setting.

```
Syntax  :STATus:QMESsage {<Boolean>}
        :STATus:QMESsage?
Example :STATus:QMESsage ON
        :STATus:QMESsage? -> :STAT:QMES 1
```

10.6.14 STOP Group

:STOP

Function Stops the downlink signal output and measurement.

```
Syntax  :STOP
Example :STOP
```

Description In TXRX and manual modes, this command stops the RF signal output.

10.6.15 SYSTem Group

:SYSTem?

Function Queries all settings related to the system.

```
Syntax  :SYSTem?
Example :SYSTem? -> :SYST:STAN WCDM;MOD TXRX;
        REF INT;FADJ 1;SDST GSM
```

:SYSTem:MODE

Function Sets the system mode or queries the current setting.

```
Syntax  :SYSTem:MODE {TXRX|MANual}
        :SYSTem:MODE?
Example :SYSTem:MODE TXRX
        :SYSTem:MODE? -> :SYST:MODE TXRX
```

Description The settings and responses are as follows.

TXRX : TXRX mode
MANual : Manual mode

:SYSTem:STANdard

Function Sets the wireless standard or queries the current setting.

```
Syntax  :SYSTem:STANdard {WCDMa|GSM}
        :SYSTem:STANdard?
Example :SYSTem:STANdard WCDMa
        :SYSTem:STANdard? ->
        :SYST:STAN WCDM
```

:SYSTem:GSMNetwork

Function Sets the GSM Network setting or queries the current setting..

```
Syntax  :SYSTem:GSMNetwork {GSM|GPRS|EGPRS}
        :SYSTem:GSMNetwork?
Example :SYSTem:GSMNetwork GPRS
        :SYSTem:GSMNetwork? ->
        :SYST:GSMN
```

:SYSTem:SDSTination

Function Sets the inter-RAT handover destination or queries the current setting.

```
Syntax  :SYSTem:SDSTination {WCDMa|GSM}
        :SYSTem:SDSTination?
Example :SYSTem:SDSTination WCDMa
        :SYSTem:SDSTination? ->
        :SYST:SDST GSM
```

Description The settings and responses are as follows.

WCDMa: WCDMA system handover
GSM : GSM system handover

:SYSTem:REFerence

Function Sets the reference clock or queries the current setting.

```
Syntax  :SYSTem:REFerence {INTernal|EXTernal}
        :SYSTem:REFerence?
Example :SYSTem:REFerence INTernal
        :SYSTem:REFerence? -> :SYST:REF INT
```

Description The settings and responses are as follows.

INTernal : Internal reference
EXTernal : External reference

:SYSTem:TIMOut:WCDMa

Function Sets the signal (WCDMA) to output from the TIMING OUT terminal or queries the current setting.

```
Syntax  :SYSTem:TIMOut:WCDMa {FRAMe|TIMSlot|
        CHIP|CHX5}
        :SYSTem:TIMOut:WCDMa?
Example :SYSTem:TIMOut:WCDMa FRAMe
        :SYSTem:TIMOut:WCDMa? ->
        :SYST:TIMO:WCDM FRAM
```

Description
- The signal is not output if the WCDMA test software is not installed.
- The settings and responses are as follows.

  FRAMe : Outputs a frame timing signal
  TIMSlot : Outputs a time slot timing signal
  CHIP : Outputs a chip clock (3.84 MHz)
  CHX5 : Outputs a chip clock (19.2 MHz)

:SYSTem:TIMOut:GSM

Function Sets the signal (GSM) to output from the TIMING OUT terminal or queries the current setting.

Syntax `:SYSTem:TIMOut:GSM {FRAMe|BITClock}`
`:SYSTem:TIMOut:GSM?`

Example `:SYSTem:TIMOut:GSM FRAMe`
`:SYSTem:TIMOut:GSM? ->`
`:SYST:TIMO:GSM FRAM`

Description
- The signal is not output if the GSM test software is not installed.
- The settings and responses are as follows.
  FRAMe : Outputs a frame timing signal
  BITClock : Outputs a bit clock (270.833 kHz)

:SYSTem:FADJust

Function Sets the frequency adjustment or queries the current setting.

Syntax `:SYSTem:FADJust <number>`
`:SYSTem:FADJust?`

Example `:SYSTem:FADJust 0`
`:SYSTem:FADJust? -> :SYST:FADJ 0`

:SYSTem:PLLLock?

Function Queries the PLL lock status.

Syntax `:SYSTem:PLLLock?`
One of the following is the returned value: {BBUNlock|DLUNlock|EXTUnlock|LOCK|REFUnlock|ULUNlock}.

Example `:SYSTem:PLLLock? -> :SYST:PLLL REFU`

Description The responses are as follows.
BBUNlock : Baseband reference PLL unlocked
DLUNlock : Downlink PLL unlocked
EXTUnlock : External clock error
LOCK : All locked
REFUnlock : Reference clock error
ULUNlock : Uplink PLL unlocked

:SYSTem:STATe:PROTocol?

Function Queries the protocol status.

Syntax `:SYSTem:STATe:PROTocol?`
One of the following is the returned value:
{WSTop|WNORegist|WREGist|WIDLe|WCALlrelease|WCONnected|WHANdover|GSTop|GLOCupdate|GIDLe|GCONnected|GTLoop|GCALlrelease|GHANdover|GATTachreq|GDETachreq|GROutingupdate|GIATached|GPACket}.

Example `:SYSTem:STATe:PROTocol? ->`
`:SYST:STAT:PROT WST`

Description
- GATTachreq, GDETachreq, GROutingupdate, GIATached, and GPACket are output only when the GSM/GPRS/EDGE test program is installed.
- The responses are as follows.
  WSTop : WCDMA Stop status
  WNORegist : WCDMA Not Registered status
  WREGist : Executing WCDMA registration
  WIDLe : WCDMA Idle status
  WCALlrelease : Executing WCDMA call/release
  WCONnected : WCDMA Connected (Voice, Test Loop) status
  WHANdover : Executing WCDMA handover
  GSTop : GSM Stop status
  GLOCupdate : Executing GSM location update
  GIDLe : GSM Idle status
  GCONnected : GSM Connected (Voice) status
  GTLoop : GSM Connected (Test Loop) status
  GCALlrelease : Executing GSM call/release
  GHANdover : Executing GSM handover
  GATTachreq : Executing GSM attach request
  GDETachreq : Executing GSM detach request
  GROutingupdate : Executing GSM routing area update
  GIATached : GSM Idle (Attached) status
  GPACket : GSM Connected (Packet) status

:SYSTem:STATe:CONNect?

Function Queries the call direction.

Syntax
```
:SYSTem:STATe:CONNect?
The return value is one of the
following: {NOTConnect|ORIGinate|
TERMinate}
```

Example
```
:SYSTem:STATe:CONNect? ->
:SYST:STAT:CONN ORIG
```

Description
- The response is as follows:
  - NOTConnect: Not connected (a state other than Connected in Manual mode, TXRX mode)
  - ORIGinate: Call setup from UE (voice and video)
  - TERMinate: Call setup from NW (voice and video), Test Loop, RMC12.2k+HSDPA, and SRB3.4k+HSDPA

10.6.16 Common Command Group

*CAL? (CALibrate)

Function Executes the calibration of the power accuracy and queries the result.

Syntax
```
*CAL?
```

Example
```
*CAL? -> 0
```

Description If the calibration terminates normally, 0 is returned. If an error is detected, 1 is returned.

*CLS (CLear Status)

Function Clears the standard event register, extended event register, and error queue.

Syntax
```
*CLS
```

Example
```
*CLS
```

Description
- If the *CLS command is located immediately after the program message terminator, the output queue is also cleared.
- For details on the register and queue, see section 10.7.

*ESE (standard Event Status Enable register)

Function Sets the standard event enable register or queries the current setting.

Syntax
```
*ESE {<NRf>}
*ESE?
```
<NRf> = 0 to 255

Example
```
*ESE 253
*ESE? -> 253
```

Description
- Specify the value as a sum of decimal values of each bit.
- For example, specifying “*ESE 251” will cause the standard enable register to be set to 11111011. In this case, bit 2 of the standard event register is disabled which means that bit 5 (ESB) of the status byte register is not set to 1, even if a query error occurs.
- The default value is “*ESE 0” (all bits disabled).
- A query using *ESE? will not clear the contents of the standard event enable register.
- For details on the standard event enable register, see page 10-33.

*ESR? (standard Event Status Register)

Function Queries the standard event register and clears the register.

Syntax
```
*ESR?
```

Example
```
*ESR? -> 32
```

Description
- A sum of decimal values of each bit is returned.
- You can check what type of events occurred when an SRQ is generated.
- For example, if a value of 32 is returned, this indicates that the standard event register is set to 00100000. In this case, you can see that the SRQ occurred due to a command syntax error.
- A query using *ESR? will clear the contents of the standard event register.
- For details on the standard event register, see page 10-35.

*IDN? (IDeNtify)

Function Queries the instrument model.

Syntax
```
*IDN?
```

Example
```
*IDN? -> YOKOGAWA,733020,0,F1.01
```

Description The information is returned in the following form: <Manufacturer>,<Model>,<Serial No.>,<Firmware version>.

*OPC (OPeration Complete)

Function Sets bit 0 (OPC bit) of the standard event register to 1 upon the completion of the specified overlap command.

Syntax
```
*OPC
```

Example
```
*OPC
```

*OPC? (OPeration Complete)

Function If *OPC? is transmitted and the specified overlap command is completed, ASCII code 1 is returned.

Syntax `*OPC?`

Example `*OPC? -> 1`

*OPT? (OPTion)

Function Queries the installed options.

Syntax `*OPT?`

Example `*OPT? -> WCDMA,GSM,GP-IB`

Description The options are returned in the order <WCDMA>, <GSM> and <GP-IB>. Returns 0 for items without options.

*RST (ReSeT)

Function Initializes the settings.

Syntax `*RST`

Example `*RST`

Description Also clears *OPC and *OPC? commands that have been sent earlier.

*SRE (Service Request Enable register)

Function Sets the service request enable register or queries the current setting.

Syntax `*SRE {<NRf>}`
`*SRE?`
<NRf> = 0 to 255

Example `*SRE 239`
`*SRE? -> 239`

Description
- Specify the value as a sum of decimal values of each bit.
- For example, specifying “*SRE 239” will cause the service request enable register to be set to 11101111. In this case, bit 4 of the service request enable register is disabled which means that bit 4 (MAV) of the status byte register is not set to 1, even if the output queue is not empty.
- Bit 6 (MSS) of the status byte register is the MSS bit itself, and therefore, is ignored.
- The default value is “*SRE 0” (all bits disabled).
- A query using *SRE? will not clear the contents of the service request enable register.
- For details on the service request enable register, see page 10-33.

*STB? (STatus Byte)

Function Queries the status byte register.

Syntax `*STB?`

Example `*STB? -> 4`

Description
- The sum of the bits is returned as a decimal value.
- For example, if a value of 4 is returned, this indicates that the status byte register is set to 00000100. In this case, you can see that the error queue is not empty (an error occurred).
- A query using *STB? will not clear the contents of the status byte register.
- For details on the status byte register, see page 10-34.

*TST?

Function Performs a self-test and queries the result. The self test involves internal memory tests.

Syntax `*TST?`

Example `*TST? -> 0`

Description If the self-test is successful, 0 is returned. If there is an error, 1 is returned.

*WAI (WAIt)

Function Holds the subsequent command until the completion of the specified overlap operation.

Syntax `*WAI`

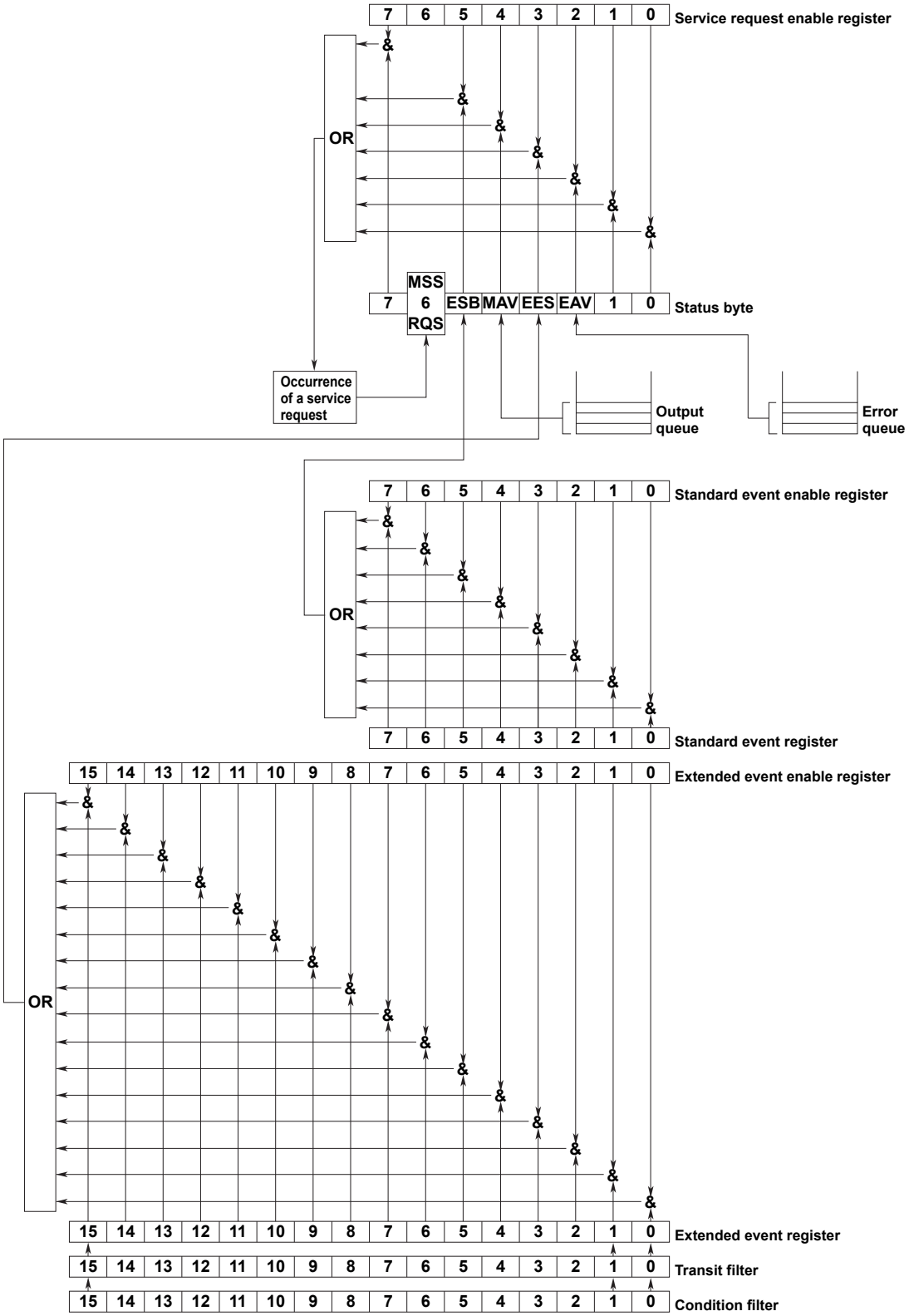
Example `*WAI`

10.7 Status Reports

10.7.1 Overview of the Status Report

Status Reports

The figure below shows the status report that is read by serial polling. This status report is an extended version of the status report defined in IEEE 488.2-1992.



Summary of the Registers

Name	Function	Writing	Reading
Status byte		—	*STB? (MSS)
Service request enable register	Status byte mask	*SRE	*SRE?
Standard event register	Changes in device status	—	*ESR?
Standard event enable register	Standard event register mask	*ESE	*ESE?
Extended event register	Changes in device status	—	STATus:EESR?
Extended event enable register	Extended event register mask	STATus:EESE	STATus:EESE?
Condition register	Current instrument status	—	STATus:CONDition?
Transition filter	Conditions that change the extended event register	STATus:FILTer<x>	STATus:FILTer<x>?
Error queue	Stores the error No. and message	—	STATus:ERRor?

Registers and Error Information That Affect the Status Byte

Registers that affect the bits of the status byte are shown below.

Standard event register:	Sets bit 5 (ESB) of the status byte to 1 or 0.
Extended event register:	Sets bit 3 (EES) of the status byte to 1 or 0.
Error queue:	Sets bit 2 (EAV) of the status byte to 1 or 0.

Enable Registers

Registers that are used to mask a bit so that the bit will not affect the status byte even when it is set to 1, are shown below.

Status byte:	Mask the bits using the service request enable register.
Standard event register:	Mask the bits using the standard event enable register.
Extended event register:	Mask the bits using the extended event enable register.

Reading and Writing to the Registers

For example, the *ESE command is used to set the bits in the standard event enable register to 1's or 0's. The *ESE? command is used to query whether the bits in the standard event enable register are 1's or 0's. For details regarding these commands, see section 10.6.

10.7.2 Status Byte

Status Byte

7	RQS 6 MSS	ESB	MAV	EES	EAV	1	0

Bits 0, 1, 4, and 7

Not used (always 0)

Bit 2 EAV (Error Available)

Set to 1 when the error queue is not empty. In other words, this bit is set to 1 when an error occurs. See the page 10-37.

Bit 3 EES (Extend Event Summary Bit)

Set to 1 when the logical AND of the extended event register and the corresponding enable register is 1. In other words, this bit is set to 1 when an event takes place inside the instrument. See the page 10-33.

Bit 4 MAV (Message Available)

Set to 1 when the output queue is not empty. In other words, this bit is set to 1 when there is data to be transmitted. See the page 10-37.

Bit 5 ESB (Event Summary Bit)

Set to 1 when the logical AND of the standard event register and the corresponding enable register is 1. In other words, this bit is set to 1 when an event takes place inside the instrument. See the page 10-33.

Bit 6 RQS (Request Service)/MSS (Master Status Summary)

Set to 1 when the logical AND of the status byte excluding Bit 6 and the service request enable register is not 0. In other words, this bit is set to 1 when the instrument is requesting service from the controller. RQS is set to 1 when the MSS bit changes from 0 to 1, and cleared when serial polling is carried out or when the MSS bit changes to 0.

Bit Masking

If you wish to mask a certain bit of the status byte so that it does not cause a service request, set the corresponding bit of the service request enable register to 0.

For example, to mask bit 2 (EAV) so that service is not requested when an error occurs, set bit 2 of the service request enable register to 0. This can be done using the *SRE command. To query whether each bit of the service request enable register is 1 or 0, use *SRE?. For details on the *SRE command, see section 10.6.

Status Byte Operation

Bit 6 is set to 1 when any of the other bits becomes a 1 (when the corresponding bit of the service request enable register is also set to 1).

For example, if an event occurs and any of the bits of the logical AND of the standard event register and the corresponding enable register becomes a 1, then bit 5 (ESB) is set to 1. In this case, if bit 5 of the service request enable register is 1, bit 6 (MSS) will be set to 1, thus requesting service from the controller.

In addition, you can also check what type of event occurred by reading the contents of the status byte.

Reading the Status Byte

The following two methods are available in reading the contents of the status byte:

Inquiry using the *STB? query

A *STB? query causes bit 6 to be a MSS bit. This causes the MSS to be read. After completion of the read-out, none of the bits in the status byte will be cleared.

Serial polling

Serial polling causes bit 6 to be a RQS bit. Therefore, the RQS bit is read. After reading the status byte, only the RQS bit is cleared. You cannot read the MSS bit when serial polling is used.

Clearing the Status Byte

There are no methods available that will clear all the bits of the status byte. The bits that are cleared for each operation are shown below.

When a query is made using the *STB? command

None of the bits are cleared.

When serial polling is executed

Only the RQS bit is cleared.

When a *CLS command is received.

Receiving the *CLS command will not clear the status byte itself, but the contents of the standard event register that affect the status byte. As a result, the corresponding bits in the status byte are cleared,

10.7.3 Standard Event Register

Standard Event Register

7	6	5	4	3	2	1	0
PON	URQ	CME	EXE	DDE	QYE	RQC	OPC

Bit 7 PON (Power ON)

Set to 1 when the instrument is turned ON.

Bit 6 URQ (User Request)

Not used (always 0)

Bit 5 CME (Command Error)

Set to 1 when there is an error in the command syntax.

Example Spelling error in the command name

Bit 4 EXE (Execution Error)

Set to 1 when the command syntax is correct, but the command cannot be executed in the current state of the instrument.

Example When the string is too long.

Bit 3 DDE (Device Dependent Error)

Set to 1 when a command cannot be executed for internal reasons other than a command syntax error and command execution error.

Bit 2 QYE (Query Error)

Set to 1 when a query command is transmitted, but the error queue is empty or the data are lost.

Bit 1 RQC (Request Control)

Not used (always 0)

Bit 0 OPC (Operation Complete)

Set to 1 when the operation designated by the *OPC command is completed.

Bit Masking

If you wish to mask a certain bit of the standard event register so that it does not cause bit 5 (ESB) of the status byte to change, set the corresponding bit of the standard event enable register to 0.

For example, to mask bit 3 (DDE) so that ESB will not be set to 1, even if a query error occurs, set bit 3 of the standard event enable register to 0. This can be done using the *ESE command. To inquire whether each bit of the standard event enable register is 1 or 0, use the *ESE?. For details on the *ESE command, see section 10.6.

Standard Event Register Operation

Standard event register is a register for the eight types of events that occur inside the instrument. Bit 5 (ESB) of the status byte is set to 1 when any of the bits in this register becomes 1 (or when the corresponding bit of the standard event enable register becomes 1).
In addition, you can also check what type of event occurred in the instrument by reading the contents of the standard event register.

Reading the Standard Event Register

The *ESR? command can be used to read the contents of the standard event register. After the register is read, it is cleared.

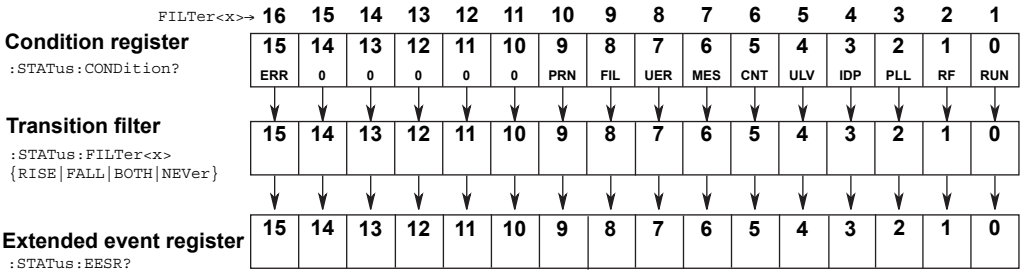
Clearing the Standard Event Register

The standard event register is cleared in the following three cases:

- When the contents of the standard event register are read using the *ESR command.
- When a *CLS command is received.
- When the instrument is power cycled.

10.7.4 Extended Event Register

The transition filter detects the changes in the condition register that indicate the internal condition of the instrument and writes the result to the extended event register.



The meaning of each bit of the condition register is as follows:

Bit 0	RUN	Set to 1 while the measurement is in progress.
Bit 1	RF	Set to 1 while the RF signal is being output.
Bit 2	PLL	Set to 1 during PLL unlock.
Bit 3	IDP	Set to 1 when the total of the specified downlink powers exceeds 1.
Bit 4	ULV	Set to 1 when the downlink power goes outside the guranteed range.
Bit 5	CNT	Set to 1 when the mobile phone is connected.
Bit 6	MES	Set to 1 while the single measurement is in progress.
Bit 7	UER	Set to 1 while the UE report is being retrieved when measuring in WCDMA mode.
Bit 8	FIL	Set to 1 while a file is being accessed.
Bit 9	PRN	Set to 1 while printing is in progress.
Bit 15	ERR	Set to 1 when a fatal error is occurring.

The transition filter parameters detect changes in the specified bit (numerical suffix, 1 to 16) of the condition register in the following manner and overwrite the extended event register.

RISE	The specified bit of the extended event register is set to 1 when the bit of the condition register changes from 1 to 0.
FALL	The specified bit of the extended event register is set to 1 when the bit of the condition register changes from 0 to 1.
BOTH	The bit of the extended event register is set to 1 when the bit of the condition register changes from 0 to 1 or from 1 to 0.
NEVer	Always 0.

10.7.5 Output Queue and Error Queue

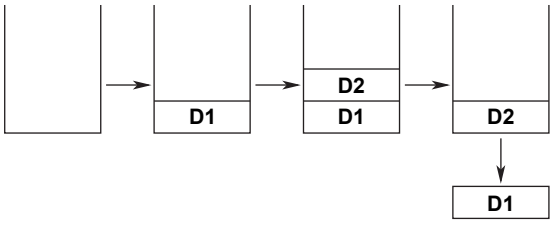
Output Queue

The output queue stores response messages for the queries.

As shown below, data are stored in order and read from the oldest ones first. The output queue is emptied in the following cases (in addition to when read-out is performed).

- When a new message is received from the controller.
- When a deadlock occurs.
- When the instrument is power cycled.

The *CLS command cannot be used to clear the output queue. To see whether the output queue is empty or not, check bit 4 (MAV) of the status byte.



Error Queue

The error queue stores the error number and message when an error occurs. For example, if the controller sends an incorrect program message, the error number and message “113, “Undefined header”” are stored in the error queue when the error is displayed.

The STATus:ERRor? query can be used to read the contents of the error queue. As with the output queue, the messages are read from the oldest ones first.

When the error queue overflows, the last message is replaced by the following message “350, “Queue overflow”.”

The error queue is also cleared for the following cases:

- When a *CLS command is received.
- When the instrument is power cycled.

Bit 2 (EAV) of the status byte can be used to check whether the error queue is empty.

11.1 Troubleshooting

Troubleshooting

- If a message is displayed on the screen, read the next section.
- If servicing is necessary, or if the instrument is not operating correctly after performing the corrective actions, contact your nearest YOKOGAWA dealer.

Description	Probable Cause	Corrective Action	Reference Page
The power does not turn ON.	Using a power supply outside the ratings.	Use a correct power supply.	3-6
The power cannot be turned OFF.	The system is not operating properly.	Hold down the power switch on the front panel for approximately 5 seconds. If the power still does not turn OFF, check that the hard disk access lamp is not illuminated, turn the main power switch OFF, and remove the power connector.	3-8
Nothing is displayed.	The LCD backlight is OFF.	Turn ON the LCD backlight.	8-8
Unable to set or control the instrument using communication commands.	Communication interface parameters are not matched.	Set the correct parameters.	Section 10.6
	The electrical specifications are not met.	Use it in a way that conforms to the specifications.	10-1, 10-2, 10-7
The display is odd.	The system is not operating	Power-cycle the VC3300.	Section 3.4

11.2 A List of Messages

Error Messages

Error messages including those related to communication commands may appear on the display. This section describes the meanings of the messages and their corrective actions. If the corrective action requires servicing, contact your nearest YOKOGAWA dealer for repairs.

Setting/Execution Errors

Code	Message	Description/Corrective Action
501	Code domain power setup error.	An error occurred when setting the code domain power. Set it correctly.
502	Invalid parameter.	Invalid parameter. Set it correctly.
503	Network setup error.	An error occurred in the network setting. Set it correctly.
504	No such file or directory.	The file or directory is not found. Enter it correctly.
505	Invalid file name.	Invalid file name. Enter it correctly.
506	Printer setup error.	An error occurred in the printer setting. Set it correctly.
507	No active test item.	No measurement item is enabled.
508	Operation not allowed while running.	Cannot be executed while measurement is in progress. Stop the measurement.
509	This feature is not implemented.	This function is not implemented.
510	Invalid path.	An invalid path was specified. Set it correctly.
511	The file already exists.	The file already exists.
512	This preset does not contain data.	There is no data saved to this preset.
513	Operation not allowed in this protocol state.	Can not operate in the current protocol state.
514	WCDMA option not installed.	The WCDMA test software (option) is not installed.
515	GSM option not installed.	The GSM test software (option) is not installed.
516	No valid option installed.	No valid option is installed.
517	Invalid system handover destination.	Invalid system handover destination. Set it correctly.
518	Protocol error.	Protocol error.
519	Setup changes not allowed while handover is in progress.	Cannot be set while handover is in progress.
520	Measurement timed out.	The measurement timed out.
521	Execute in the Idle state.	This function can only be executed in the Idle state.
522	Execute in the Connect state.	This function can only be executed in the Connected state.
523	This file is not a setup file.	This file is not a setup file.
524	Failed to mount during system updating.	Failed to mount while updating the system.
525	Failed to find files for updating the system.	The file was not found while updating the system.
526	Failed to transfer files for system updating.	Failed to transfer files while updating the system.
527	Cannot be executed in this condition.	This function cannot be executed in this condition.
528	No network printer server is set.	The printer server is not set.
529	No file name is set.	The file name is not set.
530	Operation not allowed while printing.	This operation is not allowed while printing.
531	Handover denied due to band and BCCH mismatch.	Handover not possible because the frequency band and BCCH do not match.
532	Printing timed out.	The print process timed out.
533	Operation not allowed in Scenario mode.	Cannot be executed in scenario mode.
534	Scenario File is not loaded.	A scenario file is not loaded.
535	Cannot open the scenario/result file.	Failed to open the scenario/result file.
536*	Cannot analyze the scenario/result file.	Incorrect syntax in line ** of the scenario file.
537	Failed to make the result file.	Failed to create the result file.
538	Failed to write the result file.	Failed to write the result file.

Code	Message	Description/Corrective Action
539	Too many sequences.	Too many sequences in the scenario file.
540	Execute in SCENARIO RESULT state.	Can be executed only in SCENARIO RESULT status.
541	Cannot start in PLL unlocked state.	Cannot start in PLL unlock condition.
542	Cannot find the directory for system updating.	Cannot find the directory for updating the system.
543*	Update error.	Failed to update the system.
544	Cannot show all files in this list.	Cannot show all files in this list.

* A detailed message is also displayed for each type of error. For a description of the detailed message and the corrective action, see the Note given later.

Note

For error codes 536 and 543, the following additional message is displayed for each type of error.

Message	Corrective Action
536	
Undefined command.	Correct the command name.
Undefined section.	Correct the section name.
Parameter error.	Correct the parameter.
String parameter too long.	Shorten the character string.
Illegal character exists.	Correct the characters by checking the allowed characters.
Missing argument.	Add the necessary parameters.
Illegal string parameter size.	Correct the string length to the specified size.
Result log file error.	-
There are no conditions in the scenario file.	Add measurement conditions.
Sequences must begin with the 'change_condition' command.	Be sure the sequence starts with the 'change_condition' command.
The condition name does not exist.	Check and correct the measurement condition name.
Cannot change the BCCH channel while connected.	Change the BCCH channel during the idle state.
Cannot change the BCCH band while connected.	Change the BCCH band during the idle state.
Illegal band.	Correct the band name.
Illegal channel number.	Correct the channel number.
Illegal downlink power setting.	Correct the downlink power setting.
Illegal uplink power setting.	Correct the uplink power setting.
Illegal GAMMA uplink power setting.	Correct the GAMMA uplink power setting.
Illegal downlink power compensation.	Correct the downlink power compensation.
Illegal uplink power compensation.	Correct the uplink power compensation.
Indefinite band.	Set the band.
Indefinite channel number.	Set the channel number.
Indefinite downlink power setting.	Specify the downlink power setting.
Indefinite uplink power setting.	Specify the uplink power setting.
Indefinite GAMMA uplink power setting.	Specify the GAMMA uplink power setting.
Indefinite downlink power compensation.	Specify the downlink power compensation.
Indefinite uplink power compensation.	Specify the uplink power compensation.
543	
Failed to copy update-files.	The update file may not be normal. Download the file again or expand the file again.
Failed to open the file list for updating.	The update file may not be normal. Download the file again or expand the file again.
Failed to transfer the update file.	The update file may not be normal. Download the file again or expand the file again.
Failed to expand the update file.	The update file may not be normal. Download the file again or expand the file again.
There is no updating script.	The update file may not be normal. Download the file again or expand the file again.
Cannot find valid device.	Check that the vc3000-update folder is in the USB memory.

Scenario Execution Error

Code	Message	Description/Corrective Action
801	Will abort due to an invalid command parameter.	Will abort due to an invalid command parameter.
802	There is no valid option to execute this scenario.	An option required to execute this scenario is not installed.

System Errors

Code	Message	Description/Corrective Action
901	Parameter error.	Parameter error. Maintenance service is required.
902	Invalid calibration data.	Invalid calibration data. Maintenance service is required.
903	Failed to open the driver.	Failed to open the driver. Maintenance service is required.
904	Failed to download the signaling-DSP program.	Failed to download the DSP program. Maintenance service is required.
905	Failed to download the measuring-DSP program.	Failed to download the DSP program. Maintenance service is required.
906	Failed to download the FPGA program.	Failed to download the FPGA program. Maintenance service is required.
907	Failed to initialize the RF.	Failed to initialize the RF board. Maintenance service is required.
908	Failed to set the RF.	Failed to set the hardware of the RF board. Maintenance service is required.
909	Failed to set the DL hardware.	Failed to set the downlink hardware. Maintenance service is required.
910	Failed to set the UL hardware.	Failed to set the uplink hardware. Maintenance service is required.
911	System error.	System error. Maintenance service is required.
912	Failed to get the network information.	Failed to retrieve network information. Maintenance service is required.
913	Failed to get the time information.	Failed to retrieve time information. Maintenance service is required.
914	Invalid hardware access.	Unable to access the hardware correctly. Maintenance service is required.
915	Box fan stopped.	The main fan has stopped. Turn OFF the power immediately. Maintenance service is required.
916	Power supply fan stopped.	The power supply fan has stopped. Turn OFF the power immediately. Maintenance service is required.
917	Invalid CPU temperature detected.	Invalid CPU temperature was detected. Turn OFF the power immediately.
918	Failed to allocate disk space during system updating.	Failed to allocate disk space for system updating.
919	Failed to detect the HDD.	Failed to detect the HDD correctly.
920	Aborted due to FIFO empty.	Aborted due to FIFO empty.

Error in Communication Command (100-199)

Code	Messages	Corrective Action
102	A syntax error.	Invalid syntax.
103	<DATA SEPARATOR> is missing.	Use a comma to separate the data.
104	The <DATA> type is incorrect.	Write using the correct data form.
105	Device trigger function cannot be used.	GET is not supported for responses to interface messages.
108	There are too many <DATA>.	Check the number of data points.
109	Required <DATA> is missing.	Enter the required data.
111	<HEADER SEPARATOR> is missing.	Use a space to separate the header and data.
112	<mnemonic> is too long.	Check the mnemonic (alphanumerical character string).
113	No such command.	Check the header.
114	The value of <HEADER> is not correct.	Check the header.
120	The mantissa of the value is missing.	A number is required in the <NRf> form.
123	The exponent is too large.	Use a smaller exponent for <NR3> format.
124	There are too many significant digits.	The value must be less than equal to 255 digits.
128	Numeric data cannot be used.	Enter in a format other than <NRf> format.
131	The unit is not correct.	“Check the unit of the <Voltage>, <Time>, <Frequency>, and <Current>.”
134	The spelling of the unit is too long.	“Check the unit of the <Voltage>, <Time>, <Frequency>, and <Current>.”
138	Units cannot be used.	“No units are allowed other than <Voltage>, <Time>”, “<Frequency>, and <Current>.”
141	No such selection available.	Select character data from the selections available in {...|...|...}.
144	The spelling of <CHARACTER DATA> is too long.	Check the spelling of the character strings in {...|...|...}.
148	<CHARACTER DATA> cannot be used.	Write in a data form other than {...|...|...}.
150	There is no delimiter to the right of <STRING DATA>.	Enclose <String> in double quotation or single quotation marks.
151	The contents of <STRING DATA> Invalid string data.	<String> is too long or contains characters which cannot be used.
158	<STRING DATA> cannot be used are inappropriate.	Enter in a data format other than <Character string>.
161	The data length of <BLOCK DATA> does not match.	<Block data> is not allowed.
168	<BLOCK DATA> cannot be used.	<Block data> is not allowed.
171	There is an invalid character in the <EXPRESSION DATA>.	Equations cannot be used.
178	<EXPRESSION DATA> cannot be used.	Equations cannot be used.Code

Error in Communication Execution (200 to 299)

Code	Messages	Corrective Action
221	There is a conflict in the setup information.	Check the relevant settings.
222	The data value is outside the range.	Check the range.
223	The data byte length is too long.	Check the length of the data.
224	The data value is invalid.	Check the range.
241	The hardware is not implemented.	Check the installed options.
260	<EXPRESSION DATA> is not correct.	Equations cannot be used.

Error in Communication Query (400 to 499)

Code	Messages	Corrective Action
410	Query transmission was aborted.	Check transmission/reception order.
420	There is no response that can be transmitted.	Check transmission/reception order.
430	Deadlock occurred. Aborting transmission.	Limit the length of the program message including <PMT> to 1024 bytes or less.
440	The order to request the response is not correct.	Do not specify a query after the *IDN? or *OPT? command.

Error in System Operation (399)

Code	Messages	Corrective Action
399	Communication driver error.	Maintenance service is required.

Other Errors (350)

Code	Messages	Corrective Action
350	Queue overflow.	Read the error queue.

Note

Code 350 indicates overflow of error queue. This code is returned as a response to the STATus:ERRor? query; it does not appear on the screen.

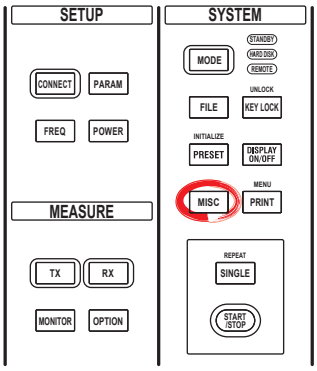
Status Messages

The following messages may appear in the system status display area at the upper section of the display.

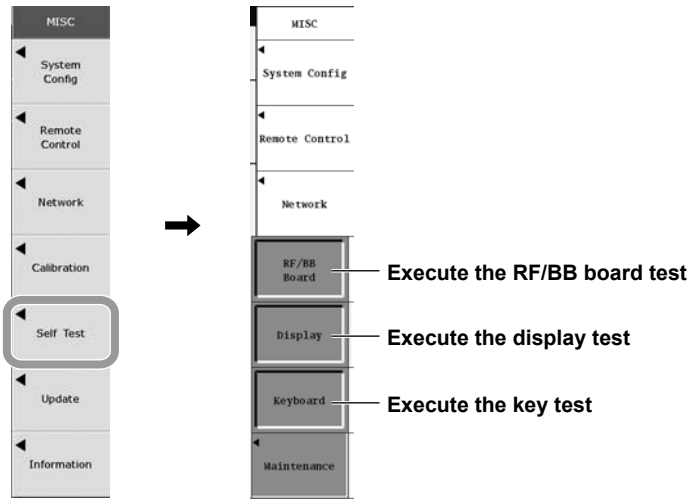
Message	Description
PLL Unlock	PLL is not locked.
PLL Unlock(EXT)	Apply an external reference signal.
Downlink power unleveled	The downlink level is outside the guaranteed range.
Burst not found	Burst cannot be detected.
TSC Error	Invalid training sequence code.
Now Printing	Printing is in progress.
Illegal Downlink Power Setting.	Invalid downlink power setting.
Illegal Downlink Power Setting at Open Loop.	Invalid downlink power setting for the open loop measurement.
File Accessing.	Accessing a file.
Clock Signal Lost.	Unable to detect the clock signal during external BER measurement.

11.3 Self Test

Procedure



Press **MISC**. A soft key menu or dialog box appears as shown below. Set each item according to the basic operating procedure of section 3.6.



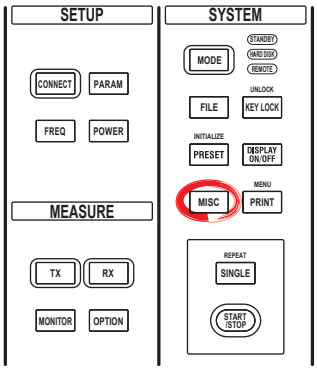
Explanation

Self Test

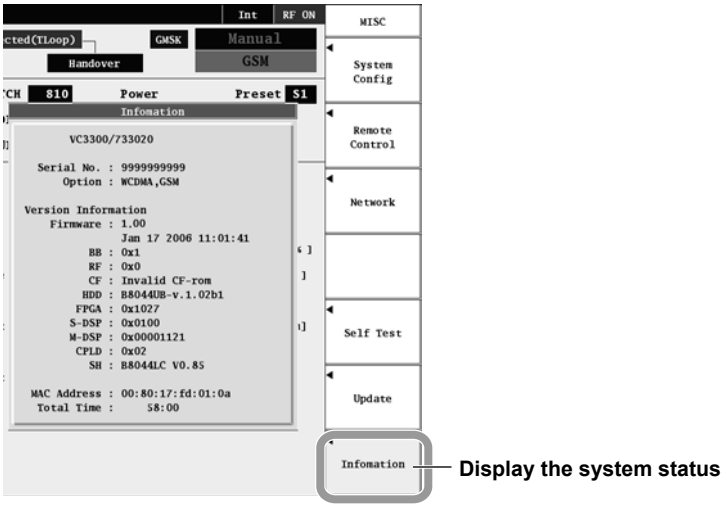
- **BB/RF Board Test (BB/RF Board)**
  Performs a basic function test on the BB and RF boards.
- **Display Test (Display)**
  Tests for pixel defects on the display. Press a key to switch the white and black test displays left and right. Check that there are no defects in the pixels on the test screen. For the display specifications, see chapter 11.
- **Key Test (Keyboard)**
  Checks the response of keys and the rotary knob. When you press a key or turn the rotary knob, the corresponding mark changes in color. If the corresponding mark does not change in color, the key or rotary knob is not working.

11.4 Checking the System Status

Procedure



Press **MISC**. A soft key menu or dialog box appears as shown below. Set each item according to the basic operating procedure of section 3.6.



Explanation

Checking the System Status (Information)

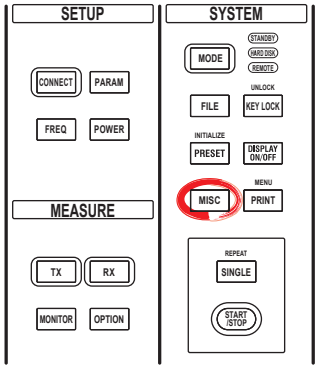
You can check the model, the presence/absence of options, the serial number, the firmware version, the status of each board, etc.

11.5 Updating the Software

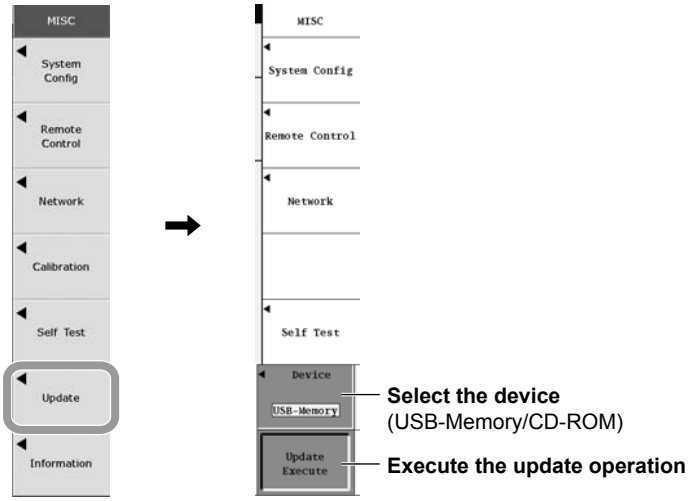
CAUTION

Do not turn OFF the VC3300 while the software is being updated. If the power to the VC3300 is cut off while the software is being updated, it may not be able to start up.

Procedure



1. Have the USB memory or CD-ROM containing the most recent software ready.
2. Connect the USB memory or CD-ROM drive to the VC3300 USB port.
3. Press **MISC**. A soft key menu appears as shown below. Set each item according to the basic operating procedure of section 3.6.



Explanation

The VC3300 software (firmware, driver, etc.) can be updated using a USB memory or CD-ROM.

Selecting the Device

Select the download source containing the update software from below.

- USB-Memory: A USB memory connected to the USB port on the front or rear panel.
- CD-ROM: A CD-ROM drive connected to the USB port on the front or rear panel.

Executing the Update Operation

Press the **Update Execute** soft key to update the software.

Operation after the Updating Is Complete

The message “Now System Updating...” appears while the update operation is in progress. When the update operation is complete, the VC3300 restarts automatically.

Note

- You cannot carry out other operations while the update operation is in progress.
- The USB memories and CD-ROM drives below have been tested for compatibility.

  USB memory
  - TB-C128, TB-B128 (by IO Data Device, Inc.)
  - PFU-2PG/128 (by Princeton Technology, Ltd.)
  - JDS064 (by Lexar Media, Inc.)
  - Flash D-Mini 128 (by imation Corp.)

  CD-ROM drive
  - KXL-RW40AN (by Panasonic Communications Co., Ltd.)
  - PX-W4012TU (by Plextor Co., Ltd.)

11.6 Frequency Adjustment

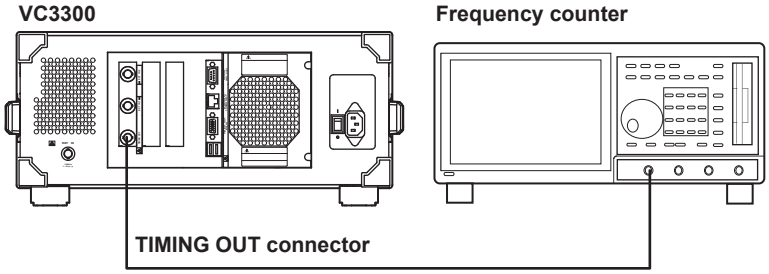
The frequency accuracy of the VC3300 is calibrated within the specification range before shipment.
You can use instruments such as a frequency counter to fine-adjust the frequency accuracy. You can use this function to make fine adjustments at short intervals.
In addition, if for some reason the calibration is off and the accuracy is not satisfied, the accuracy can be temporarily adjusted within the range.

Selectable range

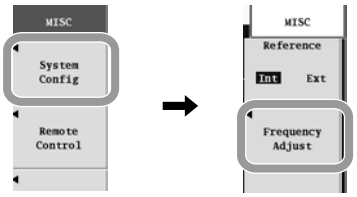
–2000 to 2000

Example in which the frequency accuracy is adjusted within ±0.1 ppm

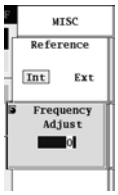
1. Prepare a frequency counter with a resolution and accuracy better than 0.1 ppm.
2. Connect the TIMING OUT terminal of the VC3300 and the measurement input of the frequency counter.



3. Press **PARAM**.
4. Set the Timing Output soft key to Chip Clock × 5 according to the procedure in section 4.1.



5. Press **START/STOP** (illuminate the START/STOP key) to start the measurement.
6. Press **MISC**.
7. Press the **System Config** soft key followed by **Frequency Adjust**.
8. Change the frequency adjustment value of the VC3300 so that the measured value on the frequency counter is within 19.2 MHz ±1.92 Hz (±0.1 ppm).



Note

The frequency adjustment value is a value without a unit that indicates increase or decrease. The adjustment resolution is approximately ±2.0 ppm. The value itself does not take on any meaning. In addition, the specified value is not reset when the settings are initialized.

11.7 Recommended Replacement Parts

The one-year warranty applies only to the main unit of the instrument (starting from the day of delivery) and does not cover any other items or expendable items (items which wear out). The replacement period for expendable items varies depending on the conditions of use. Refer to the table below as a general guideline. Contact your nearest YOKOGAWA dealer to have parts replaced.

Parts Name	Service Life
LCD backlight	Approx. 25,000 hours

Parts Name	Warranty Period
Internal hard disk	1 year after purchase (However, the data saved on the internal hard disk is not covered.)

The parts below are expendable. It is recommended that the parts be replaced according to the period indicated below. Contact your nearest YOKOGAWA dealer to have parts replaced.

Parts Name	Recommended Replacement Period
Cooling fan	Approx. 40,000 hours
CPU fan	Approx. 30,000 hours

12.1 RF Transmitter/Receiver

Item	Specifications
Frequency range	800 to 1000 MHz (resolution: 100 kHz)* 1700 to 2400 MHz (resolution: 100 kHz)*
Transmission Power	–120.0 to –10.0 dBm (resolution: 0.1 dB)* Accuracy: ±1.0 dB (> –110.0 dBm)
Reception power	–70.0 to +35.0 dBm* Accuracy: ±1.0 dB
VSWR	1.2 or less
Reference frequency	10 MHz
Temperature stability	±0.1 ppm (5 to 40°C)
Aging	±0.5 ppm/year

* However, the actual selectable range varies depending on the test software that is installed.

12.2 Input/Output

Item	Specifications	
RF input/output	Input/output impedance: Maximum input power: Connector type:	50 Ω (Typical*) 4 W N
External reference frequency input (REF IN)	Input frequency: Input impedance: Input voltage: Maximum input voltage: Connector type:	10 MHz ± 3 ppm 5 kΩ (Typical*) 1 to 5 Vpp 10 Vpp, ±15 VDC BNC
EXT IN1, 2	Input level: Maximum input voltage: Input impedance: Connector type:	TTL level –1 to +6 V 10 kΩ or more BNC
Timing signal output	Output Level: Output impedance: Connector type:	+3.3 V LVCMOS level 50 Ω (Typical*) BNC

* Typical value represents a typical or average value. It is not a warranted value.

12.3 Display

Item	Specifications
Display	8.4-inch color TFT LCD
Display screen size	170.5 (W) × 127.9 (H) [mm]
Total number of pixels	1024 × 768 (XGA)

* The LCD screen may contain up to 12 defective points with respect to the total number of pixels.

12.4 Video Signal Output

Item	Specifications
Signal format	XGA Analog RGB output
Connector type	15-pin D-sub

12.5 Interface

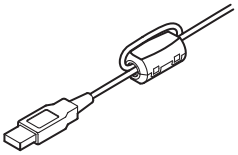
Item	Specifications
USB interface	Conforms to USB Spec. Rev.1.1
RS-232 interface	Conforms to EIA-574
Ethernet interface	Conforms to IEEE802.3 10BASE-T/100BASE-TX
GP-IB interface*	Electrical and mechanical specifications: Conforms to IEEE St'd 488-1978 Protocol: Conforms to IEEE St'd 488.2-1992

* Option

12.6 General Specifications

Item	Specifications
Standard operating conditions	Ambient temperature: 23 ± 5°C Ambient humidity: 55 ± 20% RH Supply voltage/frequency error: Within 1% of rating
Warm-up time	At least 30 minutes
Storage conditions	Temperature: –20 to 60°C Humidity: 20 to 80%RH (no condensation)
Operating conditions	Temperature: 5 to 40°C Humidity: 20 to 80%RH (no condensation)
Recommended calibration period	1 year
Storage altitude	3000 m or less
Operating altitude	2000 m or less
Rated supply voltage	100 to 120 VAC/200 to 240 VAC (automatic switching between 100-V/200-V systems)
Permitted supply voltage range	90 to 132 VAC/180 to 264 VAC
Rated power supply frequency	50/60 Hz
Allowable supply voltage frequency range	47 to 63 Hz
Maximum power consumption	250 VA or less
Withstanding voltage (between power supply and case)	1.5 kVAC, 10 mA or less for one minute
Insulation resistance (between power supply and case)	500 VDC, 10 MΩ or more
External dimensions	426 (W) × 177 (H) × 300 (D) [mm], excluding the handle and projections
Weight	Approx. 10 kg
Installation position	Horizontal (however, the stand can be used)
Standard accessories	• Power cord 1 pc. • Rubber feet 1 set (4 pieces) • CD-ROM 1 piece, electronic data of the user's manual(B8044UL) • Please Read before Use 1 piece (IM733020-03E) • Other user's manuals 1 set

12.6 General Specifications

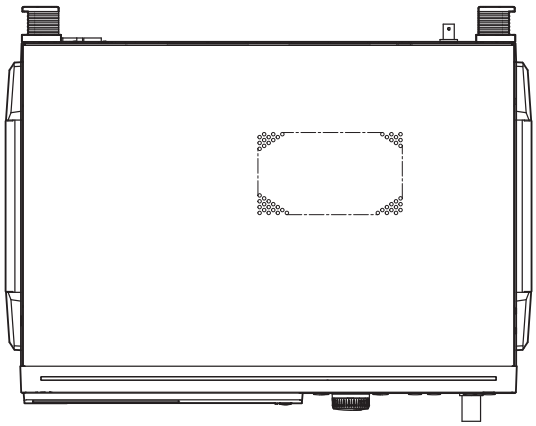
Item	Specifications	
Safety standards	Complying standard	EN61010-1 Overvoltage category II[*1] Pollution degree 2[*2]
Emission	Complying standard	EN61326 Class A, C-Tick AS/NZS CISPR 11 • EN61000-3-2 • EN61000-3-3 This product is a Class A (for industrial environment) product. Operation of this product in a residential area may cause radio interference in which case the user is required to correct the interference.
	Cable condition	• **RF IN/OUT** Use coaxial cables of length 3 m or less. • **REF IN, TIMING OUT** Use coaxial cables of length 3 m or less. • **SERIAL (RS232)** Use a shielded cable. Use cables of length 3 m or less. Attach a ferrite core (TDK: ZCAT1325-0530A, YOKOGAWA part number: A1181MN) on the VC3300 end. • **VIDEO OUT (XGA)** Use a shielded cable. Use cables of length 3 m or less. • **USB** Use a shielded cable. Use cables of length 3 m or less. Attach a ferrite core (TDK: ZCAT2035-0930A, YOKOGAWA part number: A1190MN) on the VC3300 end. However, when connecting a cable to the USB connector on the rear panel, pass the cable through the ferrite core twice as shown in the figure below.  • **ETHERNET (10BASE-T/100BASE-TX)** Use cables of length 30 m or less. Attach a ferrite core (TDK: ZCAT2035-0930A, YOKOGAWA part number: A1190MN) on the VC3300 end.
Immunity	Complying standard	EN61326 industrial environment
	Cable condition	Same as the cable condition for emission. However, use a shielded cable for the Ethernet connection.

*1 Overvoltage Categories define transient overvoltage levels, including impulse withstand voltage levels. II applies to electrical equipment that is powered by a fixed installation such as a distribution board.

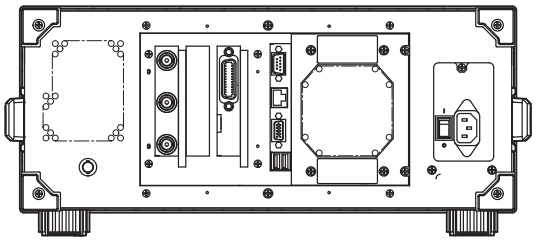
*2 Pollution Degree applies to the degree of adhesion of a solid, liquid, or gas which deteriorates withstand voltage or surface resistivity. Pollution Degree 2 applies to normal indoor atmospheres (with only non-conductive pollution).

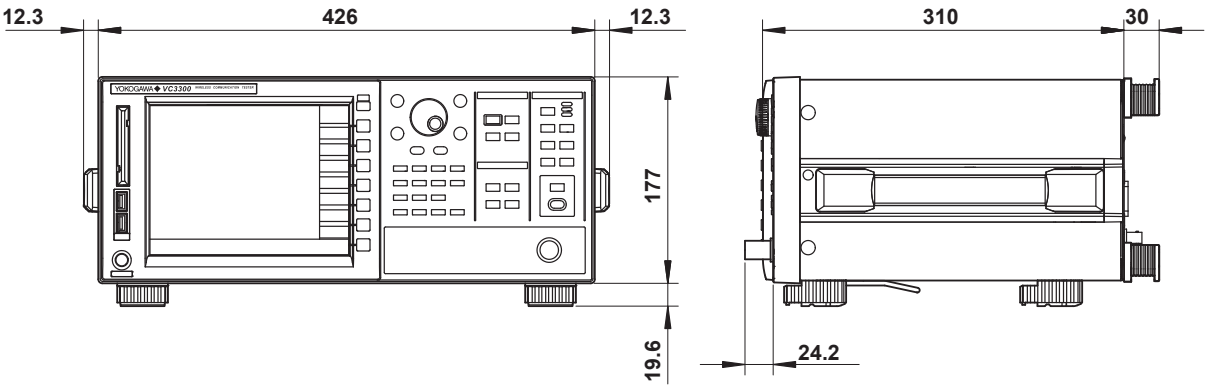
12.7 Dimensional Drawings

Unit: mm



Rear View





Unless otherwise specified, tolerance is ±3% (however, tolerance is ±0.3 mm when below 10 mm).

Appendix 1.1 List of Default Values

Item	Setting
MODE	TXRX Non-Signaling
FILE	
File Item	Setup
Save	
Filter	*.set
Load	
Filter	*.set
FILE Utility	
Function	Copy
Filter	*.set
KEYLOCK	Off
DISPLAY ON/OFF	On
MISC	
System Config	
Reference	INT
Frequency Adjust	0
Language	English
Remote Control	
Device	RS232
Baud Rate	9600
Length	8 bit
Parity Bit	None
Stop Bit	1 bit
Flow Ctrl	None
Network	
DHCP	OFF
Host Name	localhost
IP Address	192.168.0.1
Net Mask	255.255.255.0
Gate way	192.168.0.1
Broad Cast	192.168.0.255
Domain Name	localdomain
Update	
Device	USB-Memory
PRINT	
Print to	File
File Setup	
File Name	
Auto Naming	Date
Printer Setup	
Port	Network
Maker	Postscript
Filter	*.jpg
SINGLE/REPEAT	REPEAT
START/STOP	Stop

Appendix 2.1 Scenario Commands

All scenario commands consists of 11 parameters. In the command explanation given below, only the parameters that are used are described. Separate all parameters with a comma including those that are not used. The VC3300 handles a comma as a data separator and a period as a decimal point.

Scenario Command Format

Command, parameter 1, parameter 2, parameter 3, parameter 4, parameter 5, parameter 6, parameter 7, parameter 8, parameter 9, parameter 10, parameter 11

Parameters

There are parameters used to set values and those that return measured values and judgement results.

- **Parameter Types**
  The following types are available.
  char: Character string (not enclosed in double quotations). Select from the choices given in parentheses.
  int: Integer
  double: Real (with a decimal point)

- **Description of Each Parameter (For sequence section commands)**

Parameter		Description
Parameters 1 to 3	–	Select or set values specific to each command.
Parameter 4	int times	Sets the measurement count.
Parameter 5	char type = {avg|max|min}	Select item to be judged from {avg|max|min}. This parameter is required for a command containing any of the parameters from 9 to 11.
Parameter 6	double upper	Sets the upper limit of the pass/fail judgement.*1
Parameter 7	double lower	Sets the lower limit of the pass/fail judgement.*1
Parameter 8	char judge = {pass|fail|noexec} (return value)	Returns the result of the pass/fail judgement.
Parameter 9	double result avg (return value)	Returns the measured value (average).
Parameter 10	double result max (return value)	Returns the measured value (maximum).
Parameter 11	double result min (return value)	Returns the measured value (minimum).

*1 Omit parameters 6 and 7 to not perform the pass/fail judgement.

How to Read the Command Description

call_from_nw,payload,,,,,,,judge,,,		Given in the following order: command, parameter 1, ..., parameter 11.
Function	Performs call setup from NW.	Explains the function of the command.
Parameter 1	char payload-{pr9|all0|all1|echo}	Parameter 1 (payload) is a character string data. Select the data from {pr9|all0|all1|echo}.
Parameter 8	char judge = {pass|fail|noexec} (return value)	The pass/fail judgement result is returned in parameter 8. You do not need to set this parameter when you are creating a scenario command, because it is a return value.

Command Example

call_from_nw,pr9

Appendix 2.2 A List of Scenario Commands

Common Group

Command	Function	Page
header section		
title	Sets the title.	App 2-5
comment	Sets the comment.	App 2-5
common_parameter section		
mcc	Set the MCC.	App 2-5
mnc	Set the MNC.	App 2-5
imsi	Set the IMSI.	App 2-5
common_result section		
imsi	Returns the result of the retrieved IMSI.	App 2-5
imei	Returns the result of the retrieved IMEI.	App 2-5
date	Returns the time information of the measurement.	App 2-5
scenario_file	Returns the name of the scenario file that was used.	App 2-5
total_judge	Returns the total judgement result.	App 2-5
vc_information section		
vc_serialno	Returns the VC3300 serial number.	App 2-5
vc_firmversion	Returns the VC3300 firmware version.	App 2-5
sequence section		
location_update	Executes a location update.	App 2-5
call_from_nw	Executes a call setup from the NW.	App 2-5
registration	Executes the registration.	App 2-5
call_from_ue	Executes a call setup from UE.	App 2-5
release_from_nw	Executes a call release from the NW.	App 2-6
release_from_ue	Executes a call release from the UE.	App 2-6
test_loop_open	Opens the test loop.	App 2-6
system_handover	Executes an inter-RAT handover.	App 2-6
change_condition	Changes the setting to the frequency and power specified in parameter 1.	App 2-6
preset	Changes the setting to the frequency and power specified in parameter 1.	App 2-6
wait	Stops the operation for the time specified by parameter 1.	App 2-6
pause	Opens a dialog box indicating a pause and pauses the operation.	App 2-6
video_call_from_nw	Performs a call setup from NW (video).	App 2-6
video_call_from_ue	Performs a call setup from UE (video).	App 2-6
speech_test	Executes a speech test.	App 2-6
video_test	Performs a video speech test.	App 2-6
operator_information section		
company_name	Returns the company name of the operator information.	App 2-6
user_name	Returns the user name of the operator information.	App 2-6

GSM Group

Command	Function	Page
gsm_parameter section		
gsm_network	Sets the communication protocol to be used.	App 2-7
test_mode_b_with_ack	Sets whether to output the “EGPRS Packet Uplink Ack/Nack” message.	App 2-7
power_control	Sets the GSM power control method.	App 2-7
gsm_freqpower section		
Userdefine	Defines the preset file of settings.	App 2-7
sequence section		
g_test_loop_close	Closes the test loop.	App 2-7
wait_for_attach	Stops the operation until an Attach Request or Routing Update is received.	App 2-7
g_change_coding_scheme	Changes the coding scheme.	App 2-7
g_change_time_slot	Changes the timeslot setting.	App 2-7
g_tx_pwr	Measures the Tx power and performs a pass/fail judgement.	App 2-8
g_freq_err_ppm	Measures the frequency error (ppm) and performs a pass/fail judgement.	App 2-8
g_freq_err_hz	Measures the frequency error (Hz) and performs a pass/fail judgement.	App 2-8
g_evm_peak	Measures the EVM (8PSK-Peak) and performs a pass/fail judgement.	App 2-8
g_evm_rms	Measures the EVM (8PSK-RMS) and performs a pass/fail judgement.	App 2-8
g_origin_offset	Measures the origin offset and performs a pass/fail judgement.	App 2-8
g_phase_err_peak	Measures the phase error (peak) and performs a pass/fail judgement.	App 2-9
g_phase_err_rms	Measures the phase error (RMS) and performs a pass/fail judgement.	App 2-9
g_magnitude_err_peak	Measures the amplitude error (peak) and performs a pass/fail judgement.	App 2-9
g_magnitude_err_rms	Measures the amplitude error (rms) and performs a pass/fail judgement.	App 2-9
g_95th_percentile_evm	95:th Measures the 95th Percentile and performs a pass/fail judgement.	App 2-9
g_burst_timing	Measures the burst timing and performs a pass/fail judgement.	App 2-9
g_flatness_max	Measures the flatness (Max) and performs a pass/fail judgement.	App 2-10
g_flatness_min	Measures the flatness (Min) and performs a pass/fail judgement.	App 2-10
g_timing_err	Measures the timing error and performs a pass/fail judgement.	App 2-10
g_output_spectrum	Measures the output spectrum and performs a pass/fail judgement.	App 2-10
g_output_spectrum_mod	Measures the output spectrum (modulation) and performs a pass/fail judgement.	App 2-10
g_output_spectrum_sw	Measures the output spectrum (switch transients) and performs a pass/fail judgement.	App 2-10
g_rx_quality	Measures the Rx quality and performs a pass/fail judgement.	App 2-10
g_rx_level	Measures the Rx level and performs a pass/fail judgement.	App 2-11
g_ber	Measures the BER and performs a pass/fail judgement.	App 2-11
g_fer	Measures the FER and performs a pass/fail judgement.	App 2-11
g_rber_1b	Measures the RBER1b and performs a pass/fail judgement.	App 2-11
g_rber_2	Measures the RBER2 and performs a pass/fail judgement.	App 2-11
g_packet_ber	Measures the BER using the number of blocks specified by parameter 1 and performs a pass/fail judgement.	App 2-11
g_packet_bler	Measures the BLER using the number of blocks specified by parameter 1 and performs a pass/fail judgement.	App 2-11
g_packet_crc_err	Measures the number of CRC errors using the number of blocks specified by parameter 1 and performs a pass/fail judgement.	App 2-12
g_actual_ms_power	Measures the actual MS power and performs a pass/fail judgement.	App 2-12
g_c_value	Measures the C Value and performs a pass/fail judgement.	App 2-12
g_signal_var	Measures the Signal Var and performs a pass/fail judgement.	App 2-12
g_gmsk_mean_bep	Measures the GMSK-MEAN-BEP and performs a pass/fail judgement.	App 2-12
g_gmsk_cv_bep	Measures the GMSK-CV-BEP and performs a pass/fail judgement.	App 2-12
g_8psk_mean_bep	Measures the 8PSK-MEAN-BEP and performs a pass/fail judgement.	App 2-12
g_8psk_cv_bep	Measures the 8PSK-CV-BEP and performs a pass/fail judgement.	App 2-12
g_packet_data_rate	Measures the data rate using the number of blocks specified by parameter 1 and performs a pass/fail judgement.	App 2-12

WCDMA Group

Command	Function	Page
wcdma_parameter section		
profile	Sets the protocol to be used.	App 2-13
integrity	Turns ON/OFF the integrity.	App 2-13
authentication	Turns ON/OFF the authentication.	App 2-13
authkey	Sets the authentication key.	App 2-13
open_loop_pwr_parameter	Selects the parameter set of the open loop power measurement.	App 2-13
wcdma_freqpower section		
Userdefine	Defines the preset file of settings.	App 2-13
sequence section		
w_test_loop_close	Closes the test loop.	App 2-13
w_tx_pwr_rrcoff	Measures the Tx power (RRC filter OFF) and performs a pass/fail judgement.	App 2-13
w_tx_pwr_rrcon	Measures the Tx power (RRC filter ON) and performs a pass/fail judgement.	App 2-13
w_freq_err_ppm	Measures the frequency error (ppm) and performs a pass/fail judgement.	App 2-13
w_freq_err_hz	Measures the frequency error (Hz) and performs a pass/fail judgement.	App 2-14
w_evm_inc_offset	Measures the EVM (included) and performs a pass/fail judgement.	App 2-14
w_evm_exc_offset	Measures the EVM (excluded) and performs a pass/fail judgement.	App 2-14
w_origin_offset	Measures the origin offset and performs a pass/fail judgement.	App 2-14
w_iq_imbalance	Measures the I/Q imbalance and performs a pass/fail judgement.	App 2-14
w_obw	Measures the OBW and performs a pass/fail judgement.	App 2-14
w_sem	Measures the SEM and performs a pass/fail judgement.	App 2-14
w_aclr_p10	Measures the ACLR (+10 MHz) and performs a pass/fail judgement.	App 2-15
w_aclr_p5	Measures the ACLR (+5 MHz) and performs a pass/fail judgement.	App 2-15
w_aclr_m5	Measures the ACLR (-5 MHz) and performs a pass/fail judgement.	App 2-15
w_aclr_m10	Measures the ACLR (-10 MHz) and performs a pass/fail judgement.	App 2-15
w_inner_loop_pwr_1	Measures the inner loop power and performs a pass/fail judgement (1 command).	App 2-15
w_inner_loop_pwr_10	Measures the inner loop power and performs a pass/fail judgement (10 commands).	App 2-15
w_open_loop_pwr_on	Measures the open loop ON power and performs a pass/fail judgement.	App 2-16
w_open_loop_pwr_off	Measures the open loop OFF power and performs a pass/fail judgement.	App 2-16
w_ber	Measures the BER using the number of bits specified by parameter 1 and performs a pass/fail judgement.	App 2-16
w_cpich_rscp	Measures the CPICH_RSCP and performs a pass/fail judgement.	App 2-16
w_cpich_ecn0	Measures the CPICH_ECN0 and performs a pass/fail judgement.	App 2-16
w_ue_tx_power	Measures the UE_TX_POWER and performs a pass/fail judgement.	App 2-16

Appendix 2.3 Command Description

Common Group

header section

title,title,,,,,,,,,

Function Set the title.
Parameter 1 char title
Description You can set up to 31 characters. The characters that can be used are 0-9, A-Z, underscore, and hyphen.
Same function as in the "comment" command.

comment,comment,,,,,,,,,

Function Sets the comment.
Parameter 1 char comment
Description You can set up to 31 characters. You can use alphanumeric characters and symbols excluding the comma, double quotation, back quotation, and back slash.
Parameter 1 can be omitted.

common_parameter section

mcc,mcc,,,,,,,,,

Function Set the MCC.
Parameter 1 char mcc
Description Set a 3-digit number.

mnc,mnc,,,,,,,,,

Function Set the MNC.
Parameter 1 char mnc
Description Set a 2-digit number.

imsi,imsi,,,,,,,,,

Function Sets the IMSI.
Parameter 1 char imsi
Description Set a 15-digit number.

common_result section (response)

imsi,imsi,,,,,,,,,

Function Returns the retrieved IMSI result in parameter 1.
Parameter 1 char imsi

imei,imei,,,,,,,,,

Function Returns the retrieved IMEI result in parameter 1.
Parameter 1 char imei

date,date,,,,,,,,,

Function Returns the time information of the measurement in parameter 1.
Parameter 1 char date

scenario_file,file_name,,,,,,,,,

Function Returns the name of the scenario file that was used. in parameter 1.
Parameter 1 char file_name

total_judge,judge,,,,,,,,,

Function Returns the total judgement result in parameter 1.
Parameter 1 char judge = {pass|fail|noexec|error}

vc_information section (response)

vc_serialno,serial_no,,,,,,,,,

Function Returns the VC3300 serial number in parameter 1.
Parameter 1 char serial_no

vc_firmversion,firm_version,
,,,,,,,,,

Function Returns the VC3300 firmware version in parameter 1.
Parameter 1 char firm_version

sequence section

location_update,,,,,,,,judge,,,

Function Performs a location update.
Parameter 8 char judge = {pass|fail|noexec|error}

call_from_nw,payload,,,,,,,judge,,,

Function Performs a call setup from NW.
Parameter 1 char payload = {pr9|all0|all1|echo}
Parameter 8 char judge = {pass|fail|noexec|error} (return value)

registration,,,,,,,,judge,,,

Function Performs a registration.
Parameter 8 char judge = {pass|fail|noexec|error} (return value)

call_from_ue,payload,dial_number,
,,,,,judge,,,

Function Performs a call setup from UE.
Parameter 1 char payload = {pr9|all0|all1|echo}
Parameter 2 char dial_number
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 char result(result value, dialed number)
Description Parameter 2 can be omitted. If you are setting parameter 2, set a 3- to 35-digit number.

release_from_nw,,,,,,,,judge,,,

Function Performs a call release from NW.
Parameter 8 char judge = {pass|fail|noexec} (return value)

release_from_ue,,,,,,,,judge,,,

Function Performs a call release from UE.
Parameter 8 char judge = {pass|fail|noexec} (return value)

test_loop_open,,,,,,,,judge,,,

Function Opens the test loop.
Parameter 8 char judge = {pass|fail|noexec} (return value)

system_handover,preset_name,,,,,,,judge,,,

Function Performs an inter-RAT handover to the GSM frequency and power setting specified by parameter 1.
Parameter 1 char preset_name = preset file name
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Description You can set the preset file name using 1 to 15 characters. The characters that can be used are 0-9, A-Z, underscore, and hyphen.

change_condition,preset_name,,,,,,,judge,,,

Function Changes the setting to the frequency and power specified in parameter 1.
Parameter 1 char preset_name = preset file name
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Description You can set the preset file name using 1 to 15 characters. The characters that can be used are 0-9, A-Z, underscore, and hyphen.

preset,preset_name,,,,,,,judge,,,

Function Changes the setting to the frequency and power specified in parameter 1.
Parameter 1 char preset_name = preset file name
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Description You can set the preset file name using 1 to 15 characters. The characters that can be used are 0-9, A-Z, underscore, and hyphen.

wait,msec,,,,,,,,,,

Function Stops the operation for the time specified by parameter 1.
Parameter 1 int msec(in unit of ms)
Description An error in the order of 10 ms may occur depending on the operating condition.

pause,message1,message2,message3,,,,,,,,

Function Opens a dialog box indicating a pause and pauses the operation.
Parameter 1 char message1 = Message
Parameter 2 char message2 = Message
Parameter 3 char message3 = Message
Description You can add up to three arbitrary messages in the dialog box indicating a pause. Each message can be set using up to 40 characters. You can use alphanumeric characters and symbols excluding the comma, double quotation, back quotation, and back slash. Parameters 1 to 3 can be omitted.

video_call_from_nw,,,,,,,,judge,,,

Function Performs a call setup from NW (video).
Parameter 8 char judge = {pass|fail|noexec} (return value)

video_call_from_ue,dial_number,,,,,,,judge,,,

Function Performs a call setup from UE (video).
Parameter 1 char dial_number
Parameter 8 char judge = {pass|fail|noexec} (return value)
Description Parameter 1 can be omitted. If you are setting parameter 1, set a 3- to 35-digit number.

speech_test,,,,,,,,judge,,,

Function Performs a speech test.
Parameter 8 char judge = {pass|fail|noexec} (return value)

video_test,,,,,,,,judge,,,

Function Performs a video speech test.
Parameter 8 char judge={pass|fail|noexec} (return value)

operator_information section (response)

company_name,company_name,,,,,,,,,,

Function Returns in parameter 1 the company name set in operator information.
Parameter 1 char company_name

user_name,company_name,,,,,,,,,,

Function Returns in parameter 1 the user name set in operator information.
Parameter 1 char user_name

GSM Group

gsm_parameter section

gsm_network,network,,,,,,,,,

Function Sets the communication protocol to be used.
Parameter 1 char network={gsm|gprs|egprs}

test_mode_b_with_ack,on_off,,,,,,,,,

Function Sets whether to output the "EGPRS Packet Uplink Ack/Nack" message.
Parameter 1 char on_off={on|off}
Description This setting is valid when the communication protocol is EGPRS, the coding scheme is MCS-1 to MCS-9, and the test mode is Test Mode B.

power_control,method,,,,,,,,,

Function Sets the GSM power control method.
Parameter 1 char method = {normal|fast}

gsm_freqpower section

Userdefine,band_gsm,bcch,dl_arfcn, dl_power,ul_power,dl_loss,ul_loss, dl_loss_bcch,ul_loss_bcch, ul_power_gamma,band_bcch

Function Defines a preset file containing all items including the frequency and power. The user assigns an arbitrary preset name (Userdefine) using 1 to 15 characters. The characters that can be used are 0-9, A-Z, underscore, and hyphen.
Parameter 1 char band_gsm{gsmdcs|gsmpcs}
Parameter 2 int bcch = bcch channel number
Parameter 3 int dl_arfcn = TCH channel number
Parameter 4 double dl_power = Downlink power (dBm)
Parameter 5 int ul_power = Uplink power (PCL)
Parameter 6 double dl_loss = Downlink adjustment value (dB)
Parameter 7 double ul_loss = Uplink adjustment value (dB)
Parameter 8 double dl_loss_bcch = Downlink adjustment value for the BCCH (dB)
However, dl_loss takes precedence if the frequency band is the same as the TCH.
Parameter 9 double ul_loss_bcch = Uplink adjustment value for the BCCH (dB)
However, ul_loss takes precedence if the frequency band is the same as the TCH.
Parameter 10 int ul_power_gamma = Uplink power (GAMMA)
Parameter 11 char band_bcch = {gsmdcs|gsmpcs}
Example g1,gsmdcs,1,1,-65,5,1,1.5 (g1: user-defined preset name)
Description You can omit parameters that do not need to be changed.

sequence section

g_test_loop_close,loop_mode, payload2,scheme,,,,,judge,,,

Function Closes the test loop using the conditions specified in parameters 1 and 2.
Parameter 1 char loop_mode = {loopa|burstc|moda|modb|symmetry}
Parameter 2 char payload2 = {pr9|pr15|all0|all1}
Parameter 3 char scheme = {cs1|cs2|cs3|cs4|mcs1|mcs2|mcs3|mcs4|mcs5|mcs6|mcs7|mcs8|mcs9}
Parameter 8 char judge = {pass|fail|noexec|error} (return value)

wait_for_attach,,,,,,,,judge,,,

Function Stops the operation until an Attach Request or Routing Update is received.
Parameter 8 char judge = {pass|fail|noexec|error} (return value)

g_change_coding_scheme,scheme,,,,,,, judge,,,

Function Changes the coding scheme.
Parameter 1 char scheme = {cs1|cs2|cs3|cs4|mcs1|mcs2|mcs3|mcs4|mcs5|mcs6|mcs7|mcs8|mcs9}
Parameter 8 char judge = {pass|fail|noexec|error} (return value)

g_change_time_slot,main_time_slot, dl_slot,ul_slot,,,,,judge2,,,

Function Changes the timeslot setting.
Parameter 1 int main_time_slot = Main timeslot number
Parameter 2 char dl_slot = DL timeslot number to turn ON
Parameter 3 char ul_slot = UL timeslot number to turn ON
Parameter 8 char judge = {pass|fail|noexec} (return value)
Description Set the timeslot number to turn ON using a number up to 4 characters for parameters 1 and 2 (example: to turn ON 3 and 4 -> 34).

g_tx_pwr,,,measure_slot_tx,times, type,upper,lower,judge,result avg, result max,result min

Function Measures the Tx power and performs a pass/fail judgement.
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -99.99 to 99.99)
Parameter 7 double lower (selectable range: -99.99 to 99.99)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

g_freq_err_ppm,,,measure_slot_tx, times,type,upper,lower,judge, result avg,result max,result min

Function Measures the frequency error (ppm) and performs a pass/fail judgement.
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -99.9999 to 99.9999)
Parameter 7 double lower (selectable range: -99.9999 to 99.9999)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

g_freq_err_hz,,,measure_slot_tx, times,type,upper,lower,judge, result avg,result max,result min

Function Measures the frequency error (Hz) and performs a pass/fail judgement.
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -9999 to 9999)
Parameter 7 double lower (selectable range: -9999 to 9999)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

g_evm_peak,,,measure_slot_tx,times, type,upper,lower,judge,result avg, result max,result min

Function Measures the EVM (8PSK-Peak) and performs a pass/fail judgement.
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type={avg|max|min}
Parameter 6 double upper (selectable range: 0 to 99.99)
Parameter 7 double lower (selectable range: 0 to 99.99)
Parameter 8 char judge={pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

g_evm_rms,,,measure_slot_tx,times, type,upper,lower,judge,result avg, result max,result min

Function Measures the EVM (8PSK-RMS) and performs a pass/fail judgement.
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type={avg|max|min}
Parameter 6 double upper (selectable range: 0 to 99.99)
Parameter 7 double lower (selectable range: 0 to 99.99)
Parameter 8 char judge={pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

g_origin_offset,,,measure_slot_tx, times,type,upper,lower,judge, result avg,result max,result min

Function Measures the origin offset and performs a pass/fail judgement.
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type={avg|max|min}
Parameter 6 double upper (selectable range: 0 to 99.9)
Parameter 7 double lower (selectable range: 0 to 99.9)
Parameter 8 char judge={pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

g_phase_err_peak,,,measure_slot_tx, times,type,upper,lower,judge, result avg,result max,result min

Function Measures the phase error (peak) and performs a pass/fail judgement.
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -99.99 to 99.9)
Parameter 7 double lower (selectable range: -99.99 to 99.9)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

g_phase_err_rms,,,measure_slot_tx, times,type,upper,lower,judge, result avg,result max,result min

Function Measures the phase error (RMS) and performs a pass/fail judgement.
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -99.99 to 99.9)
Parameter 7 double lower (selectable range: -99.99 to 99.9)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

g_magnitude_err_peak,,, measure_slot_tx,times,type,upper, lower,judge,result avg,result max, result min

Function Measures the amplitude error (peak) and performs a pass/fail judgement.
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type={avg|max|min}
Parameter 6 double upper (selectable range: 0 to 99.9)
Parameter 7 double lower (selectable range: 0 to 99.9)
Parameter 8 char judge={pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

g_magnitude_err_rms,,, measure_slot_tx,times,type,upper, lower,judge,result avg,result max, result min

Function Measures the amplitude error (rms) and performs a pass/fail judgement.
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type={avg|max|min}
Parameter 6 double upper (selectable range: 0 to 99.9)
Parameter 7 double lower (selectable range: 0 to 99.9)
Parameter 8 char judge={pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

g_95th_percentile_evm,,, measure_slot_tx,times,type,upper, lower,judge,result avg,result max, result min

Function Measures the 95th Percentile and performs a pass/fail judgement.
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type={avg|max|min}
Parameter 6 double upper (selectable range: 0 to 99.99)
Parameter 7 double lower (selectable range: 0 to 99.99)
Parameter 8 char judge={pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

g_burst_timing,,,measure_slot_tx, times,,,,judge,,,

Function Measures the burst timing and performs a pass/fail judgement.
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)

g_flatness_max,,,measure_slot_tx, times,,upper,lower,judge,result,,

Function Measures the flatness (Max) and performs a pass/fail judgement.
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 6 double upper (selectable range: -99.9 to 99.9)
Parameter 7 double lower (selectable range: -99.9 to 99.9)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result (return value)

g_flatness_min,,,measure_slot_tx, times,,upper,lower,judge,result,,

Function Measures the flatness (Min) and performs a pass/fail judgement.
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 6 double upper (selectable range: -99.9 to 99.9)
Parameter 7 double lower (selectable range: -99.9 to 99.9)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result (return value)

g_timing_err,,,measure_slot_tx, times,type,upper,lower,judge,result, result max,result min

Function Measures the timing error and performs a pass/fail judgement.
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -9.9 to 9.9)
Parameter 7 double lower (selectable range: -9.9 to 9.9)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

g_output_spectrum,,,measure_slot_tx, times,,,,judge,,,

Function Measures the output spectrum and performs a pass/fail judgement.
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)

g_output_spectrum_mod, frequency_offset1,,measure_slot_tx, times,type,upper,lower,judge,result,,

Function Measures the output spectrum (modulation) and performs a pass/fail judgement.
Parameter 1 char frequency_offset1 = {M1800k|M1600k|M1400k|M1200k|M1000k|M800k|M600k|M400k|M250k|M200k|M100k|P0k|P100k|P200k|P250k|P400k|P600k|P800k|P1000k|P1200k|P1400k|P1600k|P1800k}
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -99.9 to 99.9)
Parameter 7 double lower (selectable range: -99.9 to 99.9)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result (return value)

g_output_spectrum_sw, frequency_offset2,,measure_slot_tx, times,type,upper,lower,judge,result,,

Function Measures the output spectrum (switch transients) and performs a pass/fail judgement.
Parameter 1 char frequency_offset2= {M1800k|M1200k|M600k|M400k|P0k|P400k|P600k|P1200k|P1800k}
Parameter 3 int measure_slot_tx = Timeslot number to be measured
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type={avg|max|min}
Parameter 6 double upper (selectable range: -99.9 to 99.9)
Parameter 7 double lower (selectable range: -99.9 to 99.9)
Parameter 8 char judge={pass|fail|noexec|error} (return value)
Parameter 9 double result (return value)

g_rx_quality,,,,,,upper,lower,judge, result,,

Function Measures the Rx quality and performs a pass/fail judgement.
Parameter 6 int upper (selectable range: 0 to 7)
Parameter 7 int lower (selectable range: 0 to 7)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 int result (return value)

g_rx_level,,,,,,upper,lower,judge, result,,

Function Measures the Rx level and performs a pass/fail judgement.
Parameter 6 int upper (selectable range: 0 to 63)
Parameter 7 int lower (selectable range: 0 to 63)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 int result (return value)

g_ber,burst_number,,,,,upper,lower, judge,result,,

Function Measures the BER using the number of bursts specified by parameter 1 and performs a pass/fail judgement.
Parameter 1 int burst_number = Burst count
Parameter 6 double upper (selectable range: 0 to 99.9999)
Parameter 7 double lower (selectable range: 0 to 99.9999)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result (return value)

g_fer,frame_number,,,,,upper,lower, judge,result,,

Function Measures the FER using the number of frames specified by parameter 1 and performs a pass/fail judgement.
Parameter 1 int frame_number
Parameter 6 double upper (selectable range: 0 to 99.9999)
Parameter 7 double lower (selectable range: 0 to 99.9999)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result (return value)

g_rber_1b,frame_number,,,,,upper, lower,judge,result,,

Function Measures the RBER1b using the number of frames specified by parameter 1 and performs a pass/fail judgement.
Parameter 1 int frame_number
Parameter 6 double upper (selectable range: 0 to 99.9999)
Parameter 7 double lower (selectable range: 0 to 99.9999)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result (return value)

g_rber_2,frame_number,,,,,upper, lower,judge,result,,

Function Measures the RBER2 using the number of frames specified by parameter 1 and performs a pass/fail judgement.
Parameter 1 int frame_number
Parameter 6 double upper (selectable range: 0 to 99.9999)
Parameter 7 double lower (selectable range: 0 to 99.9999)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result (return value)

g_packet_ber,block_number,, measure_slot_rx,,,upper,lower,judge, result,,

Function Measures the BER using the number of blocks specified by parameter 1 and performs a pass/fail judgement.
Parameter 1 int block_number
Parameter 3 int measure_slot_rx= Timeslot number to be measured
Parameter 6 double upper (selectable range: 0 to 99.9999)
Parameter 7 double lower (selectable range: 0 to 99.9999)
Parameter 8 char judge={pass|fail|noexec|error} (return value)
Parameter 9 double result (return value)

g_packet_bler,block_number,, measure_slot_rx,,,upper,lower,judge, result,,

Function Measures the BLER using the number of blocks specified by parameter 1 and performs a pass/fail judgement.
Parameter 1 int block_number
Parameter 3 int measure_slot_rx= Timeslot number to be measured
Parameter 6 double upper (selectable range: 0 to 99.9999)
Parameter 7 double lower (selectable range: 0 to 99.9999)
Parameter 8 char judge={pass|fail|noexec|error} (return value)
Parameter 9 double result (return value)

g_packet_crc_err,block_number,,measure_slot_rx,,,upper,lower,judge,result,,

Function Measures the number of CRC errors using the number of blocks specified by parameter 1 and performs a pass/fail judgement.
Parameter 1 int block_number
Parameter 3 int measure_slot_rx= Timeslot number to be measured
Parameter 6 double upper (selectable range: 0 to 9999)
Parameter 7 double lower (selectable range: 0 to 9999)
Parameter 8 char judge={pass|fail|noexec|error} (return value)
Parameter 9 double result (return value)

g_actual_ms_power,,,,,,upper,lower,judge,result,,

Function Measures the actual MS power and performs a pass/fail judgement.
Parameter 6 int upper (selectable range: 0 to 31)
Parameter 7 int lower (selectable range: 0 to 31)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 int result (return value)

g_c_value,,,,,,upper,lower,judge,result,,

Function Measures the C Value and performs a pass/fail judgement.
Parameter 6 int upper (selectable range: 0 to 63)
Parameter 7 int lower (selectable range: 0 to 63)
Parameter 8 char judge={pass|fail|noexec|error} (return value)
Parameter 9 int result (return value)

g_signal_var,,,,,,upper,lower,judge,result,,

Function Measures the Signal Var and performs a pass/fail judgement.
Parameter 6 int upper (selectable range: 0 to 63)
Parameter 7 int lower (selectable range: 0 to 63)
Parameter 8 char judge={pass|fail|noexec|error} (return value)
Parameter 9 int result (return value)

g_gmsk_mean_bep,,,,,,upper,lower,judge,result,,

Function Measures the GMSK-MEAN-BEP and performs a pass/fail judgement.
Parameter 6 int upper (selectable range: 0 to 31)
Parameter 7 int lower (selectable range: 0 to 31)
Parameter 8 char judge={pass|fail|noexec|error} (return value)
Parameter 9 int result (return value)

g_gmsk_cv_bep,,,,,,upper,lower,judge,result,,

Function Measures the GMSK-CV-BEP and performs a pass/fail judgement.
Parameter 6 int upper (selectable range: 0 to 7)
Parameter 7 int lower (selectable range: 0 to 7)
Parameter 8 char judge={pass|fail|noexec|error} (return value)
Parameter 9 int result (return value)

g_8psk_mean_bep,,,,,,upper,lower,judge,result,,

Function Measures the 8PSK-MEAN-BEP and performs a pass/fail judgement.
Parameter 6 int upper (selectable range: 0 to 31)
Parameter 7 int lower (selectable range: 0 to 31)
Parameter 8 char judge={pass|fail|noexec|error} (return value)
Parameter 9 int result (return value)

g_8psk_cv_bep,,,,,,upper,lower,judge,result,,

Function Measures the 8PSK-CV-BEP and performs a pass/fail judgement.
Parameter 6 int upper (selectable range: 0 to 7)
Parameter 7 int lower (selectable range: 0 to 7)
Parameter 8 char judge={pass|fail|noexec|error} (return value)
Parameter 9 int result (return value)

g_packet_data_rate,block_number,,measure_slot_rx,,,upper,lower,judge,result,,

Function Measures the data rate using the number of blocks specified by parameter 1 and performs a pass/fail judgement.
Parameter 1 int block_number
Parameter 3 int measure_slot_rx = Timeslot number to be measured
Parameter 6 double upper (selectable range: 0 to 99.9999)
Parameter 7 double lower (selectable range: 0 to 99.9999)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result (return value)

WCDMA Group

wcdma_parameter section

profile,profile,,,,,,,,,

Function Sets the protocol to be used.
Parameter 1 char profile (arbitrary character string)

integrity,on_off,,,,,,,,,

Function Turns ON/OFF the integrity.
Parameter 1 char on_off = {on|off}

authentication,on_off,,,,,,,,,

Function Turns ON/OFF the authentication.
Parameter 1 char on_off = {on|off}

authkey,auth_key,,,,,,,,,

Function Sets the authentication key.
Parameter 1 char auth_key (arbitrary character string)
Description Set the authentication key using 32 characters. The characters that can be used are 0-9, A-F.

open_loop_pwr_parameter, measure_type_1,,,,,,,,,

Function Selects the parameter set of the open loop power measurement.
Parameter 1 char measure_type_1 = {upper|middle|sensitivity}

wcdma_freqpower section

Userdefine,band_wcdma,dl_uarfcn, dl_power,ul_power,dl_loss, ul_loss,,,,,

Function Defines a preset file containing all items including the frequency and power. The user assigns an arbitrary preset name (Userdefine) using 1 to 15 characters. The characters that can be used are 0-9, A-Z, underscore, and hyphen.
Parameter 1 char band_wcdma{b1|b2|b3|b4|b5|b6|b8|b9}
Parameter 2 int dl_uarfcn = Downlink channel number
Parameter 3 double dl_power = Downlink power (dBm)
Parameter 4 double ul_power = Uplink power (PCL)
Parameter 5 double dl_loss = Downlink adjustment value (dB)
Parameter 6 double ul_loss = Uplink adjustment value (dB)
Example w1,b1,10812,-60,0,3,3.5 (w1: user-defined preset name)
Description You can omit parameters that do not need to be changed.

sequence section

w_test_loop_close,,,,,,,,judge,,,

Function Closes the test loop.
Parameter 8 char judge = {pass|fail|noexec|error} (return value)

w_tx_pwr_rrcoff,,,,times,type,upper, lower,judge,result avg,result max, result min

Function Measures the Tx power (RRC filter OFF) and performs a pass/fail judgement.
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -99.99 to 99.99)
Parameter 7 double lower (selectable range: -99.99 to 99.99)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

w_tx_pwr_rrcon,,,,times,type,upper, lower,judge,result avg,result max, result min

Function Measures the Tx power (RRC filter ON) and performs a pass/fail judgement.
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -99.99 to 99.99)
Parameter 7 double lower (selectable range: -99.99 to 99.99)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

w_freq_err_ppm,,,,times,type,upper, lower,judge,result avg,result max, result min

Function Measures the frequency error (ppm) and performs a pass/fail judgement.
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -99.9999 to 99.9999)
Parameter 7 double lower (selectable range: -99.9999 to 99.9999)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

w_freq_err_hz,,,,times,type,upper, lower,judge,result avg,result max, result min

Function Measures the frequency error (Hz) and performs a pass/fail judgement.
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -9999 to 9999)
Parameter 7 double lower (selectable range: -9999 to 9999)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

w_evm_inc_offset,,,,times,type, upper,lower,judge,result avg, result max,result min

Function Measures the EVM (included) and performs a pass/fail judgement.
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: 0 to 99.99)
Parameter 7 double lower (selectable range: 0 to 99.99)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

w_evm_exc_offset,,,,times,type, upper,lower,judge,result avg, result max,result min

Function Measures the EVM (excluded) and performs a pass/fail judgement.
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: 0 to 99.99)
Parameter 7 double lower (selectable range: 0 to 99.99)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

w_origin_offset,,,,times,type,upper, lower,judge,result avg,result max, result min

Function Measures the origin offset and performs a pass/fail judgement.
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -999.99 to 999.99)
Parameter 7 double lower (selectable range: -999.99 to 999.99)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

w_iq_imbalance,,,,times,type,upper, lower,judge,result avg,result max, result min

Function Measures the I/Q imbalance and performs a pass/fail judgement.
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -999.99 to 999.99)
Parameter 7 double lower (selectable range: -999.99 to 999.99)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

w_obw,,,,times,type,upper,lower, judge,result avg,result max, result min

Function Measures the OBW and performs a pass/fail judgement.
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: 0 to 99.99)
Parameter 7 double lower (selectable range: 0 to 99.99)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

w_sem ,,,,,,,,judge,,,

Function Measures the SEM and performs a pass/fail judgement.
Parameter 4 int times (selectable range: 1 to 255)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)

w_aclr_p10,,,,times,type,upper, lower,judge,result avg,result max, result min

Function Measures the ACLR (+10 MHz) and performs a pass/fail judgement.
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -99.99 to 99.99)
Parameter 7 double lower (selectable range: -99.99 to 99.99)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

w_aclr_p5,,,,times,type,upper, lower,judge,result avg,result max, result min

Function Measures the ACLR (+5 MHz) and performs a pass/fail judgement.
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -99.99 to 99.99)
Parameter 7 double lower (selectable range: -99.99 to 99.99)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

w_aclr_m5,,,,times,type,upper, lower,judge,result avg,result max, result min

Function Measures the ACLR (-5 MHz) and performs a pass/fail judgement.
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -99.99 to 99.99)
Parameter 7 double lower (selectable range: -99.99 to 99.99)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

w_aclr_m10,,,,times,type,upper, lower,judge,result avg,result max, result min

Function Measures the ACLR (-10 MHz) and performs a pass/fail judgement.
Parameter 4 int times (selectable range: 1 to 255)
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -99.99 to 99.99)
Parameter 7 double lower (selectable range: -99.99 to 99.99)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

w_inner_loop_pwr_1,step,,,,type, upper,lower,judge,result avg, result max,result min

Function Measures the inner loop power (1 command).
Parameter 1 char step = {st_e|st_f|st_h|st_h}
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -99.99 to 99.99)
Parameter 7 double lower (selectable range: -99.99 to 99.99)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

w_inner_loop_pwr_10,step,,,,type, upper,lower,judge,result avg, result max,result min

Function Measures the inner loop power (10 commands).
Parameter 1 char step = {st_e|st_f|st_h|st_h}
Parameter 5 char type = {avg|max|min}
Parameter 6 double upper (selectable range: -99.99 to 99.99)
Parameter 7 double lower (selectable range: -99.99 to 99.99)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result avg (return value)
Parameter 10 double result max (return value)
Parameter 11 double result min (return value)

w_open_loop_pwr_on,,,,,,upper,lower, judge,result,,

Function Measures the open loop ON power and performs a pass/fail judgement.
Parameter 6 double upper (selectable range: -99.99 to 99.99)
Parameter 7 double lower (selectable range: -99.99 to 99.99)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result (return value)

w_open_loop_pwr_off,,,,,,upper, lower,judge,result,,

Function Measures the open loop OFF power and performs a pass/fail judgement.
Parameter 6 double upper (selectable range: -99.99 to 99.99)
Parameter 7 double lower (selectable range: -99.99 to 99.99)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result (return value)

w_ber,bit_number,code_domain,,,, upper,lower,judge,result,,

Function Measures the BER using the number of bits specified by parameter 1 and performs a pass/fail judgement.
Parameter 1 int bit_number = Number of measured bits
Parameter 2 char code_domain = {refsense|maxinput}
Parameter 6 double upper (selectable range: 0 to 99.9999)
Parameter 7 double lower (selectable range: 0 to 99.9999)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 double result (return value)

w_cpich_rscp,,,,,,upper,lower,judge, result,,

Function Measures the CPICH_RSCP and performs a pass/fail judgement.
Parameter 6 int upper (selectable range: −5 to 91)
Parameter 7 int lower (selectable range: −5 to 91)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 int result (return value)

w_cpich_ecn0,,,,,,upper,lower,judge, result,,

Function Measures the CPICH_ECN0 and performs a pass/fail judgement.
Parameter 6 int upper (selectable range: 0 to 49)
Parameter 7 int lower (selectable range: 0 to 49)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 int result (return value)

w_ue_tx_power,,,,,,upper,lower,judge ,result,,

Function Measures the UE_TX_POWER and performs a pass/fail judgement.
Parameter 6 int upper (selectable range: 21 to 104)
Parameter 7 int lower (selectable range: 21 to 104)
Parameter 8 char judge = {pass|fail|noexec|error} (return value)
Parameter 9 int result (return value)

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