

MX269015A
TD-SCDMA Measurement Software
Operation Manual
Operation

Seventh Edition


- For safety and warning information, please read this manual before attempting to use the equipment.
- Additional safety and warning information is provided within the MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Main Frame Operation) or the MS2830A Signal Analyzer Operation Manual (Main Frame Operation). Please also refer to this document before using the equipment.
- Keep this manual with the equipment.


ANRITSU CORPORATION


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



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



These indicate that the marked part should be recycled.

MX269015A
TD-SCDMA Measurement Software
Operation Manual Operation

7 February 2008 (First Edition)
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Printed in Japan

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CE marking



1. Product Model

Software: MX269015A TD-SCDMA Measurement Software

2. Applied Directive and Standards

When the MX269015A TD-SCDMA Measurement Software is installed in the MS2690/MS2691/MS2692A or MS2830A, the applied directive and standards of this unit conform to those of the MS2690/MS2691/MS2692A or MS2830A Main Frame.

PS: About Main Frame

Please contact Anritsu for the latest information on the Main Frame types that the MX269015A can be used with.

C-tick Conformity Marking

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C-tick marking



1. Product Model

Software: MX269015A TD-SCDMA Measurement Software

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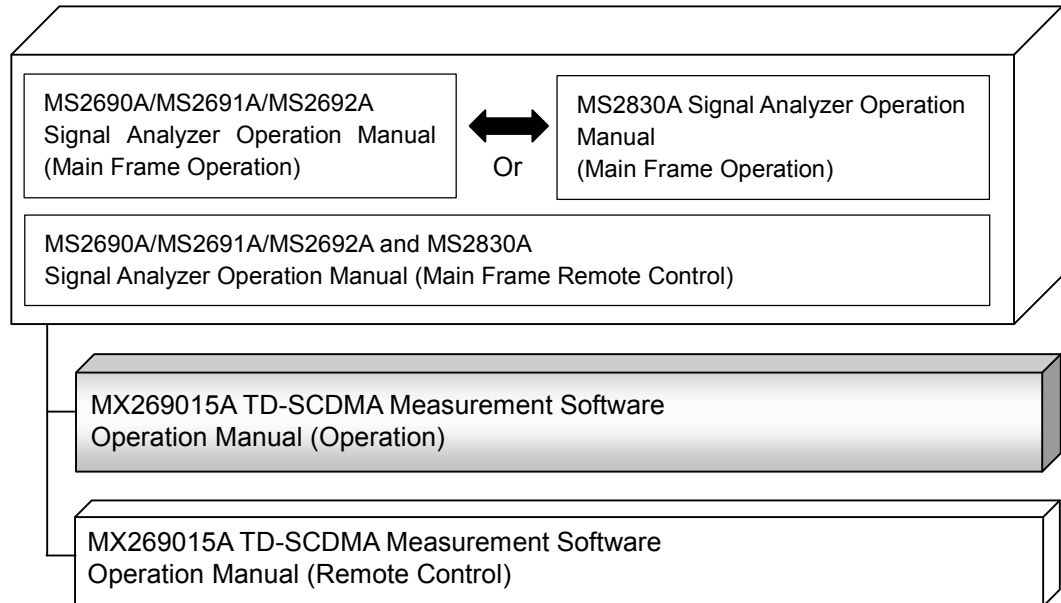
PS: About Main Frame

Please contact Anritsu for the latest information on the Main Frame types that the MX269015A can be used with.

About This Manual

■ Composition of Operation Manuals

The operation manuals for the MX269015A TD-SCDMA Measurement Software are composed as shown in the following figure.



- Signal Analyzer Operation Manual (Main Frame Operation)
- Signal Analyzer Operation Manual (Main Frame Remote Control)

These manuals describe basic operating methods, maintenance procedures, common functions, and common remote control of the signal analyzer.

- TD-SCDMA Measurement Software Operation Manual (Operation)

<This document>

This manual describes basic operating methods and functions of the MX269015A TD-SCDMA Measurement Software.

- TD-SCDMA Measurement Software Operation Manual (Remote Control)

This manual describes remote control of the MX269015A TD-SCDMA Measurement Software.

Convention Used in This Manual

Throughout this document, the use of MS269x Series is assumed unless otherwise specified.

If using MS2830A, change MS269xA to read MS2830A.

In this document,  indicates a panel key.

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Chapter 1 Overview

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1.1 Product Overview

The MS269x Series or MS2830A Signal Analyzer supports high-speed, high-accuracy, and easy measurement of the transmission characteristics of base stations and mobile stations for various mobile communications standards. The MS269x Series or MS2830A Signal Analyzer has a high-performance signal analyzer and spectrum analyzer, with optional measurement software for modulation analysis supporting various digital modulation modes.

The MX269015A TD-SCDMA Measurement Software option (MX269015A) is for measuring the RF characteristics of 3GPP TD-SCDMA, low-chip-rate technologies (1.28 Mcps).

The MX269015A supports the following measurements.

- Modulation accuracy
- Carrier frequency
- Transmitter power

MS2830A-006/106 is required to use the MX269015A on MS2830A.

1.2 Product Configuration

1.2.1 Standard configuration

Table 1.2.1-1 lists the MX269015A standard configuration.

Table 1.2.1-1 Standard Configuration

Item	Model/Code	Name	Qty	Remarks
Application	MX269015A	TD-SCDMA Measurement Software	1	
Accessory	—	Installation CD-ROM	1	Application software, operation manual CD-ROM

1.2.2 Application parts

Table 1.2.2-1 lists the MX269015A application parts.

Table 1.2.2-1 Application Parts

Model/Code	Name	Remarks
W3044AE	MX269015A TD-SCDMA Measurement Software Operation Manual (Operation)	English, hard copy
W3045AE	MX269015A TD-SCDMA Measurement Software Operation Manual (Remote Control)	English, hard copy

1.3 Specifications

Table 1.3-1 lists the MX269015A specifications.

When MS2830A is used, this software's specification is specified by the condition below, unless otherwise noted.

Attenuator Mode: Mechanical Atten Only

Table 1.3-1 Specifications

Item	Specifications
Common Specifications	
Target signals	Uplink and Downlink
Modulation/Frequency/Amplitude Measurement	
Measurement frequency ranges	1850 to 2620 MHz
Measurement level range	[Modulation/Frequency Measurement] MS269x Series/ MS2830A -15 to +30 dBm (at Pre-Amp Off, or Pre-Amp not installed.) -30 to +10 dBm (at Pre-Amp On) [Amplitude Measurement] MS269x Series -15 to +30 dBm (at Pre-Amp Off, or Pre-Amp not installed.) -30 to +10 dBm (at Pre-Amp On) MS2830A -15 to +30 dBm (at Pre-Amp Off, or Pre-Amp not installed.)
Carrier frequency accuracy	After CAL at 18 to 28°C, for 1% EVM signal \pm (accuracy of reference crystal oscillator \times carrier frequency + 20 Hz)
Residual EVM	After CAL at 18 to 28°C, the measured signal is within the measurement level range and below the value set at Input Level. MS269x Series: $\leq 1.0\%$ (rms) MS2830A: $\leq 1.2\%$ (rms)
Code Domain Power	After CAL at 18 to 28°C, the measured signal is within the measurement level range and below the value set at Input Level. ± 0.18 dB (Code Power ≥ -10 dBc) ± 0.32 dB (Code Power ≥ -30 dBc)
Code Domain Error	After CAL at 18 to 28°C, the measured signal is within the measurement level range and below the value set at Input Level. ± 1.00 dB (Code Error ≥ -40 dBc)
Residual Code Domain Error	After CAL at 18 to 28°C, the measured signal is within the measurement level range and below the value set at Input Level. ≤ -40 dB

Table 1.3-1 Specifications (Cont'd)

Item	Specifications
Transmitter power accuracy	After CAL, input attenuator ≥ 10 dB, at 18 to 28°C, the measured signal is within the measurement level range and below the value set at Input Level. MS269x Series ± 0.6 dB (at Pre-Amp Off, or Pre-Amp not installed.) ± 1.1 dB (at Pre-Amp On) MS2830A ± 0.6 dB (at Pre-Amp Off, or Pre-Amp not installed.) Transmitter power accuracy is calculated from the RSS (root sum square) error of the absolute amplitude accuracy and the in-band frequency characteristics.
Waveform displays	Constellation Code Domain Power vs Code Number Code Domain Error vs Code Number
Adjacent Channel Power Measurement	
Measurement method	Executes adjacent channel power measurement function of spectrum analyzer or signal analyzer
Occupied Bandwidth Measurement	
Measurement method	Executes occupied bandwidth measurement function of spectrum analyzer or signal analyzer
Spectrum Emission Mask Measurement	
Measurement method	Executes spectrum emission mask measurement function of spectrum analyzer
Power vs Time	Provides measurements for Transmitter OFF Power and Time Mask This function can be used only in MS269x series.
Dynamic Range	MS269x series ≥ 126 dB (nominal) (This nominal value is valid when Wide Dynamic Range is On and Noise Correction is On.)

Chapter 2 Preparation

This chapter describes the preparations required for using the application you are using. Refer to the “MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Mainframe Operation)” or “MS2830A Signal Analyzer Operation Manual (Mainframe Operation)” for common features not included in this manual.

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2.1 Part Names

This section describes the panel keys for operating the instrument and connectors used to connect external devices. For general points of caution, refer to the “MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Mainframe Operation)” or “MS2830A Signal Analyzer Operation Manual (Mainframe Operation)”.

2.1.1 Front panel

This section describes the front-panel keys and connectors.

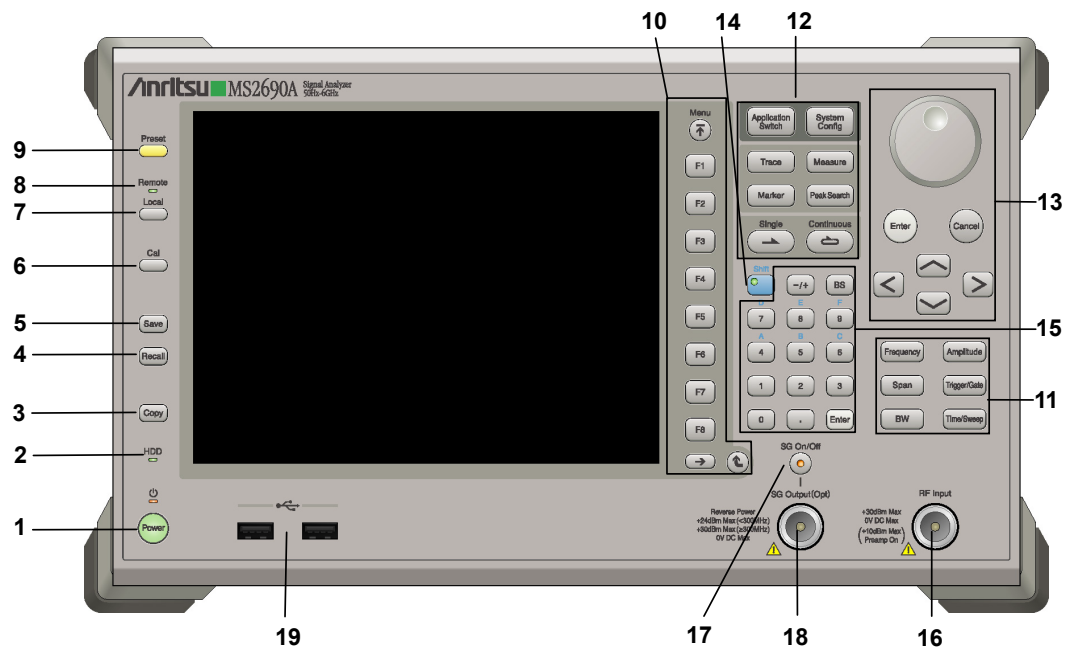


Figure 2.1.1-1 MS269x series front panel

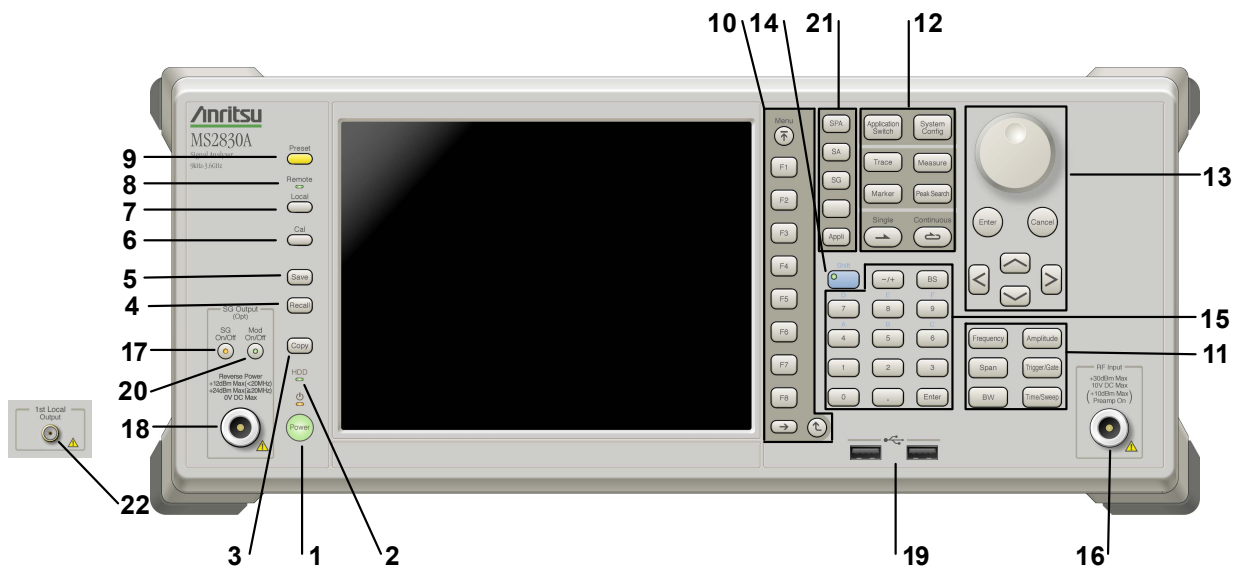
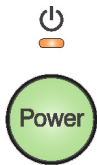








Figure 2.1.1-2 MS2830A front panel

- 1  **Power Switch**
Press to switch between the standby state (AC power supplied) and power-on state. The Power lamp  lights orange at Standby and green at Power On. Press the power switch for about 2 seconds.
- 2  **Hard disk access lamp**
Lights when accessing the internal hard disk
- 3  **Copy key**
Press to capture display screen and save to file.
- 4  **Recall key**
Press to recall parameter file.
- 5  **Save key**
Press to save parameter file.
- 6  **Cal key**
Press to display the Calibration menu.



Local key

Press to return to local operation from remote control via GPIB, Ethernet, or USB (B), and enable panel settings.



Remote lamp

Lights when in remote-control state



Preset key


Resets parameters to initial settings



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Function keys

Selects or configures function menu displayed on the right of the screen. The function menu is provided in multiple pages and layers.

Press  to fetch next function menu page. The current page number is displayed at the bottom of the function menu, as in “1 of 2”.

Sub-menus may be displayed when a function menu is pressed. Press  to go back to the previous menu. Press  to go back to the top menu.


11





Main function keys 1


Press to set or execute main functions.


Executable functions vary with the current application. When nothing happens with the press, it indicates that the application in use does not support the key.


 Press to set frequency parameters.

 Press to set level parameters.

 No function is assigned to this key.

 Press to set trigger parameters.

 No function is assigned to this key.

 Press to set measurement item parameters.

12





Main function keys 2


Press to set or execute main functions.


Executable functions vary with the current application. When nothing happens with the press, it indicates that the application in use does not support the key.

 Press to switch application.


 Press to display Configuration screen.


 Press to set the trace items or to switch the operation window.

 Press to set measurement item parameters.

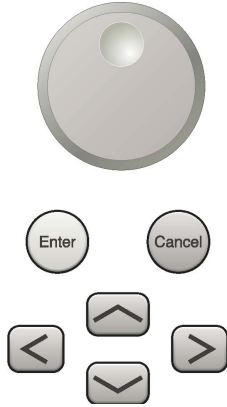
 Use when switching graph marker operation.

 Press to set parameters related to the peak search function.

 Press to start single measurement.


 Press to start continuous measurements.


13



Rotary knob/Cursor key/Enter key/Cancel key

The rotary knob and cursor keys select display items or change settings.

Press  to set the entered or selected data.

Press  to cancel input or selected data.

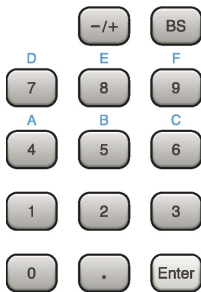
14



Shift key


Operates keys with functions in blue characters on panel. Press the Shift key so the key lamp is green and then press the target key.




15



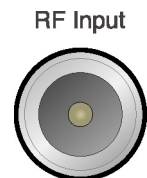
Numeric keypad

Enters numbers on parameter setup screens.

Press  to delete the last entered digit or character.

[A] to [F] can be entered by pressing keys  to  while the Shift key lamp  is green.

16




RF Input connector

Inputs RF signal. This is an N type input connector.

17



RF Output Control key

Press  to switch on/off the modulation of RF signal when the Vector Signal Generator option is installed. The RF output control key lamp lights orange when the RF signal output is set to On.

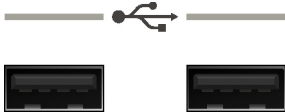
This is not available when the Option 044/045 is installed. (Only for MS2830A)

18 SG Output(Opt)



RF Output connector (when Option 020 installed)
 Outputs RF signal, when the Vector Signal Generator option is installed.
 This is an N type output connector.
 This is not available when the Option 044/045 is installed. (Only for MS2830A)


19



USB connector (type A)
 Connect the accessory USB keyboard, mouse or USB memory.

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






Modulation control key (MS2830A only)
 Press to switch on/off the modulation of RF signal when the Vector Signal Generator option is installed. The lamp  on the key lights up in green in the modulation On state.
 This is not available when the Option 044/045 is installed.

21



Application key (MS2830A only)
 Press to switch between applications.

-  Press to display the Spectrum Analyzer main screen.
-  Press to display the Signal Analyzer main screen, when Option 005/105 and 006/106 are installed.
-  Press to display the Signal Analyzer main screen, when Vector Signal Generator option is installed.
-  This is a blank key. Not used.
-  Displays the main screen of the application that is selected using the Application Switch (Auto), or displays that of the pre-selected application (Manual).
 For details, refer to 3.5.4 Changing application layout in “MS2830A Signal Analyzer Operation Manual (Mainframe Operation)”.

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1st Local Output connector (Only for MS2830A)
 This is available when the Option 044/045 is installed.
 Supplies local signal and bias current to the external mixer, and receives the IF signal with its frequency converted.

2.1.2 Rear panel

This section describes the rear-panel connectors.

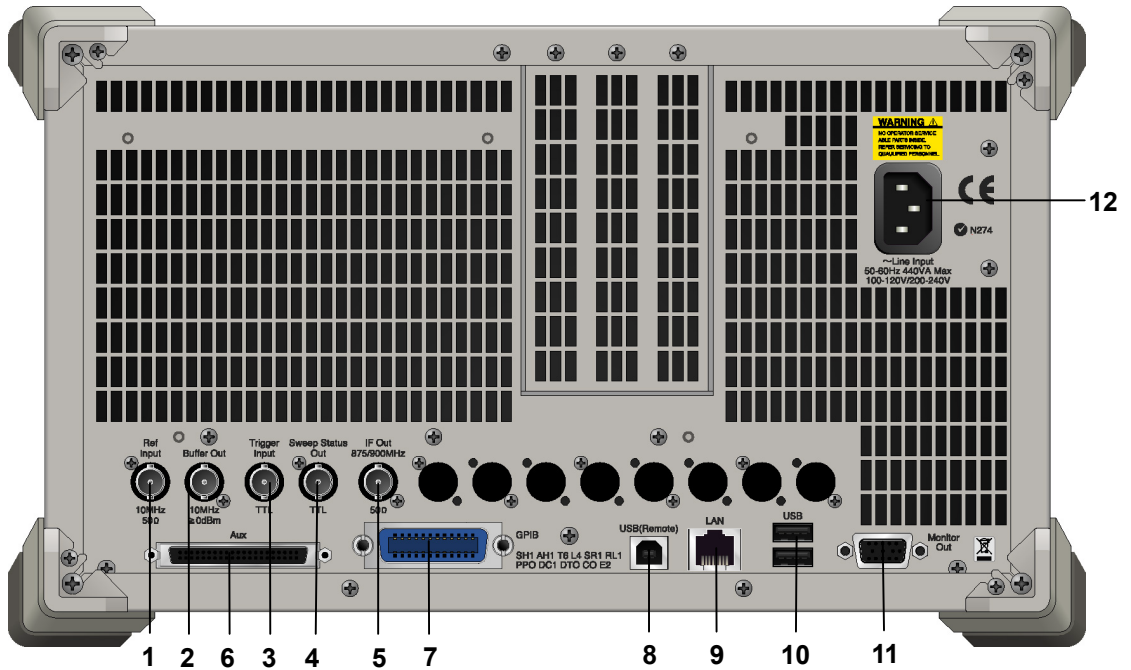


Figure 2.1.2-1 MS269x series rear panel

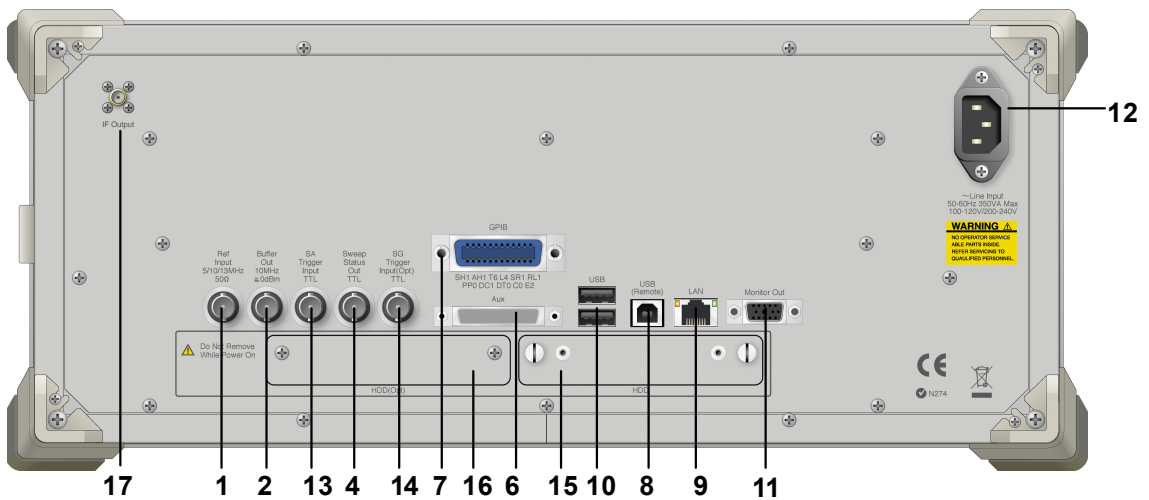





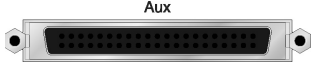
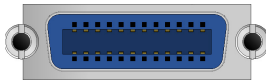








Figure 2.1.2-2 MS2830A rear panel

- | | | |
|---|---|---|
| 1 |  <p style="text-align: center;">Ref
Input</p> | <p>Ref Input connector (reference frequency signal input connector)</p> <p>Inputs external reference frequency signal. It is for inputting reference frequency signals with higher accuracy than the instrument's internal reference signal, or for synchronizing the frequency of the MS2690A/MS2691A/MS2692A or MS2830A to that of other equipment. The following frequencies are supported:</p> <p>MS269x series: 10 MHz/13 MHz
MS2830A: 5 MHz/10 MHz/13 MHz</p> |
| 2 |  <p style="text-align: center;">Buffer Out</p> | <p>Buffer Out connector (reference frequency signal output connector)</p> <p>Outputs the internal reference frequency signal (10 MHz). It is for synchronizing frequencies between other equipment and the MS2690A/MS2691A/MS2692A or MS2830A.</p> |
| 3 |  <p style="text-align: center;">Trigger
Input</p> | <p>Trigger Input connector (MS269x series only)</p> <p>Inputs trigger signal from external device.</p> |
| 4 |  <p style="text-align: center;">Sweep Status
Out</p> | <p>Sweep Status Out connector</p> <p>Outputs signal when internal measurement is performed or measurement data is obtained.</p> |
| 5 |  <p style="text-align: center;">IF Out
875/900MHz</p> | <p>IF Out connector (MS269x series only)</p> <p>Not used</p> |
| 6 |  <p style="text-align: center;">Aux</p> | <p>AUX connector</p> <p>Not used</p> |
| 7 |  <p style="text-align: center;">GP-IB</p> | <p>GP-IB connector</p> <p>For external control via GPIB.</p> |
| 8 |  <p style="text-align: center;">USB(Remote)</p> | <p>USB connector (type B)</p> <p>For external control via USB</p> |

Chapter 2 Preparation

- 9** **LAN**
 Ethernet connector
Connects PC or Ethernet network.
- 10** **USB**

 USB connector (type A)
Used to connect a USB keyboard or mouse or the USB memory supplied.
- 11** **Monitor Out**
 Monitor Out connector
Connects external display
- 12**

AC inlet
Supplies power
~Line Input
50-60Hz 440VA Max
100-120V/200-240V
- 13** **SA
Trigger
Input
TTL**
 SA Trigger Input connector (MS2830A only)
This is a BNC connector for inputting external trigger signal (TTL) for SPA and SA applications.
- 14** **SG
Trigger
Input(Opt)
TTL**
 SG Trigger Input connector (MS2830A only)
This is a BNC connector for inputting external trigger signal (TTL) for Vector Signal Generator option.
- 15** **HDD**
HDD slot (MS2830A only)
This is a standard hard disk slot.
- 16** **HDD(Opt)**
HDD slot for Option (MS2830A only)
This is a hard disk slot for the options.
- 17**  IF output connector (Only for MS2830A)
Monitor output of the internal IF signal.
This is available when the Option 044/045 is installed.

2.2 Signal Path Setup

As shown in Figure 2.2-1, connect the instrument and the DUT using an RF cable, so that the signal to be tested is input to the RF Input connector. To prevent an excessive level signal from being input, do not input the signal before setting the input level using this application.

2

Preparation

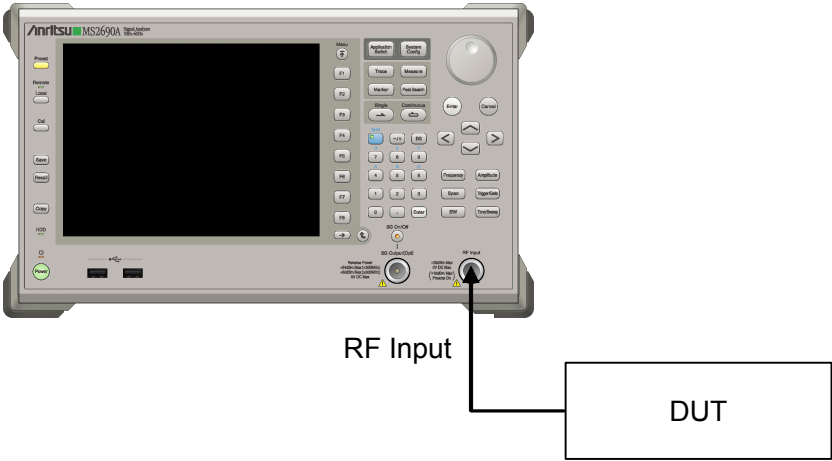


Figure 2.2-1 Signal path setup example

Set the reference signal and/or trigger signal paths from external sources, as required.

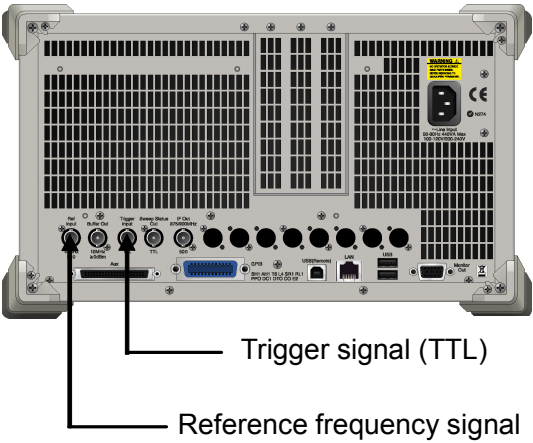


Figure 2.2-2 External signal input

2.3 Application Startup and Selection

To use this application, it is necessary to load (start up) and select the application.





2.3.1 Launching application

The application startup procedure is described below.

Note:

The XXX indicates the application name currently in use.


<Procedure>

1. Press  to display the Configuration screen.
2. Press  (Application Switch Settings) to display the Application Switch Registration screen.
3. Press  (Load Application Select), and move the cursor to “XXX” in the Unloaded Applications list.
If “XXX” is displayed in the **Loaded Applications** list, this means that the application is already loaded.
If “XXX” appears in neither the **Loaded Applications** nor **Unloaded Applications** list, this means that the application has not been installed.
4. Press  (Set) to load the application. If “XXX” is displayed in the **Loaded Applications list**, this means that the application is already loaded.

2.3.2 Selecting application

The selection procedure is described below.

<Procedure>

1. Press  to display the Application Switch menu.
2. Press the menu function key displaying “XXX”.

The application can also be selected with mouse, by clicking “XXX” on the task bar.

2.4 Initialization and Calibration

This section describes the parameter settings and the preparations required before starting measurement.

2.4.1 Initialization



After selecting this application, first perform initialization. Initialization returns the settable parameters to their default value in order to clear the measurement status and measurement results.

Note:

When another software application is switched to or this application is unloaded (ended), the application keeps the parameter settings at that time. The parameter values that were last set will be applied when this application is selected next time.

The initialization procedure is as follows.



<Procedure>

1. Press  to display the Preset function menu.
2. Press  (Preset).

2.4.2 Calibration

Perform calibration before performing measurement. Calibration sets the level accuracy frequency characteristics for the input level to flat, and adjusts level accuracy deviation caused by internal temperature fluctuations. Calibration should be performed when first performing measurement after turning on power, or if beginning measurement when there is a difference in ambient temperature from the last time calibration was performed.

<Procedure>

1. Press  to display the Application Cal function menu.
2. Press  (SIGANA All).

For details on calibration functionality only executable with this instrument, refer to the “MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Mainframe Operation)” or “MS2830A Signal Analyzer Operation Manual (Mainframe Operation)”.

Chapter 3 Measurement

This chapter describes the measurement function, the parameter contents and setting methods for the MX269015A.

3.1	Basic Operation	3-2
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3.14	Power vs Time Display	3-34

3.1 Basic Operation

3.1.1 Screen layout

This section describes the MX269015A screen layout.



Fig. 3.1.1-1 Screen Layout

- [1] Measurement parameter
Displays set parameters
- [2] Status message
Displays status of signals
- [3] Constellation
Displays Constellation for selected symbol
- [4] Result window
Displays measurement results
- [5] Function menu
Displays functions executed with function keys
- [6] Graph window
Displays graph of measurement results

3.1.2 Function menu

This section describes the main function menu on the main screen.

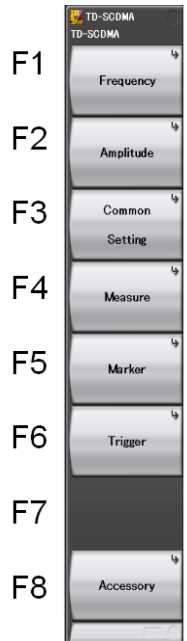









Fig. 3.1.2-1 Main Function Menu

Table 3.1.2-1 Main Function Menu

Menu Display	Function
Frequency	Sets frequency  3.2 Setting Frequency
Amplitude	Sets level  3.3 Setting Level
Common Setting	Sets common items  3.4 Setting Common Items
Measure	Sets measurement items  3.5 Setting Measurement Items
Marker	Sets marker  3.6 Setting Marker
Trigger	Sets trigger  3.7 Setting Trigger
Accessory	Sets other functions  5.1 Selecting Other Functions

3.1.3 Measuring

There are two measurement modes: single and continuous. Measurement is performed once in the single measurement mode, and continuously in the continuous measurement mode.

Single

Selected measurement items are measured only for the measurement count (Storage Count) before measurement is stopped.

<Procedure>

1. Press .



Continuous

Selected measurement items are measured continuously for the measurement count (Storage Count). Measurement continues even when parameters or the window display are changed. Measurement stops when other applications are selected.

<Procedure>

1. Press .

3.2 Setting Frequency

Pressing  (Frequency) at the main function menu displays the Frequency function menu. Pressing  opens the Carrier Frequency dialog box or the Center Frequency dialog box and displays the Frequency function menu.


Carrier Frequency

■ Summary

Sets carrier frequency of target carrier in Carrier Frequency mode

Note

When more than one carrier is measured (Carrier Number >1), setting the carrier frequency of the target carrier automatically sets the carrier frequencies of the other carriers (at 1.6-MHz spacing) and the center frequency.


 3.4 Setting Common Items

■ Setting range

100 MHz to the upper limit of MS269x Series or MS2830A

Note

Minimum and maximum setting ranges vary with the number of measured carriers (Carrier Number) and target carrier.

 3.4 Setting Common Items


Center Frequency

■ Summary

Sets center frequency of multi-carriers in Center Frequency mode

Note

When more than one carrier is measured (Carrier Number >1), setting the center frequency automatically sets the carrier frequencies of all carriers (1.6-MHz spacing). Also, when only one carrier is measured (Carrier Number = 1), the center frequency is the same as the carrier frequency.


 3.4 Setting Common Items

■ Setting range

100 MHz to the upper limit of MS269x Series or MS2830A

Note

Minimum and maximum setting ranges vary with the number of measured carriers (Carrier Number).

 3.4 Setting Common Items

Frequency Mode

■ Summary

Selects Frequency mode

The Frequency mode selects whether the carrier frequency or center frequency is set.

■ Selection options

Carrier Frequency

Center Frequency

3.3 Setting Level

Pressing **F2** (Amplitude) at the main function menu displays the Amplitude function menu. Pressing **Amplitude** opens the Input Level dialog box and displays the Amplitude function menu.

Input Level

■ Summary

Sets input level from target DUT

■ Setting range

With Pre-Amp On or Pre-Amp Mode On at Power vs Time measurement:

$(-80.00 + \text{Offset Value})$ to $(10.00 + \text{Offset Value})$ dBm

With Pre-Amp Off:

$(-60.00 + \text{Offset Value})$ to $(30.00 + \text{Offset Value})$ dBm

Pre-Amp

■ Summary

Sets Pre-Amp function on/off

Note:

If Wide Dynamic Range is set to On at Power vs Time, the Pre-Amp function is switched forcefully to Off.

Offset

■ Summary

Sets Offset function on/off

Offset Value

■ Summary

Sets level offset coefficient

■ Setting range

-99.99 to 99.99 dB

■ Setting example

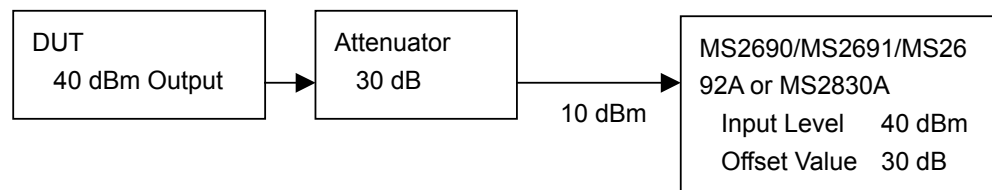


Fig. 3.3-1 Input Level and Offset Level Setting Example

Auto Range

■ Summary

This function adjusts input level according to input signal.

3.4 Setting Common Items

Pressing **F3** (Common Setting) at the main function menu displays the Common Setting function menu.

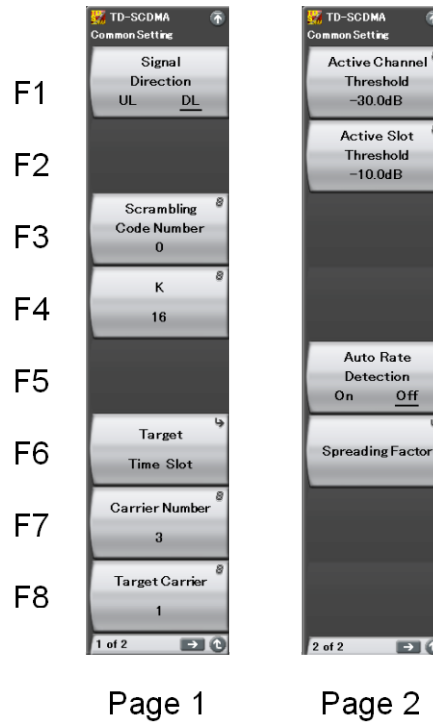


Fig. 3.4-1 Common Setting Function Menu

Table 3.4-1 Common Setting Function Menu

Menu Display	Function
Signal Direction	Selects measured target signal direction
Scrambling Code Number	Sets Scrambling Code Number
K	Sets value of K (number of maximum users)
Target Time Slot	Selects analyzed Time Slot
Carrier Number	Sets the number of measured carriers
Target Carrier	Sets analyzed carrier
Active Channel Threshold	Sets Active Channel Threshold value
Active Slot Threshold	Sets Active Slot Threshold value
Auto Rate Detection	Selects Auto Rate detection mode
Spreading Factor	Sets Spreading factor

Signal Direction

■ Summary

Selects measured target signal direction

■ Selection options

- UL Analyzes Uplink input signal
- DL Analyzes Downlink input signal

Scrambling Code Number

■ Summary

Sets Scrambling Code Number

■ Setting range

0 to 127

K

■ Summary

Sets value of K (number of maximum users)

■ Setting range

2, 4, 6, 8, 10, 12, 14, 16

Target Time Slot

■ Summary


Selects analyzed Time Slot

■ Selection options

- Time Slot 0 Analyzes Time Slot 0
- Time Slot 1 Analyzes Time Slot 1
- Time Slot 2 Analyzes Time Slot 2
- Time Slot 3 Analyzes Time Slot 3
- Time Slot 4 Analyzes Time Slot 4
- Time Slot 5 Analyzes Time Slot 5
- Time Slot 6 Analyzes Time Slot 6
- Burst With waveform imported by measuring instrument, analyzes initial time slot

Note

When Target Time Slot is set to Burst, Trace Mode cannot be set to Multi Slot Power and Multi Carrier Power.

 3.5.1.1 Trace Mode

Carrier Number

- Summary

Sets number of measured carriers

- Setting range

1 to 6

Note

In the Carrier Frequency Mode, changing Carrier Number automatically changes the center frequency (the carrier frequency of the target carrier is unchanged).

In the Center Frequency Mode, changing Carrier Number automatically changes the carrier frequencies of all carriers (the center frequency is unchanged).

The maximum carrier number depends on the frequency settings.

 3.2 Setting Frequency

Target Carrier

- Summary

Sets analyzed carrier

- Setting range

1 to Carrier Number

Note

When measuring more than one carrier (Carrier Number >1), carriers are numbered 1 to N (N = set Carrier Number), with 1 as the lowest frequency carrier and N as the highest frequency carrier.

Active Channel Threshold

- Summary

Sets Active Channel Threshold value

- Setting range

-5.0 to -50.0 dB

Note

In the Code Domain Graph display, a yellow bar means the code domain power of a channel is equal to or more than the Active Channel Threshold value; a blue bar means it is less than the Active Channel Threshold value.

Active Slot Threshold

■ Summary

Sets Active Slot Threshold value

■ Setting range

-10.0 to -50.0 dB

Note

At the measurement results display, "****.***" means the power for that Time Slot is less than the Active Slot Threshold value.

Auto Rate Detection

■ Summary

Selects Auto Rate Detection mode

■ Selection options

On	Enables Auto Rate Detection
Off	Disables Auto rate Detection

Spreading Factor

■ Summary

Sets Spreading Factor value when Auto Rate Detection disabled

■ Setting range

1, 2, 4, 8, 16

3.5 Setting Measurement Items

Pressing **F4** (Measure) at the main function menu or **Measure** displays the measure function menu.

3.5.1 Modulation Analysis

Pressing **F1** (Modulation Analysis) at the measure function menu displays the Modulation Analysis function menu.

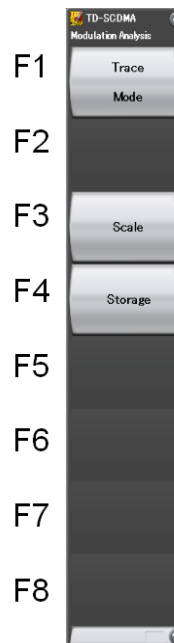



Fig. 3.5.1-1 Modulation Analysis Function Menu

Table 3.5.1-1 Modulation Analysis Function Menu

Menu Display	Function
Trace Mode	Sets type of result displayed in graph window  3.5.1.1 Trace Mode
Storage	Sets storage method
Scale	Sets vertical scale of graph result

Storage

■ Summary

Sets storage method

■ Selection options

Mode Sets storage mode

Count Sets measurement count

Storage: Mode

■ Summary

Sets storage mode

■ Selection options

Off Updates data at every sweep

Average Displays average for every sweep

Average & Max Displays average and maximum values for every sweep

Storage: Count

■ Summary

Sets measurement count

■ Setting range

2 to 9999

Scale

■ Summary

Sets vertical scale of graph result

■ Selection options

Code Domain Power Scale Sets scale for Code Domain Power

Code Domain Error Scale Sets scale for Code Domain Error

Scale: Code Domain Power Scale

■ Summary

Sets scale for Code Domain Power vs Code Number Display

■ Setting range

20 dB -20 to 0 dB

40 dB -40 to 0 dB

60 dB -60 to 0 dB

80 dB -80 to 0 dB

Scale: Code Domain Error Scale



■ Summary

Sets scale for Code Domain Error vs Code Number Display

■ Setting range

20 dB	-80 to -60 dB
40 dB	-80 to -40 dB
60 dB	-80 to -20 dB
80 dB	-80 to 0 dB

3.5.1.1 Trace Mode

Pressing  (Trace Mode) at the Modulation Analysis function menu or  displays the Trace Mode function menu.

Trace Mode

■ Summary

Sets type of result displayed in graph window

■ Selection options

Code Domain Power	Displays Code Domain Power vs Code number in graph window
Code Domain Error	Displays Code Domain Error vs Code number in graph window
Multi Slot Power	Displays Subframe Power, Mean, Data1, Midamble and Data2 Powers vs Slot number in table form
Multi Carrier Power	Displays all Carrier Powers vs Slot number in table form

Note

When Trace Mode is set to Multi Slot Power or Multi Carrier Power, Target Time Slot cannot be set to Burst.


 3.4 Setting Common Items

3.5.2 Power vs Time

Pressing **F2** (Power vs Time) at the measure function menu displays the Power vs Time function menu.

Note

- 1. Power vs Time can be used only in the MS269x series.
- 2. Power vs Time can be used when Signal Direction is set to DL.

 3.4 Setting Common Items

- 3. The power of the measured signal in the On interval is from -30 dBm to +30 dBm when Pre-Amp Mode is Off. On the other hand, when Pre-Amp Mode is On, set it from -30 dBm to +10 dBm (Peak value).

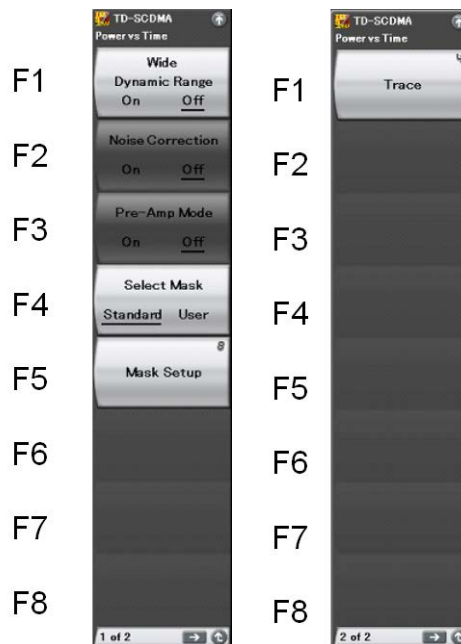


Fig. 3.5.2-1 Power vs Time Function Menu

Table 3.5.1-1 Modulation Analysis Function Menu

Menu Display	Function
Wide Dynamic Range	Sets wide dynamic range When Wide Dynamic Range is set to On, Pre-Amp is switched to Off forcefully.
Noise Correction	Sets whether to perform noise correction
Pre-Amp Mode	Sets whether to use pre-amp at Off Power measurement
Select Mask	Selects selection method for the Mask line
Mask Setup	Sets the mask.
Trace	Selects Smoothing or Storage

Wide Dynamic Range

■ Summary

Sets whether to enable or disable Wide Dynamic Range

When Wide Dynamic Range is set to On, the measurement parameter is changed internally at the Off Power measurement to improve the measurement accuracy.

■ Selection options

On	Enables
Off	Disables

Note

When Wide Dynamic Range is set to On, Pre-Amp is switched to Off forcefully.

When the parameter is moved to the measurement function other than Power vs Time, Wide Dynamic Range is switched to Off.

Noise Correction

■ Summary

Sets whether to perform noise correction

■ Selection options

On	Enables
Off	Disables

Note

Noise Correction can be set only when Wide Dynamic Range is set to On.

When Wide Dynamic Range is set to Off, the Noise Correction menu is displayed in gray and the function is disabled.

Both Noise Correction and Pre-Amp Mode cannot set to On at the same time.

Pre-Amp Mode

■ **Summary**

Sets whether to use Pre-Amp at the Off power measurement.

■ **Selection options**

- On Enables
- Off Disables

The Pre-Amp mode can be set when Wide Dynamic Range is On and Trigger Switch is On.

When Wide Dynamic Range is set to Off, the Pre-Amp mode menu is displayed in gray and the function is disabled.

Both Pre-Amp Mode and Noise Correction cannot set to On at the same time.

When the Pre-Amp mode is set to On, input the trigger.

Note:

1. When the option 008 is not enabled, the Pre-Amp menu is not displayed.

Select Mask

■ **Summary**

Selects selection method for the Mask line

■ **Selection options**

- Standard Sets 3GPP standard mask line
- User Sets user set mask line

Mask Setup

■ **Summary**

Sets the mask.

Open the window to set the mask, and then open the Mask Setup function menu.

■ **Selection options**

Load Standard Setting	Reflects the standard mask settings to the user mask settings.
Mask Time	Selects the following items: Time 1, Time 2, Time3, Time 4, and Time 5
Mask Level	Selects the following items: Level 1 and Level 2

Mask Setup: Load Standard Setting

■ **Summary**

Reflects the standard mask settings to the user mask settings.

Mask Setup: Mask Time (DL)

■ **Summary**

Selects the following items: Time 1, Time 2, Time3, Time 4, and Time 5

■ **Setting range**

Time1,2,4,5 0 to 100 chip
Time3 0 to 200 chip

Mask Setup: Mask Level (DL)

■ **Summary**

Selects the following items: Level 1 and Level 2

■ **Setting range**

-110 to -20

Trace: Smoothing (On/Off)

■ **Summary**

Sets smoothing On or Off

■ **Selection options**

On Enables settings for smoothing
Off Disables settings for smoothing

Trace: Smoothing Length

■ **Summary**

Sets smoothing length.

■ **Setting range**

0.2 to 10.0

Storage: Storage Mode (Off/Average)

■ **Summary**

Enables storage settings

- Selection options
 - Off Disables settings for storage
 - Average Enables average storage settings

Storage: Storage Count

- Summary
 - Sets storage count
- Setting range
 - 2 to 999

3.5.3 Adjacent Channel Power Measurement (ACP)

This recalls the ACP function of the signal analyzer or spectrum analyzer functions. Settings for Carrier Frequency, Input level, Offset, Offset Value and Pre-Amp are reflected automatically in the corresponding parameters. When this function is being recalled, Recall Current Application described in Section 3.6.2 Recalling parameters of the “MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Main Frame Operation)” or “MS2830A Signal Analyzer Operation Manual (Main Frame Operation)” cannot be executed.

ACP (FFT)

■ Summary

Recalls ACP function of signal analyzer and measures adjacent channel power for reflected parameter settings

Note

At the signal analyzer, automatic settings for Trigger Switch, Trigger Source, Trigger Delay and Capture Length are applied based on parameters such as Target Time Slot and Trigger settings from the modulation analysis function. The user can change these settings when necessary.

ACP (Swept)

■ Summary

Recalls ACP function of spectrum analyzer and measures adjacent channel power for reflected parameter settings

Note

At the spectrum analyzer, automatic settings for Gate Sweep, Gate Source, Gate Delay and Gate Length are applied based on parameters such as Target Time Slot and Trigger settings from the modulation analysis function. The user can change these settings when necessary.

3.5.4 Occupied Bandwidth Measurement (OBW)

This recalls the OBW function of the signal analyzer or spectrum analyzer functions. Settings for Carrier Frequency, Input level, Offset, Offset Value and Pre-Amp are reflected automatically in the corresponding parameters. When this function is recalled, Recall Current Application described in Section 3.6.2 Recalling parameters of the “MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Main Frame Operation)” or “MS2830A Signal Analyzer Operation Manual (Main Frame Operation)” cannot be executed.

OBW (FFT)

■ Summary

Recalls OBW function of signal analyzer and measures occupied bandwidth for reflected parameter settings

Note

At the signal analyzer, automatic settings for Trigger Switch, Trigger Source, Trigger Delay and Capture Length are applied based on the parameters such as Target Time Slot and Trigger settings from the modulation analysis function. The user can change these settings when necessary.

OBW (Swept)

■ Summary

Recalls OBW function of spectrum analyzer and measures occupied bandwidth for reflected parameter settings

Note

At the spectrum analyzer, automatic settings for Gate Sweep, Gate Source, Gate Delay and Gate Length are applied based on parameters such as Target Time Slot and Trigger settings from the modulation analysis function. The user can change these settings when necessary.

3.5.5 Spectrum Emission Mask (SEM)

This recalls the Spectrum Emission Mask function of the spectrum analyzer. Settings for Carrier Frequency, Input level, Offset, Offset Value and Pre-Amp are reflected automatically in the corresponding parameters. When this function is recalled, Recall Current Application described in Section 3.6.2 Recalling parameters of the “MS2690A/MS2691A/MS2692A Signal Analyzer Operation Manual (Main Frame Operation)” or “MS2830A Signal Analyzer Operation Manual (Main Frame Operation)” cannot be executed.

Spectrum Emission Mask (Swept)



■ Summary

Recalls SEM function of spectrum analyzer and measures spectrum emission mask for reflected parameter settings



Note

At the spectrum analyzer settings, standard parameters are applied automatically. There are different standard parameters for uplink and downlink. The user can change these settings when necessary.

3.6 Setting Marker

After selecting “Modulation Analysis” or “Power vs Time”, pressing  (Marker) on the main function menu or  displays the corresponding Marker function menu.

3.6.1 Modulation Analysis

After selecting “Modulation Analysis”, pressing  (Marker) on the main function menu or  displays the Marker function menu for “Modulation Analysis”.

Marker

- Summary
Sets marker function on/off

- Selection options

On Enables marker function

Off Disables marker function

Constellation Select

- Summary
Sets operation target for rotary knob and cursor key to Constellation

Bottom Graph Select

- Summary
Sets operation target for rotary knob and cursor key to Graph Window



Constellation Marker Number

- Summary
Sets target of marker (Chip) while Constellation results are displayed
- Setting range
0 to 847

Bottom Graph Marker Number

- Summary
Sets marker target while Bottom Graph results displayed
- Setting range
0 to 15 for Code Domain Power vs Code Number and Code Domain Error vs Code Number

3.6.2 Power vs Time

After selecting “Power vs Time”, pressing  (Marker) on the main function menu or  displays the Marker function menu for “Power vs Time”.

Top Graph Marker

- Summary

This sets the Marker value (Chip) for Top Graph

- Selection range

0 to 6399

Note

When pressing a right or left key, Marker is moved to the Time Slot boundary.

Bottom Graph Marker

- Summary

This sets the Marker value (Chip) for Bottom Graph.

- Selection range

Top Graph Marker Value – 300.0 to Top Graph Marker Value + 299.9

Unit: Chip

Top Graph Marker to Transient

- Summary

This moves the marker displayed at Top Graph to the signal transient (on/Off boundary) determined by the Uplink-downlink Configuration, and Special Subframe Configuration settings.

Top Graph Marker to Fail

- Summary

This moves the marker displayed at Top Graph to the fail part.

Peak Search (margin)

- Summary

This moves the marker to the peak point of the Margin result calculated using the measurements and Mask setting for the Off section specified at Mask Setup.



Margin = Measured value (dBm/MHz) – Mask setting (dBm/MHz)

Next Peak

- Summary

This moves the marker to the point with the next largest margin relative to Margin of the current marker point in the measurement range.

3.7 Setting Trigger

Pressing  (Trigger) on the main function menu or  displays the Trigger function menu.

Trigger Switch

- Summary

Sets trigger synchronization on/off

- Selection options

On	Enables trigger function
Off	Disables trigger function

Trigger Source

- Summary

Sets trigger source

- Selection options

External	Starts measurement using external trigger input
SG Marker	Starts measurement using internal Vector Signal Generator timing

Trigger Slope

- Summary

Sets trigger polarity

- Selection options

Rise	Synchronizes with trigger rising edge
Fall	Synchronizes with trigger falling edge

Trigger Delay

- Summary

Sets trigger delay

- Setting range

-0.5 to +0.5 s

3.8 EVM Display


This displays EVM analysis results for Target Time Slot of target carrier. It updates and displays the analysis results at each sweep for Off mode, the average of analysis results for the storage count for Average mode, and the average and maximum value of analysis results for Average & Max Storage Mode setting.

Target Time Slot	TS6
Frequency Error	-0.19 Hz
Mean Power	-46.51 dBm
EVM(rms)	1.67 %
EVM(peak)	4.32 %
	431 chip
Origin Offset	-66.40 dB
PCDE	-46.58 dB

Fig. 3.8-1 Result Window

1. Target Time Slot

Displays current Target Time Slot number set in Target Time Slot

 3.4 Setting Common Items

2. Frequency Error

Displays frequency error in Target Time Slot of target carrier

3. Mean Power

Displays average RF level of Target Time Slot of target carrier

4. EVM (rms)

Displays average EVM of all chips in Target Time Slot of target carrier

5. EVM (peak)

Displays maximum EVM of all chips in Target Time Slot of target carrier

6. chip

Displays chip number where EVM (peak) occurred

7. Origin Offset

Displays origin offset in Target Time Slot of target carrier

8. PCDE

Displays Peak Code Domain Error in Target Time Slot of target carrier

3.9 Constellation Display

This displays the Constellation for chips in Target Time Slot of target carrier. The marker at the selected chip is displayed in red.

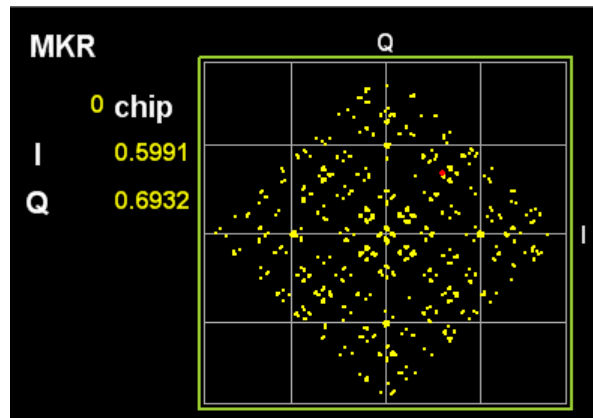


Fig. 3.9-1 Constellation Display

1. MKR chip

Displays number of chip selected by marker

The marker can be moved using the cursor keys or rotary knob.

2. MKR I/Q

Displays amplitude of I/Q of chip selected by marker

The marker can be moved using the cursor keys or rotary knob.

3.10 Code Domain Power vs Code Number Display

This displays the Code Domain Power measurement results for Target Slot of target carrier. The marker is displayed in red at the selected channel.

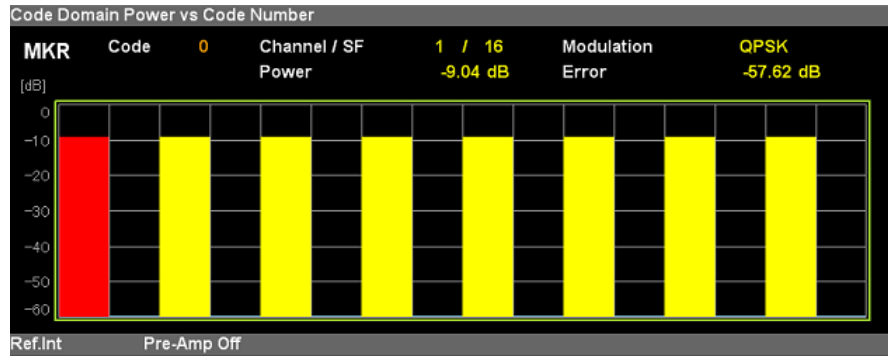


Fig. 3.10-1 Code Domain Power vs Code Number Display

1. MKR Channel/SF

Displays the marker-selected Channel number and its Spreading factor.

The marker can be moved using the cursor keys or rotary knob.

2. MKR Power

Displays Code Domain Power for Code Number selected by marker

3. MKR Error

Displays Code Domain Error for Code Number selected by marker

4. MKR Modulation

Displays Modulation Scheme for Code Number selected by marker.

3.11 Code Domain Error vs Code Number Display

This displays the Code Domain Error measurement results for Target Slot of target carrier. The marker is displayed in red at the selected channel.

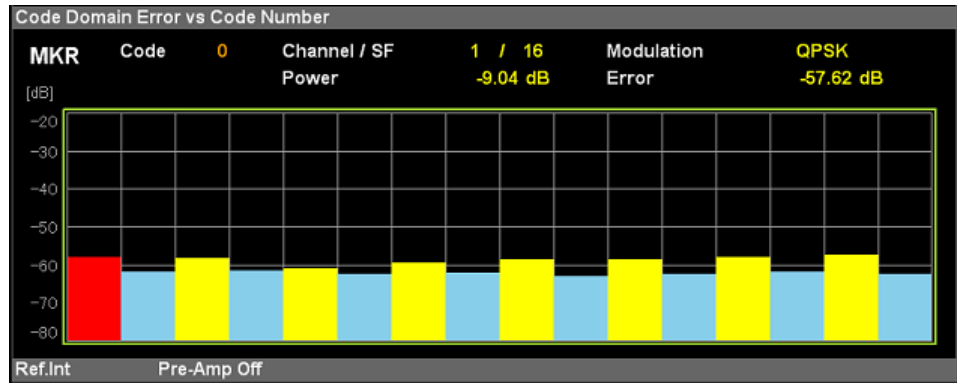


Fig. 3.11-1 Code Domain Error vs Code Number Display

1. MKR Channel/SF

Displays the marker-selected Channel number and its Spreading factor. The marker can be moved using the cursor keys or rotary knob.

2. MKR Power

Displays Code Domain Power for Code Number selected by marker

3. MKR Error

Displays Code Domain Error for Code Number selected by marker

4. MKR Modulation

Displays Modulation Scheme for Code Number selected by marker.

3.12 Multi Slot Power Display

This displays the Subframe Power, Mean, Data1, Midamble and Data2 Powers vs Slot number, including Downlink Pilot Time Slot (DwPTS) and Uplink Pilot Time Slot (UpPTS), in table form. Target Slot of target carrier is highlighted.

Multi Slot Power(dBm)									
Subframe	-18.21								
	TS0	DwPTS	UpPTS	TS1	TS2	TS3	TS4	TS5	TS6
Mean	-18.21	-18.24	***.**	-18.21	-18.21	-18.21	-18.21	-18.21	-18.21
Data1	-18.21			-18.21	-18.21	-18.20	-18.21	-18.21	-18.20
Midamble	-18.20			-18.21	-18.21	-18.20	-18.18	-18.22	-18.19
Data2	-18.21			-18.21	-18.21	-18.21	-18.22	-18.21	-18.22

Fig. 3.12-1 Multi Slot Power Display

1. Multi Slot Power Result: Subframe
Displays average power for Subframe of target carrier
2. Multi Slot Power Result: Mean
Displays mean power for each slot, including Downlink Pilot Time Slot (DwPTS) and Uplink Pilot Time Slot (UpPTS) of target carrier
3. Multi Slot Power Result: Data1
Displays average power for Data part (352 chips) before Midamble for each slot of target carrier
4. Multi Slot Power Result: Midamble
Displays average power for Midamble (144 chips) for each slot of target carrier
5. Multi Slot Power Result: Data2
Displays average power for Data part (352 chips) after Midamble for each slot of Target carrier

3.13 Multi Carrier Power Display

This displays the average power for each slot, including Downlink Pilot Time Slot (DwPTS) and Uplink Pilot Time Slot (UpPTS), of all carriers in table form. The Target Slot and target carrier set are highlighted.

Multi Carrier Power(dBm)									
	TS0	DwPTS	UpPTS	TS1	TS2	TS3	TS4	TS5	TS6
Carrier 1	-18.21	-18.23	***. **	-18.21	-18.21	-18.20	-18.20	-18.21	-18.20
Carrier 2	-18.20	-18.23	***. **	-18.20	-18.20	-18.20	-18.20	-18.20	-18.20
Carrier 3	-18.19	-18.22	***. **	-18.20	-18.19	-18.19	-18.19	-18.19	-18.19
Carrier 4	-18.20	-18.23	***. **	-18.20	-18.20	-18.20	-18.20	-18.20	-18.20
Carrier 5	-18.22	-18.24	***. **	-18.22	-18.21	-18.21	-18.21	-18.22	-18.21
Carrier 6	-18.22	-18.25	***. **	-18.23	-18.22	-18.22	-18.22	-18.23	-18.22

Fig. 3.13-1 Multi Carrier Power Display

1. Multi Carrier Power Result: Carrier

Displays mean power for each slot, including Downlink Pilot Time Slot (DwPTS) and Uplink Pilot Time Slot (UpPTS), of carrier

3.14 Power vs Time Display

This displays the measurement result graphs divided between the top and bottom graph.

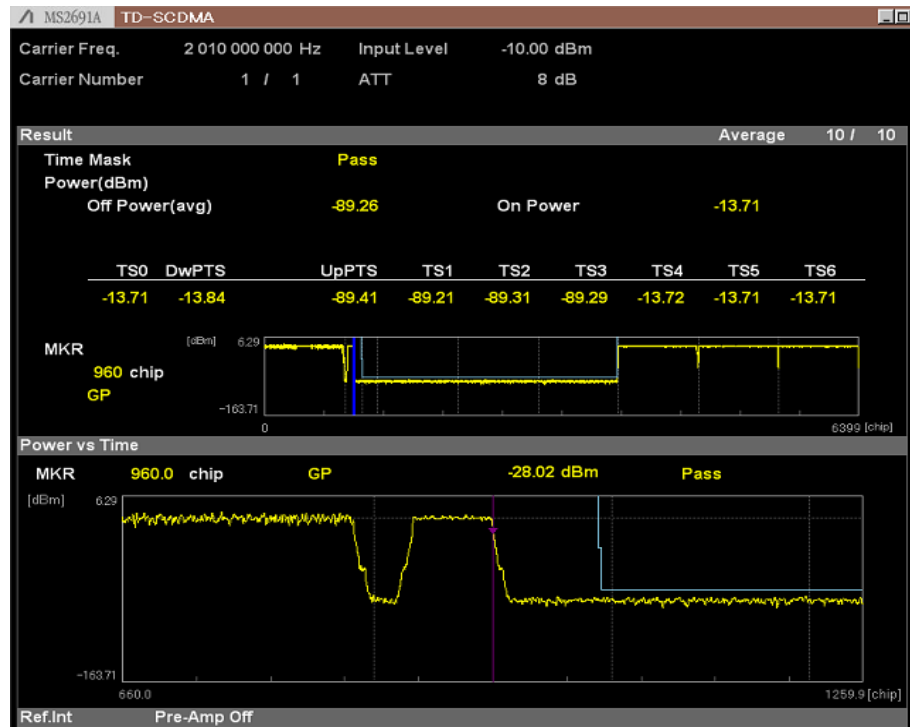


Fig. 3.14-1 Power vs Time Display

1. Time Mask
Displays the Time Mask judgment results.
2. Off Power
Displays the Off interval averaging power specified by the mask line.
3. On Power
Displays the On interval averaging power.
4. TSi Power
Displays the power values for each Time slot.
5. Top Graph (Result)
Displays total image for subframe
6. Bottom Graph (Power vs Time)
Displays graph near chip specified using Top Graph Marker

Chapter 4 Performance Test

This chapter describes measurement equipment, setup methods, and test procedures required for preventive maintenance of the MS269x Series or MS2830A.

- 4.1 Overview of Performance Test 4-2
 - 4.1.1 Performance test 4-2
- 4.2 Performance Test Items 4-3
 - 4.2.1 Testing methods 4-3



4.1 Overview of Performance Test

4.1.1 Performance test

Performance tests are part of preventive maintenance to prevent the MS269x Series or MS2830A performance becoming degraded.

Use performance tests for acceptance inspection, routine inspection, and performance verification after repairs. Perform critical items at regular intervals as preventive maintenance. Perform the following tests for acceptance inspection, routine inspection, and verification after repairs.

- Carrier frequency accuracy
- Residual EVM

Perform critical items as preventive maintenance at regular intervals. The recommended cycle is once or twice a year.

If out-of-specification items are found, contact the Anritsu Service and Sales Office listed on the last page of the printed version of this manual, and in a separate file on the CD version.

4.2 Performance Test Items

Except when directed otherwise, warm-up the test equipment and measuring instruments for at least 30 minutes to stabilize them. In addition, achieving maximum measurement accuracy requires testing at a stable ambient temperature with minimum AC power-supply voltage fluctuations in a noise-, vibration-, and dust-free environment with low humidity.

4.2.1 Testing methods

- (1) Test target standards
 - Carrier frequency accuracy
 - Residual EVM
- (2) Measuring instruments
 - Vector signal generator
 - Power meter
 - 3 dB attenuator×2
- (3) Setup

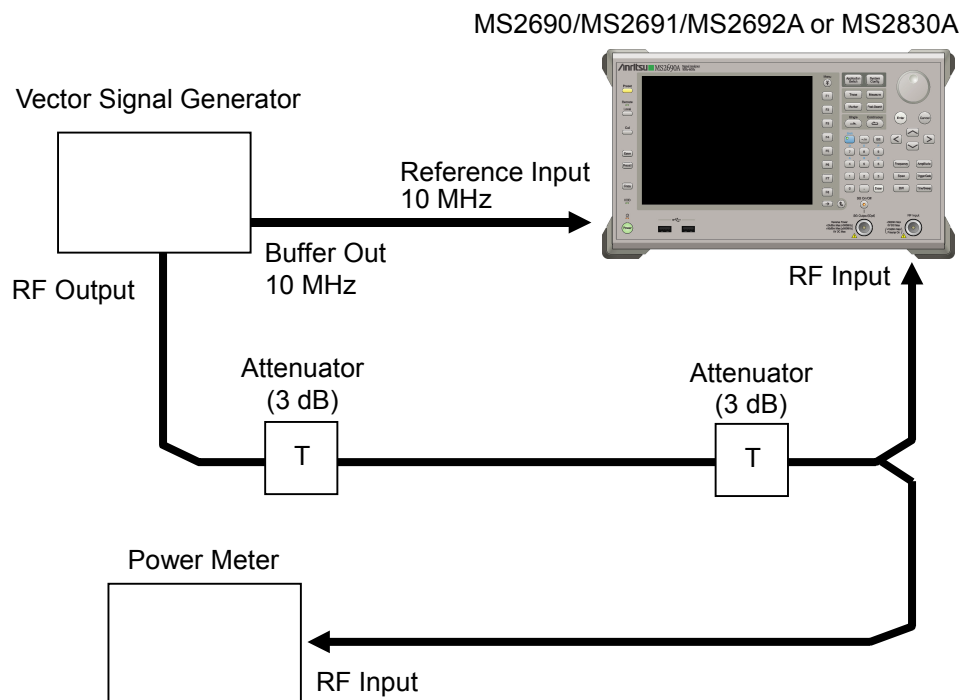


















Fig. 4.2.1-1 Performance Test

(4) Test procedure

(a) Adjusting signal source




1. Input the 10-MHz reference signal output from the vector signal generator to the Reference Input connector of the MS269x Series or MS2830A.
2. Input the 10 MHz reference signal output from the signal generator to the Reference Input connector.
3. Output a TD-SCDMA modulation signal from the vector signal generator.
4. Input the vector signal generator output signal to the power meter and measure the power.

(b) Setting MS269x Series or MS2830A

1. Turn on the Power switch on the front panel of the MS269x Series or MS2830A and wait until the internal temperature stabilizes (about 1.5 hours after the temperature chamber stabilizes).
2. Press  and press the menu function key displaying the TD-SCDMA character string.
3. Press .
4. Press  (Preset) to initialize.
5. Press .
6. Press  (SIGANA All) to calibrate.
7. Press  (Close).
8. Press  and input the frequency output by the vector signal generator using the numeric keypad; press .
9. Press  and input the result of the power meter measurement using the numeric keypad; press .
10. Press  and then press  (Storage) and  (Mode) to choose Average using the cursor keys or rotary knob; press .
11. Press  (Count) and input the measurement count using the numeric keypad; press .

12. Press  to measure.

When measuring the carrier frequency accuracy, select **Auto** for **Reference Signal**. When measuring the residual vector error, select **Fixed to Internal**.

Press  (System Settings) after pressing  to display the System Settings screen. Select and set Reference Signal with cursor key, and then press  (Set).

- 13. Confirm that the measured frequency(Carrier frequency accuracy) error is within the specifications.
- 14. Confirm that the measured EVM (rms) (Residual EVM) is within the specifications.

(5) Test results

Table 4.2.1-1 Carrier frequency measurement accuracy

Frequency	Min. limit	Deviation (Hz)	Max. limit	Uncertainty	Pass/Fail
1850 MHz	MS269xA -20 Hz		MS269xA +20 Hz	MS269xA ±2 Hz	
2010 MHz					
2300 MHz	MS2830A -20 Hz		MS2830A +20 Hz	MS2830A ±1.8 Hz	
2570 MHz					

Table 4.2.1-2 Residual EVM

Frequency	Measured value [% (rms)]	Max. limit	Uncertainty	Pass/Fail
1850 MHz		MS269xA 1.0% (rms)	MS269xA 0.15% (rms)	
2010 MHz				
2300 MHz		MS2830A 1.2% (rms)	MS2830A 0.1% (rms)	
2570 MHz				

Chapter 5 Other Functions

This chapter describes other functions of this application.

5.1	Selecting Other Functions	5-2
5.2	Setting Title	5-2
5.3	Erasing Warmup Message	5-2

5.1 Selecting Other Functions


Pressing  (Accessory) on the main function menu displays the Accessory function menu.






Table 5.1-1 Accessory function menu

Function Keys	Menu Display	Function
F1	Title	Sets the title character string.
F2	Title (On/Off)	Displays (On) or hides (Off) the title character string.
F4	Erase Warm Up Message	Erases the warmup message display.


5.2 Setting Title

A title of up to 32 characters can be displayed on the screen. (Character strings of up to 17 characters can be displayed on a function menu. The maximum number of characters to be displayed on the top of the function menu varies according to character string.)



<Procedure>

1. Press  (Accessory) on the main function menu.
2. Press  (Title) to display the character string input screen. Select a character using the rotary knob, and enter it by pressing . Enter the title by repeating this operation. When the title is entered, press  (Set).
3. Press  (Title) and then select "Off" to hide the title.

5.3 Erasing Warmup Message

The warmup message () , which is displayed upon power-on and indicates that the level and frequency are not stable, can be deleted.

<Procedure>

1. Press  (Accessory) on the main function menu.
2. Press  (Erase Warm Up Message) to erase the warmup message.

Appendix

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Appendix A Error Messages

Table A-1 Error Messages

Message	Description
Out of range	The settable range is exceeded.
Not available in Center Frequency Mode	Carrier Frequency mode is not available when Center Frequency mode is set and vice versa.
Not available in Carrier Frequency Mode	Center Frequency mode is not available when Carrier Frequency mode is set and vice versa.
Not available in Auto Rate Detection On	Spreading Factor is not available when Auto Rate Detection is On.
Not available if not Code Domain	Target Time Slot cannot be set to Burst when Trace Mode is set to either Multi Slot Power or Multi Carrier Power.
Not available if not Code Domain Power	Code Domain Power Scale can not be set when Trace Mode is not set to Code Domain Power.
Not available if not Code Domain Error	Code Domain Error Scale can not be set when Trace Mode is not set to Code Domain Error.
Not available in Multi Slot Power	Marker Select and Marker Number are not available when Trace Mode is set to Multi Slot Power.
Not available in Multi Carrier Power	Marker Select and Marker Number are not available when Trace Mode is set to Multi Carrier Power.
Not available in Burst	Trace Mode cannot be set to Multi Slot Power when Target Time Slot is set to Burst.
Not available in Burst	Trace Mode cannot be set to Multi Carrier Power when Target Time Slot is set to Burst.
Not available in Bottom Graph Select	Constellation Marker Number is not available when Bottom Graph Select is set.
Not available in Constellation Select	Bottom Graph Marker Number is not available when Constellation Select is set.
Not available in Power vs Time.	Signal Detection cannot be set to UL at Power vs Time. Also, Target Time Slot cannot be set at Power vs Time.
Not available when Signal Detection is set to UL.	Signal Detection cannot be set to UL at Power vs Time.
Not available when Wide Dynamic Range is set to On.	Pre-Amp cannot be set to On, when Wide Dynamic Range is set to On.
Not available when Wide Dynamic Range is set to Off.	Noise Correction cannot be set to On when Dynamic Range is set to Off.
Not available when Pre-Amp Mode is set to On.	Noise Correction cannot be set to On, when Noise Correction is set to On.
Not available when either Wide Dynamic Range is set to Off, or Trigger Switch is set to Off.	Pre-Amp Mode cannot be set to On when either Dynamic Range is set to Off, or Trigger Switch is set to Off.

Table A-1 Error Messages (Cont'd)

Message	Description
Not available when Noise Correction is set to On.	Pre-Amp Mode cannot be set to On, when Noise Correction is set to On.
Please Load Signal Analyzer	The Signal Analyzer function is required to be loaded.
Please Load Spectrum Analyzer	The Spectrum Analyzer function is required to be loaded.
No file to read	There is no file that can be read.
File read error	File reading has failed.
File format error	The file format is invalid.
Invalid character	—

Appendix B Initial Value List

Frequency

Carrier Frequency	2.01 GHz
Center Frequency	2.01 GHz
Frequency Mode	Carrier Frequency

Amplitude

Input Level	-10.00 dBm
Pre-Amp	Off
Offset	Off
Offset Value	0.00 dB

Common Setting

Signal direction	Downlink
Scrambling Code Number	0
K	16
Target Time Slot	Burst
Carrier Number	1
Target Carrier	1
Active Channel Threshold	-30.00 dB
Active Slot Threshold	-10.00 dB
Auto Rate Detection	On
SF	16

Modulation Analysis

Trace Mode	Code Domain Power
Storage	
Mode	Off
Count	10
Scale	
Code Domain Power Scale	60.00 dB
Code Domain Error Scale	60.00 dB
Marker	
Marker	On
Constellation Marker Number	0
Bottom Graph Marker Number	0

Power vs Time

Power vs Time	
Wide Dynamic Range	On
Noise Correction	Off
Pre-Amp Mode	Off
Select Mask	Standard

Appendix B Initial Value List

Mask Setup		
Time1		8.0 chip
Time2		8.0 chip
Time3		85.0 chip
Time4		8.0 chip
Time5		8.0 chip
Level1		-41.3dBm
Level2		-80.00dBm
Smoothing		
Smoothing		On
Smoothing Length		1.0 chip
Storage		
Mode		On
Storage Count		10
Marker		
Marker		On
Top Graph Marker Number		0 chip
Bottom Graph Marker Number		0.0 chip
Trigger		
Trigger Switch		Off
Trigger Source		External
Trigger Slope		Rise
Trigger Delay		0 s
Accessory		
Title		TD-SCDMA
Title		On

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