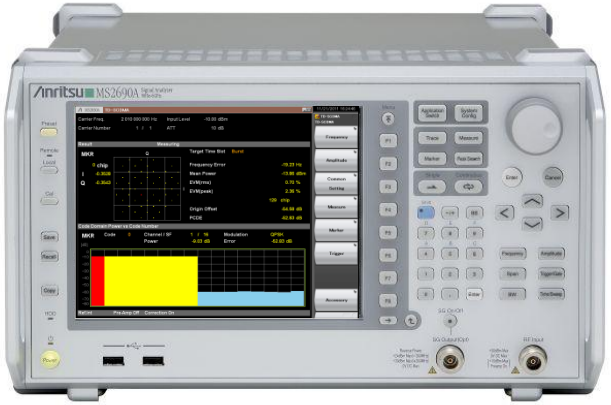
Product Introduction

MX269015A

TD-SCDMA Measurement Software

MS2690A/MS2691A/MS2692A/MS2830A
Signal Analyzer

MX269015A
TD-SCDMA Measurement Software
Product Introduction



MS269xA

MS2830A

Version 3.01

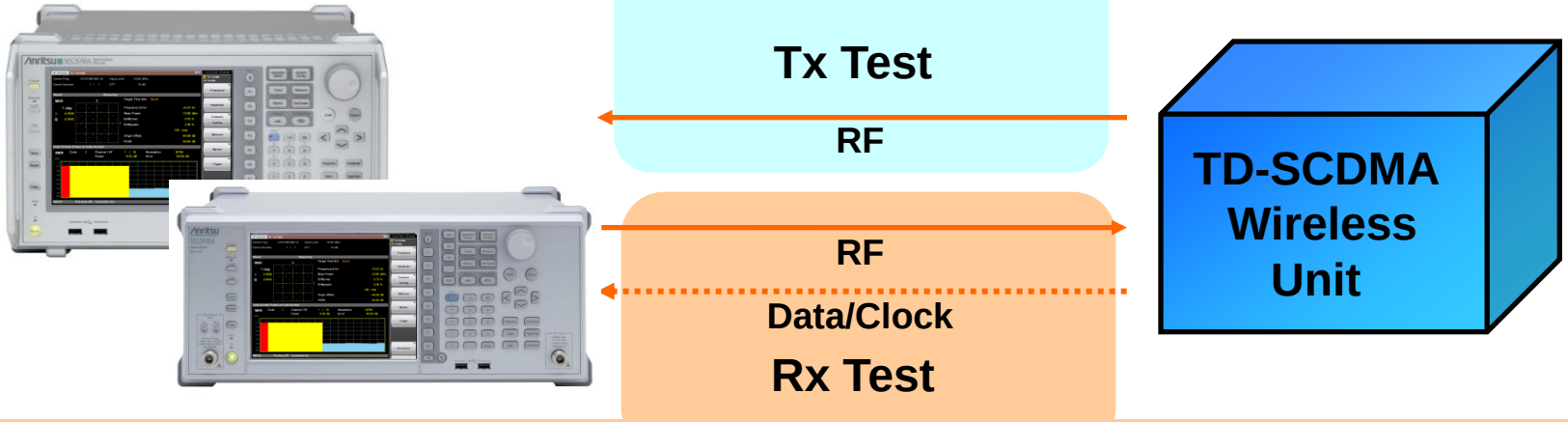
ANRITSU CORPORATION

All-in-One RF Test Functions

The compact MS269xA/MS2830A Signal Analyzer series has the functions required for testing Rx and Tx RF characteristics at R&D and manufacturing.

[Main Frame] Signal Analyzer (MS269xA/MS2830A)
Spectrum Analyzer (Adjacent Channel Leakage Power, Occupied Bandwidth, etc.)

♦**TD-SCDMA Measurement Software (MX269015A)**
Modulation accuracy, Carrier frequency, Transmitter power



♦**Vector Signal Generator (MS269xA-020, MS2830A-020/021):**
Vector signal generation function

What is MX269015A TD-SCDMA Measurement Software?

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).

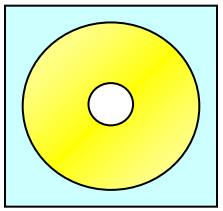
Installing the MX269015A in the MS269xA/MS2830A Signal Analyzer supports tests of:

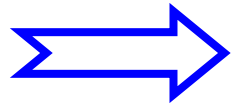
Modulation accuracy, Carrier frequency, Tx power, etc.

The following test items, which are generally measured using a spectrum analyzer, are measured by a one-touch button operation at the MS269xA/MS2830A screen.

Adjacent Channel Leakage Power, Occupied Bandwidth, Spectrum Emission Mask

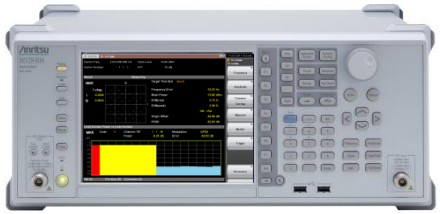
Measurement Software





MS2690A/MS2691A/MS2692A Signal Analyzer

MS2830A Signal Analyzer



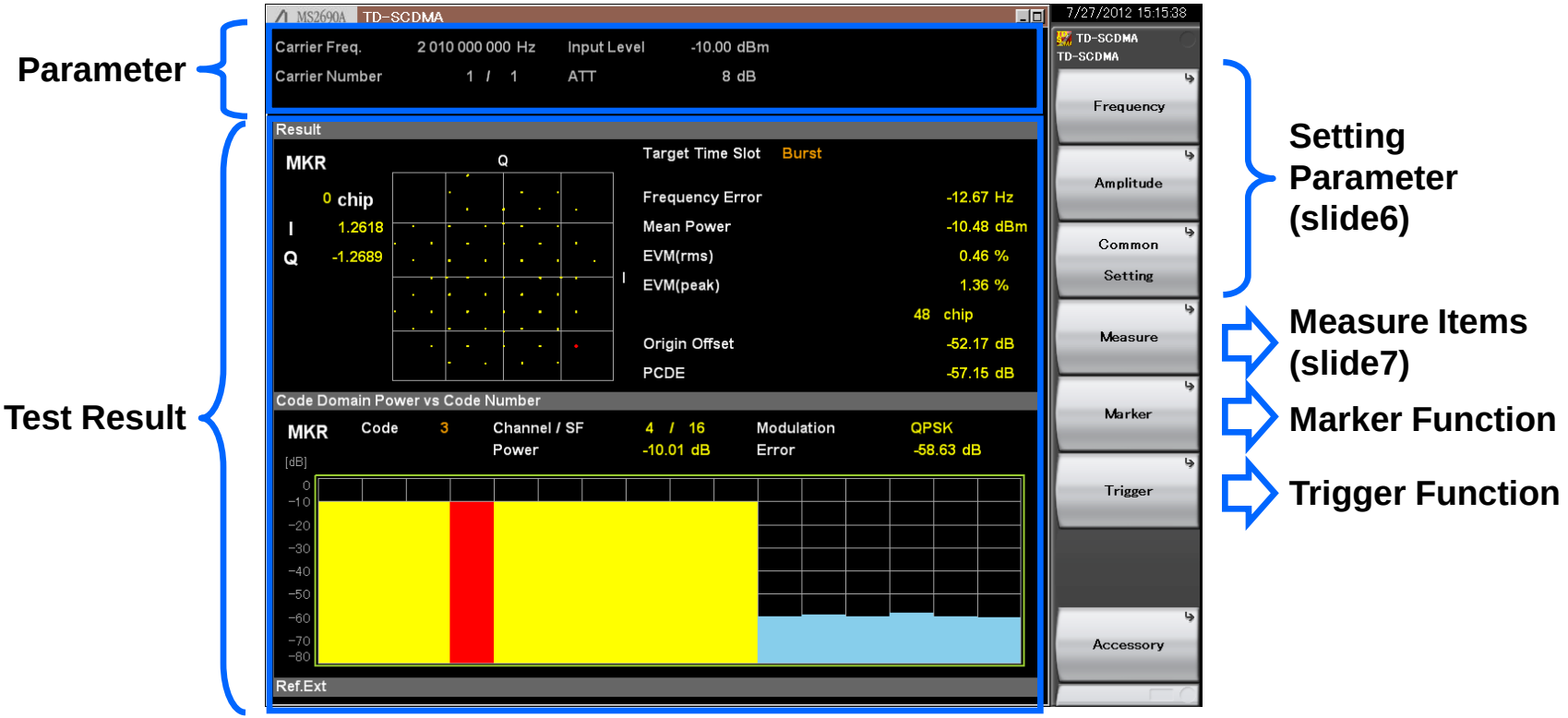
MX269015A Specification

Item	Specification
Common Specifications	
Target signals	Uplink and Downlink
Modulation/Frequency 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 ± (accuracy of reference crystal oscillator × 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: ≤ 1.0% (rms) MS2830A: ≤ 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 ≥ −10dBc) ± 0.32 dB (Code Power ≥ −30dBc)
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 ≥ −40dBc)
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
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

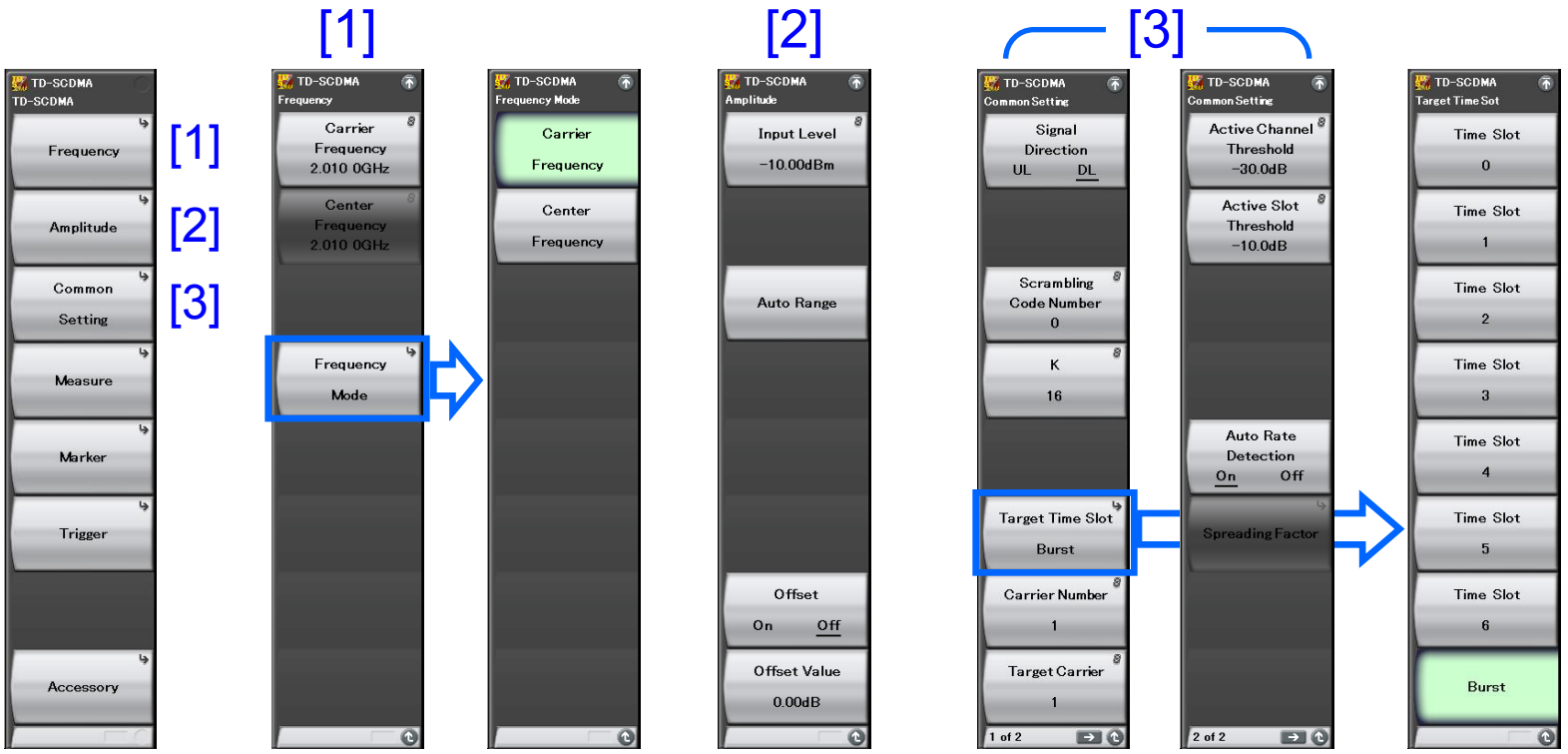
MX269015A Main Screen

The main screen when selecting the MX269015A at the MS269xA/MS2830A is shown below.

Set the basic parameters first and then press [Measure] to start a test.



MX269015A Editing Parameters

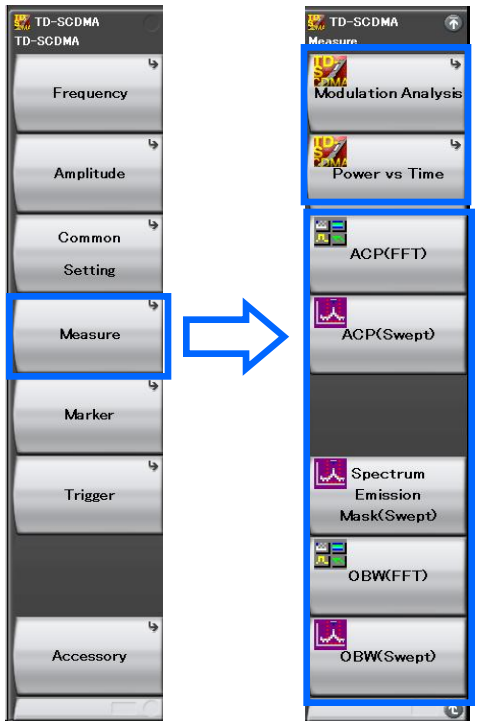


MX269015A Editing Parameters

Frequency, Amplitude, and Common Setting parameter settings

Items	Summary	Setting range
Frequency		
Carrier Frequency	Sets a carrier frequency.	100 MHz to the upper limit of the MS2690A/MS2691A/MS2692A/MS2830A.
Center Frequency	Sets center frequency.	
Frequency Mode	Selects Frequency mode.	Carrier Frequency Center Frequency
Amplitude		
Input Level	Sets input level from target DUT.	Pre-Amp: On : (-80.00 + Offset Value) to (10.00 + Offset Value) dBm Pre-Amp: Off: (-60.00 + Offset Value) to (30.00 + Offset Value) dBm
Pre-Amp	Toggles Pre-Amp function On and Off.	On: Enables Pre-Amp function. Off: Disables Pre-Amp function.
Offset	Toggles Offset function On and Off.	On: Enables Offset function. Off: Disables Offset function.
Offset Value	Sets level offset coefficient.	-99.99 to + 99.99 dB
Auto Range	Adjust Input Level according to input level.	
Common Setting		
Signal Direction	Selects measured target signal direction	UL: Analyzes Uplink input signal DL: Analyzes Downlink input signal
Scrambling Code Number	Sets Scrambling Code Number	0 to 127
K	Sets value of K (number of maximum users)	2, 4, 6, 8, 10, 12, 14, 16
Target Time Slot	Selects analyzed Time Slot	Time Slot x: Analyzes Time Slot x (x = 0 to 6) Burst: With waveform imported by measuring instrument, analyzes initial time slot
Carrier Number	Sets number of measured carriers	1 to 6
Target Carrier	Sets analyzed carrier	1 to Carrier Number
Active Channel Threshold	Sets Active Channel Threshold value	-50.0 to -5.0 dB
Active Slot Threshold	Sets Active Slot Threshold value	-50.0 to -10.0 dB
Auto Rate Detection	Selects Auto Rate Detection mode	On: Enables Auto Rate Detection Off: Disables Auto rate Detection
Spreading Factor	Sets Spreading Factor value when Auto Rate Detection disabled	1, 2, 4, 8, 16

MX269015A Measurement Items: Measure



slides 8 to 14

slides 15 to 20

MX269015A Measurement Items

- Frequency Error
- Mean Power
- Peak EVM, RMS EVM
- Origin Offset
- Peak Code Domain Error
- Constellation
- Code Domain Graph
- Multi Carrier Power
- Multi Slot Power
- Time Mask
- Off Power / On Power
- TSi Power
- Power vs Time Graph

MS269xA Measurement Items

- Adjacent Channel Leakage Power (ACLR)
- Occupied Bandwidth (OBW)
- Spectrum Emission Mask (SEM)

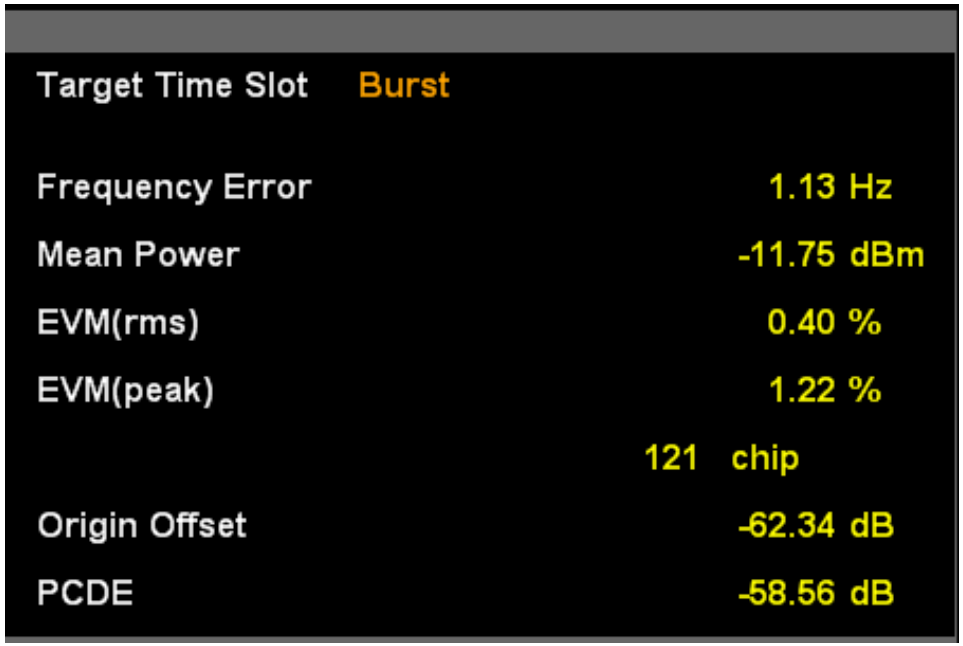
MX269015A Modulation Analysis: Editing Parameters

At Modulation Analysis, set the test conditions as shown below first.

Items	Summary	Setting range
Trace Mode	Sets type of result displayed in graph window	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 t
Scale	Sets vertical scale of a graphical result.	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	Sets scale for Code Domain Power vs Code Number Display	20/40/60/80 dB
Scale: Code Domain Error Scale	Sets scale for Code Domain Error vs Code Number Display	20/40/60/80 dB
Storage	Sets number of measurements and displayed format of numerical results.	Mode: Selects displayed format of numerical results. Count: Sets number of measurements.
Storage: Mode	Selects displayed format of numerical results.	Off: Displays the numerical results in a single measurement. Average: Displays the averages of numerical results in specified number of measurements. Average & Max: Displays the averages and maximums of numerical results in specified number of measurement
Storage: Count	Sets number of measurements (number of captures).	2 to 9999

MX269015A Modulation Analysis: Numerical Results

<Modulation accuracy, Carrier frequency, Transmitter power, Code Domain Power>

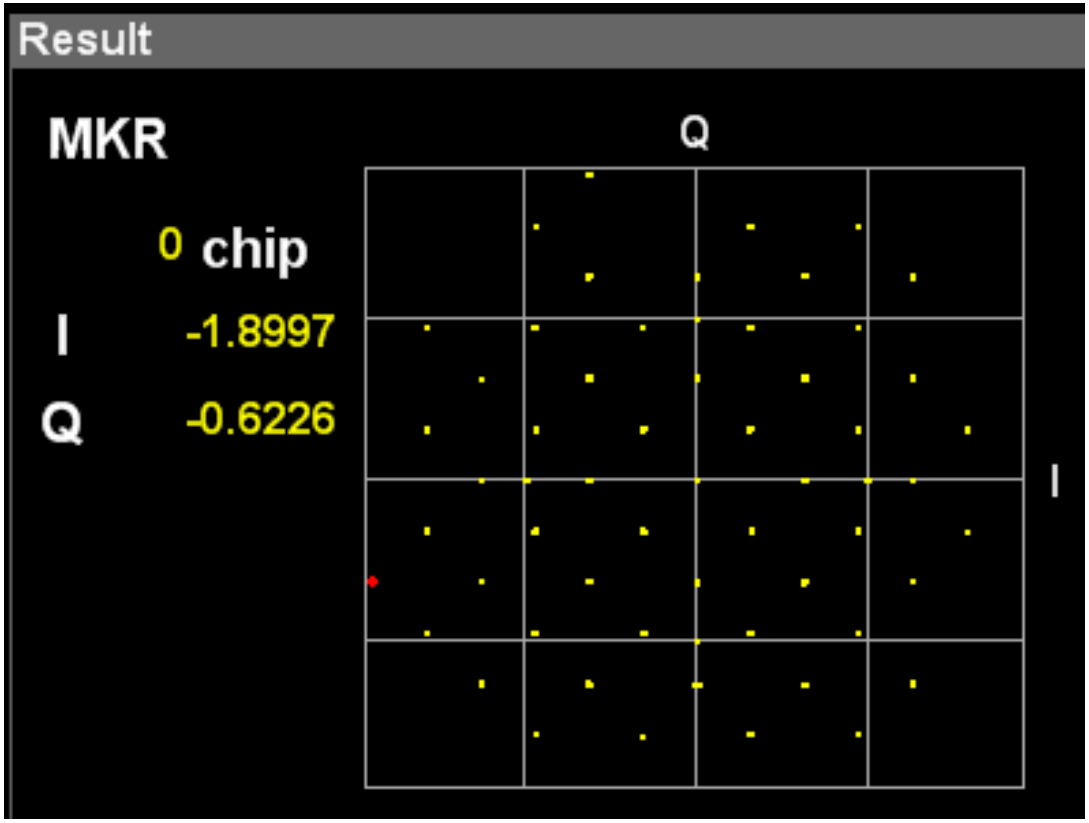


Target Time Slot	Displays current Target Time Slot number set in Target Time Slot
Frequency Error	Displays frequency error in Target Time Slot of target carrier
Mean Power	Displays average RF level of Target Time Slot of target carrier
EVM (rms)	Displays average EVM of all chips in Target Time Slot of target carrier
EVM (peak)	Displays maximum EVM of all chips in Target Time Slot of target carrier
chip	Displays chip number where EVM (peak) occurred
Origin Offset	Displays origin offset in Target Time Slot of target carrier
PCDE	Displays Peak Code Domain Error in Target Time Slot of target carrier

MX269015A Modulation Analysis: Graphical Results (1/4)

Constellation:

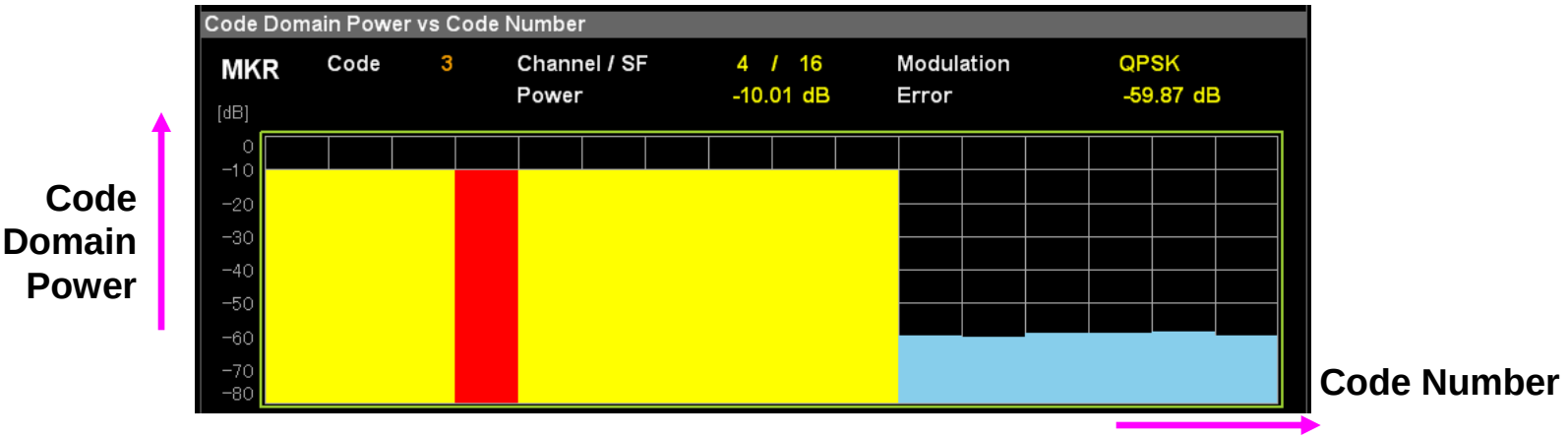
The Constellation for chips in Target Time Slot of target carrier is displayed.



MX269015A Modulation Analysis: Graphical Results (2/4)

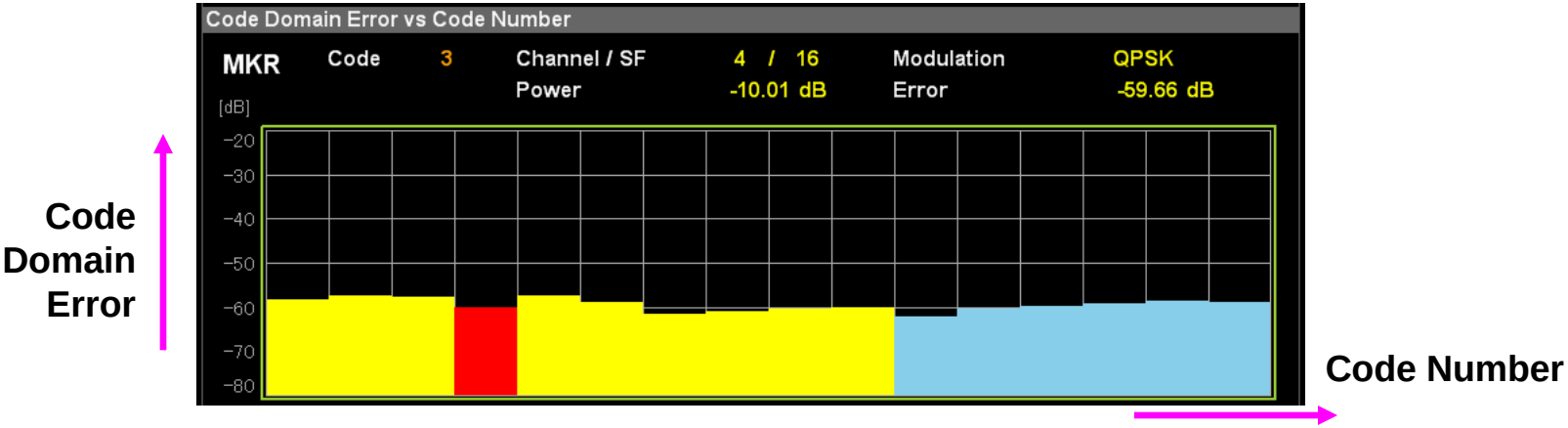
Code Domain Power vs Code Number Display:

The Code Domain Power measurement results for Target Slot of target carrier is displayed.



Code Domain Error vs Code Number Display:

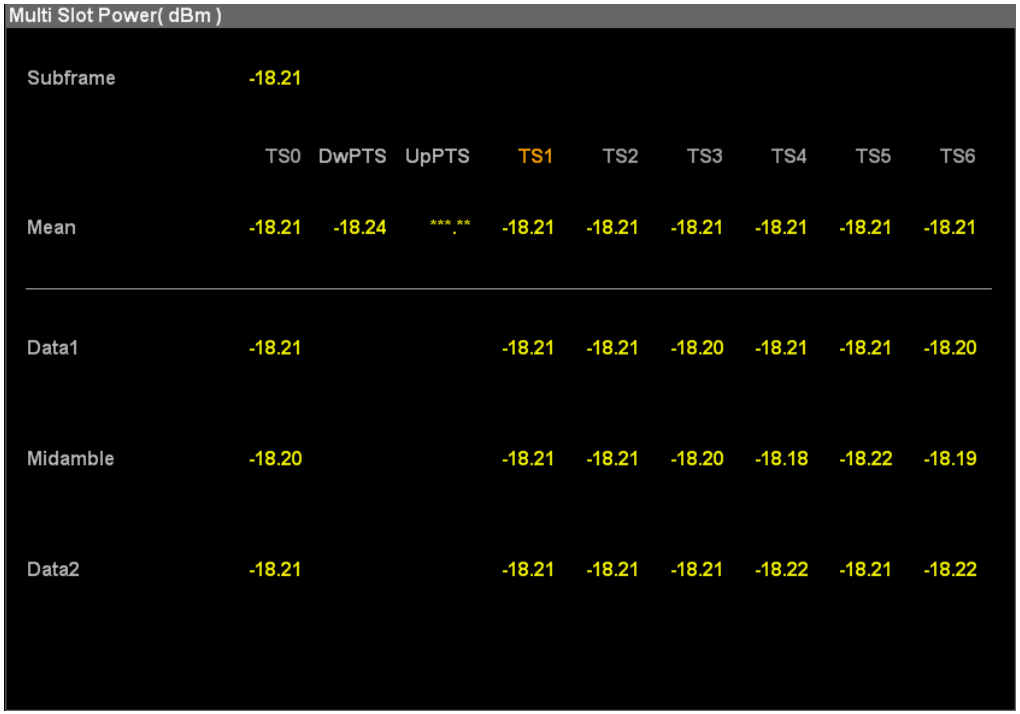
The Code Domain Error measurement results for Target Slot of target carrier is displayed.



MX269015A Modulation Analysis: Graphical Results (3/4)

Multi Slot Power Display:

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 is displayed.



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

MX269015A Modulation Analysis: Graphical Results (4/4)

Multi Carrier Power Display:
The average power for each slot, including Downlink Pilot Time Slot (DwPTS) and Uplink Pilot Time Slot (UpPTS), of all carriers in table form is displayed.

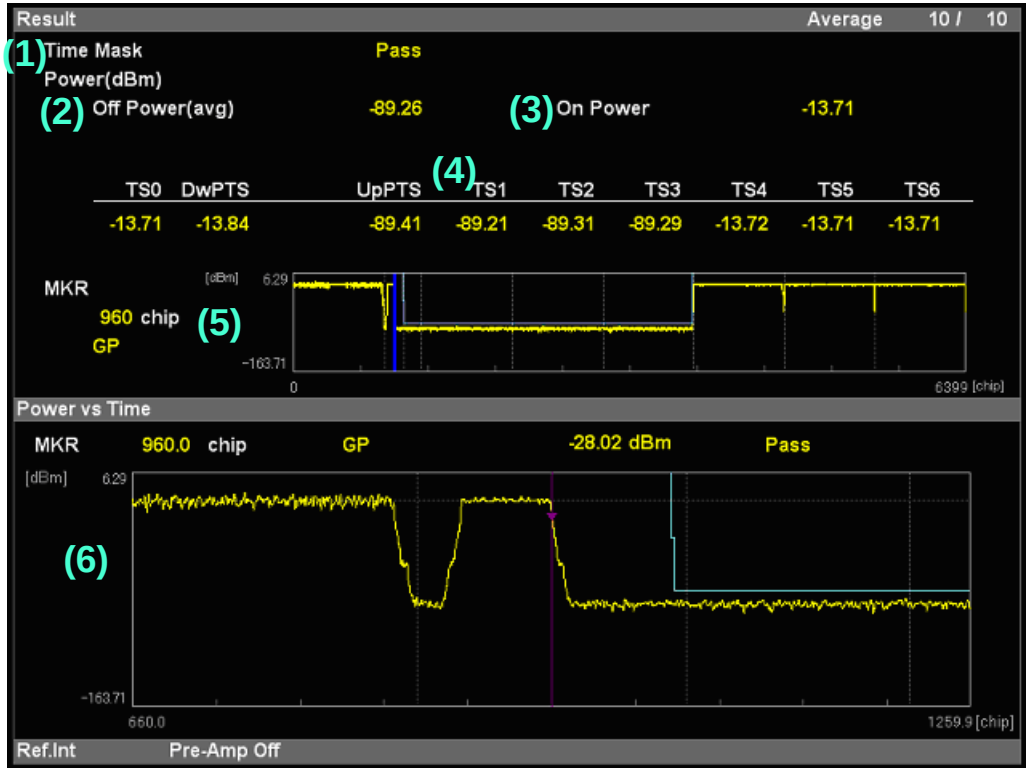
Multi Carrier Power(dBm)

	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

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

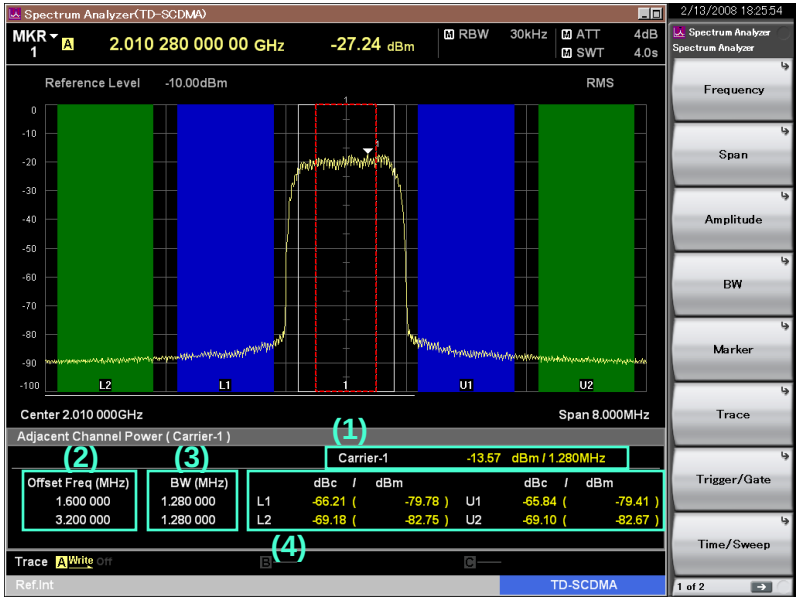
MX269015A Power vs Time: Numerical Results & Graphical Results

Power vs Time:
Provides measurements for Transmitter OFF Power and Time Mask This function can be used only in MS269x series.

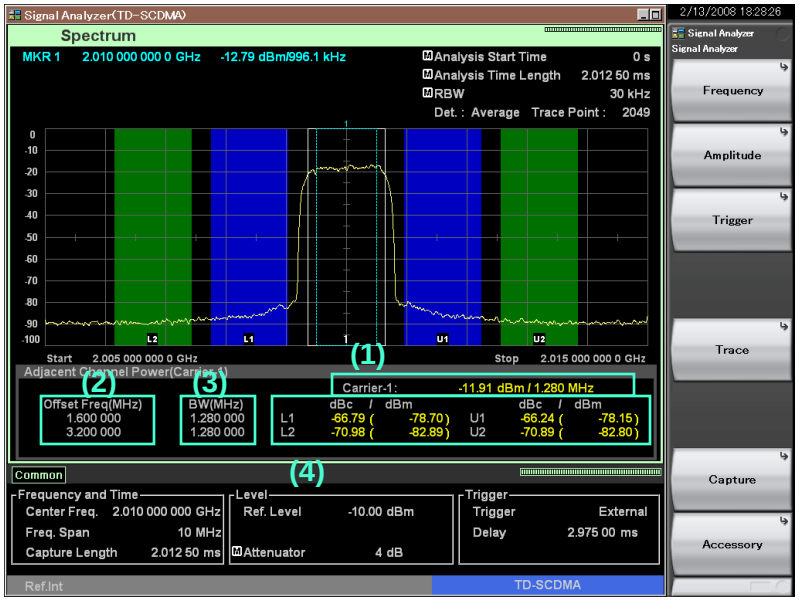


(1) Time Mask	Displays the Time Mask judgment results.
(2) Off Power	Displays the Off interval averaging power specified by the mask line.
(3) On Power	Displays the On interval averaging power.
(4) TSi Power	Displays the power values for each Time slot.
(5) Result (Top Graph)	Displays total image for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

MX269015A Adjacent Channel Leakage Power



Spectrum Analyzer (SWEEP mode)



Signal Analyzer (FFT mode)

(1) Display the integral power in the screen display band.
(When "ACP Reference" is "Span Total".)

(1) Display the integral power in In-Band.
(When "ACP Reference" is "Carrier Total."

(1) Displays the selected carrier power.
(When "ACP Reference" is "Carrier Select".)

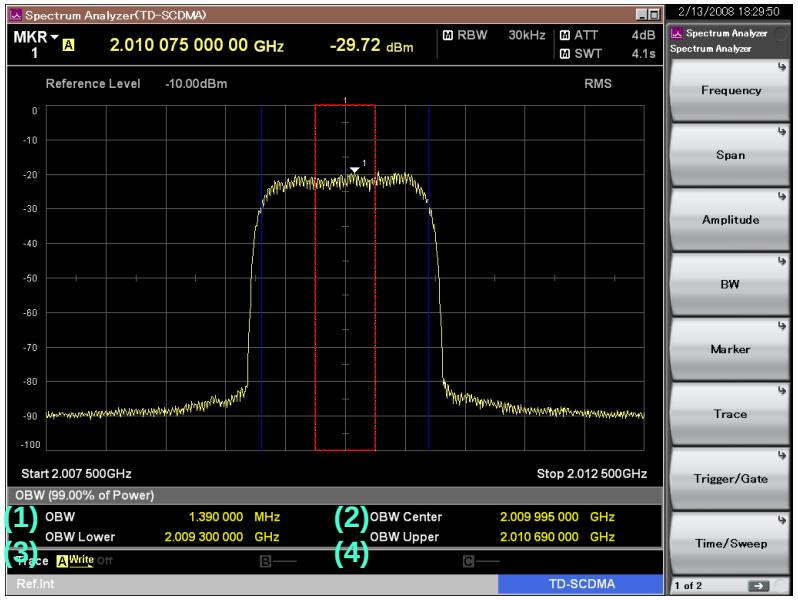
(1) Displays the carrier power on both sides.
(When "ACP Reference" is "Both Sides of Carriers".

(2) Offset Freq
Displays the setting of the offset frequency. [MHz]

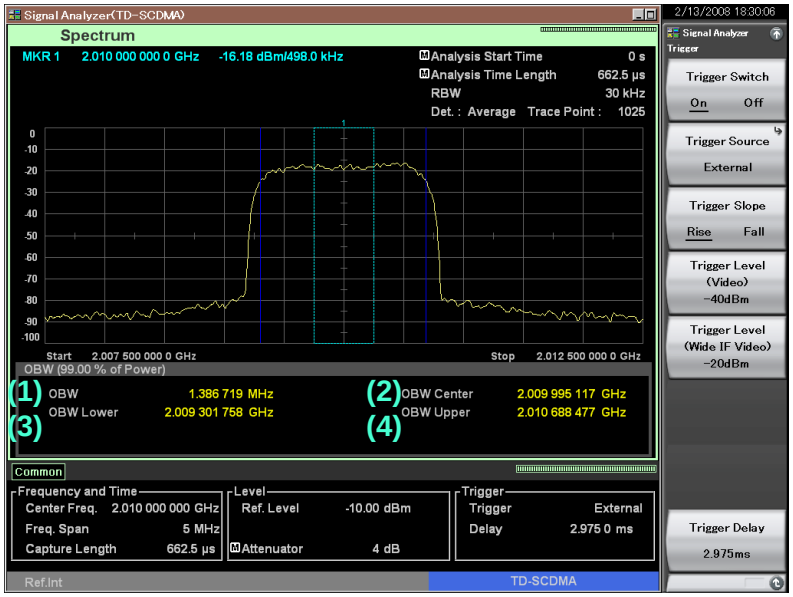
(3) BW
Displays the setting of the channel bandwidth. [MHz]

(4) L1/L2/U1/U2
Displays the relative value of the total power of the Offset Channel bandwidth around Offset-1 to -3 and the reference power selected in "ACP Reference". It also displays the total power of the Offset Channel bandwidth around Offset-1 to -3 in parentheses.

MX269015A Occupied Bandwidth



Spectrum Analyzer (SWEEP mode)



Signal Analyzer (FFT mode)

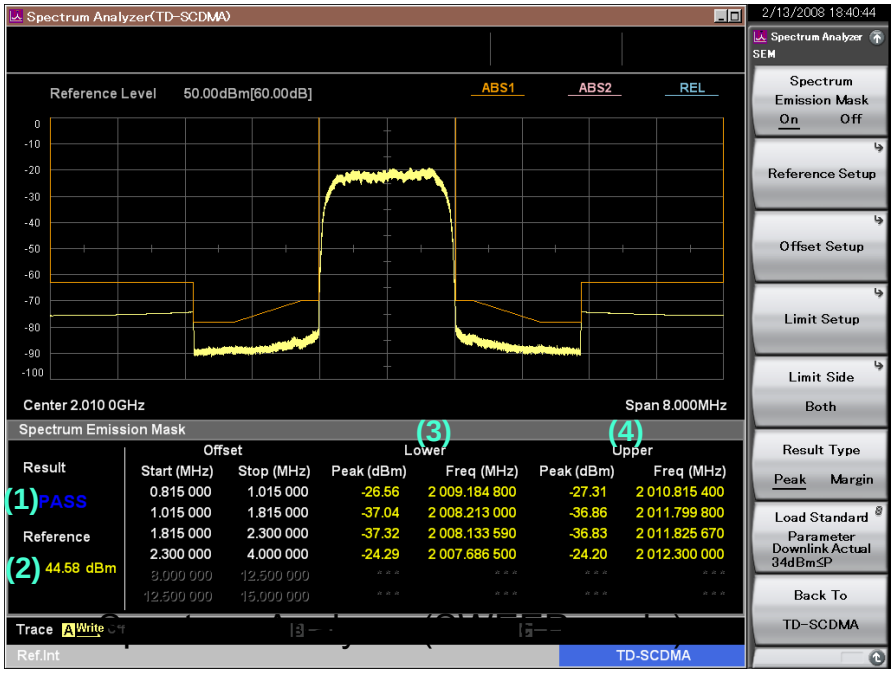
(1) OBW
Displays the occupied bandwidth.

(2) OBW Center
Displays the center frequency of the occupied bandwidth.

(3) OBW Lower
Displays the left frequency of the occupied bandwidth.

(4) OBW Upper
Displays the right frequency of the occupied bandwidth.

MX269015A Spectrum Emission Mask



(1) Result
Displays results of Pass/Fail judgment.

(2) Reference
Displays the reference power.

(3) Lower
Displays the result of the offset on the left of the reference.

(4) Upper
Displays the result of the offset on the right of the reference.

Anritsu

Specifications are subject to change without notice.

• **United States**
Anritsu Company
1155 East Collins Blvd., Suite 100, Richardson,
TX 75081, U.S.A.
Toll Free: 1-800-267-4878
Phone: +1-972-644-1777
Fax: +1-972-671-1877

• **Canada**
Anritsu Electronics Ltd.
700 Silver Seven Road, Suite 120, Kanata,
Ontario K2V 1C3, Canada
Phone: +1-613-591-2003
Fax: +1-613-591-1006

• **Brazil**
Anritsu Eletrônica Ltda.
Praça Amadeu Amaral, 27 - 1 Andar
01327-010 - Bela Vista - São Paulo - SP - Brazil
Phone: +55-11-3283-2511
Fax: +55-11-3288-6940

• **Mexico**
Anritsu Company, S.A. de C.V.
Av. Ejército Nacional No. 579 Piso 9, Col. Granada
11520 México, D.F., México
Phone: +52-55-1101-2370
Fax: +52-55-5254-3147

• **United Kingdom**
Anritsu EMEA Ltd.
200 Capability Green, Luton, Bedfordshire, LU1 3LU, U.K.
Phone: +44-1582-433200
Fax: +44-1582-731303

• **France**
Anritsu S.A.
12 avenue du Québec, Bâtiment Iris 1- Silic 612,
91140 VILLEBON SUR YVETTE, France
Phone: +33-1-60-92-15-50
Fax: +33-1-64-46-10-65

• **Germany**
Anritsu GmbH
Nemetschek Haus, Konrad-Zuse-Platz 1
81829 München, Germany
Phone: +49-89-442308-0
Fax: +49-89-442308-55

• **Italy**
Anritsu S.r.l.
Via Elio Vittorini 129, 00144 Roma, Italy
Phone: +39-6-509-9711
Fax: +39-6-502-2425

• **Sweden**
Anritsu AB
Borgarfjordsgatan 13A, 164 40 KISTA, Sweden
Phone: +46-8-534-707-00
Fax: +46-8-534-707-30

• **Finland**
Anritsu AB
Teknobulevardi 3-5, FI-01530 VANTAA, Finland
Phone: +358-20-741-8100
Fax: +358-20-741-8111

• **Denmark**
Anritsu A/S (Service Assurance)
Anritsu AB (Test & Measurement)
Kay Fiskers Plads 9, 2300 Copenhagen S, Denmark
Phone: +45-7211-2200
Fax: +45-7211-2210

• **Russia**
Anritsu EMEA Ltd.
Representation Office in Russia
Tverskaya str. 16/2, bld. 1, 7th floor.
Russia, 125009, Moscow
Phone: +7-495-363-1694
Fax: +7-495-935-8962

• **United Arab Emirates**
Anritsu EMEA Ltd.
Dubai Liaison Office
P O Box 500413 - Dubai Internet City
Al Thuraya Building, Tower 1, Suit 701, 7th Floor
Dubai, United Arab Emirates
Phone: +971-4-3670352
Fax: +971-4-3688460

• **Singapore**
Anritsu Pte. Ltd.
60 Alexandra Terrace, #02-08, The Comtech (Lobby A)
Singapore 118502
Phone: +65-6282-2400
Fax: +65-6282-2533

• **India**
Anritsu Pte. Ltd.
India Branch Office
2nd & 3rd Floor, #837/1, Binnamangla 1st Stage,
Indiranagar, 100ft Road, Bangalore - 560038, India
Phone: +91-80-4058-1300
Fax: +91-80-4058-1301

• **P.R. China (Shanghai)**
Anritsu (China) Co., Ltd.
Room 1715, Tower A CITY CENTER of Shanghai,
No.100 Zunyi Road, Chang Ning District,
Shanghai 200051, P.R. China
Phone: +86-21-6237-0898
Fax: +86-21-6237-0899

• **P.R. China (Hong Kong)**
Anritsu Company Ltd.
Unit 1006-7, 10/F., Greenfield Tower, Concordia Plaza,
No. 1 Science Museum Road, Tsim Sha Tsui East,
Kowloon, Hong Kong, P.R. China
Phone: +852-2301-4980
Fax: +852-2301-3545

• **Japan**
Anritsu Corporation
8-5, Tamura-cho, Atsugi-shi, Kanagawa, 243-0016 Japan
Phone: +81-46-296-1221
Fax: +81-46-296-1238

• **Korea**
Anritsu Corporation, Ltd.
502, 5FL H-Square N B/D, 681
Sampyeong-dong, Bundang-gu, Seongnam-si,
Gyeonggi-do, 463-400 Korea
Phone: +82-31-696-7750
Fax: +82-31-696-7751

• **Australia**
Anritsu Pty. Ltd.
Unit 21/270 Ferntree Gully Road, Notting Hill,
Victoria 3168, Australia
Phone: +61-3-9558-8177
Fax: +61-3-9558-8255

• **Taiwan**
Anritsu Company Inc.
7F, No. 316, Sec. 1, NeiHu Rd., Taipei 114, Taiwan
Phone: +886-2-8751-1816
Fax: +886-2-8751-1817

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Please Contact:

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