

Product Brochure

Anritsu

For MT8820B Radio Communication Analyzer

MX882007C

TD-SCDMA Measurement Software

MX882007C-011

TD-SCDMA HSDPA Measurement Software

MX882007C-021

TD-SCDMA HSUPA Measurement Software





for TD-SCDMA HSPA

All-in-one Solution Supporting TD-SCDMA Terminal Development and Manufacturing

The MT8820B/MT8815B Radio Communication Analyzer with MX882007C TD-SCDMA Measurement Software offer powerful support for the R&D and manufacturing phases of 3G TD-SCDMA mobile terminals (1.28 Mcps TDD) now making good market progress mainly in China. Evaluation of the mobile RF characteristics is easy because 3GPP-compliant Tx and Rx measurements of TD-SCDMA mobiles are fully supported and optional support for HSDPA^{*1} permits Throughput tests too. Then, it supports uplink high speed communication for TD-SCDMA HSUPA^{*2} and can test RF measurement. In addition, built-in functions support voice connections and two-way voice tests as well as audio tests^{*3} providing easy voice evaluation. Videophone functions^{*4} are also supported. One-touch settings for 3GPP-compliant testing, and automation of complex tests, such as Closed loop power control (CLPC), Out-of-sync handling make manual operation easy. Moreover, executing selected Tx/Rx test items sequentially using the Test Plan function permits batch testing and evaluation using just one tester without a PC controller. When the optional MX882001C GSM Measurement Software is installed, one unit supports call processing and all the main Tx and Rx characteristics tests for dual TD-SCDMA/GSM mobile terminals entering service soon.

Terminal manufacturing and inspection test times are greatly reduced by running multiple Tx and Rx measurements in parallel, and even greater time savings can be made at handover from TD-SCDMA to GSM systems^{*5}. Downlink signal and fast power measurement at terminal RF adjustment are supported and the built-in GPIB interface simplifies incorporation into automated production lines as well as configuration of automatic maintenance evaluation systems. This full range of powerful and versatile functions for cutting test times makes the MT8820B/MT8815B the perfect solution for developing and manufacturing TD-SCDMA terminals.

*1: Requires MX882007C-011 TD-SCDMA HSDPA Measurement Software.
 *2: Requires MX882007C-021 TD-SCDMA HSUPA Measurement Software.
 *3: Requires MX882007C-001 TD-SCDMA Voice Codec.
 *4: Requires MX882007C-003 TD-SCDMA Video Phone Test.
 *5: Requires MX882001C GSM Measurement Software.

Test	3GPP TS34.122 ^{*6}	Test Item
Transmitter Tests	5.2	User Equipment maximum output power
	5.3	UE frequency stability
	5.4.1.3	Open loop power control
	5.4.1.4	Closed loop power control
	5.4.2	Minimum output power
	5.4.3	Transmit OFF power
	5.4.4	Transmit ON/OFF Time mask
	5.4.5	Out-of-synchronisation handling of output power for continuous transmission
	5.4.6	Out-of-synchronisation handling of output power for discontinuous transmission
	5.5.1	Occupied bandwidth
	5.5.2	Out of band emission
	5.5.2.1	Spectrum emission mask
	5.5.2.2	Adjacent Channel Leakage power Ratio (ACLR)
	5.7.1	Error Vector Magnitude
5.7.2	Peak code domain error	
Receiver Tests	6.2	Reference sensitivity level
	6.3	Maximum Input Level
Performance Test	7.2 ^{*7}	Demodulation in static propagation conditions

*6: Ver. 8.2.0, Only 1.28 Mcps TDD

*7: Support Test1 only

MX882007C TD-SCDMA Measurement Software

TD-SCDMA Terminal Tx/Rx Measurements with Call Processing

Because the MX882007C TD-SCDMA Measurement Software supports TD-SCDMA terminals (1.28 Mcps TDD) in the frequency range from 300 MHz to 2700 MHz (UARFCN: 1500 to 13500) not only are the current band supported, but any new bands within this frequency will be supported easily.

Frequency Band (currently TS 34.122 Ver. 8.2.0)*

Operating Band	Uplink/Downlink [MHz]	UARFCN
a	1900 to 1920 2010 to 2025	9504 to 9596 10054 to 10121
b	1850 to 1910 1930 to 1990	9254 to 9546 9654 to 9946
c	1910 to 1930	9554 to 9646

*: The MX882007C has supported Operating Band f (Uplink/Downlink [MHz]: 1880 to 1920 and UARFCN: 9404 to 9596) that is specified by TS 25.102 Ver 8.2.0, a senior specification of TS 34.122.

Voice, Test-loop (RMC 12.2 kbps) Call processing, and all main Tx/Rx test items

[Transmitter Measurement]

- Transmit power
- Power template
- Frequency error
- Occupied bandwidth
- Spectrum emission mask
- Adjacent channel leakage power
- Modulation accuracy
- Peak code domain error
- Open loop power control
- Closed loop power control
- Out-of-sync handling of output power

[Receiver Measurement]

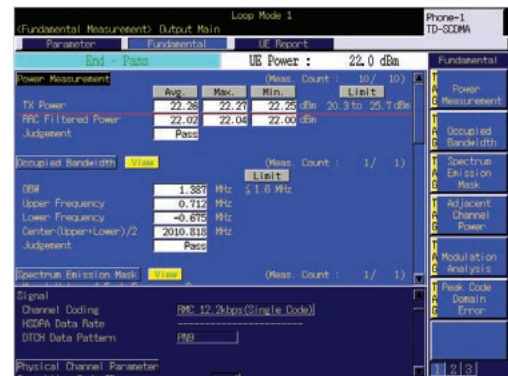
- Bit error rate (BER)
- Block error rate (BLER)

The both mobile terminal report monitor and spectrum monitor functions are supported.

Transmitter Measurement

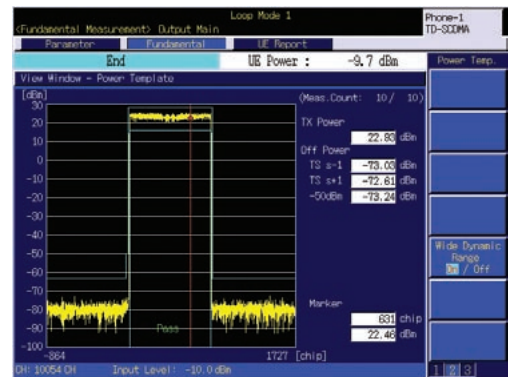
Transmit Power

This measures the transmit power TD-SCDMA terminals under max., min. or any arbitrary power conditions. Both Single Code and Multi Code RMC 12.2 kbps connections are supported and can be switched during call processing.



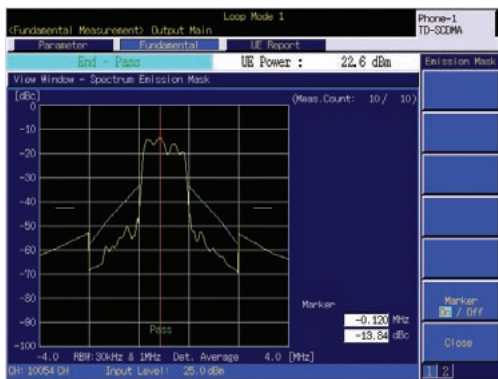
Power Template

This evaluates the TD-SCDMA terminal burst-waveform off power and rising/falling template PASS/FAIL conformance, which can be displayed as a graph too. Using the wide dynamic range function displays the on-to-off burst waveform at maximum output on a single screen.



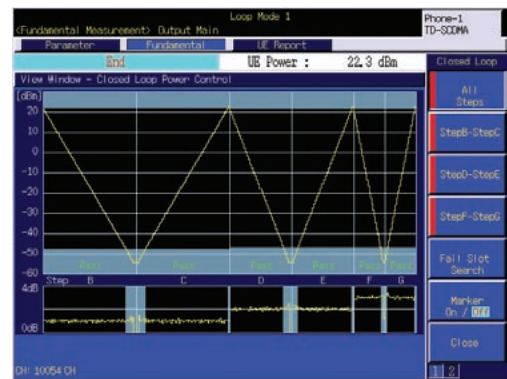
Spectrum Emission Mask

This evaluates the TD-SCDMA terminal spectrum emission mask conformance to check whether or not the spectrum within ± 4.0 MHz of the center frequency satisfies the 3GPP standards. Both the worst value and mask margin in each frequency range can be displayed.



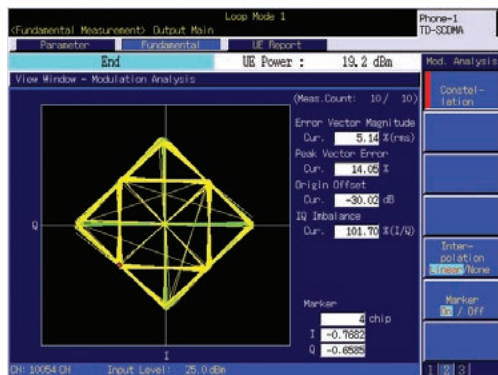
Closed Loop Power Control (CLPC)

This measurement sends a TPC (power control) bit stream to the TD-SCDMA terminal to monitor and PASS/FAIL evaluate the transmit power response on the measurement screen. Automated measurement makes 3GPP-compliant testing easy and the Fail Slot Search function simplifies Fail location as well.



Modulation Analysis

This performs TD-SCDMA terminal modulation measurements such as error vector magnitude (EVM), phase error, magnitude error, origin offset, IQ Imbalance and waveform quality (Rho). EVM, phase error, amplitude, and constellation graphs are supported too.

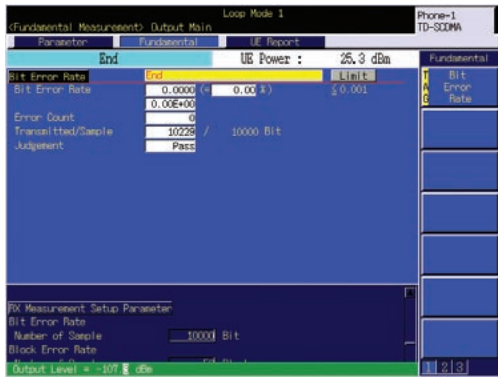




Receiver Measurement

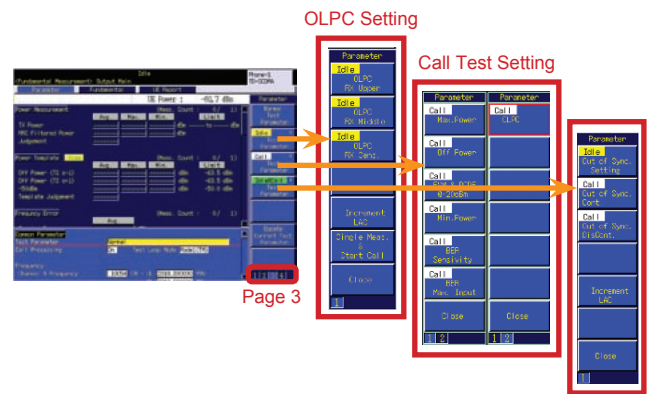
Bit Error Rate (BER)

3GPP-compliant BER Measurement using Test Loop Mode.



One-touch Setting of Tx/Rx Test Items

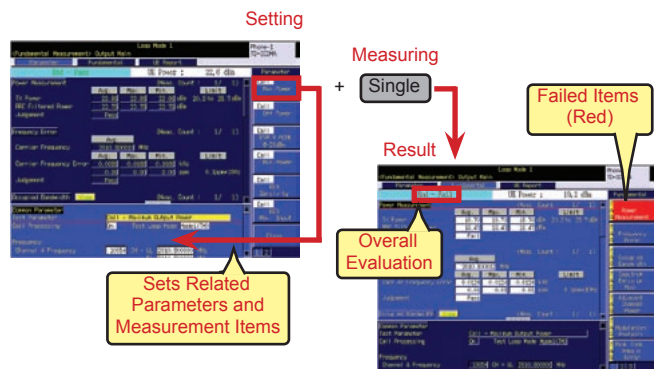
Settings for 3GPP-compliant main Tx/Rx tests are made by one-touch operation. Evaluation starts when measurement is completed by pressing Single, continuously, allowing even novices to perform accurate measurements successfully. In addition, control programs can be created simply and test speed can be faster using relevant GPIB commands.



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Out-of-Sync Handling Test Setting

For example, pressing **Call** automatically sets related parameters controlling the mobile terminal maximum output level, and measurement items. After measurement, overall evaluation, pass and fail items (displayed in red) can be seen at a glance.



One-touch 3GPP TS34.122 Settings



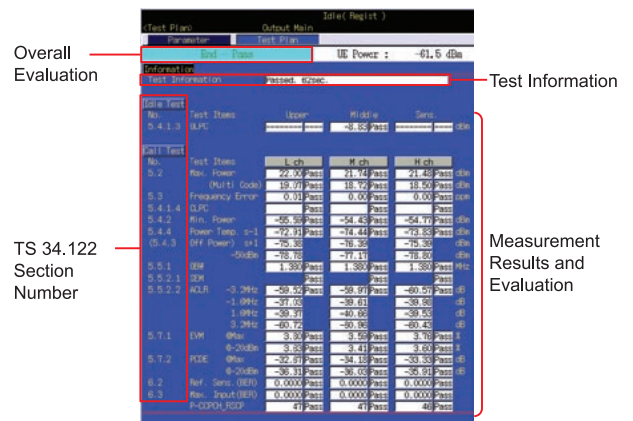
Mobile Terminal Report Monitor

This function monitors the power class reported from the TD-SCDMA terminal and the Primary CCPCH level received at the terminal.



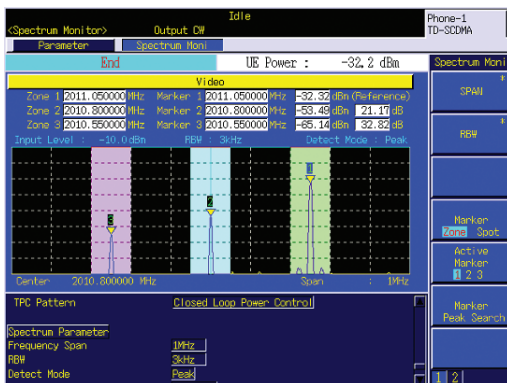
Test Plan

This one-touch function runs 3GPP-compliant test items, including call processing, as a batch to display each measurement result and perform PASS/FAIL evaluation of the whole test sequence. In addition, easy on-screen test sequence editing supports execution and evaluation using a single standalone unit, eliminating the need for an external PC controller.



Spectrum Monitor

This function monitors the spectrum of the RF signal in the center frequency $\pm 12.5, 2.5, 0.5, 0.125$ MHz range. Three markers and the zone/spot mode make it easy to compare peak search levels for adjusting terminal IQ and carrier leak.



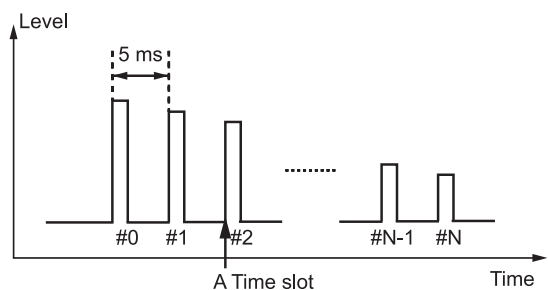
Intersystem Handover Control

RF Adjustment Functions

The Downlink RF Signal Generation function for terminal RF adjustment without call processing is supported, and the Multi power Measurement Function for speedy Tx output level adjustment cuts RF adjustment times.

Multi Power Measurement

The Multi Power Measurement provides fast adjustment of transmitter output level of the TD-SCDMA terminal in synchronization with the chipset adjustment function. The MT8820B measures the Tx powers of each power level from the TD-SCDMA terminal in a single sweep.



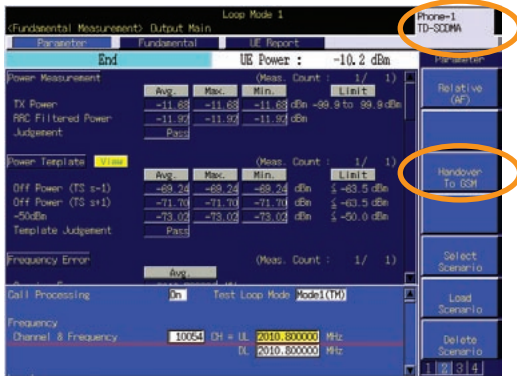
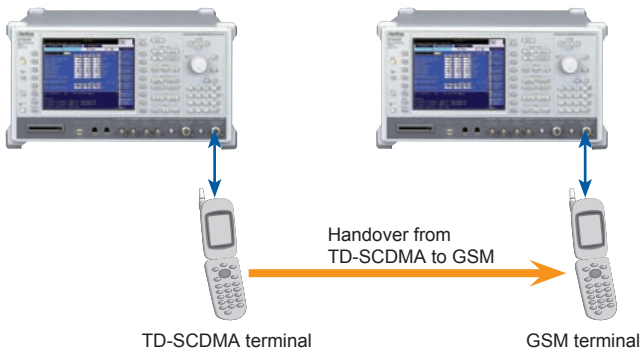
Higher Productivity

Reducing Test Time for TD-SCDMA/GSM Dual-Mode Mobiles



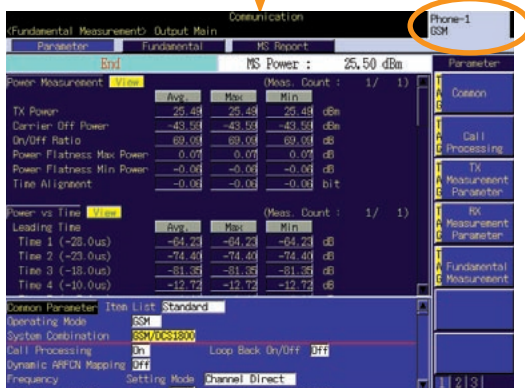
Intersystem Handover Control

Both the TD-SCDMA and GSM Tx and Rx characteristics of dual-mode TD-SCDMA/GSM terminals can be measured and voice handover from TD-SCDMA to GSM can be tested using the intersystem handover function, because the MT8820B application software switches quickly while the dual-mode terminal is handing over.



TD-SCDMA measurement (Test loop mode or voice communications)

High-speed system change
from TD-SCDMA to GSM



GSM measurement (Loopback mode or voice communications)

* Requires MT8820B-002 + MX882001C or
MT8820B-032 + MX882031C + MX882031C-050.

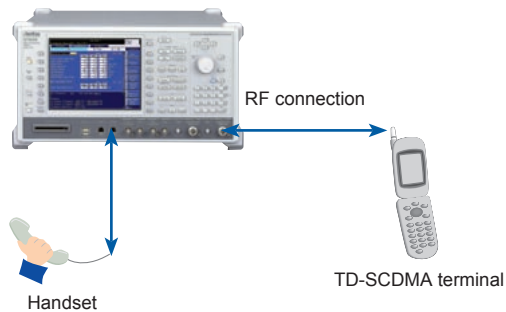
MX882007C-001 TD-SCDMA Voice Codec

Real-time Voice Encoding/Decoding and Audio Measurement Functions

The MX882007C-001 TD-SCDMA Voice Codec supports real-time voice encoding and decoding in software, so end-to-end communication with terminals can be tested by installing this option and the MT8820B-011 Audio Board. In addition, the audio transmitter and receiver can be tested while calling.

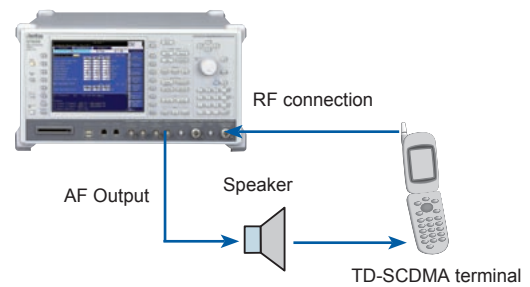
End-to-End Communications Test

This supports the end-to-end communications test between a handset connected to the RJ11 connector on the MT8820B and a TD-SCDMA terminal. This option supports voice tests by dividing Tx and Rx paths.



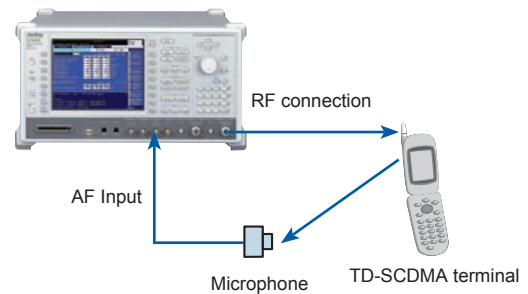
Audio Transmitter Measurement

The tone signal from the MT8820B AF Output connector is supplied to the microphone of the TD-SCDMA terminal and the audio transmitter characteristics of the TD-SCDMA terminal can be measured using the MT8820B to demodulate the uplink RF signal and measure the level, frequency, and distortion of demodulated tone signal.



Audio Receiver Measurement

The tone signal demodulated by the TD-SCDMA terminal is supplied to the MT8820B AF Input connector and the audio receiver characteristics of the TD-SCDMA terminal can be measured by using the MT8820B to measure the level, frequency, and distortion of the tone signal at the AF Input.



* Requires MT8820B-001, MT8820B-007, MT8820B-011, MX882007C, and MX882007C-001.

MX882007C-003 TD-SCDMA Video Phone Test

Video Phone Loopback/End-to-End Test

The MX882007C-003 TD-SCDMA Video Phone Test supports end-to-end videophone tests between TD-SCDMA terminals by using the Ethernet port on the back panel of the MT8820B and video loopback test using one TD-SCDMA terminal. When the ParallelPhone option is installed in the MT8820B, end-to-end videophone tests are supported using one MT8820B.

Video Loopback

When a videophone is connected, this function loops the video call data received by the MT8820B back to the terminal, supporting videophone test using one TD-SCDMA terminal.



TD-SCDMA terminal

Video Loopback Configuration



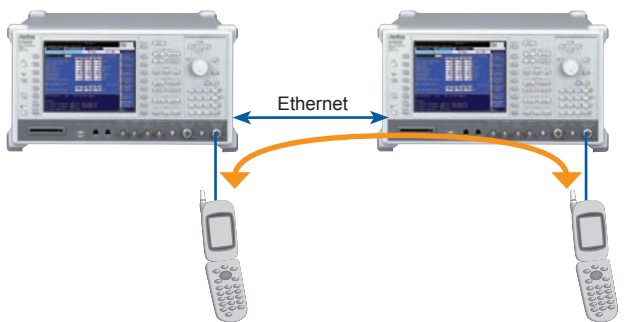
TD-SCDMA terminal

End-to-end Video Phone Test Setup using One MT8820B (when MT8820B configured for Parallelphone measurement*)

*: Requires MT8820B is configured for Parallelphone measurement.

End-to-End Video Phone Test

End-to-end videophone tests between two TD-SCDMA terminals are executed via the Ethernet port on the back panel of the MT8820B. When the Parallelphone option is installed in the MT8820B, end-to-end video phone tests are supported using one MT8820B.



TD-SCDMA terminal

TD-SCDMA terminal

End-to-end Videophone Test Setup using Two MT8820B units

* Requires MT8820B-001, MT8820B-007, MX882007C, and MX882007C-003.

MX882007C-011 TD-SCDMA HSDPA Measurement Software

Utilizing an Advanced High-speed Measuring Method and Offering Batch Measurements to Support TD-SCDMA/HSDPA Terminal Production

This software supports call processing, Throughput measurements, and CQI (Channel Quality Indicator) functions for HSDPA terminals. The related 3GPP standards are listed below.

Test	3GPP TS34.122 ^{*1}	Test Item
Receiver Test	6.3A	Maximum Input Level for HS-PDSCH Reception (16QAM)
Performance Tests	9.3.1	HS-DSCH throughput for Fixed Reference Channels ^{*2}
	9.3.2	HS-DSCH Throughput for Variable Reference Channels ^{*2}
	9.3.3	Reporting of HS-DSCH Channel Quality Indicator ^{*2}
	9.3.4	HS-SCCH Detection Performance ^{*2}

*1: Ver. 8.2.0

*2: Fading not supported

Throughput tests for both Reference Measurement Channel (RMC) signals supporting all HSDPA categories and for maximum data rate (2.8 Mbps) category-15 are supported.

The signals for HSDPA throughput measurement are listed in the table below.

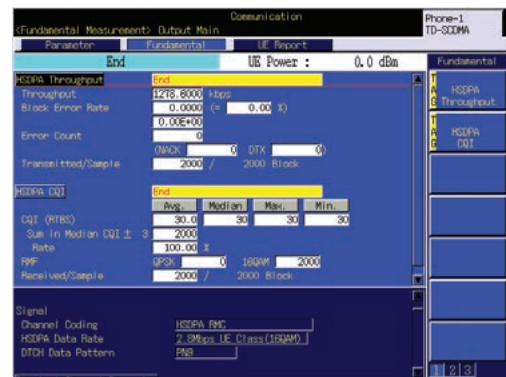
Parameter (HSDPA Data Rate)	Max. Data Rate	HS-DSCH Category	Modulation	Remarks
0.5 Mbps UE Class (QPSK)	199.2 kbps	1/2/3	QPSK	RMC
1.1 Mbps UE Class (QPSK)	199.2 kbps	4/5/6	QPSK	RMC
1.1 Mbps UE Class (16QAM)	578.6 kbps	4/5/6	16QAM	RMC
1.6 Mbps UE Class (QPSK)	357.4 kbps	7/8/9	QPSK	RMC
1.6 Mbps UE Class (16QAM)	634.6 kbps	7/8/9	16QAM	RMC
2.2 Mbps UE Class (QPSK)	539 kbps	10/11/12	QPSK	RMC
2.2 Mbps UE Class (16QAM)	782.2 kbps	10/11/12	16QAM	RMC
2.8 Mbps UE Class (QPSK)	621 kbps	13/14/15	QPSK	RMC
2.8 Mbps UE Class (16QAM)	1278.6 kbps	13/14/15	16QAM	RMC
Category15, Max	2808.6 kbps	15	16QAM	Max. Data Rate

* Requires MT8820B-001, MT8820B-007, MX882007C, and MX882007C-011.

Receiver Measurement

HSDPA Throughput/CQI Measurement

The HSDPA throughput can be measured by counting the number of ACK blocks from the HSDPA terminal. And statistical analysis can be performed on CQI values reported by the HSDPA terminal.



MX882007C-021 TD-SCDMA HSUPA Measurement Software

TX Measurement and Performance Measurement of TD-SCDMA/HSUPA Terminal

The MX882007C-021 HSUPA Measurement Software supports Tx measurements of HSUPA terminals. It can generate the signals used for testing HSUPA terminals with RMC category 1 to 6 (2.23 Mbps UE Class).

Test	3GPP TS34.122 ^{*1}	Test Item
Transmitter Test	5.7.1A	Error Vector Magnitude with E-DCH 16QAM
Performance Tests	11.1	Detection of E-DCH HARQ ACK Indicator Channel (E-HICH) ^{*2}
	11.2	Demodulation of E-DCH Absolute Grant Channel (E-AGCH) ^{*2}

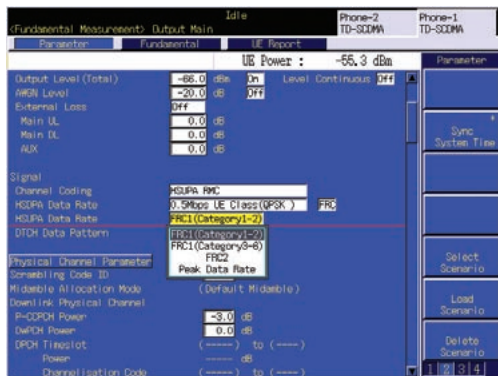
*1: Ver. 8.2.0

*2: Fading not supported

HSUPA Parameters

HSUPA RF Tx Measurement Signals

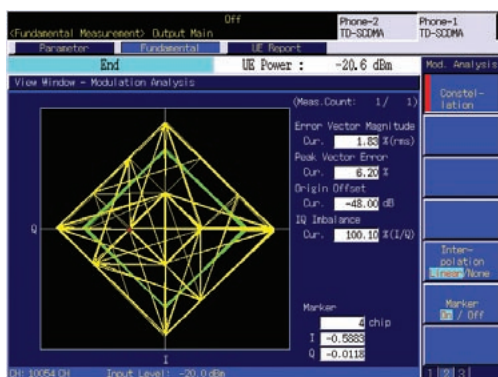
Categories 1 to 6 can be selected as Data Rates including HSUPA RMC signal for Tx measurements of HSUPA terminal.



Transmitter Measurement

Modulation Analysis

This performs TD-SCDMA HSUPA terminal modulation measurements such as error vector magnitude (EVM), magnitude error, phase error, origin offset, and constellation graphs are supported too.



Performance Measurement

HSUPA performance measurement is calculated the information about bit rate by detecting E-DCH TB (Transport Block size) Index included E-UCCH sent from the mobile terminal to MT8820B/MT8815B.



Specifications

• **MT8820B-001 W-CDMA Measurement Hardware, MT8820B-007 TD-SCDMA Measurement Hardware, MX882007C TD-SCDMA Measurement Software**

Modulation Analysis	Frequency: 300 MHz to 2700 MHz Input level: -30 to +35 dBm (Main) Carrier frequency accuracy: \pm (Setting frequency \times Reference oscillator accuracy + 10 Hz) Modulation accuracy (residual vector error): $\leq 2.5\%$ (when Single Code is input)
RF Power	Frequency: 300 MHz to 2700 MHz Input level: -70 to +35 dBm (Main) Measurement accuracy: ± 0.5 dB (-25 to +35 dBm), ± 0.7 dB (-55 to -25 dBm), ± 0.9 dB (-70 to -55 dBm) *After calibration Linearity: ± 0.2 dB (-40 to 0 dB, ≥ -55 dBm), ± 0.4 dB (-40 to 0 dB, ≥ -65 dBm) Measurement object: DPCH, UpPCH
Occupied Bandwidth	Frequency: 300 MHz to 2700 MHz Input level: -10 to +35 dBm (Main)
Adjacent Channel Leakage Power Ratio	Frequency: 300 MHz to 2700 MHz Input level: -10 to +35 dBm (Main) Ratio Measurement points: ± 1.6 , ± 3.2 MHz Measurement range: ≥ 50 dB (at ± 1.6 MHz), ≥ 55 dB (at ± 3.2 MHz)
RF Signal Generator	Output frequency: 300 MHz to 2700 MHz (1 Hz step) Channel level (DPCH): -30 to 0 dB [0.1 dB step, relative level for Ior (total level)] Channel level accuracy: ± 0.2 dB (relative level accuracy for Ior) AWGN Level: Off, -20 to +5 dB [0.1 dB step, relative level for Ior (total level)] AWGN Level accuracy: ± 0.2 dB (relative level accuracy for Ior)
Error Rate Measurement	Functions: Insert PN9 or PN15 pattern in DTCH Measurement items: BER, BLER Measurement objective: Loopback data imposed on uplink DTCH (BER, BLER)
Call Processing	Origination controlling: Registration, Origination, Termination, Handover, Network disconnect, Terminal disconnect (executes each processing conforming to 3GPP standards and performs pass/fail evaluation) Mobile terminal controlling: Output level, Loopback (executes each mobile terminal control conforming to 3GPP standards)

• **MT8820B-011 Audio Board, MX882007C-001 TD-SCDMA Voice Codec**

Voice Codec	AMR 12.2 kbps
Codec Level Adjustment	Encoder input gain: -3 to +3 dB, 0.01 dB step Handset microphone volume: 0, 1, 2, 3, 4, 5 Handset speaker volume: 0, 1, 2, 3, 4, 5
AF Output	Frequency range: 30 Hz to 10 kHz, 1 Hz step Carrier Frequency Accuracy: \pm (Set Frequency \times Reference oscillator accuracy + 0.1 Hz) Setting range: 0 to 5 Vpeak (AF Output) Setting resolution: 1 mV (≤ 5 Vpeak), 100 μ V (≤ 500 mVpeak), 10 μ V (≤ 50 mVpeak) Accuracy: ± 0.2 dB (≥ 10 mVpeak, ≥ 50 Hz), ± 0.3 dB (≥ 10 mVpeak, < 50 Hz) Waveform distortion: ≤ 30 kHz band ≤ -60 dB (≥ 500 mVpeak, ≤ 5 kHz), ≤ -54 dB (≥ 70 mVpeak) Output impedance: $\leq 1 \Omega$ Max. output current: 100 mA
AF Input	Frequency range: 50 Hz to 10 kHz Input voltage range: 1 mVpeak to 5 Vpeak (AF Input) Max. allowable input voltage: 30 Vrms Input impedance: 100 k Ω
Frequency Measurement	Accuracy: \pm (Reference oscillator accuracy + 0.5 Hz)
Level Measurement	Accuracy: ± 0.2 dB (≥ 10 mVpeak, ≥ 50 Hz), ± 0.4 dB (≥ 1 mVpeak, ≥ 1 kHz)
SINAD Measurement	Frequency: 1 kHz in ≤ 30 kHz band ≥ 60 dB (≥ 1000 mVpeak), ≥ 54 dB (> 50 mVpeak), ≥ 46 dB (≥ 10 mVpeak)
Distortion Rate Measurement	Frequency: 1 kHz in ≤ 30 kHz band ≤ -60 dB (≥ 1000 mVpeak), ≤ -54 dB (> 50 mVpeak), ≤ -46 dB (≥ 10 mVpeak)

• **MX882007C-003 TD-SCDMA Video Phone Test**

Channel Coding	Audio&Visual
Maximum transfer	64 kbps



• **MT8820B-001 W-CDMA Measurement Hardware, MT8820B-007 TD-SCDMA Measurement Hardware, MX882007C-011 TD-SCDMA HSDPA Measurement Software**

Reference Channel	RMC 0.5 Mbps UE Class (QPSK), RMC 1.1 Mbps UE Class (QPSK), RMC 1.1 Mbps UE Class (16QAM), RMC 1.6 Mbps UE Class (QPSK), RMC 1.6 Mbps UE Class (16QAM), RMC 2.2 Mbps UE Class (QPSK), RMC 2.2 Mbps UE Class (16QAM), RMC 2.8 Mbps UE Class (QPSK), and RMC 2.8 Mbps UE Class (16QAM)
Throughput Measurement	Functions: Transmit HS-SCCH, HS-PDSCH based on Fixed Reference Channel Measurement items: Throughput Measurement object: ACK and NACK data imposed on uplink HS-SICH
CQI Measurement	Statistical analysis of CQI values reported from a mobile terminal
Call Processing	Origination controlling: Registration, Call processing for Fixed Reference Channel (executes each processing conforming to 3GPP standards and performs pass/fail evaluation) Mobile terminal controlling: Output level (executes each mobile terminal control conforming to 3GPP standards)

• **MT8820B-001 W-CDMA Measurement Hardware, MT8820B-007 TD-SCDMA Measurement Hardware, MX882007C-021 TD-SCDMA HSUPA Measurement Software**

Modulation Analysis	Dependent on the performance of MX882007C (when HSUPA RMC Code is input)
Call Processing	Origination controlling: Registration, call processing for FRC1, FRC2 (executes each processing conforming to 3GPP standards and performs pass/fail evaluation) Mobile terminal controlling: Output level (executes each mobile terminal control conforming to 3GPP standards)

Ordering Information

Please specify the model/order number, name and quantity when ordering.
The names listed in the chart below are Order Names. The actual name of the item may differ from the Order Name.

Model/Order No.	Name
MT8820B	Main frame Radio Communication Analyzer
	Standard accessories
Z0956A	Power Cord, 2.6 m: 1 pc
CA68ADP	ANR-CFX40T256 (CF card, 256 MB): 1 pc
W2778AE	PC Card Adapter: 1 pc
	MT8815B/MT8820B Operation Manual (CD-ROM): 1 copy
	Options
MT8820B-001	W-CDMA Measurement Hardware
MT8820B-002	TDMA Measurement Hardware
MT8820B-003	CDMA2000 Measurement Hardware
MT8820B-004	1xEV-DO Measurement Hardware ¹
MT8820B-005	1xEV-DO Measurement Hardware ¹
MT8820B-007	TD-SCDMA Measurement Hardware
MT8820B-011	Audio Board
MT8820B-012	Parallel Phone Measurement Hardware
MT8820B-031	W-CDMA Measurement Hardware Lite
MT8820B-032	TDMA Measurement Hardware Lite
MT8820B-043	CDMA2000 Time Offset CAL For GPS SG (requires MT8820B-003 and MX882002C)
MT8820B-101	W-CDMA Measurement Hardware Retrofit
MT8820B-102	TDMA Measurement Hardware Retrofit
MT8820B-103	CDMA2000 Measurement Hardware Retrofit
MT8820B-104	1xEV-DO Measurement Hardware Retrofit ¹
MT8820B-105	1xEV-DO Measurement Hardware Retrofit ¹
MT8820B-107	TD-SCDMA Measurement Hardware Retrofit
MT8820B-111	Audio Board Retrofit
MT8820B-112	Parallel Phone Measurement Hardware Retrofit
MT8820B-131	W-CDMA Measurement Hardware Lite Retrofit
MT8820B-132	TDMA Measurement Hardware Lite Retrofit
MT8820B-143	CDMA2000 Time Offset CAL For GPS SG Retrofit (requires MT8820B-003 and MX882002C)
MT8820B-177	TD-SCDMA Measurement Retrofit
	Softwares
MX882000C	W-CDMA Measurement Software (requires MT8820B-001 and MX88205xC)
MX882000C-001	W-CDMA Voice Codec (requires MT8820B-011 and MX882000C)
MX882000C-011	HSDPA Measurement Software (requires MT8820B-001, MX882000C, and MX882050C)
MX882000C-012	HSDPA H-Set 6 Throughput Test (requires MT8820B-001, MX882000C, MX882000C-011, and MX882050C)
MX882000C-013	HSDPA High Data Rate (requires MT8820B-001, MX882000C, MX882000C-011, and MX882050C)
MX882000C-021	HSUPA Measurement Software (requires MT8820B-001, MX882000C, MX882000C-011, and MX882050C)
MX882001C	GSM Measurement Software (requires MT8820B-002)
MX882001C-001	GSM Voice Codec (requires MT8820B-011 and MX882001C)
MX882001C-002	GSM External Packet Data (requires MX882001C)
MX882001C-011	EGPRS Measurement Software (requires MX882001C)
MX882001C-041	GSM High-speed Adjustment (requires MX882001C)
MX882002C	CDMA2000 Measurement Software (requires MT8820B-003)
MX882002C-001	CDMA2000 Voice Codec (requires MT8820B-011 and MX882002C)
MX882002C-002	CDMA2000 External Packet Data (requires MX882002C)
MX882003C	1xEV-DO Measurement Software (requires MT8820B-003, MT8820B-004, and MX882002C)
MX882003C-002	1xEV-DO External Packet Data (requires MX882003C)
MX882005C	PHS Measurement Software (requires MT8820B-002)
MX882005C-011	Advanced PHS Measurement Software (requires MX882005C)
MX882006C	1xEV-DO Measurement Software (requires MT8820B-003, MT8820B-005, and MX882002C)
MX882006C-002	1xEV-DO External Packet Data (requires MX882006C)
MX882006C-011	1xEV-DO Rev. A Measurement Software (requires MX882006C)
MX882007C	TD-SCDMA Measurement Software (requires MT8820B-001 and MT8820B-007)
MX882007C-001	TD-SCDMA Voice Codec (requires MT8820B-011 and MX882007C)
MX882007C-003	TD-SCDMA Video Phone Test (requires MX882007C)
MX882007C-011	TD-SCDMA HSDPA Measurement Software ³ (requires MT8820B-001, MT8820B-007, and MX882007C)
MX882007C-021	TD-SCDMA HSUPA Measurement Software ³ (requires MT8820B-001, MT8820B-007, MX882007C, and MX882007C-011)
MX882010C	Parallel Phone Measurement Software ² (requires MT8820B-012, the two same measurement hardware (2 board/set) and one measurement software)
MX882030C	W-CDMA Measurement Software Lite (requires MT8820B-031)
MX882030C-001	W-CDMA Voice Codec (requires MT8820B-011 and MX882030C)
MX882030C-008	W-CDMA Band XI ³ (requires MX882030C-050)
MX882030C-009	W-CDMA Band IX ³ (requires MX882030C-050)
MX882030C-011	HSDPA Measurement Software (requires MX882030C)
MX882030C-021	HSUPA Measurement Software (requires MX882030C and MX882030C-011)
MX882030C-040	W-CDMA High-speed Adjustment (requires MX882030C)
MX882030C-050	W-CDMA Call Processing Software ^{3,4} (requires MX882030C)
MX882031C	GSM Measurement Software Lite (requires MT8820B-032)
MX882031C-001	GSM Voice Codec (requires MT8820B-011 and MX882031C)
MX882031C-011	EGPRS Measurement Software (requires MX882031C)
MX882031C-040	EGPRS Predistortion Adjustment (requires MX882031C)
MX882031C-041	GSM High-speed Adjustment (requires MX882031C)
MX882031C-050	GSM Call Processing Software (requires MX882031C)
MX882050C	W-CDMA Call Processing Software ³ (requires MX882000C)
MX882050C-002	W-CDMA External Packet Data ^{3,4} (requires MX882050C)
MX882050C-003	W-CDMA Video Phone Test ³ (requires MX882050C)
MX882050C-008	W-CDMA Band XI ³ (requires MX882050C)
MX882050C-009	W-CDMA Band IX ³ (requires MX882050C)
MX882050C-011	HSDPA External Packet Data ³ (requires MX882000C-011)
MX882070C	W-CDMA Ciphering Software ³ (requires MX882050C)
MX882051C	W-CDMA Call Processing Software ³ (requires MX882000C)
MX882051C-002	W-CDMA External Packet Data ³ (requires MX882051C)
MX882051C-003	W-CDMA Video Phone Test ³ (requires MX882051C)
MX882071C	W-CDMA Ciphering Software ³ (requires MX882051C)
MT8820B-ES210	Warranty Extended Two Year Warranty Service
MT8820B-ES310	Extended Three Year Warranty Service
MT8820B-ES510	Extended Five Year Warranty Service
	Application parts
P0019	TEST USIM001 ⁵
P0035B	W-CDMA/GSM Test USIM
A0013	Handset
J1249	CDMA2000 Cable [D-Sub (15 pin, P-type) · D-Sub (15 pin, P-type), used in combination with J1267 (sold separately)]
J1267	CDMA2000 Cross Cable [D-Sub (9 pin, P-type) · D-Sub (9 pin, P-type), reverse cable used in combination with J1249 (sold separately)]
J0576B	Coaxial Cord (N-P · 5D-2W · N-P), 1 m
J0576D	Coaxial Cord (N-P · 5D-2W · N-P), 2 m
J0127A	Coaxial Cord (BNC-P · RG58A/U · BNC-P), 1 m
J0127C	Coaxial Cord (BNC-P · RG58A/U · BNC-P), 0.5 m
J0007	GPIO Cable, 1 m
J0008	GPIO Cable, 2 m
MN8110B	I/O Adapter (for call processing I/O)
B0332	Joint Plate (4 pcs/set)
B0333G	Rack Mount Kit
B0499	Carrying Case (hard type, with protective cover and casters)
B0499B	Carrying Case (hard type, with protective cover, without casters)
W2776AE	MT8815B/MT8820B Operation Manual (booklet)
W2765AE	MX882000C Operation Manual (booklet)
W2771AE	MX882001C Operation Manual (booklet)
W2790AE	MX882002C Operation Manual Panel Operation (booklet)
W2791AE	MX882002C Operation Manual Remote Control (booklet)
W2793AE	MX882003C Operation Manual Panel Operation (booklet)
W2794AE	MX882003C Operation Manual Remote Control (booklet)
W2769AE	MX882005C Operation Manual (booklet)
W2930AE	MX882006C Operation Manual (booklet)
W2931AE	MX882006C Operation Manual Remote Control (booklet)
W2940AE	MX882007C Operation Manual (booklet)
W2894AE	MX882030C Operation Manual (booklet)
W2895AE	MX882031C Operation Manual (booklet)
W2767AE	MX88205xC Operation Manual (booklet)
W2773AE	MX88207xC Operation Manual (booklet)

*1: The MT8820B-004 hardware supports IS-856-0 (1xEV-DO Rev. 0) RF measurements but does not support IS-856-A (1xEV-DO Rev. A) measurements.
The MT8820B-005 hardware supports both IS-856-0 (1xEV-DO Rev. 0) and IS-856-A (1xEV-DO Rev. A) RF measurements.

*2: The following measurement hardware supports the Parallelphone measurement option: MT8820B-001, MT8820B-002, MT8820B-003, MT8820B-004 (or MT8820B-005), MT8820B-007. All the measurement hardware can be installed simultaneously.
However, the MT8820B-004 and MT8820B-005 cannot be installed simultaneously.

*3: For terminal connectivity, contact your Anritsu sales representative.

*4: These options preinstall the integrity protection function.

*5: This Test USIM can be worked on only W-CDMA mode.
When the connection of GSM or TD-SCDMA is necessary, P0035B can be applied.

• Parallelphone™ is a registered trademark of Anritsu Corporation.
• CompactFlash® is a registered trademark of SanDisk Corporation in the United States and is licensed to CFA (Compact Flash Association).

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