Product Brochure

Anritsu

For MT8820B Radio Communication Analyzer

MX882001C
GSM Measurement Software

MX882001C-011
EGPRS Measurement Software

Advanced High-speed Measurement Method and Batch Measurement Supporting the Manufacture of GSM/GPRS Terminals

The MX882001C GSM Measurement Software supports measurement of transmitters and receivers of digital mobile terminals conforming to GSM/GPRS/EGPRS*-the world's most widely used digital mobile standard.
When the MX882001C GSM Measurement Software and MX882000C W-CDMA Measurement Software are installed in the MT8820B main frame, the Tx and Rx characteristics of dual-mode W-CDMA/GSM terminals, which are becoming very popular worldwide, can be evaluated using a single MT8820B unit.
Anritsu's advanced DSP (Digital Signal Processing) and parallel-measurement technologies greatly reduce test times on automated production lines as well as when testing mobile terminals. Any combination of test parameters can be set, facilitating speedy batch measurement, and the number of measurements for each measurement item can be set independently.
At GSM measurement, selected measurement items can be batch-processed by one-touch operation, supporting easy, fast Go/No-Go evaluation of major test items including frequency error, modulation accuracy, transmit power, output RF spectrum, and BER.
At GPRS measurement, frequency error, modulation accuracy and transmit power are measured using a Test Mode A connection, while BLER with selected multislot class and coding scheme is measured using either a Test Mode B or BLER connection.
The built-in GPIB interface enables the MT8820B to be integrated into automated test systems for after-sales maintenance, as well as into automated production lines.

*: Requires MX882001C-011 for EGPRS measurement

• GSM Measurements

Transmitter Measurements	Transmit Power
	Power versus Time (template mask)
	Frequency Error
	Phase Error (rms and peak)
	Output RF Spectrum
Receiver Measurements	FER, BER and CRC error rates for TCH/FS, TCH/HS, TCH/EFS, TCH/AFS and TCH/AHS
Call Processing	Location registration, Terminal call origination, Network call origination, Communication, Handover, Terminal disconnect, Network disconnect
	Mobile Terminal Report Monitor (Reception level, Reception quality, etc)

• GPRS Measurements

Transmitter Measurements	Transmit Power
	Power versus Time (template mask)
	Frequency Error
	Phase Error (rms and peak)
	Output RF Spectrum
Receiver Measurements	BLER
Call Processing	Test Mode A, B, BLER connection, Communication, Disconnection
	Mobile Terminal Report Monitor (Multislot Class, etc)

MX882001C GSM Measurement Software

GSM

Transmitter Measurements

Transmit Power

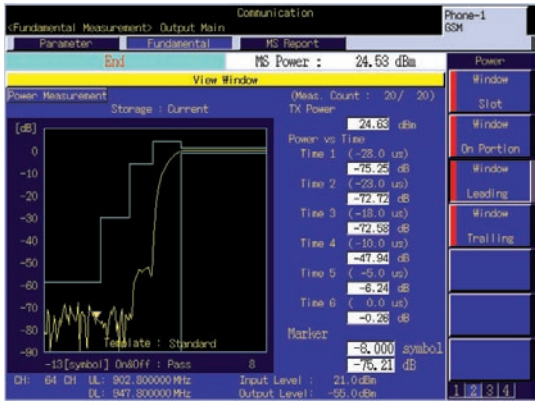
When two or more measurements are made, the maximum, average, and minimum results are displayed, supporting evaluation of the GSM terminal transmit power.
This functionality is also supported for other measurements.

Power vs. Time

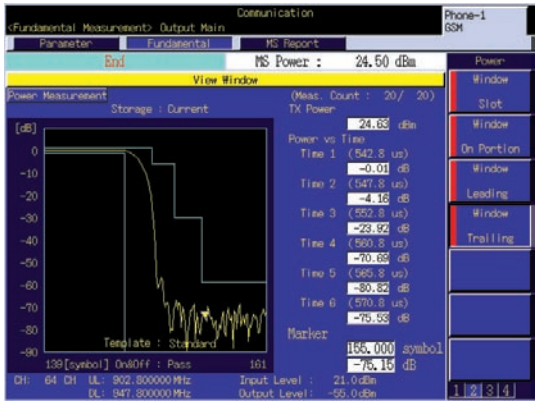
Power at six measuring points for each burst rise/fall edge can be measured, with measuring time set in increments of 0.1 µs resolution.

Burst Waveform Display

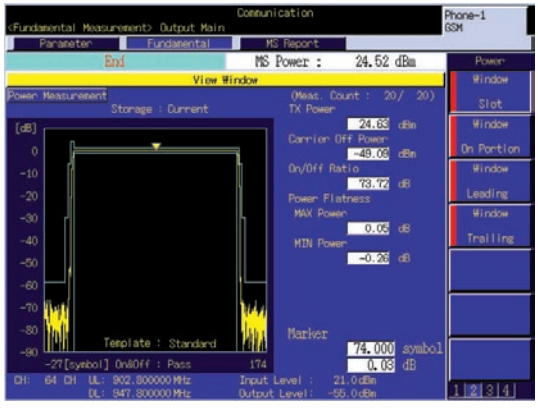
Burst waveforms can be displayed graphically, and a magnified display of the entire time slot and burst-on interval, as well as the rising and falling edges, supports easy evaluation of whether the burst waveform is within the limits of the power time template.



Rising Edge



Falling Edge



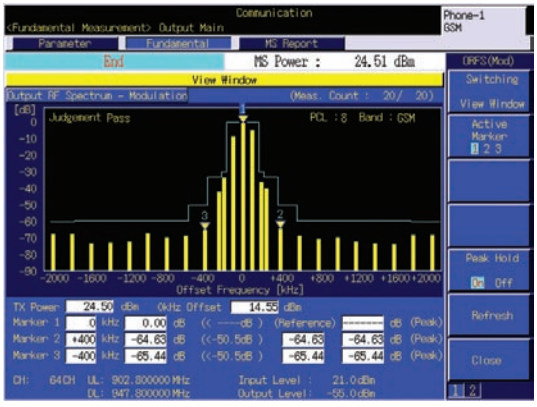
Entire Time Slot

Modulation Analysis

The frequency, frequency error (in kHz and ppm), phase error, and peak phase error can be measured simultaneously.
The amplitude error of the burst-on interval can be measured too.

Output RF Spectrum

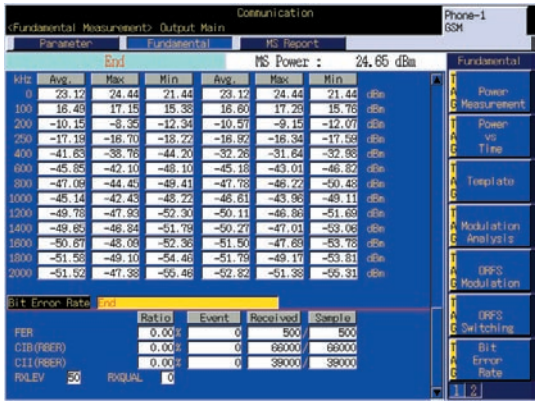
The spectrum can be measured at a total of 25 frequency points within the range of ±2 MHz of the carrier frequency. “Modulation” is the spectrum resulting from the modulated signal around the center of the burst signal, while “Switching” is the spectrum resulting from the rising and falling edges of the burst signal.
In addition to using advanced DSP technology, parallel measurement supports faster display of the output RF spectrum.



Receiver Measurements

Error Rate Test

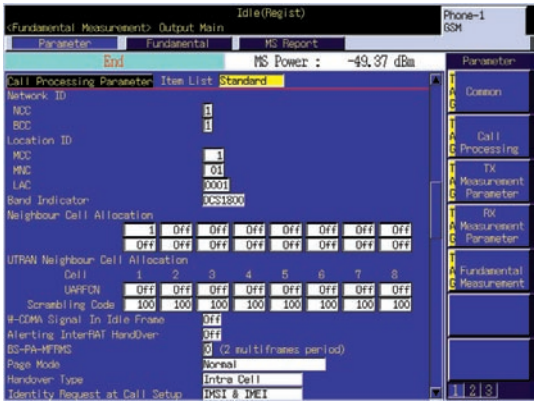
The uplink RF signal, which is looped back from GSM terminal, is demodulated by controlling the GSM terminal in the loopback condition to measure the frame error, bit error, and CRC error rates. The error rate for TCH/FS, TCH/HS, TCH/EFS, TCH/AFS and TCH/AHS can be measured. The FAST BER mode is also available.
Transmitter measurements can be run in parallel with error-rate measurements as well.



Call Processing

Connection Tests

Various connection tests, such as registration, call origination from terminal and network, terminal disconnect, and network disconnect, can be tested using the call processing functionality. Moreover, simple voice communication can be tested during a call using voice loopback.



Mobile Terminal Report Monitor

The GSM terminal status can be displayed as a periodic report sent by the GSM terminal to the MT8820B.
The downlink RF signal level at the GSM receiver can be checked with the Rx level reported from the GSM terminal.

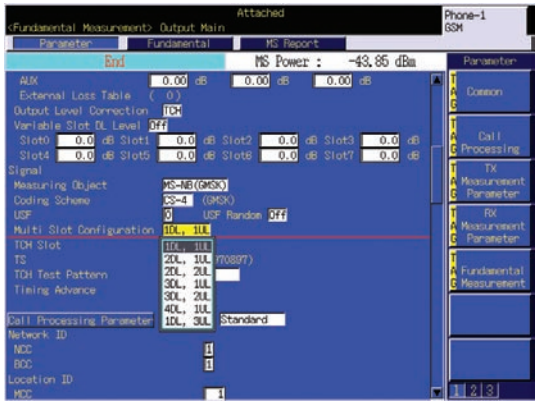
GPRS

Measurement Function

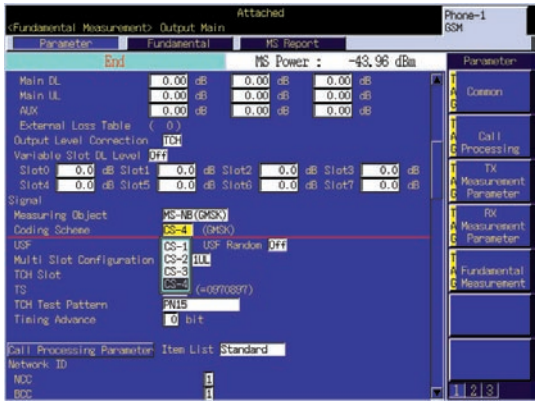
The MX882001C GSM Measurement Software supports GPRS measurement and terminals supporting both GSM and GPRS can be tested much faster because the software switches quickly between GSM and GPRS measurements.

Multislot Class and Coding Scheme

Various combinations of uplink/downlink slots can be selected for GPRS terminals with class 1 to 11.



All CS-1 to CS-4 coding schemes are supported.



Connection Type

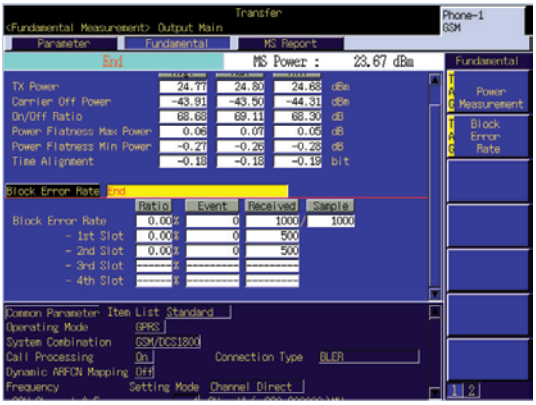
Test Mode A, Test Mode B, and BLER connections are supported. In Test Mode A for transmitter measurements, the GPRS terminal generates pseudorandom data during uplink on PDTCH.
At BLER measurement, the GPRS terminal calculates block errors in received data at downlink and reports the result to the MT8820B at uplink. The MT8820B calculates the block error rate using the report from the GPRS terminal.

Transmitter Measurements

The transmitter measurements listed below can be made with the Test Mode A connection as in GSM measurement.
- Power versus time (template mask)
- Frequency error
- Phase error (rms and peak)
- Output RF spectrum

Receiver Measurement

Block Error Rate
The block error rate can be measured using the block error reported from the GPRS terminal with the BLER connection.



Call Processing

The following functions can be tested using call processing.
- Location registration
- Connection
- Communication
- Disconnection

After connection, GPRS terminal generates uplink slot, enabling Transmission measurement and BLER measurement.

MX882001C-001 GSM Voice Codec

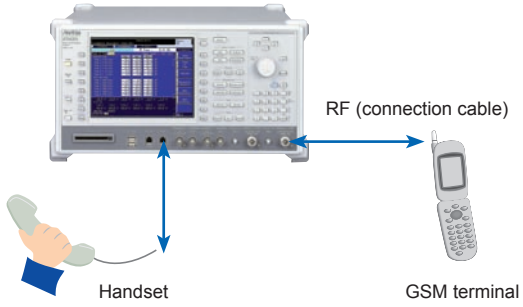
Real-time Voice Encoding/Decoding and Audio Measurement Functions

Voice Communication Test and Audio Measurement

The optional MX882001C-001 GSM 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.

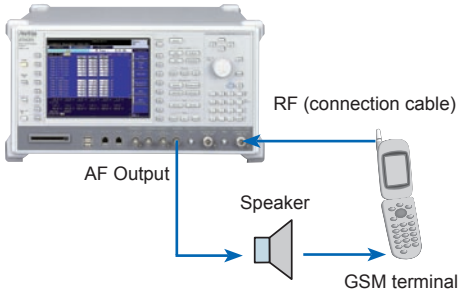
End-to-End Communications Testing

Connection of a handset to the MT8820B RJ11 connector enables end-to-end communications testing between the MT8820B and a GSM terminal.



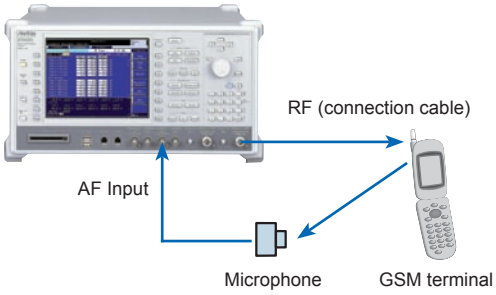
Audio Transmitter Measurement

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



Audio Receiver Measurement

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

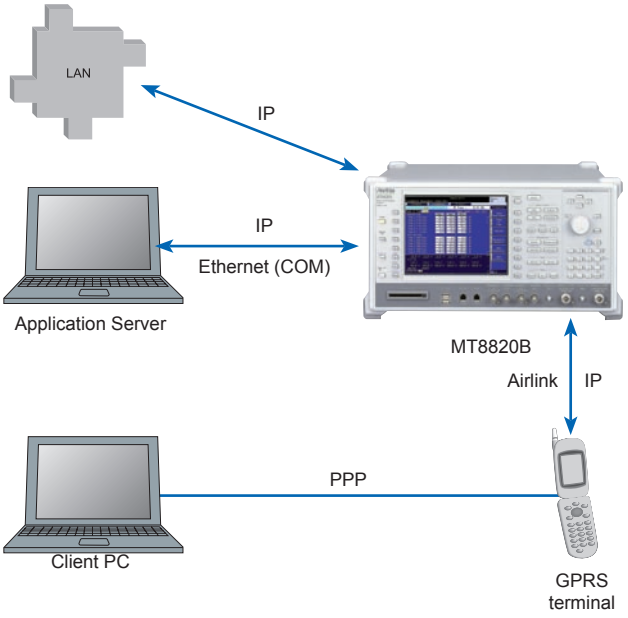


MX882001C-002 GSM External Packet Data

Verification Test Function for GPRS Packet Communication Data Transfer

The MX882001C-002 GSM External Packet Data option supports data transfer to/from external equipment via the Ethernet port on the back panel of the MT8820B.
The MX882001C-002 can test end-to-end data transfer both in the local environment, such as the connection between the application server connected to the MT8820B and GPRS terminal, as well as in an almost-real environment, such as the connection between equipment connected to a LAN and GPRS terminal.

External Packet Test



Sample MT8820B Connection

MX882001C-011 EGPRS Measurement Software

Utilizing an Advanced High-speed Measuring Method and Offering Batch Measurements to Support EGPRS Terminal Production

The MX882001C-011 EGPRS Measurement Software supports Tx and Rx measurements of terminals supporting the enhanced GPRS system or EGPRS. It supports both the MCS-1 to MCS-4 coding schemes using GMSK modulation as well as the MCS-5 to MCS-9 coding schemes using 8PSK modulation. And installing the MX882001C-011 EGPRS Measurement Software supports EGPRS as the Operating Mode.
At EGPRS measurement, frequency error, modulation accuracy, and transmit power are measured using a Test Mode A connection, while BLER with selected multislot class and modulation and coding scheme is measured using a BLER connection; both transmitter and receiver are tested by loopback at the physical layer using an SRB loopback connection.

• EGPRS Measurements

Transmitter Measurements	Transmit Power
	Power versus Time (template mask)
	Frequency Error
	Phase Error (GMSK)
	Modulation Accuracy (8PSK)
	Output RF Spectrum
Receiver Measurements	BLER, BER
Call Processing	Test Mode A, BLER, SRB loopback, Communication, Disconnection
	Mobile Terminal Report Monitor (Multislot Class, etc)

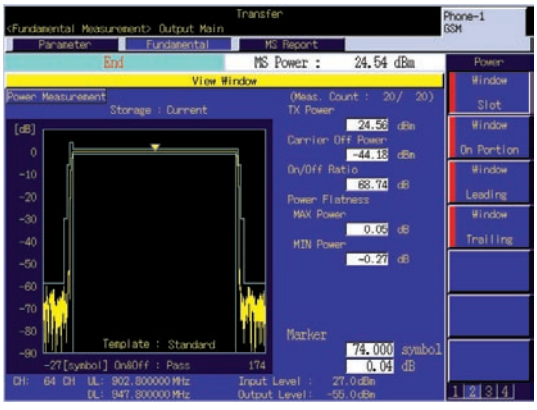
Transmitter Measurements

Transmit Power

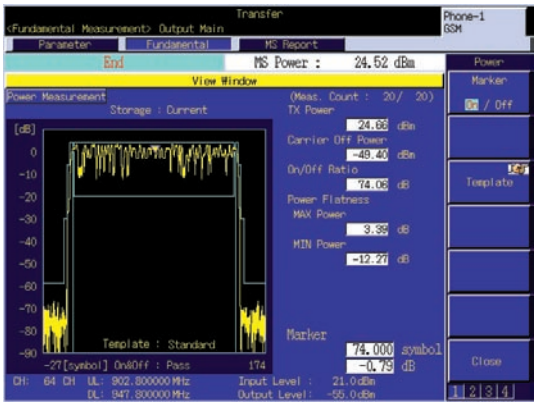
When two or more measurements are made, the maximum, average, and minimum results are displayed, supporting evaluation of the transmit power distribution of the EGPRS terminal.
This functionality is also supported for other measurements.

Power vs. Time

The power can be measured with 0.1 µs resolution at five measurement points within the rising and falling edges of the burst signal.
Burst waveforms can be displayed graphically, and a magnified display of the entire time slot and burst-on interval as well as the rising and falling edges supports easy evaluation of whether the burst waveform is within the limits of the power time template.



Entire Time Slot of GMSK Modulation



Entire Time Slot of 8PSK Modulation

Modulation Analysis

The frequency, frequency error (in kHz and ppm), phase error, and peak phase error of GMSK modulated signals can be measured simultaneously. The EVM, peak EVM, 95th percentile EVM and origin offset of 8PSK modulated signals can also be measured.

Output RF Spectrum

The spectrum can be measured at a total of 25 frequency points within the range of ±2 MHz of the carrier frequency. “Modulation” is the spectrum resulting from the modulated signal around the center of the burst signal, while “Switching” is the spectrum resulting from the rising and falling edges of the burst signal.
In addition to using advanced DSP technology, parallel measurement supports faster display of the output RF spectrum.

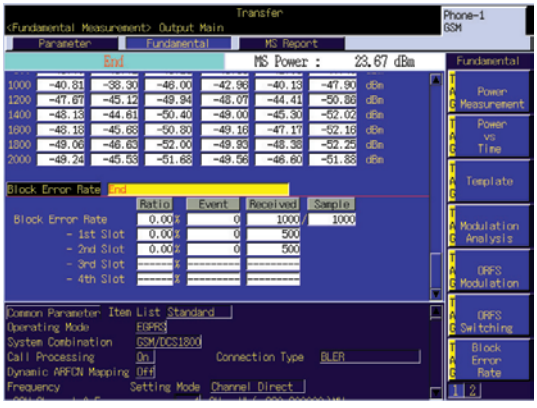
Receiver Measurements

Bit Error Rate Measurement

At SRB loopback (Switched Radio Block loopback), the bit error rate can be measured using the MT8820B-demodulated uplink RF signal looped back from the EGPRS terminal. The error rate can be measured in parallel with transmitter measurements.

Block Error Rate Measurement

At BLER connection, the EGPRS terminal calculates block errors in received data at downlink and reports the result to the MT8820B at uplink. The MT8820B calculates the block error rate using the report from the EGPRS terminal.



Call Processing

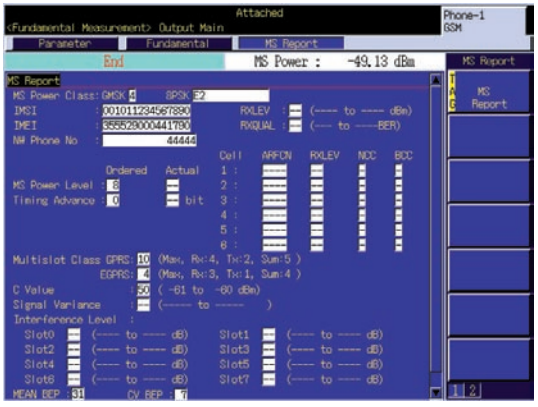
Connection Tests

The following functions can be tested using call processing.
- Location registration
- Connection
- Communication
- Disconnection

After connection, EGPRS terminal generates uplink slot, enabling Transmission measurement and BLER measurement.

Mobile Terminal Report Monitor

The EGPRS terminal status can be displayed as a periodic report sent by the EGPRS terminal to the MT8820B for checking information such as Multislot Class and BEP (Bit Error Probability).



MX882001C-041 GSM High-speed Adjustment

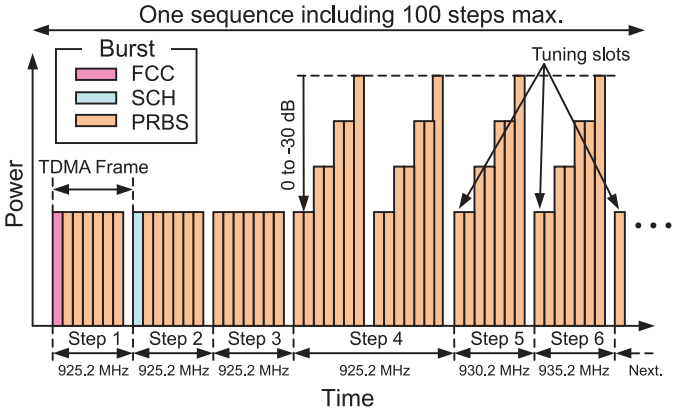
Reduced RF Adjustment Times
Linked with Chipset Adjustment Function

Installing the MX882001C-041 GSM High-speed Adjustment cuts the RF adjustment time, running in synchronization with the chipset adjustment function on GSM terminal.
And it runs IQ Capturing Measurement

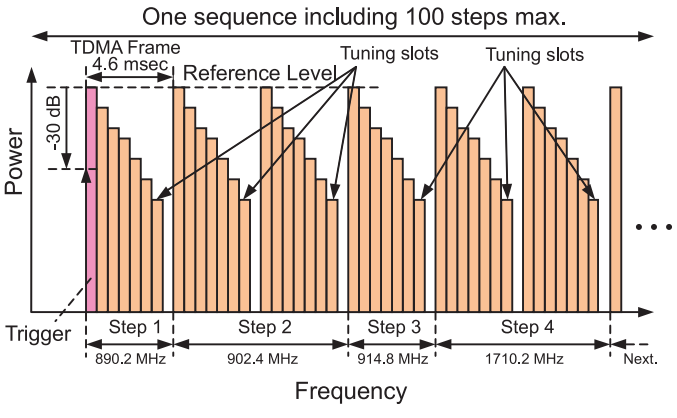
The measurement runs Fundamental Measurement screen.
The measurement can't run Fundamental Measurement, and IQ Capturing Measurement, or High-Speed Adjustment Measurement when the measurement is effective.
The measurement runs with Remote Control only.

High-speed Adjustment Measurement

GSM High-speed Adjustment Measurement function adjusts both Tx and Rx. This function consists of Rx Sweep used for Rx adjustment and Tx Sweep used for Tx adjustment.



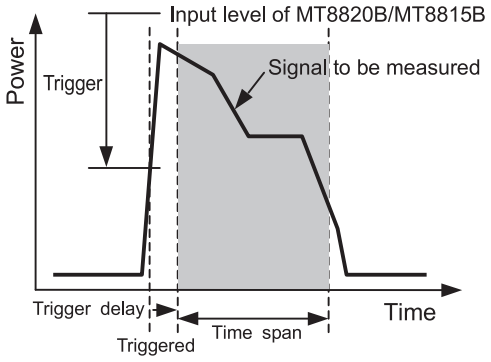
Sequence of Rx Sweep



Sequence of Tx Sweep

IQ Capturing Measurement

IQ Capturing Measurement converts from UL signal to Band -limited Base band signal and output sampling IQ binary data.



IQ Capturing Measurement

Specifications

• MT8820B-002 TDMA Measurement Hardware, MX882001C GSM Measurement Software

Frequency/Modulation Measurement	Frequency: 300 to 2700 MHz Input level: –30 to +40 dBm (average power of burst signal, Main) Measurement items: Normal burst, RACH Carrier frequency accuracy: ± (Set frequency × Reference oscillator accuracy +10 Hz) (When measuring Normal Burst) ± (Set frequency × Reference oscillator accuracy +20 Hz) (When measuring RACH) Residual phase error: ≤0.5˚ rms, 2˚ peak
Amplitude Measurement	Frequency: 300 to 2700 MHz Input level: –30 to +40 dBm (average power of burst signal, Main) Measurement items: Normal burst, RACH Measurement accuracy: ±0.5 dB (–20 to +40 dBm), ±0.7 dB (–30 to –20 dBm) ∗After calibration Linearity: ±0.2 dB (–40 to 0 dB, ≥–30 dBm) Carrier-off power: ≥65 dB (input level ≥–10 dBm), ≥45 dB (input level ≥–30 dBm) Burst waveform display: Rise, Fall, Time slot, Burst-on
Output RF Spectrum Measurement	Frequency: 300 to 2700 MHz Input level: –10 to +40 dBm (average power of burst signal, Main) Measurement item: Normal burst Measurement points: ±100, ±200, ±250, ±400, ±600, ±800, ±1000, ±1200, ±1400, ±1600, ±1800, ±2000 kHz Measurement range in modulation area: ≤–55 dB (≤250 kHz offset), ≤–66 dB (≥400 kHz offset) ∗Average of 10 measurements Measurement range in transient area: ≤–57 dB (≥400 kHz offset)
RF Signal Generator	Output frequency: 300 to 2700 MHz (1 Hz step) Phase error: ≤1˚ rms, ≤4˚ peak Output patterns: CCH, TCH, CCH + TCH TCH Data: PN9, PN15, ALL 0, ALL 1, Fixed Pattern (PAT0 to PAT9)
Error Rate Measurement	GSM: Error rate measurement of frame, bit and CRC • Loopback data inserted in uplink TCH • Serial data input via call processing I/O port on back panel GPRS: Block error rate measurement • Number of blocks received from terminal and inserted in uplink TCH • Number of USF reception blocks of terminal
Call Processing	Call controlling: GSM Location registration, Terminal call origination, Network call origination, Network disconnect, Terminal disconnect GPRS Connection, Disconnection, Data transfer Terminal controlling: GSM Output level, Time slot, Timing advance, Loopback on/off GPRS Test Mode A, Test Mode B, BLER
Channel Coding	FS, EFS, HS0, HS1, AFS, AHS0, AHS1
Coding Scheme	CS-1, CS-2, CS-3, CS-4
Frequency Bands	GSM450, GSM480, GSM710, GSM750, T-GSM810, GSM850, P-GSM, E-GSM, R-GSM, DCS1800, PCS1900

• MT8820B-011 Audio Board, MX882001C-001 GSM Voice Codec

Voice Codec	GSM_EFR, GSM_AMR
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 Setting range: 0 to 5 Vpeak (AF Output) Setting resolution: 1 mV (≤5 Vpeak), 100 µV (≤500 mVpeak), 10 µV (≤50 mVpeak) Accuracy: ±0.2 dB (≥10 mVpeak, ≥50 Hz), ±0.3 dB (≥10 mVpeak, <50 Hz) Waveform distortion: In ≤30 kHz band, ≤–60 dB (≥500 mVpeak, ≤5 kHz), ≤–54 dB (≥70 mVpeak) Output impedance: ≤1 Ω 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 kΩ
Frequency Measurement	Accuracy: ± (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	At frequency 1 kHz in ≤30 kHz band, ≥60 dB (≥1000 mVpeak), ≥54 dB (>50 mVpeak), ≥46 dB (≥10 mVpeak)
Distortion Rate Measurement	At frequency 1 kHz in ≤30 kHz band, ≤–60 dB (≥1000 mVpeak), ≤–54 dB (>50 mVpeak), ≤–46 dB (≥10 mVpeak)

• MT8820B-002 TDMA Measurement Hardware, MX882001C-011 EGPRS Measurement Software

Frequency/Modulation Measurement	Frequency: 300 to 2700 MHz Input level: –30 to +40 dBm (average power of burst signal, Main) Measurement items: Normal burst (GMSK, 8PSK), RACH Carrier frequency accuracy: ± (Set frequency × Reference oscillator accuracy +10 Hz) (When measuring Normal Burst) ± (Set frequency × Reference oscillator accuracy +20 Hz) (When measuring RACH) Residual phase error (GMSK): ≤0.5° rms, 2° peak Residual EVM (8PSK): ≤1.5% rms Waveform display: Phase error versus bit number, Amplitude error versus bit number, EVM versus bit number
Amplitude Measurement	Frequency: 300 to 2700 MHz Input level: –30 to +40 dBm (average power of burst signal, Main) Measurement items: Normal burst (GMSK, 8PSK), RACH Measurement accuracy: ±0.5 dB (–20 to +40 dBm), ±0.7 dB (–30 to –20 dBm) ∗After calibration Linearity: ±0.2 dB (0 to –40 dB, ≥–30 dBm) Carrier-off power: ≥65 dB (input level ≥–10 dBm), ≥45 dB (input level ≥–30 dBm) Burst waveform display: Rise, Fall, Time slot, Burst-on
Output RF Spectrum Measurement	Frequency: 300 to 2700 MHz Input level: –10 to +40 dBm (average power of burst signal, Main) Measurement item: Normal burst (GMSK, 8PSK) Measurement points: ±100, ±200, ±250, ±400, ±600, ±800, ±1000, ±1200, ±1400, ±1600, ±1800, ±2000 kHz Measurement range in modulation area: ≤–55 dB (≤250 kHz offset), ≤–66 dB (≥400 kHz offset) ∗Average of 10 measurements Measurement range in transient area: ≤–57 dB (≥400 kHz offset)
RF Signal Generator	Output frequency: 300 to 2700 MHz (1 Hz step) Phase error: ≤1° rms, ≤4° peak Modulation accuracy (8PSK): ≤3% rms Output patterns: OCH, TCH, OCH + TCH TCH Data: PN9, PN15, ALL 0, ALL 1, Fixed Pattern (PAT0 to PAT9)
Error Rate Measurement	Error rate measurement of bit and block • Loopback data inserted in uplink TCH, • Number of blocks received from terminal and inserted in uplink TCH
Call Processing	Call controlling: Location registration, Connection, Termination, Data transfer via EGPRS Terminal controlling: Output level, Time slot, Timing advance, Test Mode A, BLER, SRB Loopback
Coding Scheme	MCS1 to MCS4 (GMSK), MCS5 to MCS9 (8PSK)
Puncturing Scheme	P1, P2, P3

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
	Main frame
MT8820B	Radio Communication Analyzer
	Standard accessories
	Power Cord, 2.6 m: 1 pc
Z0956A	ANR-CFX40T256 (CF card, 256 MB): 1 pc
CA68ADP	PC Card Adapter : 1 pc
W2778AE	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)
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)
	Warranty
MT8820B-ES210	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	GPIB Cable, 1 m
J0008	GPIB 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.

Anritsu

Specifications are subject to change without notice.

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