Product Brochure

Anritsu

For MT8820B Radio Communication Analyzer

Manufacturer Test Suite

MT8820B-032 TDMA Measurement Hardware Lite
MX882031C GSM Measurement Software Lite
MX882031C-011 EGPRS Measurement Software

Manufacturer Test Suite

Perfect Choice for Production of GSM/GPRS/EGPRS Terminals

- Optimum Solution for RF Adjustments and RF Parametric Tests
- Optional Call Processing Functionality
- Advanced High-speed Measurement Method and Batch Measurement

Manufacturer Test Suite is the ideal solution for making RF adjustments and RF parametric tests on mobile terminal production lines. The basic configuration consists of the MT8820B-032 TDMA Measurement Hardware Lite and MX882031C GSM Measurement Software Lite. It consists of signal generator and signal analyzer functions without call processing, supporting RF adjustments and RF parametric tests of GSM/GPRS terminals in the test mode (mobile terminal controlled by external PC)*.
Call processing functions are not required for RF adjustments, and may not be required for RF parametric tests. Consequently, the basic configuration of Manufacturer Test Suite is ideal for making RF adjustments and RF parametric tests in the test mode.

*: Requires MX882031C-011 for EGPRS measurement.

RF Parametric Tests

The RF parametric tests control the mobile terminal in the test mode or with call processing. The basic configuration performs RF parametric tests in the test mode but installing the MX882031C-050 GSM Call Processing Software adds support for RF parametric tests with call processing.

RF Adjustments

The basic configuration with signal generator and signal analyzer functions supports RF adjustments using traditional adjustment methods.

EGPRS Predistortion Adjustment

Installing the MX882031C-040 EGPRS Predistortion Adjustment performs adjustment of the predistortion part of EGPRS terminals, running in synchronization with the chipset adjustment function..

GSM High-speed Adjustment

Installing the MX882031C-041 GSM High-speed Adjustment cuts the RF adjustment time, running in synchronization with the chipset adjustment function. And it runs IQ Capturing Measurement.

Advanced High-speed Measurement Method and Batch Measurement

Anritsu's advanced DSP (Digital Signal Processing) and parallel-measurement technologies greatly reduce test times on automated production lines. 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, transmit power and output RF spectrum 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.
The MX882031C GSM Measurement Software Lite supports only FS (Full-rate Speech) and EFS (Enhanced Full-rate Speech) as channel encoding. Manufacturer Test Suite does not support external packet data requiring real-time processing functions and SMS (Short Message Service)

■ 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 and TCH/EFS

■ GPRS Measurements

Transmitter Measurements	Transmit Power
	Power versus Time (template mask)
	Frequency Error
	Phase Error (rms and peak)
	Output RF Spectrum
Receiver Measurements	BLER

MX882031C GSM Measurement Software Lite

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

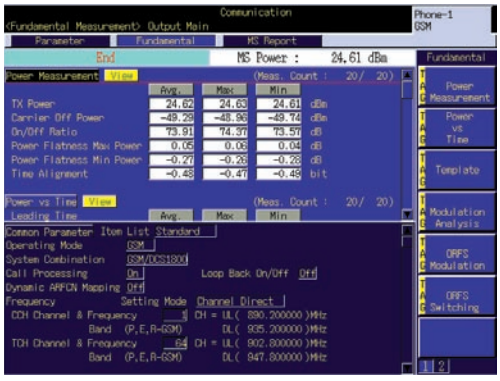
GSM/GPRS Measurements

The MX882031C GSM Measurement Software Lite 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.

GSM/GPRS Transmitter Measurements

Transmit Power

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

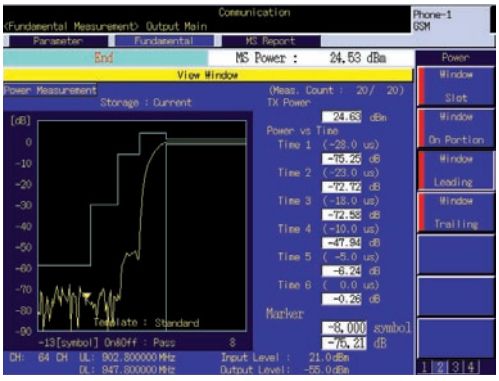


Power versus Time

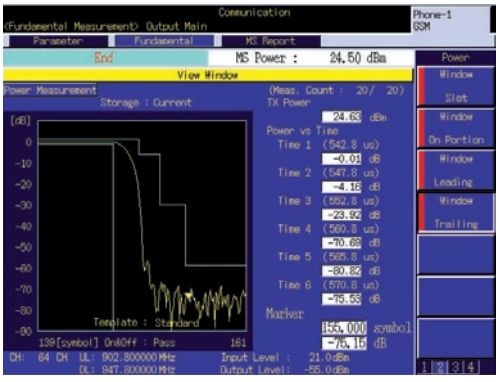
Power at six measuring points for each burst rise/fall edge can be measured, with measuring time set in increments of 0.1 µs resolution.

Burst Waveform Display

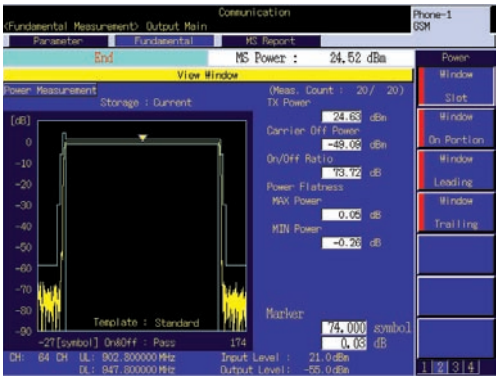
Burst waveforms can be displayed graphically, and a magnified display of the entire time slot and burst-on interval, as well as the rising and falling edges, supports easy evaluation of whether the burst waveform is within the limits of the power time template.



Rising edge



Falling edge



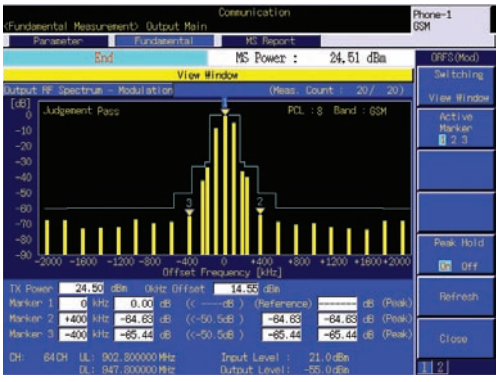
Entire time slot

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.



GSM Receiver Measurements

Error Rate Test

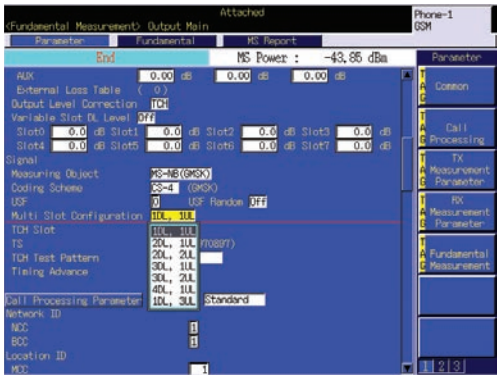
The uplink RF signal, which is looped back from GSM terminal, is demodulated to measure the frame error, bit error, and CRC error rates in the loopback condition. The error rate for TCH/FS and TCH/EFS can be measured. The FAST BER mode is supported. Transmitter measurements can be run in parallel with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

FAST BER

GPRS Measurements

Multislot Class and Coding Scheme

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



MX882031C-050 GSM Call Processing Software

Supporting Call Processing Function for GSM/GPRS Terminal

RF Parametric Tests with Call Processing

Installing the MX882031C-050 GSM Call Processing Software allows location registration, terminal call origination, network call origination, network disconnect, terminal disconnect and data transfer. RF Tx and Rx characteristics measurements with loopback and test mode connection and simple voice communication test with voice loopback can be performed. Moreover, the GSM/GPRS terminal status can be displayed as a periodic report sent by the GSM/GPRS terminal to the MT8820B.

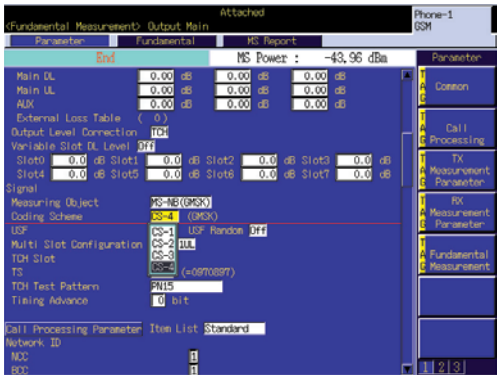
GPRS Measurements

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.

Connection Type

BLER

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



Coding Scheme

Mobile Terminal Report Monitor

The GSM/GPRS terminal status can be displayed as a periodic report sent by the GSM/GPRS terminal to the MT8820B.

Mobile Terminal Report Monitor (GSM)

∗ Requires MX882031C

MX882031C-001 GSM Voice Codec

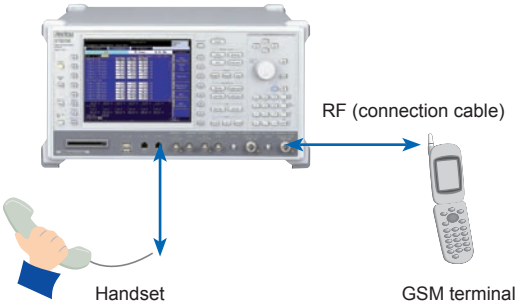
Real-time Voice Encoding/Decoding and Audio Measurement Functions

Voice Communication Test and Audio Measurement

The optional MX882031C-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.

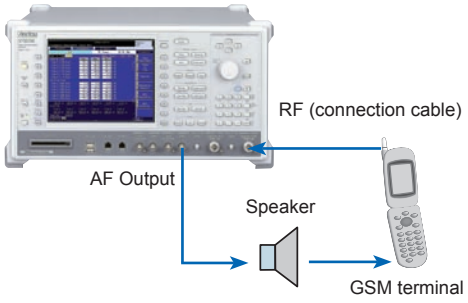
End-to-End Communications Testing

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



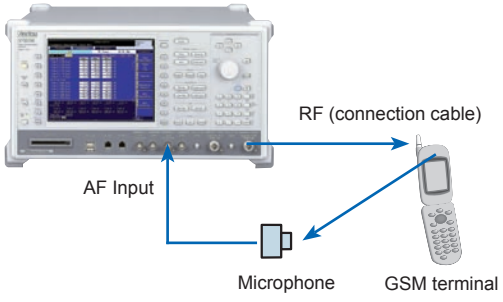
Audio Transmitter Measurement

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.



MX882031C-011 EGPRS Measurement Software

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

The MX882031C-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 MX882031C-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.

*: Requires MX882031C-050

■ 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

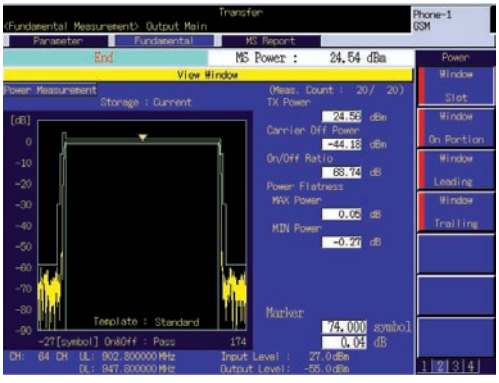
Transmitter Measurements

Transmit Power

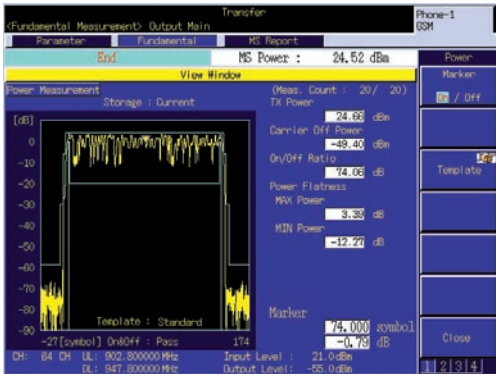
When two or more measurements are made, the maximum, average, and minimum results are displayed, supporting evaluation of the transmit power distribution of the EGPRS terminal. This functionality is also supported for other measurements.

Power versus 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

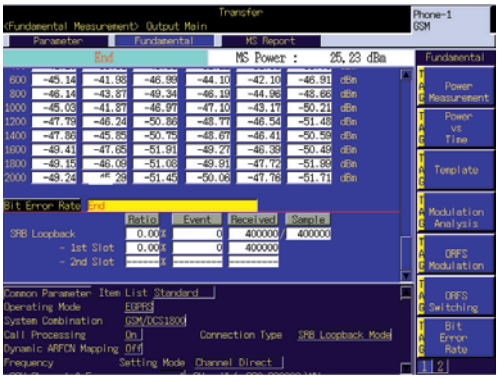
The spectrum can be measured at a total of 25 frequency points within the range of ±2 MHz of the carrier frequency. “Modulation” is the spectrum resulting from the modulated signal around the center of the burst signal, while “Switching” is the spectrum resulting from the rising and falling edges of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

MX882031C-050
GSM Call Processing Software
Supporting Call Processing Function for EGPRS Terminal

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.



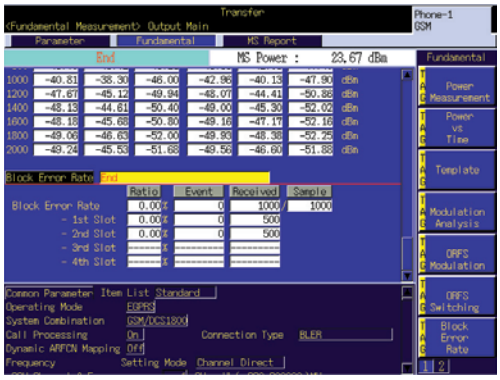
Call Processing

Installing the MX882031C-050 supports the following functions.
- Location registration
- Connection (Attach)
- Communication (Transfer)
- Disconnection

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

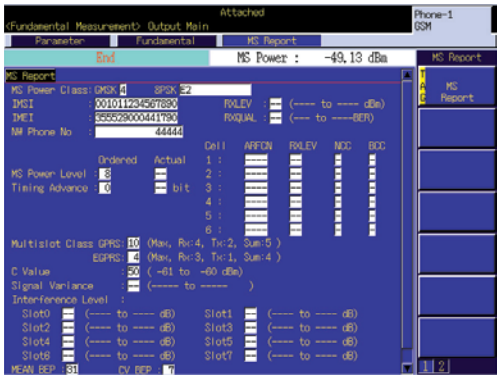
Block Error Rate Measurement

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. BLER measurement can be performed with call processing function. The error rate can be measured in parallel with transmitter measurements.



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) by installing the MX882031C-050.



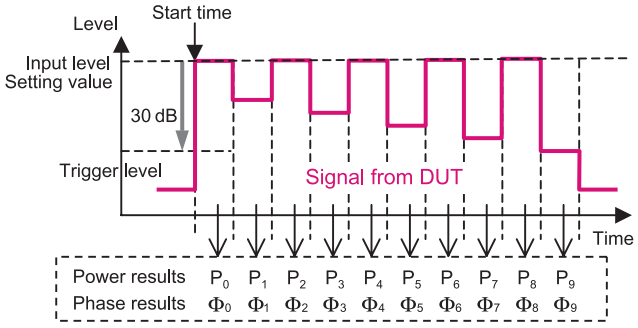
∗ Requires MX882031C-011

MX882031C-040
EGPRS Predistortion Adjustment
Linked with Chipset Adjustment Function

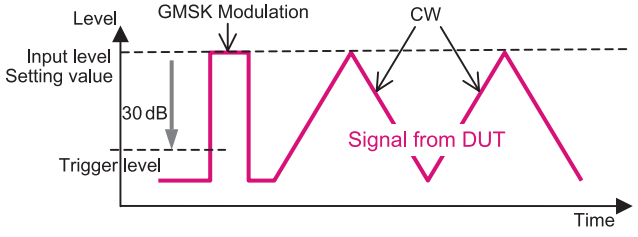
Reduced RF Adjustment Times

The basic configuration of Manufacturer Test Suite with signal analyzer functions supports RF adjustments using traditional adjustment methods. Installing the MX882031C-040 EGPRS Predistortion Adjustment cuts the RF adjustment time, running in synchronization with the chipset adjustment function on EGPRS terminal.
It becomes possible to measure transmitting power and the phase in the measurement section specified in cooperation with the mounted regulating function.

The measurement runs Fundamental Measurement screen.
The measurement runs with Call Processing Off only.
The measurement runs with Remote Control only.



EGPRS Predistortion Measurement 1



EGPRS Predistortion Measurement 2

Connection

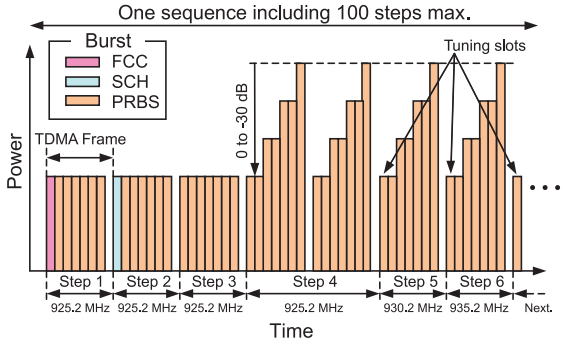
MX882031C-041
GSM High-Speed Adjustment

Installing the MX882031C-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.

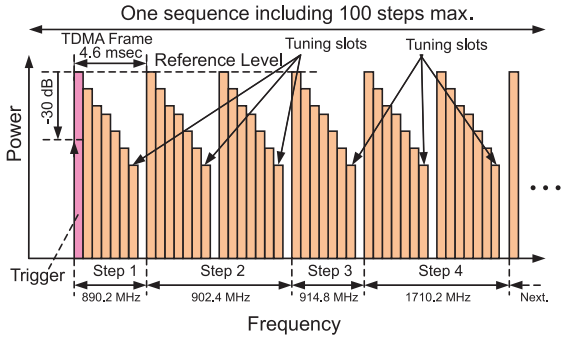
The measurement runs Fundamental Measurement screen.
The measurement can't run Fundamental Measurement, and IQ Capturing Measurement, or High-Speed Adjustment Measurement when the measurement is effective.
The measurement runs with Remote Control only.

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.



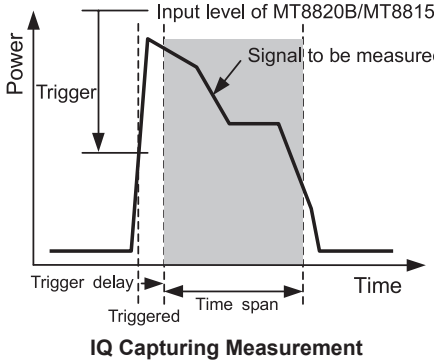
Sequence of Rx Sweep



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-032 TDMA Measurement Hardware Lite, MX882031C GSM Measurement Software Lite

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 x Reference oscillator accuracy + 10 Hz) (when measuring Normal burst) ± (Set frequency x 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 to –10 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
Channel Coding	FS, EFS
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

• MX882031C-050 GSM Call Processing Software

GSM/GPRS 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
Error Rate Measurement	GPRS: Error rate measurement of Block • Number of blocks received from terminal and inserted in uplink TCH • Number of USF reception blocks of terminal

*: EGPRS Call Processing function requires MX882031C, MX882031C-011, and MX882031C-050. Refer to MX882031C-011 specification.

• MT8820B-011 Audio Board, MX882031C-001 GSM Voice Codec

Voice Codec	GSM_EFR
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-032 TDMA Measurement Hardware, MX882031C-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 x Reference oscillator accuracy + 10 Hz) (when measuring Normal burst) ± (Set frequency x 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 (–40 to 0 dB, ≥–30 dBm) Carrier-off power: ≥65 dB (input level ≥–10 dBm), ≥45 dB (input level ≥–30 to –10 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	Bit error rate measurement • Loopback data inserted in uplink TCH Block error rate measurement (when MX882031C-050 installed) • Number of blocks received from terminal and inserted in uplink TCH
Call Processing (when MX882031C-050 installed)	Call controlling: EGPRS Connection, Disconnection, Data transfer Terminal controlling: EGPRS 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 following name of articles is an order name. The actual name may differ name from the product.

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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