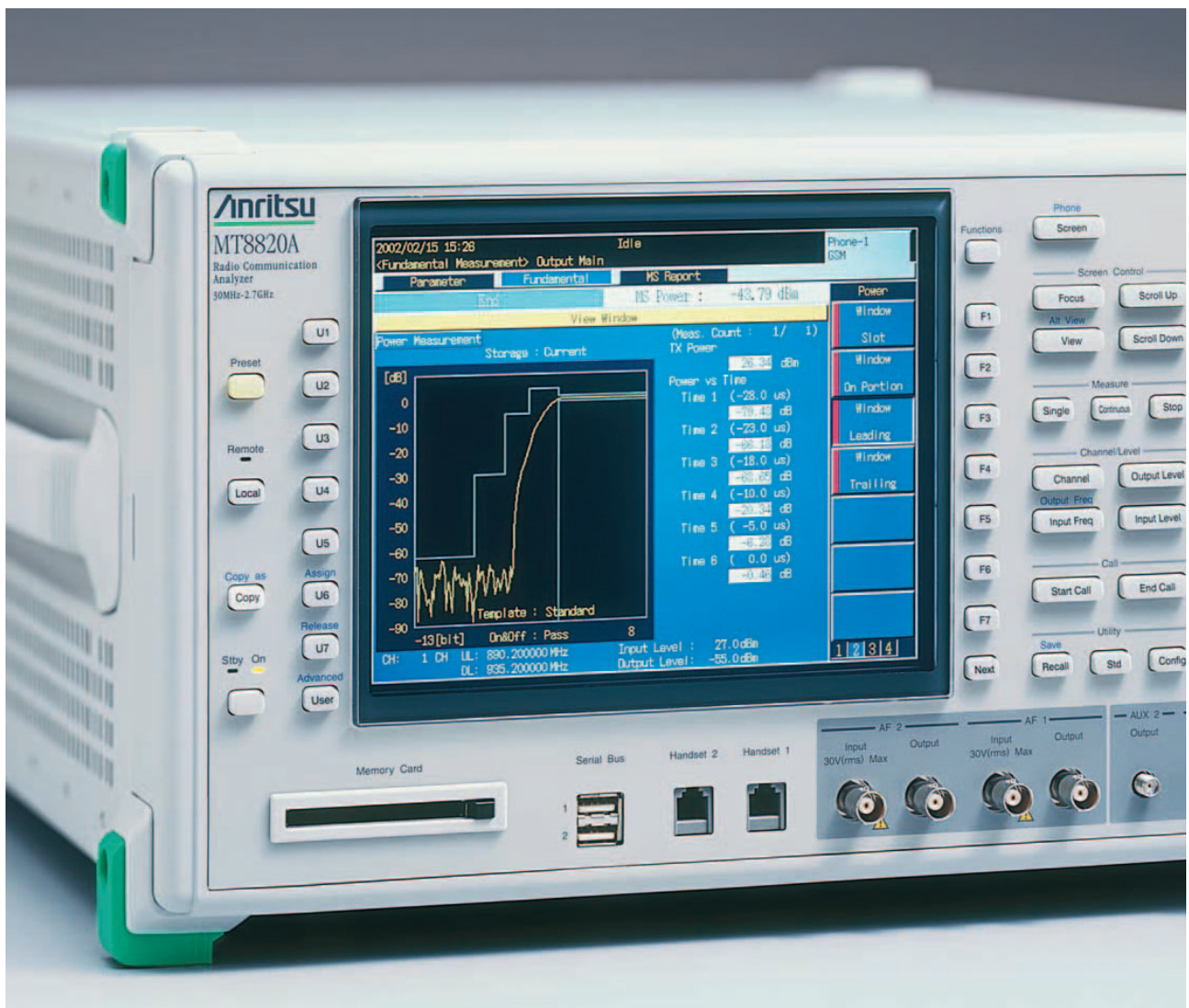


# MX882001A

GSM Measurement Software

# MX882001A-11

EGPRS Measurement Software



*Designed for GSM/GPRS/EGPRS systems*

# MX882001A

## GSM Measurement Software

*Utilizing an advanced high-speed measuring method and offering batch measurements to support GSM/GPRS/EGPRS terminal production*

The MX882001A GSM Measurement Software supports transmission and reception measurements of digital mobile terminals that conform to GSM/GPRS/EGPRS (MX882001A-11 is required for EGPRS measurement), the most widely used digital mobile standard in the world. With the MX882001A GSM and MX882000B W-CDMA Measurement Softwares installed in the MT8820A mainframe, the user can fully evaluate all the major transmission and reception characteristics of digital mobile terminals for all major GSM standards throughout the world. Anritsu's advanced DSP (Digital Signal Processing) and parallel-measurement technologies greatly reduce the time required for the production and testing of mobile terminals. Combinations of parameters for batch measurements are freely selectable, and the number of repetitions for each measurement can be set independently. In GSM measurement, selected items for measurement can be batch-processed through one-touch operation, enabling easy, high-speed Pass/Fail evaluation on major test items including transmission frequency, modulation accuracy, transmission power, adjacent channel leakage power and BER.

In GPRS measurement, transmission frequency, modulation accuracy and transmission power are measured when Test Mode A is selected, and Test Mode B or BLER measurement that matches each Multislot class and coding scheme is performed when BLER Measurement is selected, both at high speed.

In EGPRS measurement, transmission frequency, modulation accuracy and transmission power are measured when Test Mode A is selected, and BLER measurement that matches each Multislot class and Multi coding scheme is performed when BLER Measurement is selected, and transmission and reception test is performed by loopback at physical layer when SRB loopback is selected.

The standard GPIB interface enables the MT8820A to be easily incorporated into existing automated production lines or to configure automatic test systems in maintenance sites.

### • GSM measurement item

Transmission measurement	Transmission power
	Power vs time (template mask evaluation)
	Frequency error
	Phase error (rms and peak)
	Output spectrum
Reception measurement	FER, BER and CRC error rates
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 )

### • EGPRS measurement item

Transmission measurement	Transmission power
	Power vs time (template mask evaluation)*1
	Frequency error
	Phase error (GMSK)
	Modulation accuracy (8PSK)
	Output spectrum *1
Reception measurement	BLER, BER
Call processing	Test Mode A, BLER SRB loop back communication, disconnection
	MS Report monitor (Multi Slot Class, etc)

\*1 Can be measured up to two uplink slot.

### • GPRS measurement item

Transmission measurement	Transmission power
	Power vs time (template mask evaluation)*1
	Frequency error
	Phase error (rms and peak)
	Output spectrum *1
Reception measurement	BLER
Call processing	Test Mode A, B, BLER connection, communication, disconnection
	MS Report monitor (Multi Slot Class, etc)

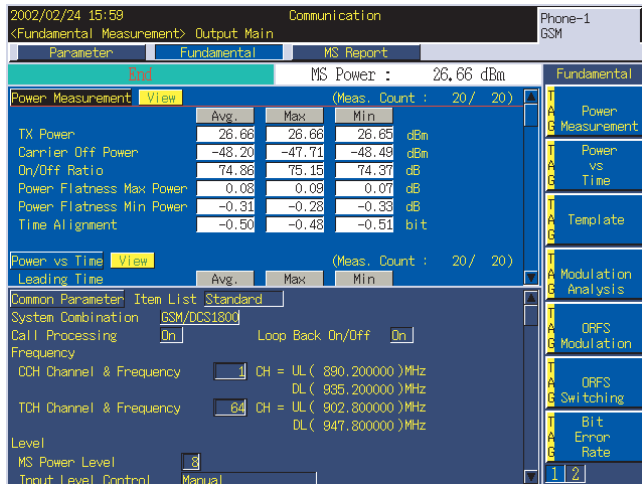
\*1 Can be measured up to two uplink slot.

# GSM

## Transmission Measurement

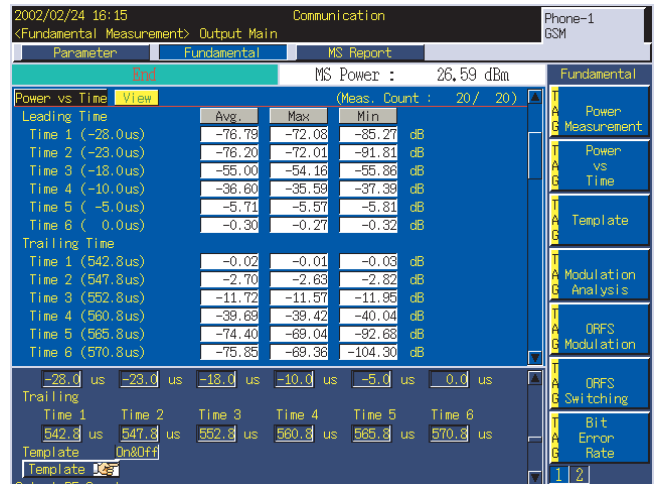
### Transmission power

When the number of measurement repetitions is set to two or more, the GSM terminal transmission power; maximum, average and minimum values of measured results are displayed, enabling the distribution of the terminal characteristics to be evaluated. This repeat measurement function is also available for other measurements.



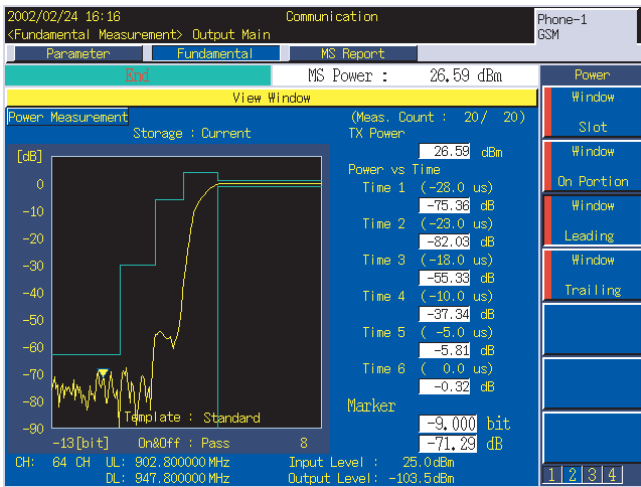
### Power vs Time

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

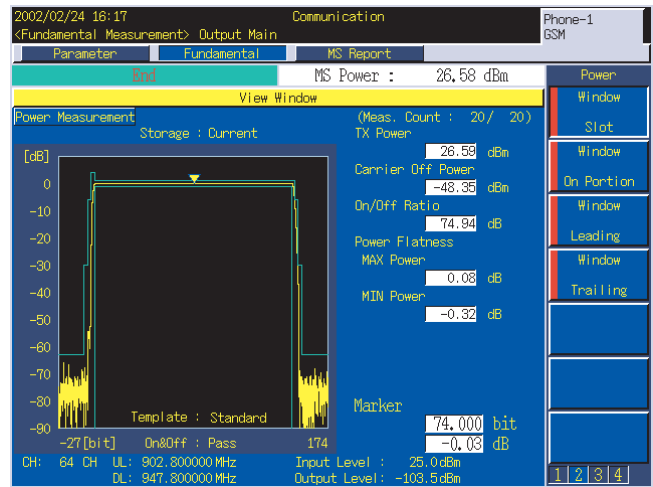


## Burst waveform display

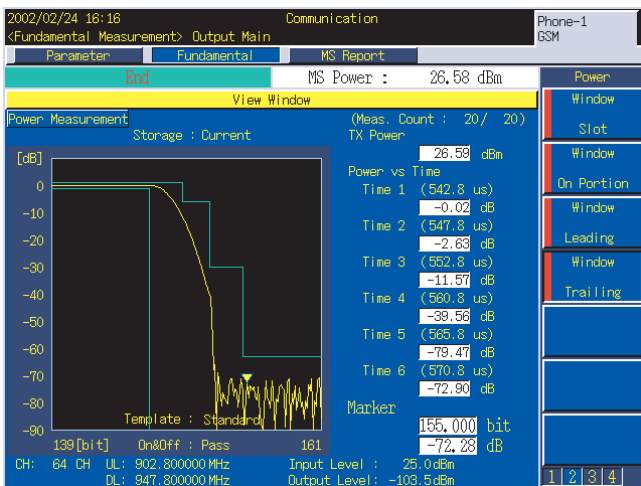
Graphical display of the burst waveform is also available. Magnified display of the entire time slot and the burst-on area as well as the rising/falling edges enables users to confirm at a glance whether or not the burst waveform meets the GSM standard template.



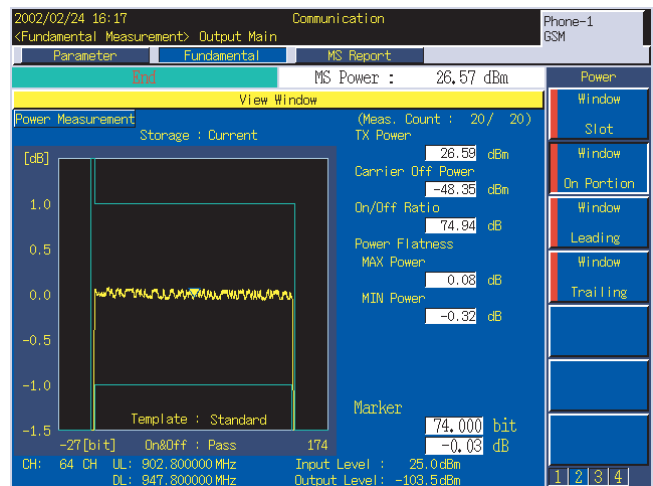
Rising edge



Entire time slot



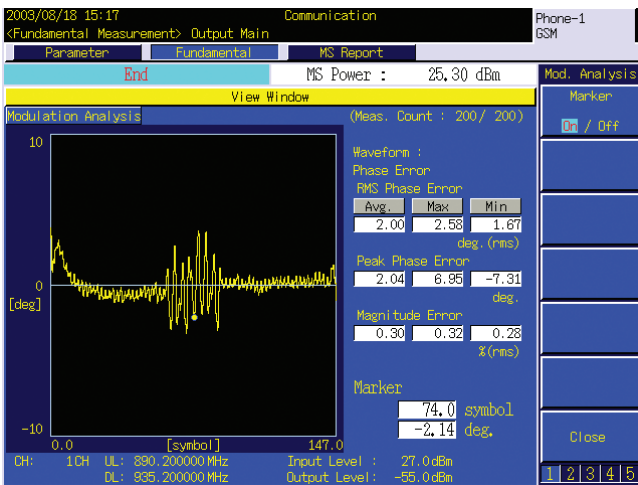
Falling edge



Burst on area

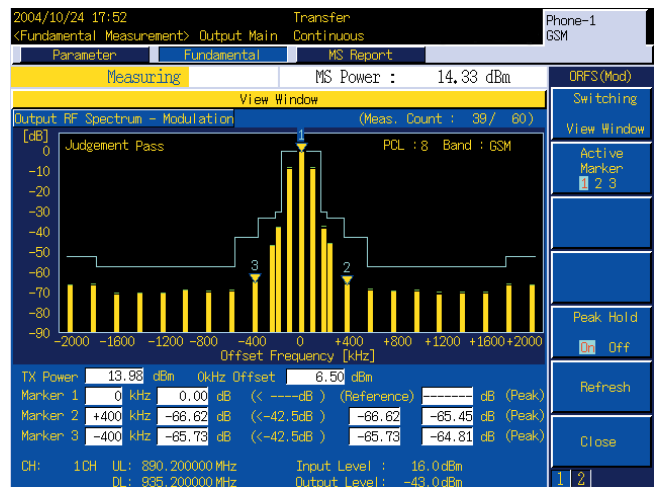
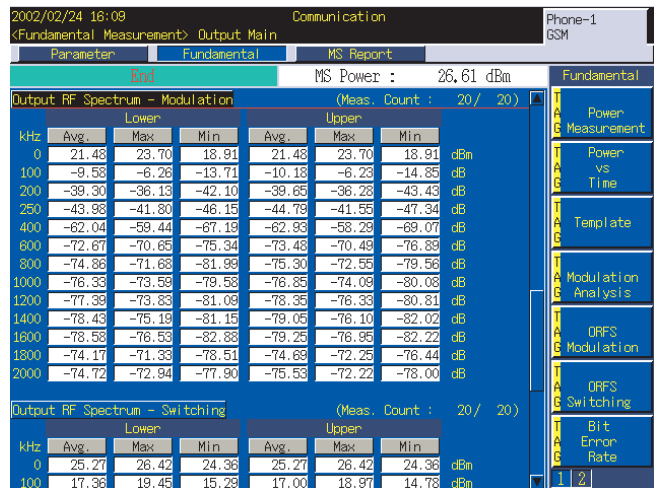
## Modulation analysis

Simultaneous measurement and display of frequency, frequency error (in kHz and ppm), phase error and peak phase error are performable. Amplitude error at the burst-on area can also be measured.



## Output spectrum

Power spectrum is measured at a total of 25 frequency points within the range of  $\pm 2$  MHz from the carrier frequency. "Modulation" is the spectrum resulting from the modulation signal around the center of burst signal, while "Switching" is the spectrum resulting from the rise and fall of the burst signal. In addition to the latest DSP technology, high-speed measurement is achieved as the output spectrum can be processed in parallel with other measurements.



# Call Processing Function

## Reception Measurement

### Error rate test

By controlling GSM terminals to the loop-back conditions, the up-link RF signal, which is looped back from the terminal, is demodulated to measure frame error rate, bit error rate and CRC error rate. These measurements can be processed in parallel with the transmission measurements.

2002/02/24 16:22 Communication Phone-1 GSM  
 <Fundamental Measurement> Output Main  
 MS Power : 26,56 dBm

Power	1400	1800	1300	2000
Power vs Time	-51.08	-51.40	-52.19	-52.69
	-46.79	-46.68	-48.18	-49.13
	-55.71	-56.06	-57.04	-57.42
	-51.02	-51.50	-52.59	-52.80
	-47.06	-46.69	-49.06	-48.24
	-56.78	-56.98	-56.45	-58.71

Bit Error Rate: 0.96% (96 Events, 10000 Samples)

FAST: Ratio 0.96%, Event 96, Received 10000, Sample 10000

FX Measurement Parameter Item List Standard

Parameter	Value
Number of Sample	500
FER/CRC	69000
CIB	39000
CII	10000
FAST	130000
BER(Ext. BER Input)	RF Loop Back
Measurement Input	C(FAST)
Loop Back Type	Positive
Output Data Polarity	
Output Level	-103.8 dBm

### Connection test

The call processing function enables to perform various connection tests including location registration, terminal call origination, network call origination, terminal disconnect and network disconnect. During a call, the user's speech can be echoed back from the terminal to provide a simple voice communication test.

2002/02/24 16:28 Communication Phone-1 GSM  
 <Fundamental Measurement> Output Main  
 MS Power : 26,54 dBm

Call Processing Parameter Item List Standard

Network ID: MCC 1, BCC 1

Location ID: MNC 1, LAC 0001

Neighbour Cell Allocation: 1 Off, Off, Off, Off, Off, Off, Off

BS-PA-MFMS: 0

Handover Type: Intra Cell

Mobile Station ID: Auto

Paging IMSI: 001010123456789

TX Measurement Parameter Item List Standard

Measurement Slot: 2

Bit Offset: 0 bit

Power Measurement

### Mobile terminal report monitor

GSM terminal status can be displayed as the periodical report that the terminal sends back to the tester. "RX Level" monitoring shows the down-link RF signal level received by the terminal.

2002/02/24 16:29 Communication Phone-1 GSM  
 <Fundamental Measurement> Output Main  
 MS Power : 26,55 dBm

MS Report

MS Power Class: 4

IMSI : 001010123456789 Meas Report Level : 6

IMEI : 490522300543090 Quality : 3

NW Phone No : -----

Ordered	Actual	Cell	ARFCN	RXLEV	MCC	BCC
1	3	1	7	1	1	1
2	---	---	---	---	---	---
3	---	---	---	---	---	---
4	---	---	---	---	---	---
5	---	---	---	---	---	---
6	---	---	---	---	---	---

MS Power Level : 3

Timing Advance : 0 bit

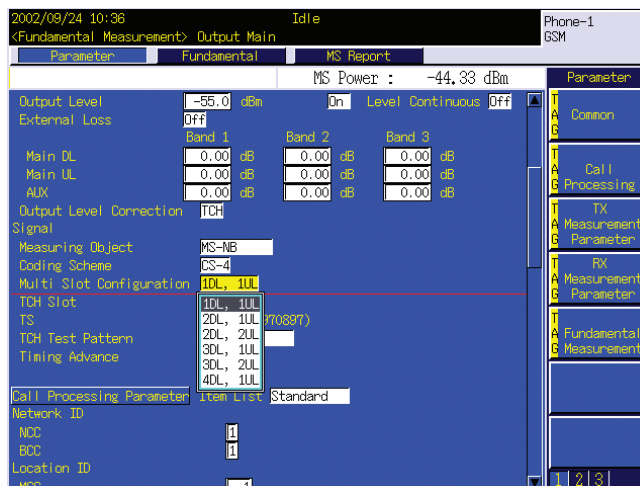
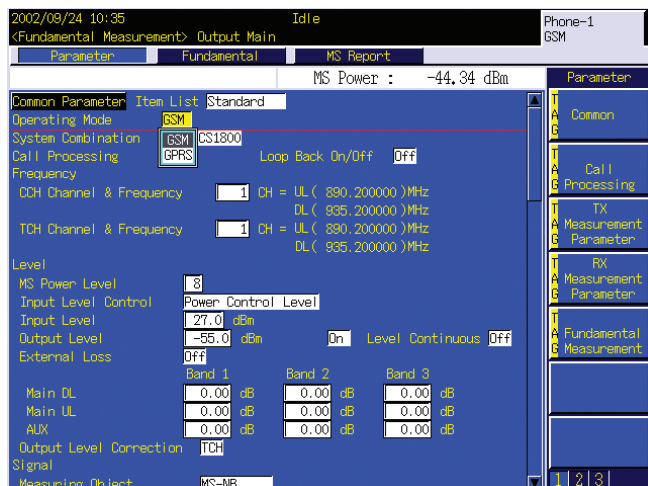
# GPRS

## GPRS Measurement Function

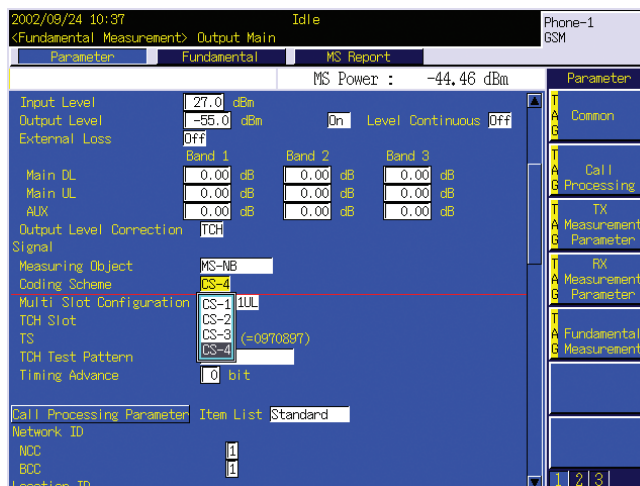
The MX882001A GSM Measurement Software is equipped with GPRS test function. Test functions can be switched between GSM and GPRS through one-touch operation without reinstalling measurement software in the MT8820A. Thus, both GSM and GPRS terminals can be tested at high speed.

### Multislot class and Channel Coding Scheme

The combinations of up-link/down-link slots can be selected in GPRS terminals of class 1 to 10 (except class 7).



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



## Connection type

Test Mode A/B or BLER is selectable for connection type. In Test Mode A, selected for transmission measurement, the terminal generates the up-link slot inserting pseudo random pattern in PDTCH.

In BLER, selected for BLER measurement, the terminal counts the number of blocks in received down-link data and reports the number of received blocks with up-link slot.

The MT8820A performs the BLER measurement on the basis of this report.

2003/09/12 14:26 Idle Phone-1 GSM

Parameter Fundamental MS Report

MS Power : -44.63 dBm

Common Parameter Item List Standard

Operating Mode GPRS

System Combination GSM/DCS1800

Call Processing On Connection Type Test Mode A

Frequency

CDH Channel & Frequency 1 CH = UL ( 890.200000 ) MHz  
DL ( 835.200000 ) MHz

TCH Channel & Frequency 1 CH = UL ( 890.200000 ) MHz  
DL ( 835.200000 ) MHz

Level

MS Power Level 8

Input Level Control Power Control Level

Input Level 27.0 dBm

Output Level -55.0 dBm Dff Level Continuous Dff

External Loss On

Main DL 0.00 dB 0.00 dB 0.00 dB

Main UL 0.00 dB 0.00 dB 0.00 dB

AUX 0.00 dB 0.00 dB 0.00 dB

Output Level Connection TCH

Variable Slot DL Level Dff

Slot0 0.0 dB Slot1 0.0 dB Slot2 0.0 dB Slot3 0.0 dB

## Transmission Measurement

Similarly to GSM measurement, the transmission measurement for the following items is carried out for 1 slot specified when Test Mode A is selected.

- Power vs Time (template mask evaluation)\*1
- Frequency error
- Phase error (rms and peak)
- Output spectrum\*1

\*1 Can be measured up to two uplink slot.

## Reception Measurement

### Block Error Rate

When BLER is selected, the number of blocks received from the terminal is counted for block error rate measurement.

2002/09/24 10:45 Transfer Phone-1 GSM

Parameter Fundamental MS Report

Measuring MS Power : 15.31 dBm Fundamental

Power Measurement View (Meas. Count : 1 / 1)

Parameter	Avg.	Max	Min
TX Power	15.29	15.29	15.29
Carrier Off Power	-59.51	-59.51	-59.51
Dn/Off Ratio	74.81	74.81	74.81
Power Flatness Max Power	0.07	0.07	0.07
Power Flatness Min Power	-0.42	-0.42	-0.42
Time Alignment	-0.03	-0.03	-0.03

Block Error Rate

Ratio	Event	Received	Sample
Block Error Rate	0.00%	0	256 / 1000

Common Parameter Item List Standard

Operating Mode GPRS

System Combination GSM/DCS1800

Call Processing On Connection Type BLER

Frequency

CDH Channel & Frequency 128 CH = UL ( 824.200000 ) MHz  
DL ( 835.200000 ) MHz

## Call Processing Function

The following functions are tested when call processing is set to ON.

- Location registration
- Connection
- Communication
- Disconnection

After connection, MS generates up-link slot, enabling Transmission measurement and BLER measurement.



# High-speed, easy-to-use GPIB control

---

## **Controllable without displaying the measurement window**

Items not currently displayed on the measurement window can be read out or changed freely without requiring display. This dramatically saves time that would otherwise be lost by displaying the relevant measurement window.

## **Batch readout command for measured results**

All results obtained by batch measurement can be read out with the single command: "ALLMEAS?". If required, only desired measurement results can be read out using commands such as "ALL MEAS? MOD" (modulation analysis). A decrease in the number of GPIB commands reduces the GPIB traffic on both the MT8820A and control PC, contributing to the increase in measurement throughput. Besides, the step size of the control program is reduced, which provides a real benefit to the user for the creation of a control program that is easy to read and maintain.

# Specifications

## • MT8820A-02 TDMA Measurement Hardware, MX882001A GSM Measurement Software

Frequency/modulation measurement	<p>Frequency: 300 to 2200 MHz            Input level: -30 to +40 dBm (average power of burst signal, MAIN connector)            Measurement items: Normal burst, RACH            Carrier frequency accuracy:                reference oscillator accuracy + 10 Hz at normal burst measurement                reference oscillator accuracy + 20 Hz at RACH measurement            Residual phase error: <math>\leq 0.5^\circ</math> rms, <math>2^\circ</math> peak</p>
Amplitude measurement	<p>Frequency: 300 to 2200 MHz            Input level: -30 to +40 dBm (average power of burst signal, MAIN connector)            Measurement items: Normal burst, RACH            Measurement accuracy: <math>\pm 0.5</math> dB (-20 to +40 dBm), <math>\pm 0.7</math> dB (-30 to -20 dBm) *After calibration            Linearity: <math>\pm 0.2</math> dB (0 to -40 dB, <math>\geq -30</math> dBm)            Carrier-off power: <math>\geq 65</math> dB (input level <math>\geq -10</math> dBm), <math>\geq 45</math> dB (input level <math>\geq -30</math> dBm)            Burst waveform display: Rise, fall, time slot, burst-on</p>
Output RF spectrum measurement	<p>Frequency: 300 to 2200 MHz            Input level: -10 to +40 dBm (average power of burst signal, MAIN connector)            Measurement item: Normal burst            Measurement points: <math>\pm 100</math> kHz, <math>\pm 200</math> kHz, <math>\pm 250</math> kHz, <math>\pm 400</math> kHz, <math>\pm 600</math> kHz, <math>\pm 800</math> kHz, <math>\pm 1000</math> kHz,                <math>\pm 1200</math> kHz, <math>\pm 1400</math> kHz, <math>\pm 1600</math> kHz, <math>\pm 1800</math> kHz, <math>\pm 2000</math> kHz            Measurement range in modulation area: <math>\leq -55</math> dB (<math>\leq 250</math> kHz offset), <math>\leq -66</math> dB (<math>\geq 400</math> kHz offset) *Average of                10-time measurement            Measurement range in transient area: <math>\leq -57</math> dB (<math>\geq 400</math> kHz offset)</p>
RF signal generator	<p>Output frequency: 300 to 2200 MHz (in increments of 1 Hz)            Phase error: <math>\leq 1^\circ</math> rms, <math>\leq 4^\circ</math> peak            Output patterns: CCH, TCH, CCH + TCH            TCH data: PN9, PN15, ALL 0, ALL 1, Fixed Pattern (PAT0-PAT9)</p>
Error rate measurement	<p>Function: Error rate measurement of frame, bit and CRC            Measurement items: GSM                Loop-back data inserted in up-link TCH                Serial data inputted through the call processing I/O port on the rear panel            GPRS                The number of blocks received from the terminal and inserted in up-link TCH                The number of USF reception blocks of a terminal</p>
Call processing	<p>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, loop-back on/off            GPRS                Test Mode A, Test Mode B, BLER</p>
Channel coding	FS, EFS, HS0, HS1, AFS, AHS0, AHS1, CS-1, CS-2, CS-3, CS-4
Frequency bands	GSM450, GSM480, GSM850, P-GSM, E-GSM, R-GSM, DCS1800, PCS1900

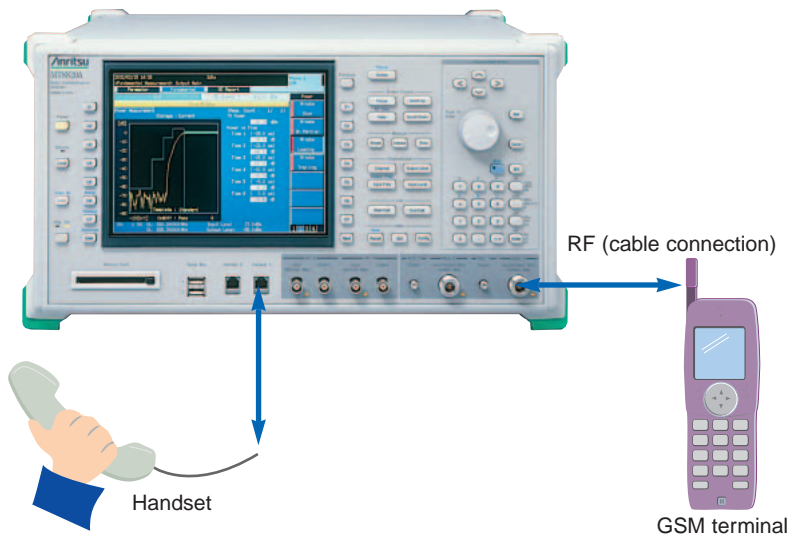
# MX882001A-01 GSM Voice Codec

## Real-time Voice Encoding and Decoding, Audio Measurement Function

The MX882001A-01 GSM Voice Codec is optional software that brings real-time voice encoding and decoding to the GSM Measurement Software. The installation of this option and MT8820A Option11 Audio Board enables end-to-end communication testing with a handset. Also, transmission/reception audio measurement is performable in call processing state.

### End-to-End communications testing

Connection of a handset to the MT8820A RJ11 connector enables end-to-end communications testing between the MT8820A and a mobile terminal.

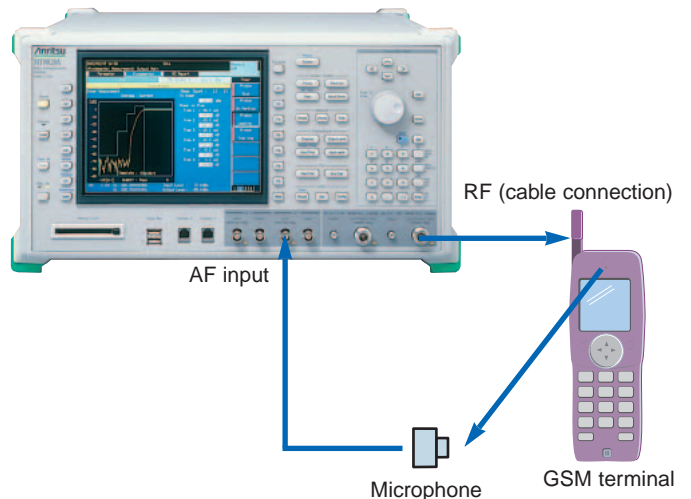
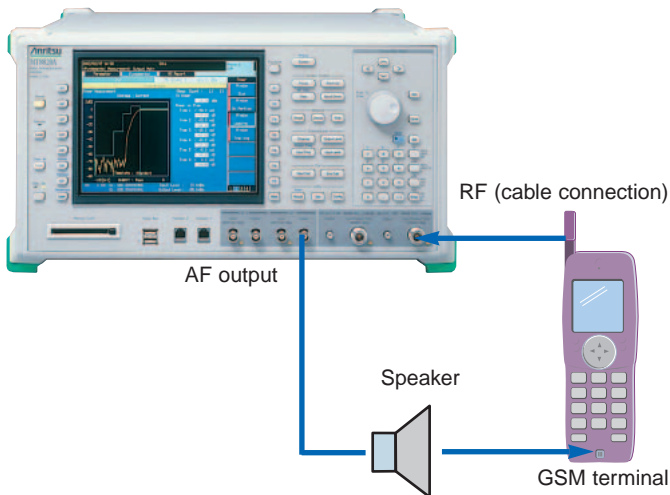


### Transmission audio measurement

The tone signal outputted from AF Output connector is inputted to the terminal microphone. Then the MT8820A demodulates up-link RF signal and measures the level, frequency and distortion rate of demodulated tone signal. This function achieves the evaluation of audio characteristic on transmitter side of mobile terminals.

### Reception audio measurement

The tone signal demodulated by the mobile terminal is inputted to AF Input connector of the MT8820A. The audio characteristic on receiver side of mobile terminals can be evaluated by measuring the level, frequency and distortion rate of the tone signal inputted to AF Input connector.



# Specifications

## • MT8820A-11 Audio Board, MX882001A-01 GSM Voice Codec

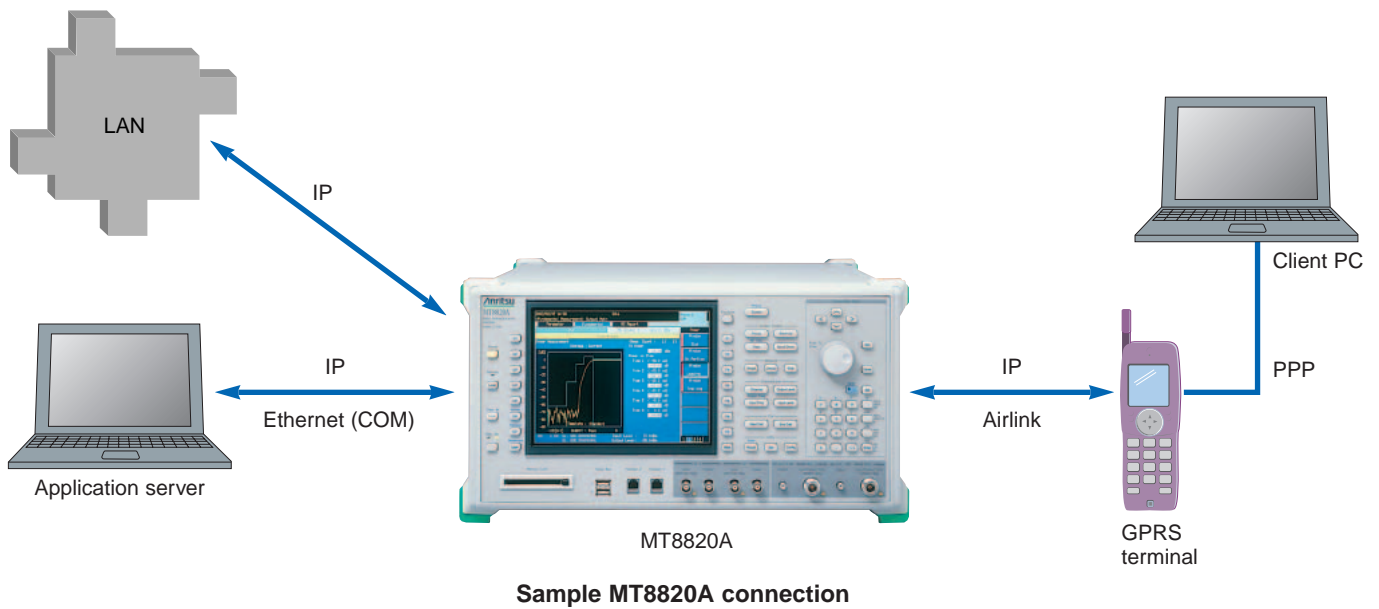
Voice codec	GSM_EFR, GSM_AMR
Codec level adjustment	Encoder input gain: -3.00 to 3.00 dB, in increments of 0.01 dB Handset microphone volume: 0, 1, 2, 3, 4, 5 Handset speaker volume: 0, 1, 2, 3, 4, 5
AF output	Frequency range: 30 Hz to 10 kHz, 1 Hz resolution Setting range: 0 to 5 V <sub>peak</sub> (AF Output connector) Setting resolution: 1 mV ( $\leq 5$ V peak), 100 $\mu$ V ( $\leq 500$ mV <sub>peak</sub> ), 10 $\mu$ V ( $\leq 50$ mV <sub>peak</sub> ) Accuracy: $\pm 0.2$ dB ( $\geq 10$ mV <sub>peak</sub> , $\geq 50$ Hz), $\pm 0.3$ dB ( $\geq 10$ mV <sub>peak</sub> , $< 50$ Hz) Waveform distortion: In $\leq 30$ kHz band, $\leq -60$ dB ( $\geq 500$ mV peak, $\leq 5$ kHz), $\leq -54$ dB ( $\geq 70$ mV <sub>peak</sub> ) Output impedance: $\leq 1 \Omega$ Max. output current: 100 mA
AF input	Frequency range: 50 Hz to 10 kHz Input voltage range: 1 mV <sub>peak</sub> to 5 V <sub>peak</sub> (AF Input connector) Max. allowable input voltage: 30 V <sub>rms</sub> Input impedance: 100 k $\Omega$
Frequency measurement	Accuracy: Reference oscillator accuracy + 0.5 Hz
Level adjustment	Accuracy: $\pm 0.2$ dB ( $\geq 10$ mV <sub>peak</sub> ), $\pm 0.4$ dB ( $\geq 1$ mV <sub>peak</sub> , $\geq 1$ kHz)
SINAD measurement	At frequency 1 kHz in $\leq 30$ kHz band, $\geq 60$ dB ( $\geq 1000$ mV <sub>peak</sub> ), $\geq 54$ dB ( $> 50$ mV <sub>peak</sub> ), $\geq 46$ dB ( $\geq 10$ mV <sub>peak</sub> )
Distortion rate measurement	At frequency 1 kHz in $\leq 30$ kHz band, $\leq -60$ dB ( $\geq 1000$ mV <sub>peak</sub> ), $\leq -54$ dB ( $> 50$ mV <sub>peak</sub> ), $\leq -46$ dB ( $\geq 10$ mV <sub>peak</sub> )

# MX882001A-02 GSM External Packet Data

## Verification Test Function for GPRS Packet Communication Data Transfer

The MX882001A-02 GSM External Packet Data option enables data transfer to/from external equipment by using the Ethernet port. Installing the MX882001A-02 enables End-to-End data transfer between an application server connected to the MT8820A and GSM/GPRS terminal or equipment connected to LAN network and GSM/GPRS terminal under near-actual operating environment.

### External packet test



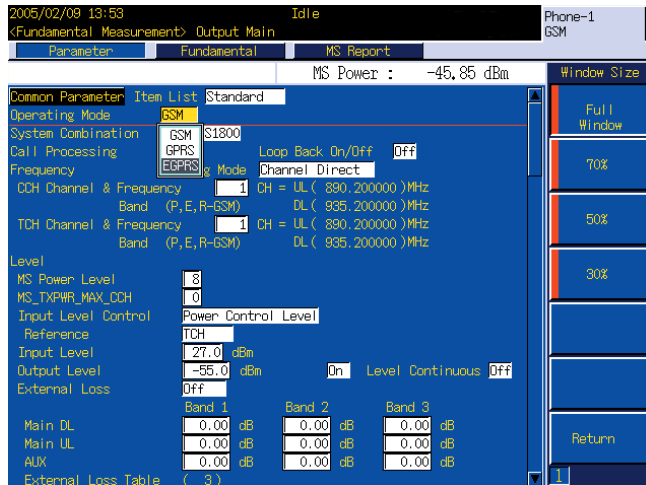
# MX882001A-11

## EGPRS Measurement Software

*Utilizing an advanced high-speed measuring method and offering batch measurements to support EGPRS terminal production*

The MX882001A-11 EGPRS Measurement Software supports transmission and reception measurements of mobile terminals conforming to EGPRS which is the advanced system of GPRS. MX882001A-11 EGPRS Measurement Software supports coding scheme of MCS1-MCS4 which uses the modulation type of GMSK and coding scheme of MCS5-MCS9 which uses the modulation type of 8PSK.

MCS5-MCS-9 which uses the modulation type of 8PSK. After installing MX882001A-11 EGPRS Measurement Software, “EGPRS” can be selected from the “Operating Mode” setting on the GSM Measurement Software.



# EGPRS

## Transmission Measurement

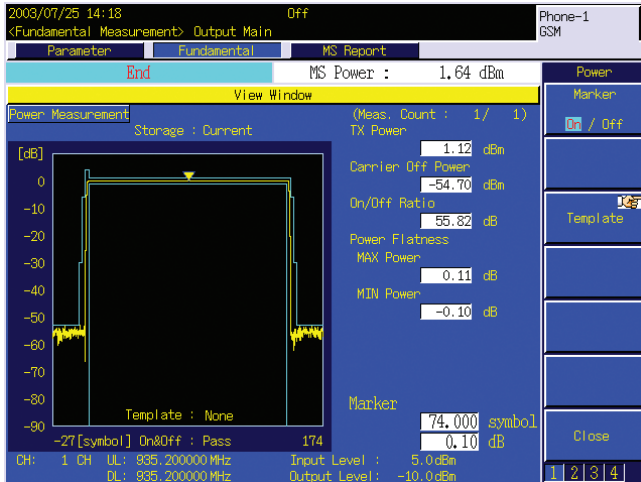
### Transmission power

When the number of measurement repetitions is set to two or more, the EGPRS terminal transmission power; maximum, average and minimum values of measured results are displayed, enabling the distribution of the terminal characteristics to be evaluated. This repeat measurement function is also available for other measurements.

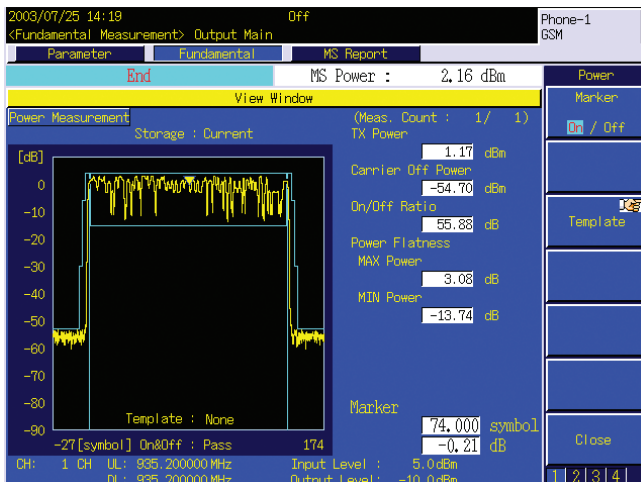
### Power vs. Time

Power at five measuring points for each burst rise/ fall edge can be measured, with measuring time set in increments of 0.1  $\mu$ s resolution.

Graphical display of the burst waveform is also available. Magnified display of the entire time slot and the burst-on area as well as the rising/falling edges enables users to confirm at a glance whether or not the burst waveform meets the GSM standard template.



Entire time slot of GMSK



Entire time slot of 8PSK

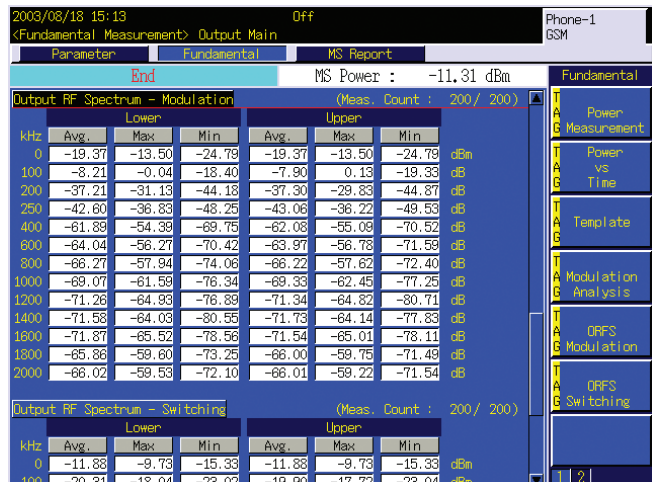
### Modulation analysis

Simultaneous measurement and display of frequency, frequency error (in kHz and ppm), phase error and peak phase error are performable for GMSK modulation signal. Amplitude error at the burst-on area can also be measured. Measurement of EVM, PEAK EVM, 95th percentile EVM, origin off-set, etc. are performable for 8PSK modulation signal.



### Output spectrum

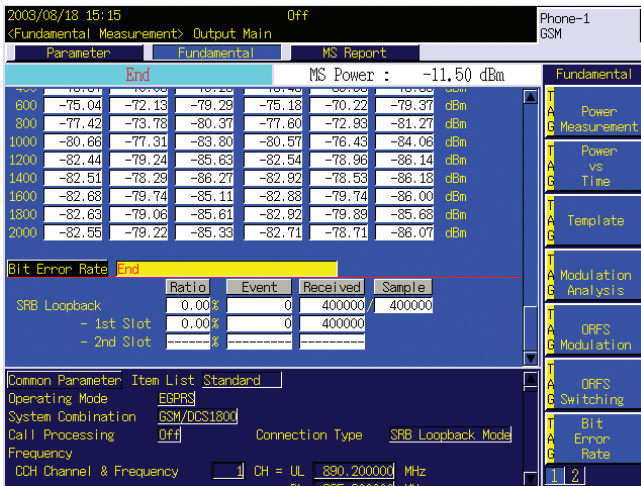
Power spectrum is measured at a total of 25 frequency points within the range of  $\pm 2$  MHz from the carrier frequency. "Modulation" is the spectrum resulting from the modulation signal around the center of burst signal, while "Switching" is the spectrum resulting from the rise and fall of the burst signal. In addition to the latest DSP technology, high-speed measurement is achieved as the output spectrum can be processed in parallel with other measurements.



## Reception Measurement

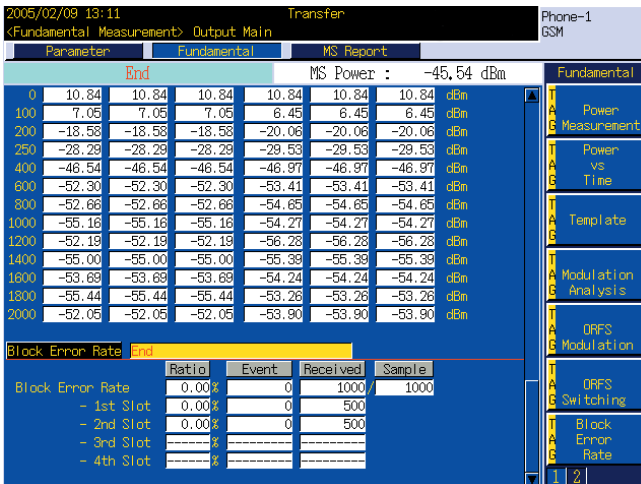
### Error rate test

By controlling EGPRS terminals to the loop-back conditions (Equivalent to EGPRS switched Radio Block Loopback Mode), the up-link RF signal, which is looped back from the terminal, is demodulated to measure bit error rate. These measurements can be processed in parallel with the transmission measurements.



### Block error rate test

Block error rate can be measured by counting the number of ACK blocks when BLER is selected.



## Call Processing

### Call processing function

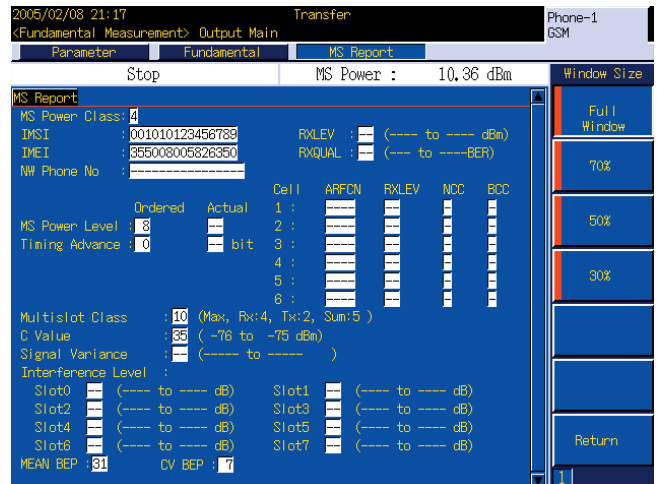
The following functions are tested when call processing is set to ON.

- Location registration
- Connection
- Communication
- Disconnection

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

### Mobile terminal report monitor

EGPRS terminal status can be displayed as the periodical report that the terminal sends back to the tester. The informations of Multislot Class, BEP (Bit Error Probability), etc can be checked.







# Ordering Information

Please specify the model/order number, name, and quantity when ordering.

Model/Order No.	Name
MT8820A	<b>Main frame</b> Radio Communication Analyzer
	<b>Standard accessories</b>
	Power cord, 2.6 m : 1 pc
HB28B064C8H	CF card (64 MB) : 1 pc
CA68ADP	PC card adapter : 1 pc
W2458AE	MT8820A/MT8815A operation manual (CD-ROM) : 1 copy
	<b>Options</b>
MT8820A-01	W-CDMA Measurement Hardware
MT8820A-02	TDMA Measurement Hardware
MT8820A-03	CDMA2000 Measurement Hardware
MT8820A-04	1xEV-DO Measurement Hardware
MT8820A-11	Audio Board
MT8820A-12	Parallel Phone Measurement Hardware
MT8820A-21	W-CDMA Measurement Hardware retrofit
MT8820A-22	TDMA Measurement Hardware retrofit
MT8820A-23	CDMA2000 Measurement Hardware retrofit
MT8820A-24	1xEV-DO Measurement Hardware retrofit
MT8820A-31	Audio Board retrofit
MT8820A-32	Parallel Phone Measurement Hardware retrofit
	<b>Softwares</b>
MX882000B	W-CDMA Measurement Software (requires MT8820A-01 and MX88205xA)
MX882000B-01	W-CDMA Voice Codec (requires MT8820A-11 and MX882000B)
MX882000B-11	HSDPA Measurement Software (requires MT8820A-01, MX882000B and MX882050A)
MX882001A	GSM Measurement Software (requires MT8820A-02)
MX882001A-01	GSM Voice Codec (requires MT8820A-11 and MX882001A)
MX882001A-02	GSM External Packet Data (requires MX882001A)
MX882001A-11	EGPRS Measurement Software (requires MX882001A)
MX882002A	CDMA2000 Measurement Software (requires MT8820A-03)
MX882002A-02	CDMA2000 External Packet Data (requires MX882002A)
MX882003A	1xEV-DO Measurement Software (requires MT8820A-03, MT8820A-04 and MX882002A)
MX882003A-02	1xEV-DO External Packet Data (requires MX882003A)
MX882004A	PDC Measurement Software (requires MT8820A-02)
MX882005A	PHS Measurement Software (requires MT8820A-02)
MX882005A-11	ADVANCED PHS Measurement Software (requires MX882005A)
MX882010A	Parallel Phone Measurement Software*1 [requires MT8820A-12, the two same measurement hardware (2 board/set) and one measurement software]
MX882022A	CDMA2000 Wireless Application Test Software (requires MT8820A-03)
MX882050A	W-CDMA Call Processing Software*2 (requires MX882000B)
MX882050A-02	W-CDMA External Packet Data*2, *3 (requires MX882050A)
MX882050A-03	W-CDMA Video Phone Test*2 (requires MX882050A)
MX882050A-11	HSDPA External Packet Data*2 (requires MX882000B-11)
MX882070A	W-CDMA Ciphering Software*2 (requires MX882050A)
MX882051A	W-CDMA Call Processing Software*2 (requires MX882000B)
MX882051A-02	W-CDMA External Packet Data*2 (requires MX882051A)
MX882051A-03	W-CDMA Video Phone Test*2 (requires MX882051A)
MX882071A	W-CDMA Ciphering Software*2 (requires MX882051A)

Model/Order No.	Name
W2477AE	MX882000B operation manual*4 (attached to MX882000B)
W2463AE	MX882001A operation manual*4 (attached to MX882001A)
W2472AE	MX882002A operation manual*4 (attached to MX882002A)
W2473AE	MX882003A operation manual*4 (attached to MX882003A)
W2464AE	MX882004A operation manual*4 (attached to MX882004A)
W2465AE	MX882005A operation manual*4 (attached to MX882005A)
W2484AE	MX882022A operation manual*4 (attached to MX882022A)
W2480AE	MX88205xA operation manual*4 (attached to MX88205xA)
W2478AE	MX88207xA operation manual*4 (attached to MX88207xA)
	<b>Warranty</b>
MT8820A-90	Extended three year warranty service
MT8820A-91	Extended five year warranty service
	<b>Application parts</b>
P0019	TEST USIM001*5
P0027	W-CDMA/GSM Test USIM
A0012	Handset
J1249	CDMA2000 cable
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)
W2457AE	MT8820A operation manual (booklet)
W2476AE	MX882000B operation manual (booklet)
W2466AE	MX882001A operation manual (booklet)
W2470AE	MX882002A operation manual panel operation (booklet)
W2471AE	MX882002A operation manual remote control (booklet)
W2474AE	MX882003A operation manual panel operation (booklet)
W2475AE	MX882003A operation manual remote control (booklet)
W2467AE	MX882004A operation manual (booklet)
W2468AE	MX882005A operation manual (booklet)
W2482AE	MX882022A operation manual panel operation (booklet)
W2483AE	MX882022A operation manual remote control (booklet)
W2481AE	MX88205xA operation manual (booklet)
W2479AE	MX88207xA operation manual (booklet)

\*1: The Measurement Hardwares applied to Parallel Phone Measurement are MT8820A-01, MT8820A-02, MT8820A-03, MT8820A-04. And these hardwares can be implemented all together.

\*2: For terminal connectivity, contact your Anritsu sales representative.

\*3: MX882050A preinstalls the integrity protection function.

\*4: Supplied by CD-ROM

\*5: This Test USIM can be worked on only W-CDMA mode.

When the connection of GSM is necessary, P0027 can be applied.

Parallelphone™ is a registered trademark of Anritsu Corporation.

**Note:**

---



Specifications are subject to change without notice.

#### **ANRITSU CORPORATION**

5-1-1 Onna, Atsugi-shi, Kanagawa, 243-8555 Japan  
Phone: +81-46-223-1111  
Fax: +81-46-296-1264

#### ● **U.S.A.**

##### **ANRITSU COMPANY**

##### **TX OFFICE SALES AND SERVICE**

1155 East Collins Blvd., Richardson, TX 75081, U.S.A.

Toll Free: 1-800-ANRITSU (267-4878)

Phone: +1-972-644-1777

Fax: +1-972-644-3416

#### ● **Canada**

##### **ANRITSU ELECTRONICS LTD.**

700 Silver Seven Road, Suite 120, Kanata,

ON K2V 1C3, Canada

Phone: +1-613-591-2003

Fax: +1-613-591-1006

#### ● **Brasil**

##### **ANRITSU ELETRÔNICA LTDA.**

Praca Amadeu Amaral, 27 - 1 andar

01327-010 - Paraiso, Sao Paulo, Brazil

Phone: +55-11-3283-2511

Fax: +55-11-3886940

#### ● **U.K.**

##### **ANRITSU LTD.**

200 Capability Green, Luton, Bedfordshire LU1 3LU, U.K.

Phone: +44-1582-433280

Fax: +44-1582-731303

#### ● **Germany**

##### **ANRITSU GmbH**

Nemetschek Haus Konrad-Zuse-Platz 1 81829

München, Germany

Phone: +49 (0) 89 442308-0

Fax: +49 (0) 89 442308-55

#### ● **France**

##### **ANRITSU S.A.**

9, Avenue du Québec Z.A. de Courtabœuf 91951 Les

Ulis Cedex, France

Phone: +33-1-60-92-15-50

Fax: +33-1-64-46-10-65

#### ● **Italy**

##### **ANRITSU S.p.A.**

Via Elio Vittorini, 129, 00144 Roma EUR, Italy

Phone: +39-06-509-9711

Fax: +39-06-502-2425

#### ● **Sweden**

##### **ANRITSU AB**

Borgafjordsgatan 13 164 40 Kista, Sweden

Phone: +46-853470700

Fax: +46-853470730

#### ● **Finland**

##### **ANRITSU AB**

Teknobulevardi 3-5, FI-01530 Vantaa, Finland

Phone: +358-9-4355-220

Fax: +358-9-4355-2250

#### ● **Denmark**

##### **Anritsu AB Danmark**

Korskildelund 6 DK - 2670 Greve, Denmark

Phone: +45-36915035

Fax: +45-43909371

#### ● **Singapore**

##### **ANRITSU PTE LTD.**

10, Hoe Chiang Road #07-01/02, Keppel Towers,

Singapore 089315

Phone: +65-6282-2400

Fax: +65-6282-2533

#### ● **Hong Kong**

##### **ANRITSU COMPANY LTD.**

Suite 923, 9/F., Chinachem Golden Plaza, 77 Mody  
Road, Tsimshatsui East, Kowloon, Hong Kong, China

Phone: +852-2301-4980

Fax: +852-2301-3545

#### ● **P. R. China**

##### **ANRITSU COMPANY LTD.**

##### **Beijing Representative Office**

Room 1515, Beijing Fortune Building, No. 5 North Road,  
the East 3rd Ring Road, Chao-Yang District

Beijing 100004, P.R. China

Phone: +86-10-6590-9230

#### ● **Korea**

##### **ANRITSU CORPORATION**

8F Hyun Juk Bldg. 832-41, Yeoksam-dong,

Kangnam-ku, Seoul, 135-080, Korea

Phone: +82-2-553-6603

Fax: +82-2-553-6604

#### ● **Australia**

##### **ANRITSU PTY LTD.**

Unit 3/170 Forster Road Mt. Waverley, Victoria, 3149,  
Australia

Phone: +61-3-9558-8177

Fax: +61-3-9558-8255

#### ● **Taiwan**

##### **ANRITSU COMPANY INC.**

7F, No. 316, Sec. 1, NeiHu Rd., Taipei, Taiwan

Phone: +886-2-8751-1816

Fax: +886-2-8751-1817

051114



Printed on 70%  
Recycled Paper

Catalog No. MX882001A-E-A-1-(11.00) Printed in Japan 2006-2 ddc/CDT