

Discover What's Possible™



PRODUCT INTRODUCTION

MX882002A

CDMA2000 Measurement Software

ANRITSU CORPORATION

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MX882002A

CDMA2000 Measurement Software

(with MT8820A, MT8820A-03, MX882002A-02)

Product Introduction

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1. Outline of MX882002A

MT8820A with MX882002A is...

the standalone measuring instrument to evaluate the main transmitter/receiver characteristics measurement of mobile phones conforming to CDMA2000, which is most widely spread in the world.

The MT8820A hardware platform covers a frequency range of 30 MHz to 2.7 GHz. When MX882002A CDMA2000 Measurement Software is installed, this single platform supports evaluation of all the main transmitter/receiver characteristics for CDMA2000 terminals. The built-in GPIB interface enables MT8820A to be integrated into automated production lines as well as to configure an automated test system for after-sales maintenance. Also, real-time voice encoding/decoding function can be added by installing **MX882002A-02 CDMA2000 External Packet Data** (MT8820A-03 CDMA2000 Measurement Hardware and MX882002A Measurement Software are required).

1.1 Main Specifications (MT8820A with MX882002A)

Tests	GPP2 C.S001	Test Item
Receiver tests	3. 4. 1	Demodulation of Forward Traffic Channel in Additive White Gaussian Noise
	3. 5. 1	Receiver Sensitivity and Dynamic Range
Transmitter tests	4. 1	Frequency Accuracy
	4. 3. 1	Time Reference
	4. 3. 4	Waveform Quality and Frequency Accuracy
	4. 3. 5	Code Domain Power
	4. 4. 1	Range of Open Loop Output Power (Access Channel)
	4. 4. 3	Access Probe Output Power
	4. 4. 4	Range of Closed Loop Power Control
	4. 4. 5	Maximum RF Output Power
	4. 4. 6	Minimum Controlled Output Power
	4. 4. 9	Code Channel to Reverse Pilot Channel Output Power Accuracy (2.2)
	4. 5. 1	Conducted Spurious Emissions
	4. 5. 3	Occupied Bandwidth

1.2 Measurement Items for CDMA2000 (IS-2000)

Transmission Measurements

Transmission Power
Modulation Analysis
Code Domain power
Occupied Bandwidth
Spurious Emission

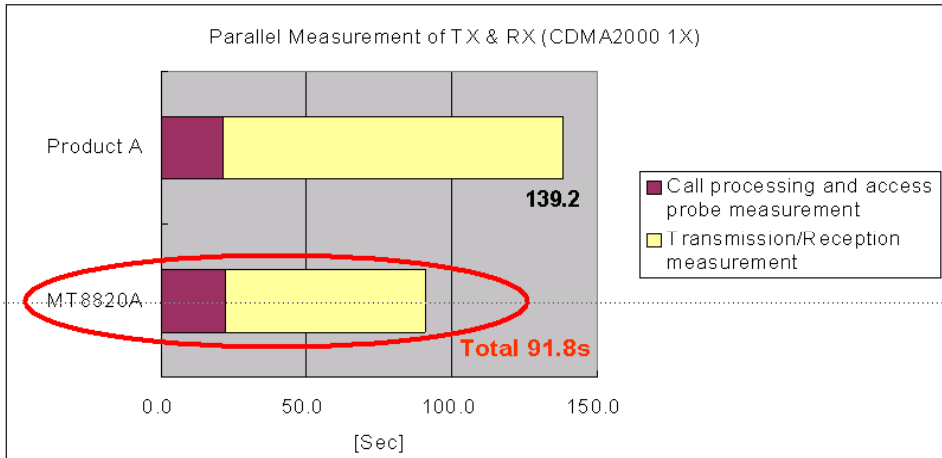
Reception Measurements

Frame Error Rate (FER)

Call Processing

Band Class 0 to 10
SO 1,2,3,9,33,55,32768
Location registration, origination, termination, communication,
disconnection from CDMA2000 terminal , disconnection from network
MS report monitor (MS ID)

1.3 High Speed Measurement CDMA2000 1X Measurement Time Comparison



Measurement conditions of the MT8820A above:

- Parallel measurement
- Screen plot is OFF.
- Occupied bandwidth is supported only by MT8820A.
- Reception sensitivity is the average time of transmitting 300 frames as error free.

MT8820A has the measurement speed 1.51 times faster than Product A.

1.4 Call Processing Function

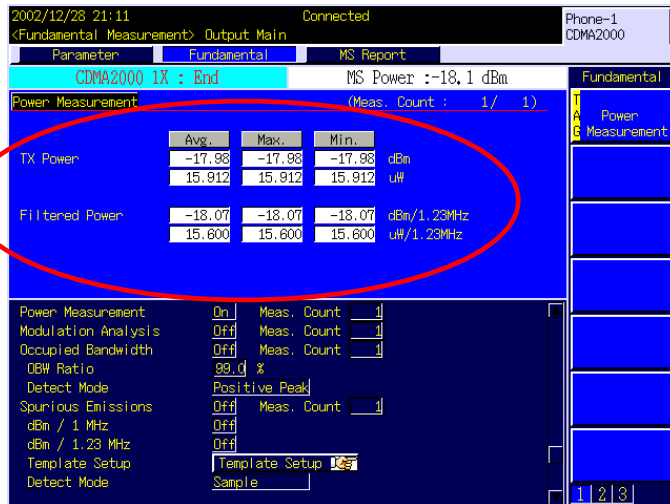
Simple Connection Test

- Test Items**
- Location registration
 - Origination
 - Termination
 - Terminal disconnect
 - Network disconnect
 - Hand over

1.5 Measurement Functions (1)

Output Power

Max./Avg./Min. values of measured result are displayed simultaneously, enabling the evaluation of UE characteristic randomness.



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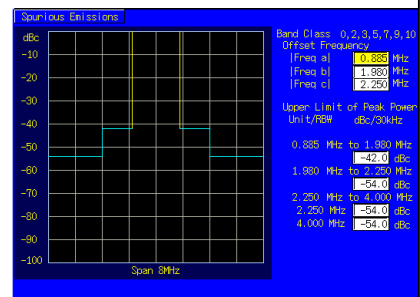
1.5 Measurement Functions (2)

Occupied Bandwidth Measurement, Spurious Emission evolution

Occupied Bandwidth Measurement and Spurious Emission mask evolution.



A pass/fail evaluation for spurious emission of a CDMA 2000 terminal compare with the following Template.



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1.5 Measurement Functions (4)

Modulation Analysis

Simultaneous measurement and display of frequency, frequency error (in kHz and ppm), phase error and peak phase error are available.

Parameter	Avg.	Max.	Min.	Unit
Carrier Frequency	915.950012			MHz
Carrier Frequency Error	0.0121	0.0121	0.0121	kHz
	0.01	0.01	0.01	ppm
Rho	0.99640	0.99640	0.99640	
Time Error	0.07	0.07	0.07	us
EVM	5.86	5.86	5.86	%(rms)
Peak Vector Error	20.33	20.33	20.33	%
Phase Error	2.26	2.26	2.26	deg. (rms)
Magnitude Error	4.50	4.50	4.50	%(rms)
Origin Offset	-37.39	-37.39	-37.39	dB

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1.5 Measurement Functions (5)

Error Rate Test

The Reverse Link RF signal, looped back from MS, is demodulated to measure frame error rate with CDMA2000 terminal controlled to loop-back state(SO2/SO55). These measurements can be performed in parallel with transmitter measurement.

Confidence Level	FER	Err Frames	Transmitted	Pass	
F-FCH	95.0%	0.00%	0	100	Pass

Parameter	Value
Frame Error Rate	On
Specified FER	3.0 %
Sample Frames	1000 frames
Meas. Stop Mode	On
Confidence Level	95.0 %
FER Limit	10.0 %

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1.5 Measurement Functions (7)

MS Report Monitor

CDMA2000 terminal status can be displayed on the periodical reports from the terminal.

2003/01/17 11:48 Idle(Regist) Phone-1
<Fundamental Measurement> Output Main CDMA2000

Parameter	Fundamental	MS Report
CDMA2000 1X		MS Power :-66,9 dBm
MS ID		MS Report
ESN	74013CAD (Hex)	
IMSI (MCC-MNC-MSIN)	***-**-6195551212 (Dec)	

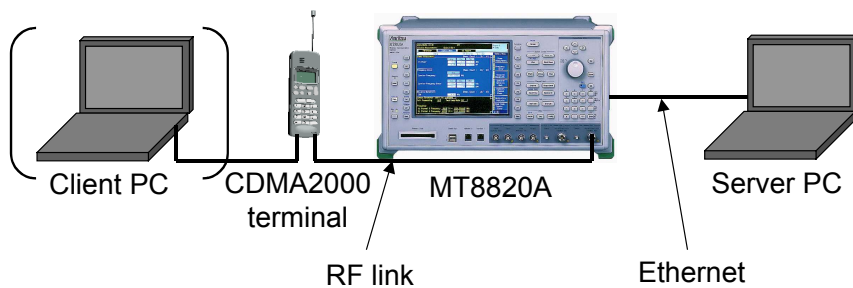
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2. Outline of MX882002A-02

- MX882002A-02 External Packet Data is the software option to add end-to-end communications function to MX882002A CDMA2000 measurement software.



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2.1 Main Specifications (MX882002A-02)

Specifications:CDMA2000 External Packet Data

1	Service Option: SO33
2	Radio Configuration: F-RC3/R-RC3, F-RC4/R-RC3
3	Signaling Channel: FCH
4	Supplemental Channel
4.1	Encoding: Convolutional, Turbo
4.2	Data Rates: 9.6, 19.2, 38.4, 76.8, 153.6kbps
5	RLP(Radio Link Protocol): RLP3
6	Packet Data Mode: RLP Loopback, PPP/IP
6.1	RLP Loopback The mode to loopback the RLP data unit received in reverse link.
6.2	PPP/IP The mode to transfer IP packet data between a terminal and a server.
7	MS IP Address, MT8820A Ether Port IP Address, Subnet Mask set

3. MT8820A Application Support Table

Combination CDMA2000 1X and W-CDMA

APPLICATION	W-CDMA Terminal testing	CDMA2000 1X Terminal testing	W-CDMA /CDMA2000 1x Dual-mode Terminal testing	W-CDMA Terminal testing (with audio)	CDMA2000 External Packet testing
MT8820A Main Frame	✓	✓	✓	✓	✓
MT8820A-01 W-CDMA Measurement Hardware	✓				
MT8820A-03 CDMA2000 Measurement Hardware		✓	✓		✓
MT8820A-11 Audio Board				✓	
MX882000A W-CDMA Measurement Software (requires MT8820A-01)	✓		✓	✓	
MX882000A-01 W-CDMA voice codec (requires MT8820A-11 and MX882000A)				✓	
MX882002A CDMA2000 Measurement Software (requires MT8820A-02)		✓	✓		✓
MX882002A-02 CDMA2000 External Packet Data (requires MT8820A-03 and MX882002A)					✓

✓ Option required

3. MT8820A Application Support Table

Combination CDMA2000 1X and GSM/GPRS

APPLICATION	GSM/GPRS Terminal testing	CDMA2000 1X Terminal testing	GSM/GPRS /CDMA2000 1X Dual-mode Terminal testing	GSM/GPRS Terminal testing (with audio)	CDMA2000 External Packet testing
MT8820A Main Frame	✓	✓	✓	✓	✓
MT8820A-02 TDMA Measurement Hardware	✓		✓	✓	
MT8820A-03 CDMA2000 Measurement Hardware		✓	✓		✓
MT8820A-11 Audio Board				✓	
MX882000A GSM Measurement Software (requires MT8820A-02)	✓		✓	✓	
MX882001A-01 GSM voice codec (requires MT8820A-11 and MX882001A)				✓	
MX882002A CDMA2000 Measurement Software (requires MT8820A-02)		✓	✓		✓
MX882002A-02 CDMA2000 External Packet Data (requires MT8820A-03 and MX882002A)					✓

✓ Option required

4. Merits of Introducing MT8820A (continued)

- Support for Multi standard
 - **Three** Measurement Hardware (CDMA2000 , GSM/GPRS, W-CDMA) can set at the same time
- No need of equipment replacement even for the manufacture of CDMA2000/GSM and CDMA2000/W-CDMA DUAL mode phone
 - MT8820A is the first to support W-CDMA measurement in the world.
 - More efficient production cost is achieved than aging equipment supporting 3G.
- Satisfactory support by 3-year/5-year warranty (optional)
 - Quick and accurate calibration and repair services are provided.

5. Conclusion

With our Signalling & RF technologies, Anritsu provides complete support for customers' 3G business ranging from R&D through manufacturing and maintenance.

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Specifications are subject to change without notice.

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