Anritsu

MX860903A

cdma Measurement Software

(For MS8609A Digital Mobile Radio Transmitter Tester)

For evaluation of cdmaOne, cdma2000 1xRTT transmission

Supporting cdmaOne and cdma2000 1xRTT

Evaluation of 1xRTT transmission system with single unit

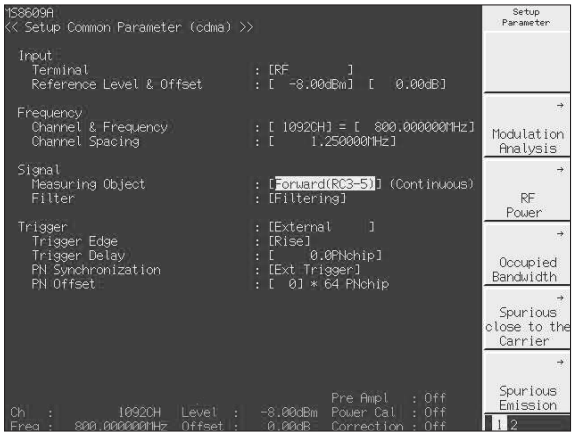
MX860903A cdma Measurement Software is the application software used in the MS8609A Digital Mobile Radio Transmitter Tester. The installation of MX860903A enables evaluation of base station or mobile transmitters conforming to the cdmaOne and cdma2000 1xRTT standards.

- **Items measured by MX860903A**

Modulation analysis:
Carrier frequency, vector error, phase error, magnitude error
Code domain analysis:
Code domain power, code domain timing offset, code domain phase offset
Amplitude measurement: Transmission power
Spurious close to the carrier measurement
Spurious measurement
Occupied bandwidth measurement
I/Q level measurement

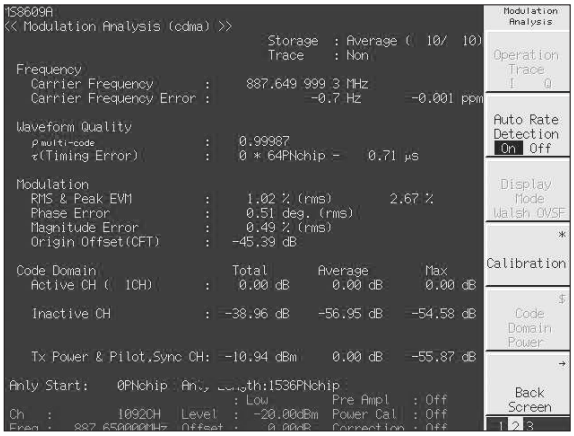
Parameter Setup

A setup screen is provided for the entry of required parameters for modulation accuracy and code domain power measurements in cdmaOne or cdma2000 1xRTT analysis. Measurement can be performed after parameter setup.



Modulation Accuracy Measurement

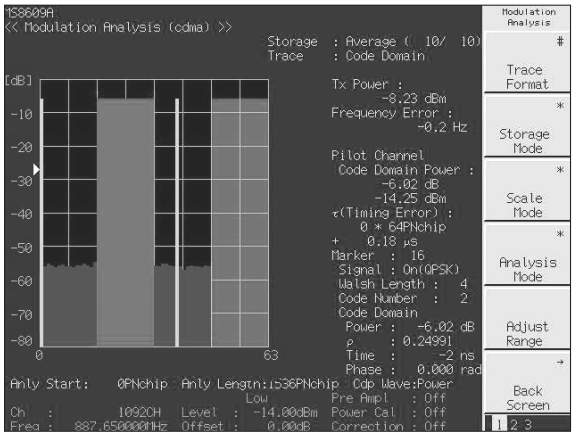
Frequency error, modulation accuracy and code domain analysis are performed and then results are displayed on the screen. The measurement accuracy is 1% (typical value) of residual vector error (rms).



BTS Code Domain Analysis

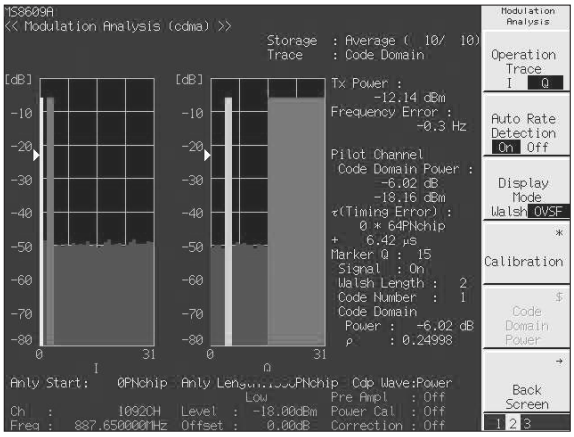
Only 2 seconds are required for code domain analysis of 1xRTT signals, RC*1 through RC5 can be measured. Spreading factor of each code is automatically detected and displayed on the screen.

*Radio Configuration



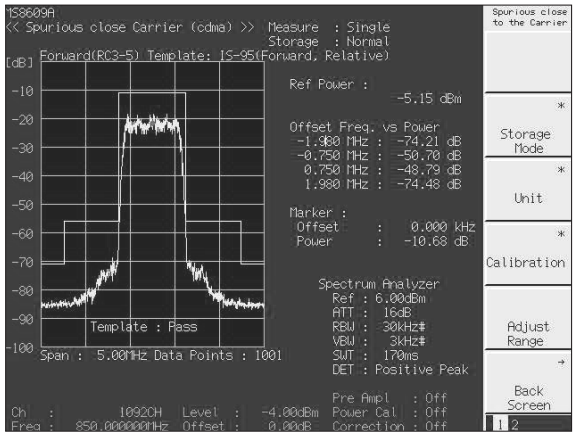
MS Code Domain Analysis

Perform code domain analysis of 1xRTT signals in RC3 and RC4 in only 2 seconds. Code domains of I/Q phase are displayed on the screen.



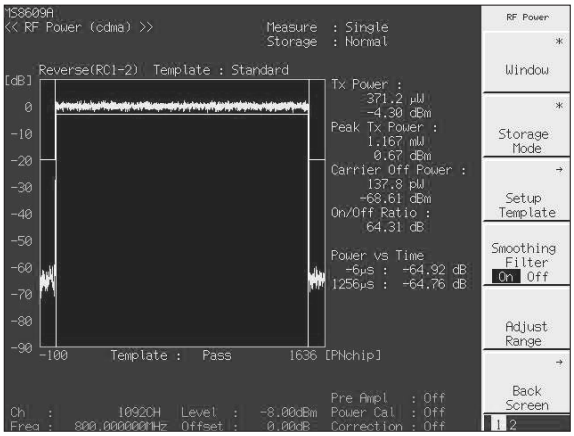
Spurious Close to the Carrier Measurement

Spurious close to the carrier is measured using the spectrum analyzer function. The PASS/AIL result of a template judgement is displayed on the screen.



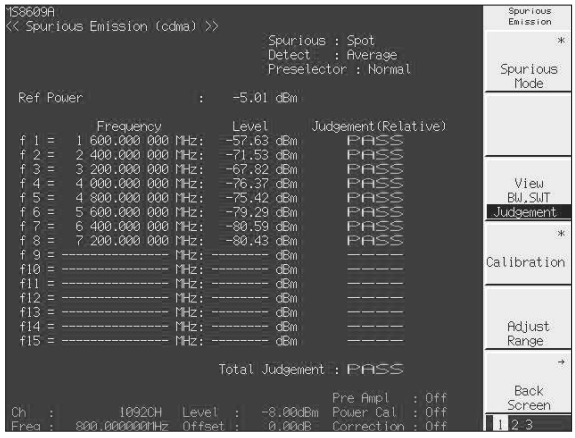
Transmission Power Measurement

When transmission power is measured both the value and signal waveform are displayed on the screen. High accuracy power measurements are achieved using the built-in power meter function.



Spurious Measurement

A frequency table can be set up in spurious measurement to provide a PASS/FAIL measurement result. Fifteen different frequencies and their limit values can be entered.



Specifications

Following specifications are guaranteed after optimized internal level (Range of internal receiver is automatically adjusted by pushing Adjust Range key).

Modulation/frequency measurement	Measurement frequency range: 50 MHz to 2.3 GHz Measurement level range: –40 to +20 dBm (average power within burst, pre-amp off) –60 to +10 dBm (average power within burst, pre-amp on*1) Carrier frequency accuracy: ±(reference oscillator accuracy + 10 Hz) ∗Input level: ≥–30 dBm (pre-amp off), ≥–40 dBm (pre-amp on*1), at 1 code channel Modulation accuracy (residual vector error): <2.0% (rms) ∗Input level: ≥–30 dBm (pre-amp off), ≥–40 dBm (pre-amp on*1), at 1 code channel Origin offset accuracy: ±0.50 dB ∗Input level: ≥–30 dBm (pre-amp off), ≥–40 dBm (pre-amp on*1), at 1 code channel, relative to signal with origin offset of –30 dBc Waveform display: Displays the following items for 1 CH to multi CH input signals; constellation, eye pattern, vector error vs. chip number, phase error vs. chip number, amplitude error vs. chip number
Code domain analysis	Measurement frequency range: 50 MHz to 2.3 GHz Measurement level range: –40 to +20 dBm (average power within burst, pre-amp off) –60 to +10 dBm (average power within burst, pre-amp on*1) ±0.1 dB (code power: ≥–10 dBc), ±0.3 dB (code power: ≥–25 dBc) Display function: Code domain power, code domain timing offset, code domain phase offset
Amplitude measurement	Frequency range: 50 MHz to 2.3 GHz Measurement level range –40 to +20 dBm (average power within burst, pre-amp off) –60 to +10 dBm (average power within burst, pre-amp on*1) Tx power measurement: (after level calibration using built-in power meter, automatic operation by pushing key) Measurement range: –20 to +20 dBm (average power within burst, pre-amp off) –20 to +10 dBm (average power within burst, pre-amp on*1) Accuracy: ±0.40 dB Power measurement linearity: ±0.20 dB (0 to –40 dB) ∗Input level: ≥+10 dBm (pre-amp off), ≥–20 dBm (pre-amp on*1) , unchanged reference level setup after range adjustment Burst analysis: Rising/falling characteristics and on/off ratio analysis function
Occupied bandwidth measurement	Frequency range: 50 MHz to 2.3 GHz Measurement level range: –40 to +20 dBm (average power within burst, pre-amp off) –60 to +10 dBm (average power within burst, pre-amp on*1) Measurement method Sweep method: Sweeps signal using spectrum analyzer and calculates result FFT Method: Analyzes signal with FFT and calculates result
Spurious close carrier to the measurement	Frequency range: 50 MHz to 2.3 GHz Input level range: 0 to +20 dBm (average power within burst, pre-amp off) Measurement method: Calculates and displays the ratio of Tx power to the power measured by spectrum analyzer with sweep method Tx power measurement Tx power method: Carrier power measured in 1.23 MHz bandwidth SPA method: Carrier power measured in RBW: 3 MHz, VBW: 3 kHz, detection mode: sample, frequency span: 0 Hz Measurement range: ± 50 dBc (900 kHz offset), ±60 dBc (1.98 MHz offset) ∗Input level (average power within burst): ≥0 dBm (pre-amp off), RBW:30 kHz, VBW: 300 kHz, detection mode: positive

Spurious measurement	Measurement frequency range: 10 MHz to 12.75 GHz (except within ±50 MHz of carrier frequency) Input level range (Tx power): +20 to +40 dBm (average power within burst) Measurement method Sweep method: Sweeps specified frequency range using spectrum analyzer and calculates ratio of carrier power and peak value detected during the sweep. Detection mode is average. Spot method: Measures average power of specified frequencies in time domain using spectrum Analyzer and calculates ratio of carrier power and measured power of the frequencies. Detection mode is average. Search method: Sweeps specified frequency range using spectrum analyzer and detects frequency of peak spurious. Measures average power of the detected frequencies in time domain using spectrum analyzer and calculates ratio of carrier power and the measured power for the frequencies. Detection mode is Average. Tx power measurement Tx power method: Carrier power measured in 1.23 bandwidth SPA method: Carrier power measured in RBW: 3 MHz, VBW: 3 kHz, detection mode: sample, frequency span: 0 Hz Measurement range (typical) ≥79 dB (RBW: 10 kHz, 10 to 30 MHz, Band 0) ≥79 dB (RBW: 100 kHz, 30 to 1000MHz, Band 0) ∗Carrier frequency: 800 to 1000 MHz/1.8 to 2.2 GHz, referential value of power ratio in Tx power∗2 Normal mode: ≥76 –f [GHz] dB (RBW: 1 MHz, 1 to 3.15 GHz, Band 0) ≥76 dB (RBW: 1 MHz, 3.15 to 7.8 GHz, Band 1)
Electric performance (I/Q input)	Input impedance:1 MΩ (parallel capacitance: <100 pF), 50 Ω Balance input Differential voltage: 0.1 to 1 Vp-p, In-phase voltage: ±2.5 V Unbalance Input: 0.1 to 1 Vp-p DC/AC coupling: Changeable Measurement items: Modulation accuracy, code domain power, amplitude, occupied bandwidth (FFT method), I/Q level Modulation accuracy measurement: (residual vector error): <2% (rms) ∗DC coupling, input level: ≥0.1V (rms) I/Q level measurement: Measures input level of I and Q (rms, p-p) I/Q phase defference measurement: When the CW signal is inputted to I and Q input terminals, measures and displays the phase difference between I- and Q-phase signals.

∗1: Can be set when MS8608A-08 option is installed in the main frame.
∗2: When carrier frequency is in a 2030.354 to 2200 MHz range, spurious will be generated at the frequency below.
f (spurious) = f (input) – 2030.345 MHz

Ordering Information

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

Model/Order No.	Name	Remarks
	Main frame	
MX860903A	cdma Measurement Software	For cdmaOne and cdma2000 1xRTT
	Standard accessories	
JT32MA-NT1	PC-ATA card (32 MB): 1 pc	MX860903A software for backup
W1865AE	cdma measurement software operation manual (Vol. 1): 1 copy	

Anritsu

Specifications are subject to change without notice.

ANRITSU CORPORATION
MEASUREMENT SOLUTIONS
5-10-27, Minamiazabu, Minato-ku, Tokyo 106-8570, Japan
Phone: +81-3-3446-1111
Telex: J34372
Fax: +81-3-3442-0235

● **U.S.A.**
ANRITSU COMPANY
North American Region Headquarters
1155 East Collins Blvd., Richardson, Tx 75081, U.S.A.
Toll Free: 1-800-ANRITSU (267-4878)
Phone: +1-972-644-1777
Fax: +1-972-671-1877

● **Canada**
ANRITSU ELECTRONICS LTD.
Unit 102, 215 Stafford Road West
Nepean, Ontario K2H 9C1, Canada
Phone: +1-613-828-4090
Fax: +1-613-828-5400

● **Brasil**
ANRITSU ELETRÔNICA LTDA.
Praia de Botafogo 440, Sala 2401 CEP 22250-040,
Rio de Janeiro, RJ, Brasil
Phone: +55-21-5276922
Fax: +55-21-537-1456

● **U.K.**
ANRITSU LTD.
200 Capability Green, Luton, Bedfordshire LU1 3LU, U.K.
Phone: +44-1582-433200
Fax: +44-1582-731303

● **Germany**
ANRITSU GmbH
Grafenberger Allee 54-56, 40237 Düsseldorf, Germany
Phone: +49-211-96855-0
Fax: +49-211-96855-55

● **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: +39-06-502-24-25

● **Sweden**
ANRITSU AB
Botvid Center, Fittja Backe 1-3 145 84 Stockholm, Sweden
Phone: +46-853470700
Fax: +46-853470730

● **Spain**
ANRITSU ELECTRÓNICA, S.A.
Europa Empresarial Edificio Londres, Planta 1, Oficina 6 C/ Playa de Liencres, 2 28230 Las Rozas. Madrid, Spain
Phone: +34-91-6404460
Fax: +34-91-6404461

● **Singapore**
ANRITSU PTE LTD.
6, New Industrial Rd., #06-01/02, Hoe Huat Industrial Building, Singapore 536199
Phone: +65-282-2400
Fax: +65-282-2533

● **Hong Kong**
ANRITSU COMPANY LTD.
Suite 719, 7/F., Chinachem Golden Plaza, 77 Mody Road, Tsimshatsui East, Kowloon, Hong Kong, China
Phone: +852-2301-4980
Fax: +852-2301-3545

● **Korea**
ANRITSU CORPORATION
14F Hyun Juk Bldg. 832-41, Yeoksam-dong, Kangnam-ku, Seoul, Korea
Phone: +82-2-553-6603
Fax: +82-2-553-6604～5

● **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.
6F, 96, Sec. 3, Chien Kou North Rd. Taipei, Taiwan
Phone: +886-2-2515-6050
Fax: +886-2-2509-5519

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