Anritsu

MX860805A

π/4DQPSK Measurement Software

(For MS8608A Digital Mobile Radio Transmitter Tester)

For Evaluation of PDC/PHS/NADC/Public Digital Transmission Systems

Supports PDC, PHS, NADC and Public digital systems

—— Evaluation of π/4DQPSK transmission systems with single cabinet

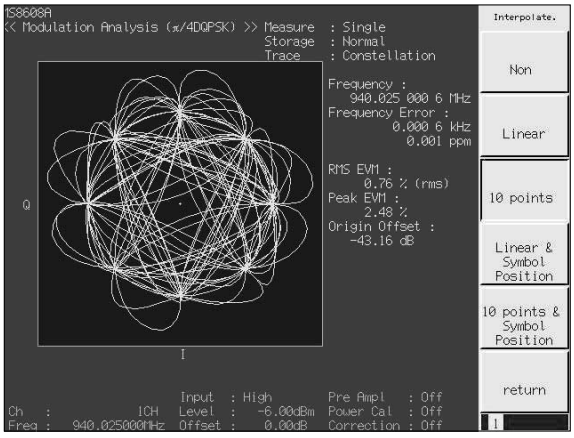
The MX860805A application software is used with the MS8608A Digital Mobile Radio Transmitter Tester to evaluate transmission systems in conformance with the PDC, PHS, NADC (IS-136), STD-39/T79 and STD-T61 standards and general purpose.

MX860805A Measurement Items

Modulation analysis (carrier frequency, vector error, phase error, magnitude error)
Amplitude measurement (transmitter power, carrier-off leakage power, rise/fall characteristics)
Adjacent channel power measurement
Spurious measurement
Occupied bandwidth measurement
I/Q level measurement
General purpose measurement

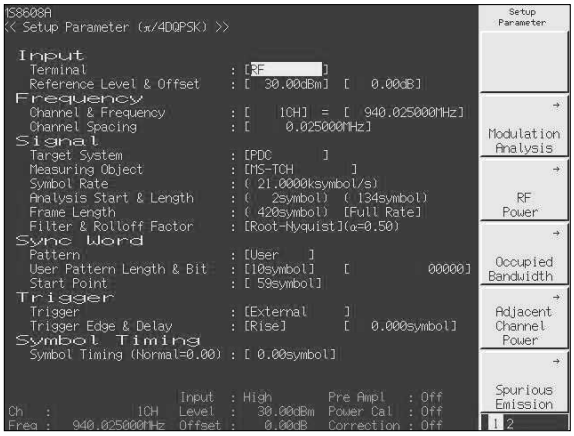
Modulation Accuracy Measurement

The constellation display is combined with the modulation accuracy measurement results to monitor the residual vector error (rms) with a high accuracy of 0.5% (PDC).



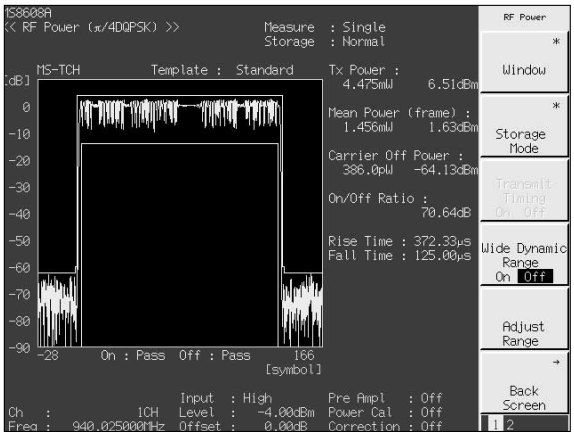
Parameter Setting

Analysis of PDC, PHS, NADC (IS-136), STD-39/T79 and STD-T61 systems requires setting of parameters for important measurement such as modulation accuracy at this screen. Changing the symbol rate also permits analysis of systems other than PDC, PHS, NADC and Public digital systems.



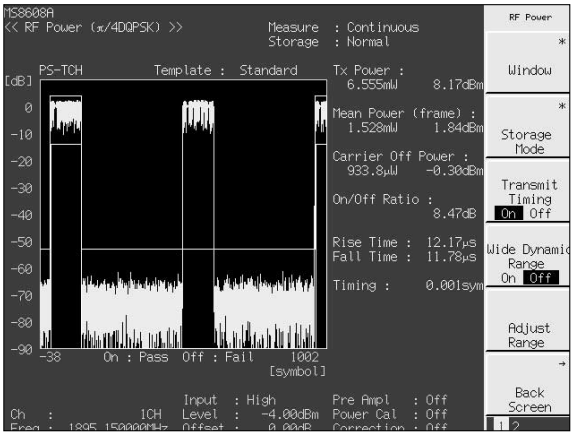
Transmitter Power Measurement

This screen displays the transmitter power and waveform. The power value is calibrated by the built-in power meter to achieve even higher accuracy power measurement.



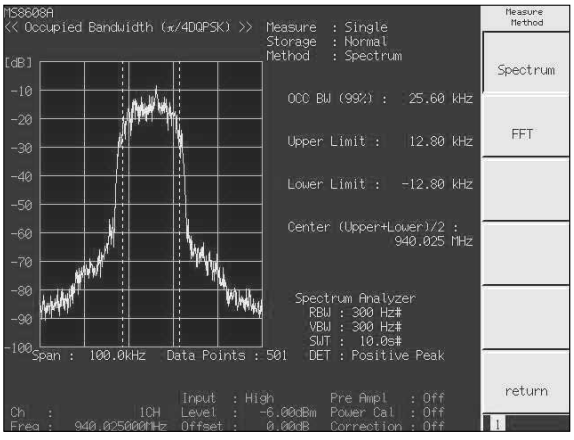
Send Timing Measurement

This screen displays the PHS send timing. In addition, when average measurement is selected, the send jitter is also displayed.



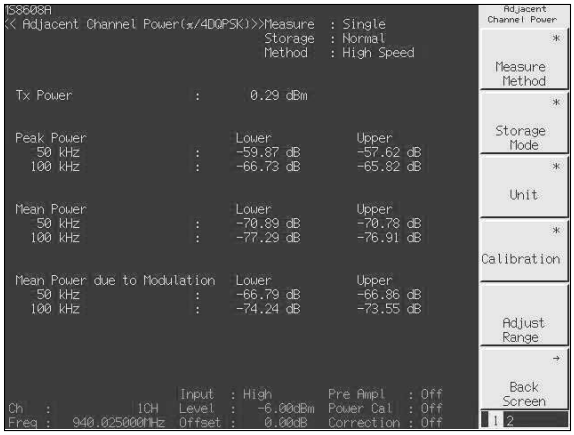
Occupied Bandwidth Measurement

The occupied bandwidth is measured with a spectrum analyzer or by FFT using DSP, and displayed.



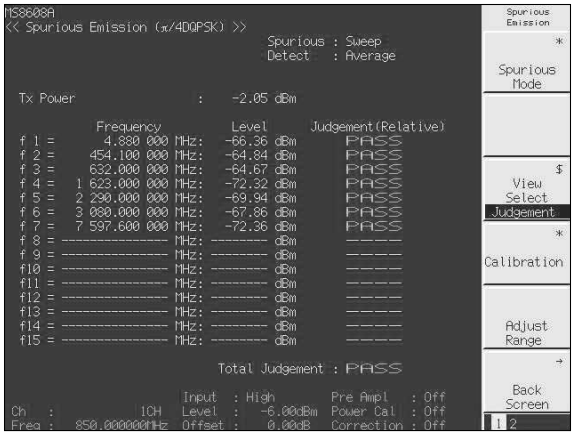
Adjacent Channel Power Measurement

When measurement is performed using a spectrum analyzer, the adjacent channel power is measured after passage through a built-in filter (root Nyquist).
A high-speed measurement method can also be selected.



Spurious Measurement

There are three methods: spot, sweep and search. Frequency and limit value can be maximum 15 in the tables. The measurement results are displayed with a limit evaluation.



Specifications

The following specifications are guaranteed after optimizing the internal level of the MS8608A.

Modulation/frequency measurement	Measured frequency range: 50 MHz to 2.1 GHz Measured level ranges: –20 to +40 dBm (average power within burst, high power input) –40 to +20 dBm (average power within burst, low power input) –60 to +10 dBm (average power within burst, low power input, pre-amp on*1) Carrier frequency accuracy: ±(reference oscillator accuracy + 10 Hz) ∗Input level (average power within burst): ≥–10 dBm (high power input), ≥–30 dBm (low power input), ≥–40 dBm (low power input, pre-amp on*1) Modulation accuracy (residual vector error) PDC/NADC: <0.5% (rms), PHS: <0.7% (rms) ∗Input level: ≥–10 dBm (high power input), ≥–30 dBm (low power input), ≥–40 dBm (low power input, pre-amp on*1), averaging: 10 times Origin offset accuracy: ±0.50 dB ∗Input level (average power within burst): ≥–10 dBm (high power input), ≥–30 dBm (low power input), ≥–40 dBm (low power input, pre-amp on*1), relative to signal with origin offset of –30 dBc Transmission rate accuracy: ±1 ppm ∗Input level (average power within burst): ≥–10 dBm (high power input), ≥–30 dBm (low power input), ≥–40 dBm (low power input, pre-amp on*1) Symbol rate: 2 to 300 k symbol/s Roll off ratio: 0.2 to 1.0 Analysis symbol: 48 to 1000 symbol Waveform displays Constellation, eye diagram, EVM vs. symbol No., phase error vs. symbol No., amplitude error vs. symbol No.
Amplitude measurement	Frequency range: 50 MHz to 2.1 GHz Measurement level ranges: –20 to +40 dBm (average power within burst, high power input) –40 to +20 dBm (average power within burst, low power input) –60 to +10 dBm (average power within burst, low power input, pre-amp on*1) Transmitter power measurement*2 Measurement ranges: +10 to +40 dBm (average power within burst, high power input) –10 to +20 dBm (average power within burst, low power input) –10 to +10 dBm (average power within burst, low power input, pre-amp on*1) Accuracy: ±0.40 dB Power measurement linearity: ±0.20 dB (0 to –30 dB) ∗Input level (average power within burst): ≥+10 dBm (high power input), ≥–10 dBm (low power input), ≥–20 dBm (low power input, pre-amp on*1), without changing the reference level setting after range optimization Carrier-off power measurement*3 Normal mode measurement range PDC/NADC: ≥65 dB, PHS: ≥60 dB ∗Relative to average power within burst Wide dynamic range mode measurement range PDC/NADC: ≥90 dB [measurement limits of average noise level: ≤–60 dBm (high power input, 50 MHz to 2.1 GHz)] PHS: ≥80 dB [measurement limits of average noise level: ≤–50 dBm high power input, 50 MHz to 2.1 GHz)] ∗Average power within burst: Relative to 1 W (high power input), 10 mW (low power input) Rise/fall characteristics: Display rising/falling edges while synchronizing to modulation data of signal data to be measured. Standard line display, NO/GO judgement function
Occupied bandwidth measurement	Measured frequency range: 50 MHz to 2.1 GHz Measured level ranges: –20 to +40 dBm (average power within burst, high power input) –40 to +20 dBm (average power within burst, low power input) –60 to +10 dBm (average power within burst, low power input, pre-amp on*1) Measurement methods Sweep method: Calculates and displays result after signal measured with sweep spectrum analyzer FFT method: Calculates and displays result after FFT

Adjacent channel power measurement	Frequency range: 100 MHz to 2.1 GHz Input level ranges: +10 to +40 dBm (average power within burst, high power input) –10 to +20 dBm (average power within burst, low power input) –20 to +10 dBm (average power within burst, low power input, pre-amp on*1) Measurement methods [Sweep method (all)] Calculates and displays result after signal measured with sweep spectrum analyzer [Sweep method (separate)] Calculates and displays after measuring adjacent channel and next adjacent channel signal with sweep spectrum analyzer [High-speed method] Calculates and displays after measuring adjacent channel and next adjacent channel power (rms) through internal receive filter Measurement range (CW signal input, at high-speed method) PDC: ≥60 dB (50 kHz offset), ≥65 dB (100 kHz offset) PHS: ≥60 dB (600 kHz offset), ≥60 dB (900 kHz offset) NADC: ≥30 dB (30 kHz offset), ≥60 dB (60 kHz offset), ≥65 dB(90 kHz offset) *Adjacent channel power averaging ratio found from average power within burst and during burst on interval
Spurious measurement	Measured frequency range: 100 kHz to 7.8 GHz (except within carrier frequency ±50 MHz) Input level range (transmitter power): +20 to +40 dBm (average power within burst, high power input) 0 to +20 dBm (average power within burst, low power input) Measurement methods [Sweep method] Sweeps the specified range of frequency using the spectrum analyzer, and then detects and displays the peak value. Calculates the rate for transmission power value and displays it as power rate. Waveform detection mode: average [Spot method] Measures the specified frequency with time domain from the spectrum analyzer and then displays the average value. Calculates the rate for transmission power value and displays it as power rate. Waveform detection mode: average [Search method] Sweeps the specified frequency range using the spectrum analyzer to detect the peak value, then measures the frequency using the time domain to display the average value. Calculates the rate for transmission power value and displays it as power rate. Waveform detection mode: average
Electrical performance (I/Q input)	Input method: Balanced, unbalanced Input impedance: 1 MΩ (parallel capacitance: <100 pF), 50 Ω Input level range Balanced input Differential voltage range: 0.1 to 1 Vp-p, In-phase voltage range: ±2.5 V (at input terminal) Unbalanced input: 0.1 to 1 Vp-p (at input terminal, switchable DC/AC coupling) Measurement items: modulation accuracy, amplitude, occupied bandwidth (FFT method), I/Q level Modulation accuracy measurement Input level: ≥0.1 V (rms) *Temperature range: 10° to 28°C Residual vector error PDC/NADC: <0.5% (rms) *Typical, DC coupling PHS: <0.7% (rms) *Typical, DC coupling I/Q level measurement Level measurement: Measurement and display each I, Q input voltage (rms, p-p) I/Q phase difference measurement: Phase difference between I and Q phase signals when CW signal input to I and Q input terminals

*1: Can be set when MS8608A-08 option is installed in the main frame.
*2: After level calibration using internal power meter
*3: Input level (average power within burst): ≥+10 dBm (high power input), ≥–10 dBm (low power input), ≥–20 dBm (low power input, pre-amp on*1)

Ordering Information

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

Model/Order No.	Name	
	Main frame	
MX860805A	π/4DQPSK Measurement Software	
	Standard accessories	
Z0744	Memory card (32 MB or more, for backup)	:1 pc
W1866AE	π/4DQPSK measurement software operation manual (Vol. 1)	:1 copy

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Specifications are subject to change without notice.

ANRITSU CORPORATION
1800 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
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: +39-06-502-2425

● **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

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