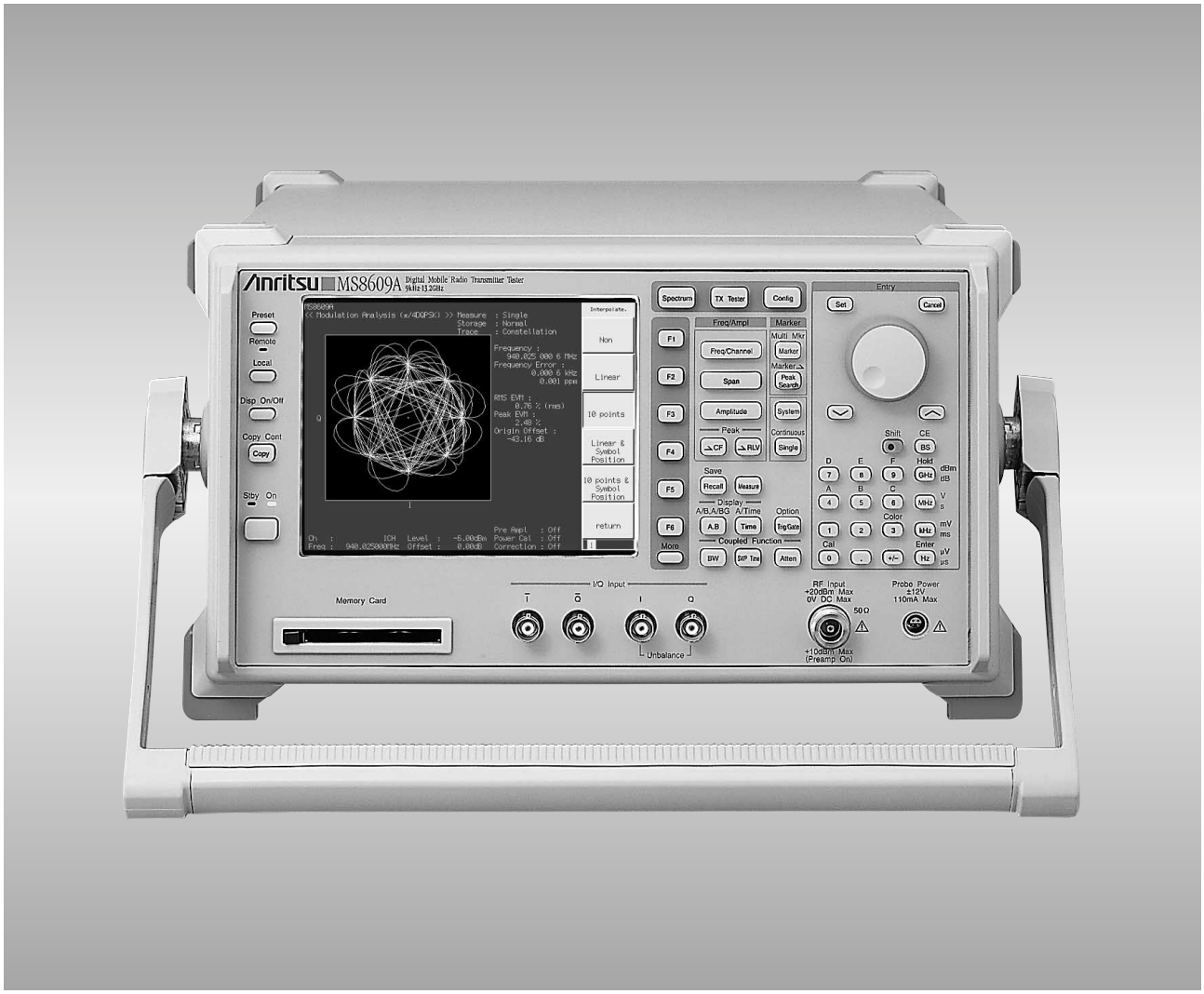
Anritsu

MX860905A

π/4DQPSK Measurement Software

(For MS8609A 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

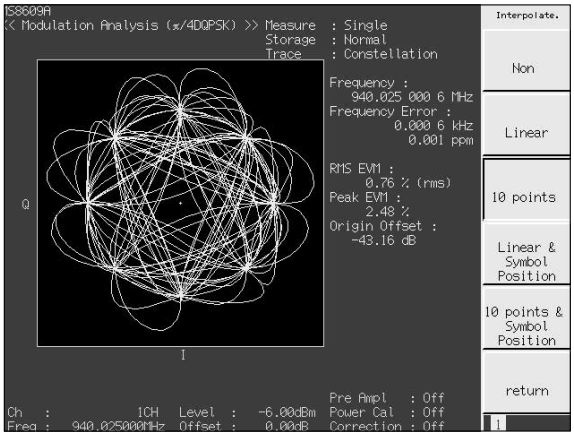
The MX860905A application software is used with the MS8609A Digital Mobile Radio Transmitter Tester to evaluate transmission systems in conformance with the PDC, PHS, NADC (IS-136), STD-39/T79 and STD-T61 standards and general purpose.

MX860905A 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

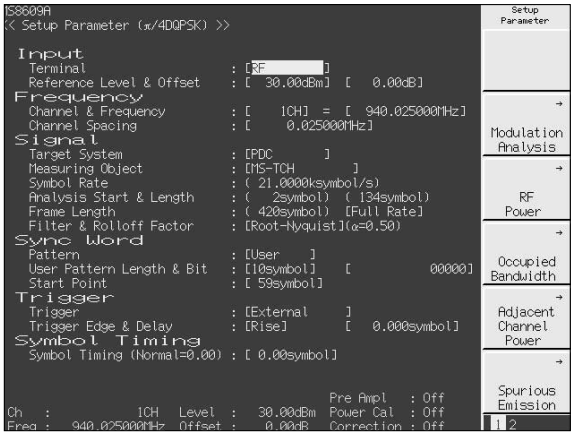
Modulation Accuracy Measurement

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).



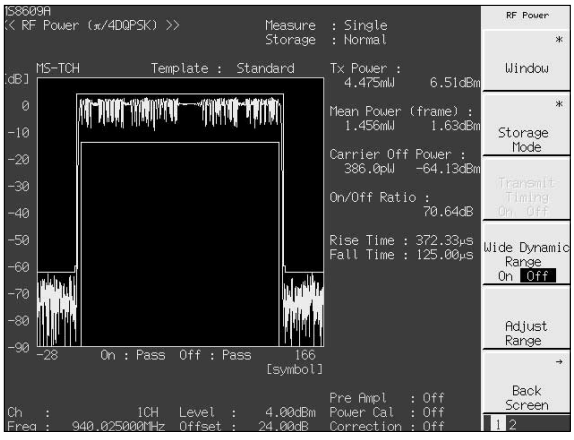
Parameter Setting

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.



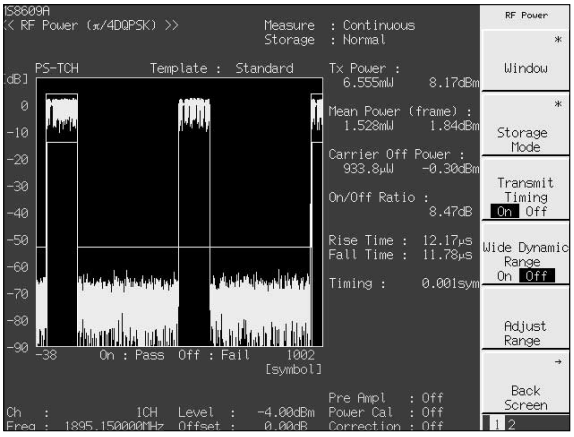
Transmitter Power Measurement

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.



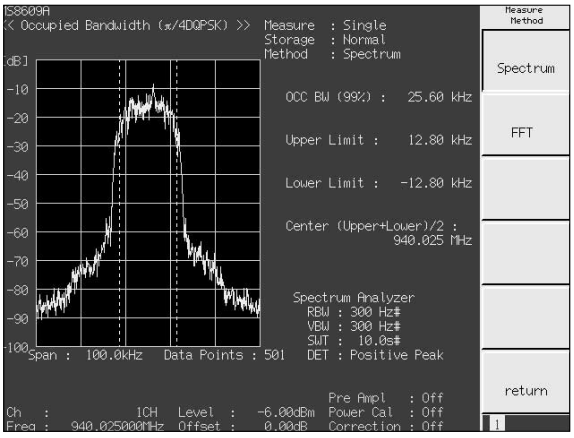
Send Timing Measurement

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



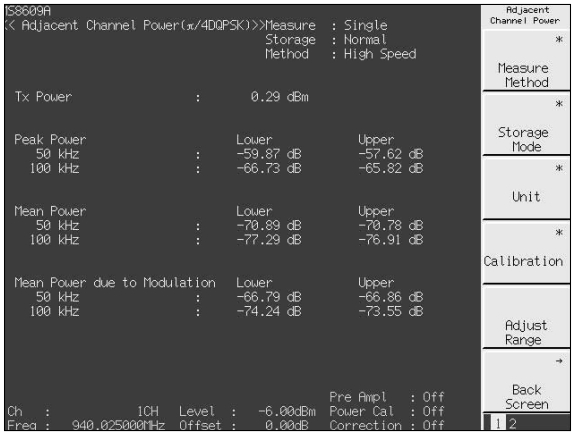
Occupied Bandwidth Measurement

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



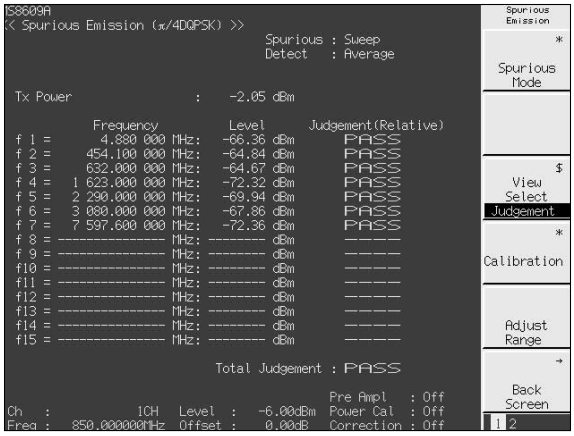
Adjacent Channel Power Measurement

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 set 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 MS8609A.

Modulation/frequency measurement	Measured frequency range: 50 MHz to 2.1 GHz Measured level ranges: –40 to +20 dBm (average power within burst, pre-amp off*1) –60 to +10 dBm (average power within burst, pre-amp on*1) Carrier frequency accuracy: ±(reference oscillator accuracy + 10 Hz) ∗Input level (average power within burst): ≥–30 dBm (pre-amp off*1), ≥–40 dBm (pre-amp on*1) Modulation accuracy (residual vector error) PDC/NADC: <0.5% (rms), PHS: <0.7% (rms) ∗Input level: ≥–30 dBm (pre-amp off*1), ≥–40 dBm (pre-amp on*1), averaging: 10 times Origin offset accuracy: ±0.50 dB ∗Input level (average power within burst): ≥–30 dBm (pre-amp off*1), ≥–40 dBm (pre-amp on*1), relative to signal with origin offset of –30 dBc Transmission rate accuracy: ±1 ppm ∗Input level (average power within burst): ≥–30 dBm (pre-amp off*1), ≥–40 dBm (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: –40 to +20 dBm (average power within burst, pre-amp off*1) –60 to +10 dBm (average power within burst, pre-amp on*1) Transmitter power measurement*2 Measurement ranges: –10 to +20 dBm (average power within burst, pre-amp off*1) –10 to +10 dBm (average power within burst, 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 (pre-amp off*1), ≥–20 dBm (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/PHS: ≥90 dB (measurement limits of average noise level: ≤–80 dBm, 50 Hz to 2.1 GHz) PHS: ≥80 dB (measurement limits of average noise level: ≤–70 dBm, 50 Hz to 2.1 GHz) ∗Average power within burst: 10 mW 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: –40 to +20 dBm (average power within burst, pre-amp off*1) –60 to +10 dBm (average power within burst, 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 range: –10 to +20 dBm (average power within burst, pre-amp off*1) –20 to +10 dBm (average power within burst, 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): –10 to +20 dBm (average power within burst, pre-amp off*1) –20 to +10 dBm (average power within burst, pre-amp on*1) 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 MS8609A-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 (pre-amp off*1), ≥–20 dBm (pre-amp on*1)

Ordering Information

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

Model/Order No.	Name	
	Main frame	
MX860905A	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.

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