Application Note

Introduction to Mobile WiMAX Test Measurement Solution

MS269xA
Signal Analyzer

MS269xA Signal Analyzer
MS269xA-020 Vector Signal Generator (Option)

Introduction to Mobile WiMAX Test Measurement Solution

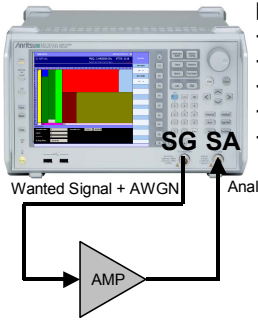
November 2007
Anritsu Corporation

Proposed Mobile WiMAX Measurement Solution

Installing the MX269010A Mobile WiMAX Measurement Software in the MS269xA Signal Analyzer supports Mobile WiMAX modulation analysis.

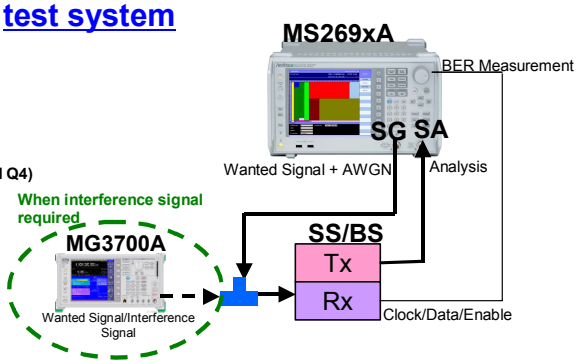
Moreover, adding the MS269xA-020 Vector Modulation Generator and MX269905 Mobile WiMAX IQproducer options, supports Tx test of the amplifier and Tx/Rx test of SS/BS with one unit.

All-in-one instrument for amplifier test



[Measurements]
- **EVM**
- **Spectrum Flatness**
- **Spurious Emission**
- **CCDF**
- **Spurious Mask** (planned Q4)

Supports design of simple Tx/Rx test system



Key Features

(1) Excellent measurement performance up to 6 GHz

→ Excellent residual EVM and level accuracy over entire Mobile WiMAX frequency range (2.3 to 5.8 GHz).

(2) Excellent reproducibility and high-speed measurement

→ The very low measurement result randomness supports averaging-free measurement and increases yield and productivity.

(3) Easy downlink signal analysis

→ Parameters are set automatically by DL-MAP analysis, so the DL signal can be analyzed without complex settings.

Easy, high-speed measurement, supporting R&D to manufacturing

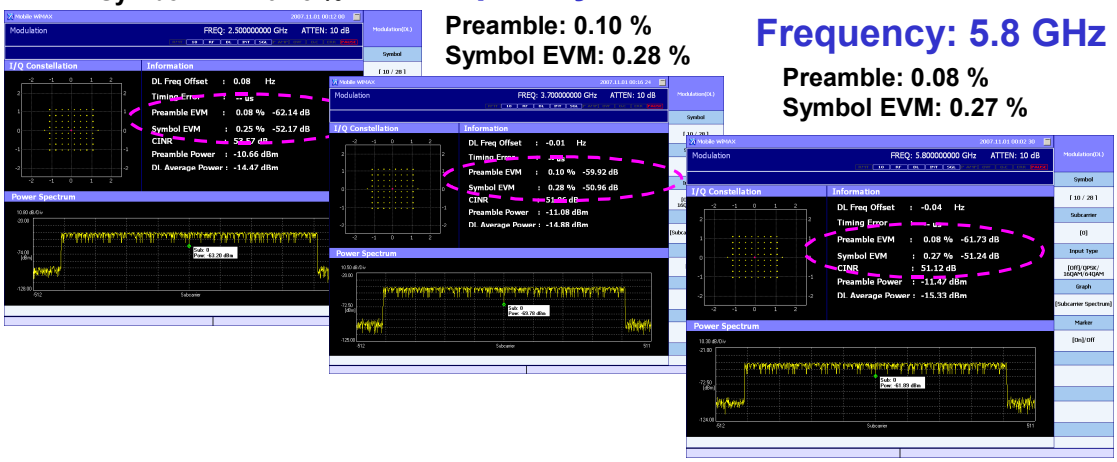
Key Features (1) Excellent Measurement Performance up to 6 GHz

Supports excellent EVM accuracy and level accuracy in 2.5 GHz as well as 3.5 GHz or 5 GHz bands by extending basic frequency band up to 6 GHz and using unique built-in level calibration oscillator

Frequency: 2.5 GHz
Preamble: 0.08 %
Symbol EVM: 0.25 %

Frequency: 3.7 GHz
Preamble: 0.10 %
Symbol EVM: 0.28 %

Frequency: 5.8 GHz
Preamble: 0.08 %
Symbol EVM: 0.27 %



Key Features (2) Excellent Reproducibility and High-Speed Measurement

[High-speed measurement]

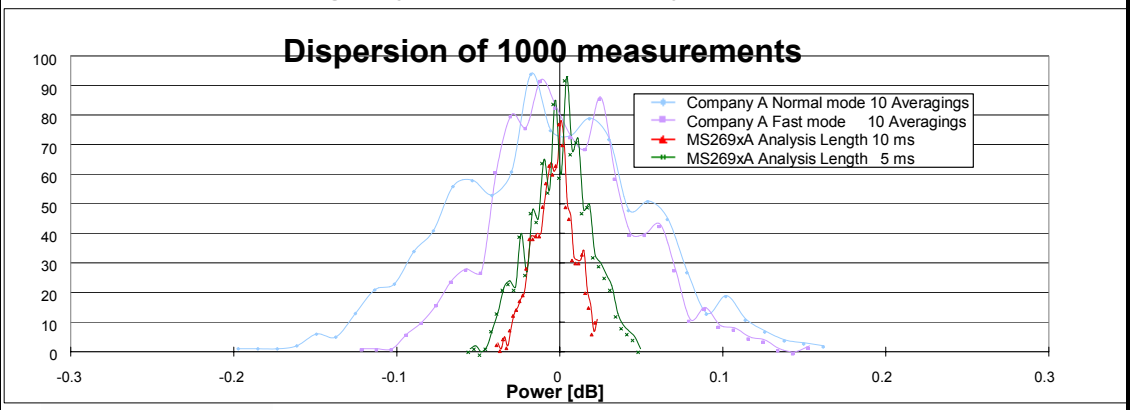
Supports high-speed analysis of Modulation, IQ Received, Map Information, Error Vector Spectrum, and Error Vector Time Spectral Flatness, increasing productivity and R&D efficiency

5 MHz Bandwidth DL: about 1.3 s, UL: about 1.5 s

10 MHz Bandwidth DL: about 2.0 s, UL: about 2.5 s

[Excellent reproducibility]

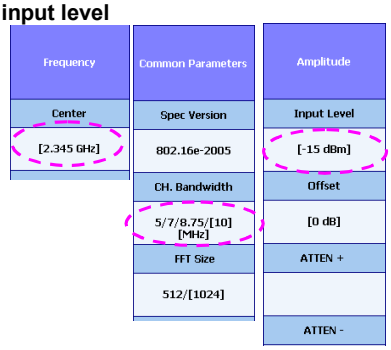
Low measurement result randomness supports fast averaging-free measurement for higher yield and productivity



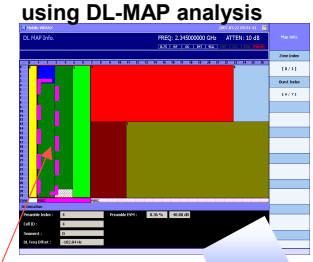
Key Features (3) Easy Downlink Signal Analysis

The MS269xA embedded DL-MAP analysis function can both read the DL-MAP where setting parameters for downlink signals are saved and reflect the parameters automatically in the instrument settings, so downlink signals are analyzed easily without setting complex parameters.

Setting frequency, bandwidth and input level

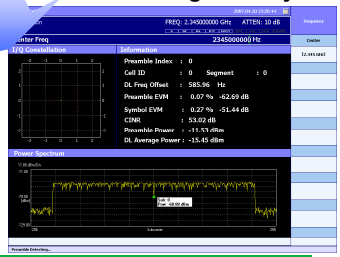


Automatic parameter setting using DL-MAP analysis



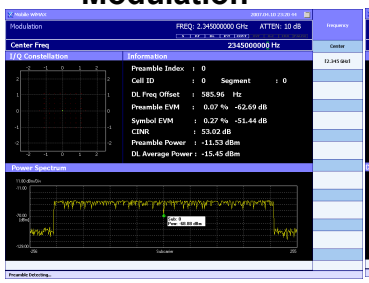
DL-MAP

Downlink signal analysis



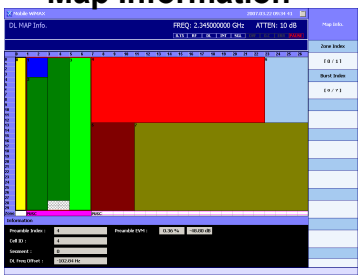
Mobile WiMAX Measurement Software (DL Screens)

Modulation

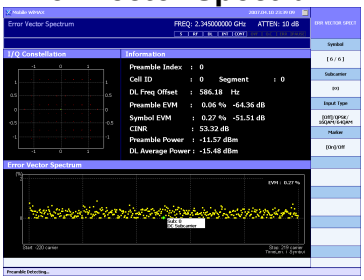


IQ Received

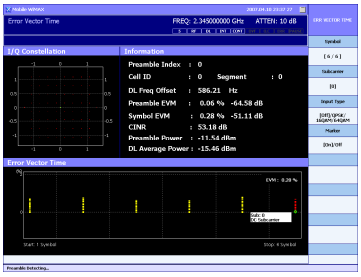
Map Information



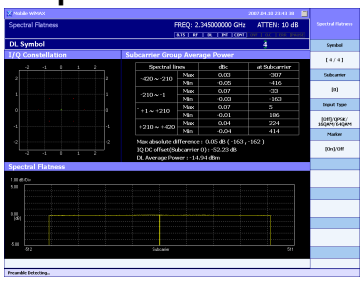
Error Vector Spectrum



Error Vector Time

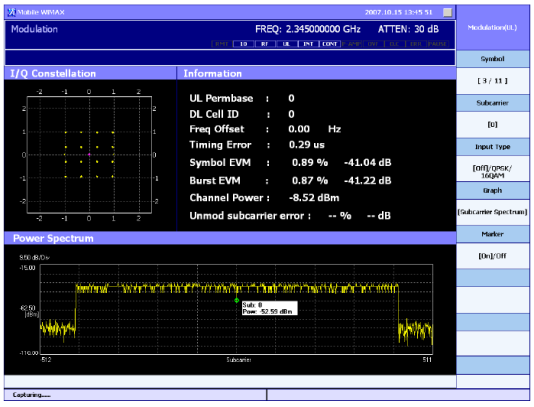


Spectral Flatness

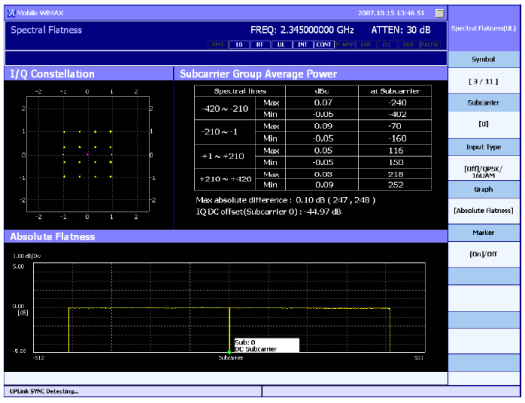


Mobile WiMAX Measurement Software (UL Screens)

Modulation



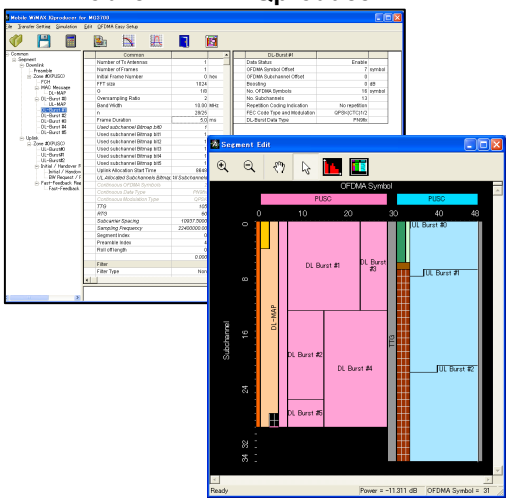
Spectral Flatness



MX269905A Mobile WiMAX IQproducer

Mobile WiMAX IQproducer™ is PC application software for generating waveform patterns supported the WiMAX Forum (table) by setting IEEE 802.16e-2005 Wireless MAN-OFDMA parameters.

MS269905A
Mobile WiMAX IQproducer



Feature		Reference	Anritsu
Main Item	Sub item	(802.16 specification)	MS269xA-020
DL subcarrier allocation	PUSC	8.4.6.1.2.1	Y
	PUSC w/ all subchannels	8.4.6.1.2.1	Y
	FUSC	8.4.6.1.2.2	Y
	AMC 2x3	8.4.6.3	Y
UL subcarrier allocation	PUSC	8.4.6.2.1	Y
	AMC 2x3	8.4.6.3	Y
Ranging & BW request	Initial	8.4.7.1	Y
	HO	8.4.7.1	Y
	Periodic	8.4.7.2	Y
	BW request	8.4.7.2	Y
Fast-feedback	6-bit	8.4.5.4.10.5	Y
Channnel coding	Repetition	8.4.9	Y
	Randomization	8.4.9.1	Y
	CC	8.4.9.2.1	Y
	CTC	8.4.9.2.3 (excluding 8.4.9.2.3.5)	Y
	Interleaving	8.4.9.3	Y
Modulation	DL QPSK/16QAM/64QAM	8.4.9.4.2	Y
	UL QPSK/16QAM/64QAM	8.4.9.4.2	Y
	Pilot modulation	8.4.9.4.3	Y
	Preamble modulation	8.4.9.4.3.1	Y
	Ranging modulation	8.4.7.3	Y
MAP Support	Normal MAP	6.3.2.3.2 and 6.3.2.3.4	Y
	Compressed MAP	8.4.5.6	Y
	Sub-DL-UL MAP	6.3.2.3.60	Y
MIMO	antenna, matrix A for DL PUSC	8.4.8.1.2.1.1	Y
	2-antenna, matrix B vertical encoding for DL	8.4.8.1.4	Y

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Specifications are subject to change without notice.

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