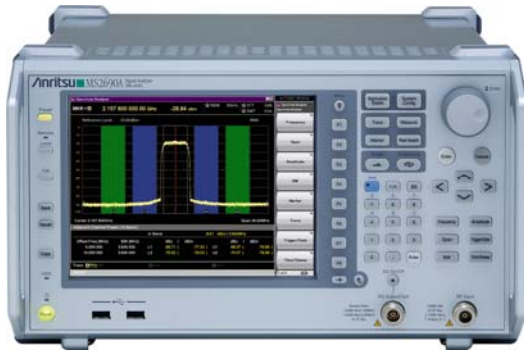


CCDF Measurements

MS269XA
Signal Analyzer



Introduction

The Anritsu MS269xA Series Signal Analyzer provides development and manufacturing engineers with a Spectrum Analyzer, Signal Analyzer, and Vector Signal Generator in one box. The CCDF tool provides performance signal power information on amplifiers, filters, mixers, and numerous other 3G components.

This one-box tester performs fast and accurate spectrum analysis measurements that support the development and manufacturing of infrastructure equipment and components used in GSM, GPRS, EDGE, W-CDMA, HSPA, and WiMAX networks. Wideband Fast Fourier Transformation (FFT) analysis supports high-speed continuous measurement of CCDF, frequency vs. time, spectrum, and power vs. time.

The MS269xA Series Signal Analyzer's powerful capabilities, easy and efficient setup, small footprint, and cost savings of 30% – when compared to purchasing 3 separate instruments – make it the obvious choice for testing 3G devices.

Ultra High Speed ACLR Measurement: The Power of Signal Analyzers

When measuring ACLR or OBW using a spectrum analyzer, engineers use averaging to obtain stable measurement results. Because it must sweep for the number of averaging times, a spectrum analyzer requires more time than a signal analyzer to perform measurement. In contrast, a signal analyzer performs high-speed measurement by capturing the whole set of in-band data. A signal analyzer performs ultra high-speed measurement by capturing data for a specific measuring time that is equivalent to averaging times, and thus eliminates the need for averaging.

1. Signal Analyzer

The MS2690A/MS2691A Signal Analyzer can measure the transmitter characteristics of wireless devices for various types of mobile communications quickly, accurately, and easily. The Signal Analyzer function can achieve high-speed spectrum and simultaneous analysis on the frequency and time axis using FFT processing while recording the RF input signal with the digitize capture function. This cannot be achieved with a conventional spectrum analyzer.

The Signal Analyzer function has the following features:

- Broad frequency band (6 GHz/13.5/26.5 GHz).
- Broad analysis bandwidth (31.25 MHz/120 MHz).
- Continuous analysis of captured data.
- High capacity waveform memory.
- High-speed spectrum analysis.
- Measurement functions include spectrum, power vs. time, frequency vs. time, and CCDF.

2. CCDF Measurements

CCDF (Complementary Cumulative Distribution Function) measurements provide important information for engineers involved in the design and manufacturing of system components used in third generation (3G) networks. 3G networks use spread spectrum modulation that result in higher quality voice as well as greater data rates for cellular services. The peak to average ratio of 3G components is dependent on the sub channels used on a particular channel within a spread spectrum signal format. This can impact the distortion of a transmitted 3G signal. Performing CCDF measurements on 3G components provides power characteristics of amplified, filtered, and mixed spread spectrum signals.



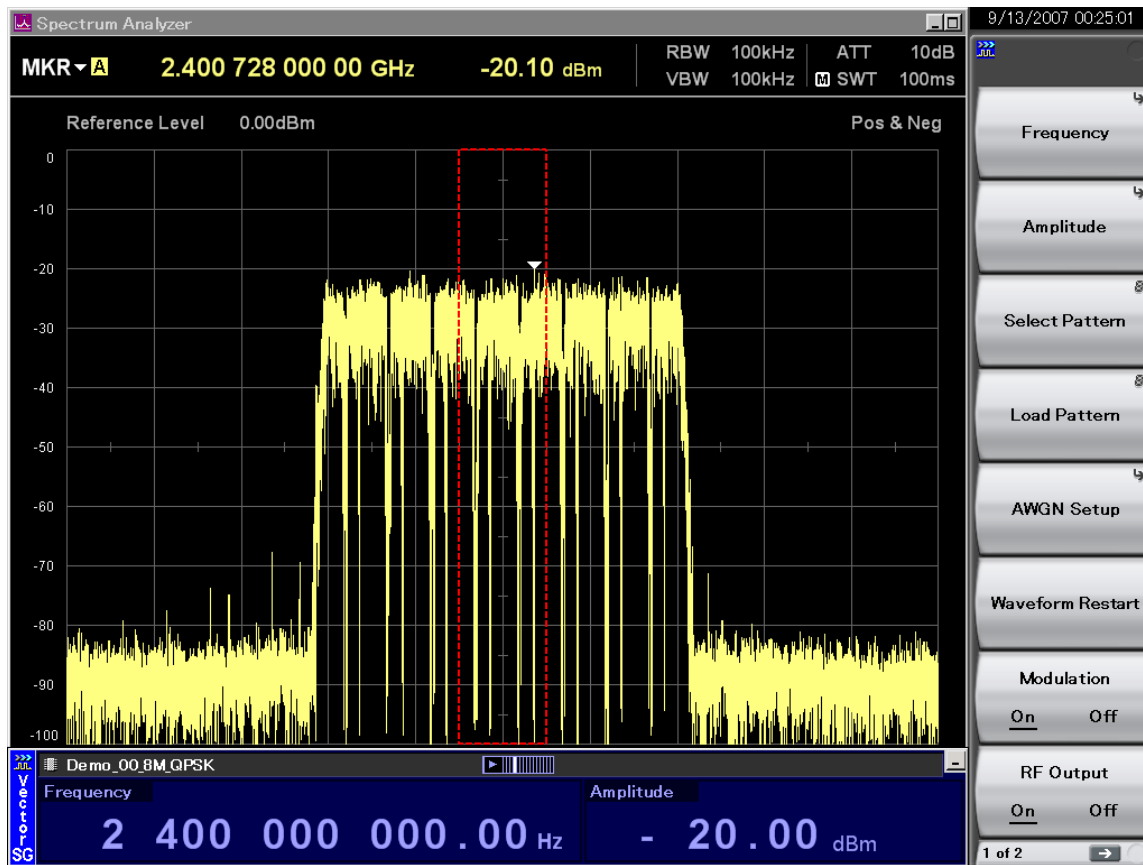
The CCDF measurement of a 3G amplifier in the previous illustration provides information on the amount of time the signal spends at or above a specific power level – with the power level being in dB relative to the average power level. The Y axis is the percent of time the signal power is at or above the power specified by the X axis. The X axis represents dB above the average power level; this displays the peak to average ratios as opposed to absolute power levels. For example when $t = 1\%$ on the y axis, the corresponding peak to average ratio is 6.95 dB. This means the signal power exceeds the average by at least 6.95 dB for 1% (correct use) of the time.

3. Testing Made Easy

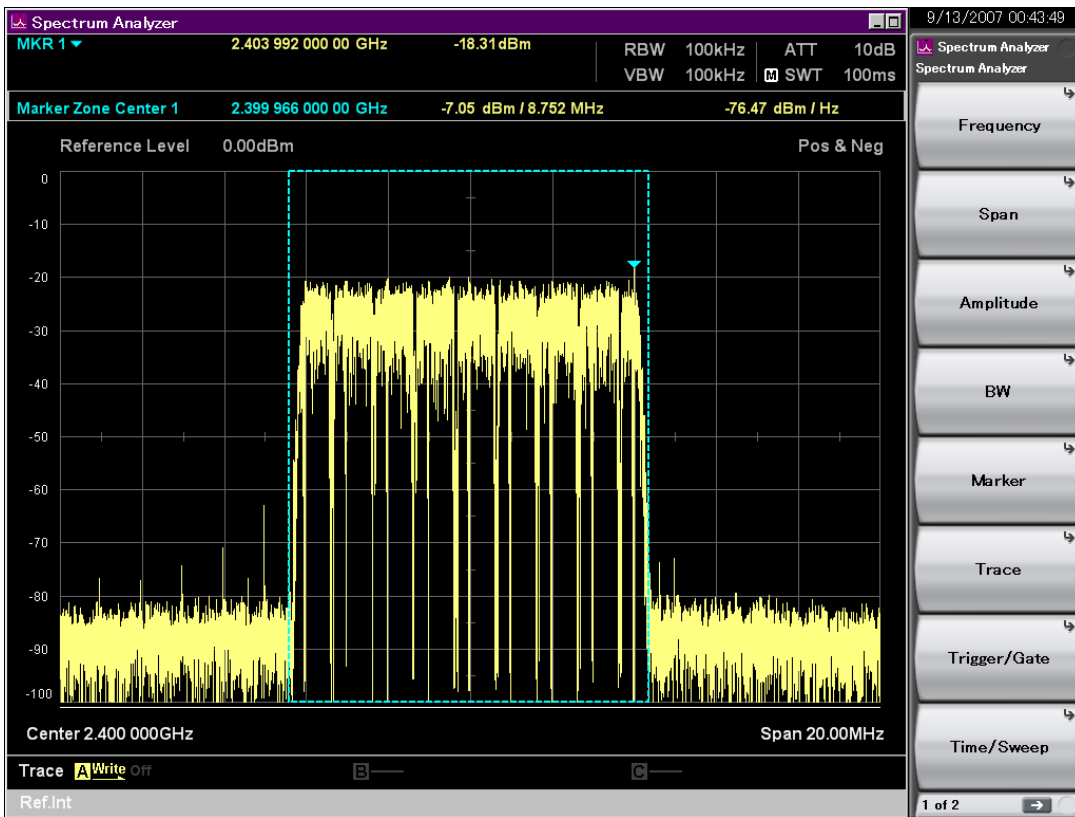
The MS269xA Series Signal Analyzer makes testing components simple and easy with a built in Vector Signal Generator which covers frequencies up to 6 GHz. It combines speed with reliable RF performance. It creates a one-box tester which increases work efficiency in R&D applications, reduces tact times in manufacturing, and supports quick configuration of test systems.

To measure amplifiers, follow these steps:

- A. Select Application Switch and Signal Generator (F3) and set desired Frequency (F1) & Amplitude (F2).
- B. Incorporation of an arbitrary wave form generator and IQ producer software can create custom waveforms or simply-utilized preload waveforms for modulating the signal. Do this by selecting Load Pattern (F4), Select Pattern (F3), and Modulation (F7).
- C. Next select RF Output (F8) to turn power on.
- D. Connect DUT (device under test) to SG Output connector and to RF Input connector.



- E. To view the waveform with the Spectrum Analyzer: select Application Switch and Spectrum Analyzer (F1), Setting Frequency (F1), Span (F2), and Amplitude (F3), along with other standard Spectrum Analyzer settings. It can also be set with a USB mouse or key board, if desired.



- F. For Signal Analyzer functions: Select Application Switch, then Signal Analyzer (F2), Frequency (F1), Amplitude (F2), Trace (F5), and Trace Mode (F1); this will access spectrum, power vs. time, frequency vs. time, and CCDF measurement functions.



Conclusion

The Anritsu MS269xA series Signal Analyzer provides development and manufacturing engineers with a Spectrum Analyzer, Signal Analyzer, and Vector Signal Generator in one box. Its CCDF tool provides performance information of signal power for amplifiers, filters, mixers, and numerous other 3G components. It addresses common challenges for its customers including eliminating signal distortion and decreasing time to market. Anritsu provides superior quality when compared to other brands whose products often suffer from slow performance time, inaccuracy, complexity, and high cost. The MS269xA Series Signal Analyzer's powerful capabilities, easy and efficient setup, small footprint, and cost savings of 30% – when compared to purchasing three separate instruments – make it the obvious choice for testing 3G devices.



Specifications are subject to change without notice.

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