

Single Instrument Solution



Anritsu Company introduces the MG3690A synthesizer, a single-instrument solution that combines the bandwidths of separate RF and microwave signal generators with the spectral purity and frequency stability of a phase-locked source. The MG3690A's ability to achieve crystal-oscillator-like phase noise over the 0.1 Hz to 40 GHz frequency range makes it an excellent choice for a variety of laboratory and production applications that previously required separate RF and microwave synthesizers.

The MG3690A achieves frequency resolution of 0.1 Hz over the full frequency range, with leveled output power adjustable in 0.01 dB steps from -120 dBm to 17 dBm. Full-band, ultra-low phase noise is achieved by integrating a digital downconverter (DDC) into the MG3690A. The DDC generates 10 MHz to 2.2 GHz single sideband phase noise characteristics that are typically 30 dB to 50 dB better than most microwave synthesizers and comparable to high-performance RF synthesizers. The SSB phase noise of the MG3690A is -107 dBc/Hz at 1 kHz offset from a 6 GHz carrier. For a 40 GHz carrier at the same offset, the phase noise rises to -92 dBc/Hz. Actual performance is typically 10 dB better than these guaranteed specifications. For example, the phase noise of a 10 GHz carrier at 10 kHz offset is specified at -104 dBc/Hz, while actual typical performance is -115 dBc/Hz.

Anritsu has designed the MG3690A so it can be used as a continuous wave (CW) source of single RF and microwave frequencies or as a digitally swept source, sweeping either frequency, power, or both. As a CW source, it features as many as 20 independent markers to set independent CW frequencies. When used as a sweeper, the MG3690A allows sweep widths to be set from as narrow as 1 kHz to as wide as 40 GHz. The number of sweep steps can be adjusted from 10 to 10,000, with every frequency step in the range phase locked.

A list sweep mode can be controlled via the MG3690A's front panel or by GPIB. In this mode, as many as four data tables with 2,000 nonsequential frequency/power sets can be stored in memory and then addressed as a phase-locked step sweep. In addition, the MG3690A can perform a basic frequency-hopped or frequency-agile function controlled via GPIB. As many as 3,202 data points of power or frequency can be stored and recalled from non-volatile memory.

The first COM-based Interchangeable Virtual Instrument (IVI) driver for signal generators is incorporated into the MG3690A, which makes it well suited for ATE environments. Further enhancing the MG3690A for rack applications is its compact 13.3 cm package and its high output power that assures adequate signal strength to the device under test (DUT) even after ATE switching and cabling losses.

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