

## **Holzworth Non-PLL RF Synthesizers ideal for Multi-tone IMD Test Boulder Colorado - January 2010**

Holzworth's multi-channel RF synthesizers are ideal for Multi-Tone signal generation for IMD (intermodulation distortion) testing. The unique non-PLL based synthesis architecture creates extremely stable signals that maintain a consistent phase relationship from tone-to-tone. Each fundamental tone can be independently programmed for amplitude, frequency, and phase. This allows users to more precisely simulate broadband, non-linear signals for Intermodulation Distortion (IMD) testing.

As communications systems are transferring more data at higher speeds within limited bandwidths, the adverse effects of intermodulation are becoming less tolerable. Precise multi-tone signal generation is extremely valuable for emulating the non-linear artifacts of a device or system for IMD (intermodulation distortion) performance testing. IMD testing is performed by subjecting a DUT to two or more tones for simulating the effects of real-world operating conditions in a controlled environment.

Multi-Tone IMD testing can result in inaccurate results due to variances in the relative spacing of the test tones as well as the phase relationship of the tones (a known disadvantage of digital tone generation). To achieve the most accurate IMD test results, the test signal generator must consistently maintain: frequency and phase stability as well as the absolute minimum frequency/phase drift amongst all generated test tones. The Holzworth non-PLL architecture completely supports each of these requirements via an analog approach.

Holzworth non-PLL based synthesizers offer industry leading phase noise performance (ex: -121dBc/Hz at 3GHz, 10kHz offset) and typical spurious performance of -70dBc. The 8MHz to 6GHz broadband designs allow for creation of a up to 8 tones with 1mHz of tuning resolution on each signal. The nature of the non-PLL based synthesizer supports frequency stability between independently tunable test signals while being phase coherent.

Accurate Multi-Tone IMD test results come from a precise input tone definition as defined by the user. With manual or preprogrammed (lookup table) independent channel control, a test spectrum can be constructed to exactly match simulated or real world operating conditions. Furthermore, the analog IMD test approach is supported by well established test procedures.

Holzworth offers the best performance to price ratio available with options of 2 to 8 phase coherent, independent signals available in a 1U high 19" rack mount chassis. Extremely low phase noise, fixed frequency options are also available as tunable channel replacements within these multi-channel synthesizer units.

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