

## OVERVIEW

Since 2004, Holzworth Instrumentation has been developing highly efficient and stable phase noise analysis architectures and supporting subsystems. The primary focus was on measurement performance, followed by ease of use, high reliability and acquisition speed. Phase noise analysis needs not be complex or expensive. Furthermore, a phase noise test system is only proven reliable when it can handle portable field test without the constant need for service or “calibration”.

The Holzworth HA7000 series offers long overdue solutions that respond to the needs of customers that span the market from product development to manufacturing test. These analyzers can withstand the harsh environment of mobile field testing.

The HA7000 series combines the best of a traditional analog phase noise measurement front-end with the latest technology in cross correlation analysis. The all analog front end is virtually spur free. The digital analysis portion uses the latest DSP with a powerful cross correlation engine to help achieve a phase noise floor of  $< -180\text{dBc/Hz}$  in as fast as 13 seconds. The 1U high, 19 inch rack mount design is rugged, fully shielded and fan-less, offering uncompromising performance compared to “rack and stack” type systems.

Holzworth Cross Correlation Analyzers will be available to the open market during Q2, 2011. Pricing for these initial models is targeted at under 25k US\$.

## HA7401A: Fixed Frequency Phase Noise Analyzer

(Cross correlation, Dedicated fixed frequency)

Measure the phase noise of single-frequency signal sources at 10MHz, 80MHz or 100MHz. Rugged enough for portable, on site testing of distributed references, yet stable enough for advanced R&D testing.

Targeted for high speed throughput of extremely low noise oscillators, synthesizers and calibrated references. The HA7401A is ideal for OCXO and TCXO design and manufacturing test. Contact Holzworth for custom fixed frequency support.

### HA7401A PRIMARY SPECIFICATIONS

<b>Carrier Frequency</b>	Fixed: 10MHz, 80MHz, 100MHz
<b>Signal Lock Range</b>	$\pm 4\text{ppm}$ (ex: carrier = 100MHz, Lock BW = $\pm 400\text{Hz}$ )
<b>Measurement Floor</b>	$< -180\text{dBc/Hz}$ standard, ULN options available
<b>Signal Acquisition Time</b>	$\sim 100\text{ms}$
<b>Measurement Speed</b>	0.5s (1kHz-1MHz), 13s (1Hz-1MHz)
<b>Measurement Offset</b>	0.1Hz to 1MHz, 20MHz option available
<b>Calibration</b>	Automatic

## **HA7402A: Phase Noise Measurement Engine**

**(Cross correlation, Variable LO input frequencies)**

The HA7402A is Holzworth's two-channel, cross correlation core with the addition of fully programmable PLL's and three frequency counters. It tunes to the DUT, based on the non-coherent LO inputs (LO1 & LO2). The HA7402A is the first in a series of phase noise engines, allowing for DUT testing from 10MHz to 1.2GHz.

The core engine combines the performance of the HA7401A with the LO frequency as provided by the customer. Ideal for OCXO/TCXO manufacturing and R&D testing where high levels of throughput are required. The engine offers pure measurement performance and speed with the flexibility customer set test frequencies. Auto-Selectable PLL's coupled with software defined, auto-detect/auto-lock of the LO signals and DUT; simplifies the test solution in comparison to any other phase noise measurement test set.

### **HA7402A PRIMARY SPECIFICATIONS**

<b>LO Input Range</b>	10MHz – 1.2GHz
<b>Measurement Floor</b>	< -180dBc/Hz standard, ULN options available
<b>Signal Acquisition Time</b>	~100ms
<b>Measurement Speed</b>	0.5s (1kHz-1MHz), 13s (1Hz-1MHz)
<b>Measurement Offset</b>	0.1Hz to 1MHz, 20MHz option available
<b>Calibration</b>	Automatic

## **PRODUCT RELEASE TIMELINE**

Early beta units are being demonstrated to select customers throughout Q1 and Q2 of 2011. The HA7401A and HA7402A are scheduled to be released to production during Q2 of 2011.

For more information, please contact Holzworth Instrumentation directly at:

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