

## **Tektronix Introduces Industry's Most Comprehensive PAM4 Analysis Solution**

### **New Measurement Tools Operate on both Real Time and Equivalent Time Oscilloscopes, Deliver Lowest Noise Acquisitions**

BEAVERTON, Ore., Sept. 28, 2015 /PRNewswire/ -- Tektronix, Inc., the world's leading manufacturer of oscilloscopes, today announced the industry's most comprehensive set of analysis tools for emerging [PAM4](#) modulation measurement needs with full support for both optical and electrical interfaces. The new tools operate on both DPO70000SX 70 GHz real time and DSA8300 equivalent time oscilloscopes, ensuring that no matter which instrument configuration is needed for a particular application, the correct results will be delivered with the highest degree of accuracy.

PAM4 is being adopted in the latest 400 Gigabit Ethernet standard by the IEEE P802.3bs working group for 400G (typically 8 x 50G) electrical and optical interfaces. Compared to traditional NRZ that uses two-level signaling, the four-level scheme used in PAM4 significantly increases signal complexity and places new demands on test equipment for performance and noise sensitivity.

The ability to reliably characterize PAM4 signals from 13GBaud to 56GBaud with a common set of tools supporting both optical and electrical domains is key to advancing this new modulation methodology into the industry. The industry-leading low noise performance of both the Tektronix DPO70000SX and DSA8300 oscilloscopes gives engineers and researchers a choice of powerful and accurate signal acquisition test systems, adapted directly to support multi-level direct modulation analysis.

Analysis of multi-level signaling found in PAM4 requires an oscilloscope with low noise and good signal-to-noise ratio to accurately acquire and analyze the multiple bit states. The Tektronix DPO70000SX oscilloscope uses Asynchronous Time Interleaving (ATI) technology to deliver unprecedented low noise acquisitions, as much as 30 percent lower noise than conventional frequency interleaved performance oscilloscopes.

Optical PAM4 measurement analysis benefits from low noise acquisitions as well. With the optical acquisition technology available with the DSA8300 Series Sampling Oscilloscope, Tektronix now offers the lowest noise and highest sensitivity in the industry today, even with full clock recovery in place. This new level of noise performance in the Tektronix 80C15/CRTTP optical module is a great fit for optical PAM4 analysis with its full complement of TDEC and SR4 conformance measurement capabilities.

"With the rapid emergence of PAM4 techniques in current and future IEEE standards, Tektronix is responding to customer needs for validated measurement analysis tools," said Brian Reich, general manager Performance Oscilloscopes, Tektronix. "Our comprehensive PAM4 solution for both electrical and optical analysis offered on two world class acquisition systems gives 100G or 400G design engineers the verification and design tools they need for PAM4 development while providing the lowest noise and highest bandwidth in the industry."

Features in the PAM4 Analysis toolset include the ability to analyze full waveforms or correlated waveforms, reference level settings for pass/fail analysis of multi-level thresholds, numerical rise/fall times for every LSB, MSB level, and built-in clock recovery using PAM-specific PLL models provided by Tektronix.

The full range of Tektronix 100G and 400G test solutions will be demonstrated in Stand 435 at the ECOC 2015 Symposium Sept. 28-30 in Valencia, Spain. For more information on the event go to:

<http://www.ecocexhibition.com/>

## **Pricing & Availability**

PAM4 analysis solutions for Tektronix DSA8300 and DPO70000SX oscilloscope models will be available in Q4, 2015. Core analysis tools that extend existing DPOJET or 80SJNB solutions to perform PAM4 analysis are priced from \$7,500 US MSRP. For more information go to: <http://www.tek.com/application/100g-optical-electrical-tx-rx>

**Wondering what else Tektronix is up to?** Check out the Tektronix [Bandwidth Banter blog](#) and stay up to date on the latest news from Tektronix on [Twitter](#) and [Facebook](#).

## **About Tektronix**

Headquartered in Beaverton, Oregon, Tektronix delivers innovative, precise and easy-to-operate test, measurement and monitoring solutions that solve problems, unlock insights and drive discovery. Tektronix has been at the forefront of the digital age for over 65 years. Join us on the journey of innovation at [www.tektronix.com](http://www.tektronix.com).

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