Tektronix Receiver Test Solution

Direct Synthesis: For Thorough and Repeatable Limit-, Stress- & Compliance Testing

Receiver testing poses one of the biggest challenges for designers who need to exercise and characterize emerging devices. The fundamental questions are *"Will the receiver work in real world conditions?"* and *"What is its worst-case behavior?"*

Losses, inter-symbol interference, crosstalk, noise, jitter, it all adds up to a very threatening environment for a high-speed data signal. In order to thoroughly test any receiver, these signals including all impairments have to be generated.



Limit Stress and Margin Testing

Testing the Receiver Under Real-world Conditions

- Replicate real world jitter effects such as multiple Sinusoidal Jitter (SJ) and Inter Symbol Interferences (ISI)
- Replicate other channel impairments such as Random Jitter (RJ/noise)
- Replicate equalization effects such as pre-emphasis and advanced pre-equalization
- Replicate channel effects
- Replicate multilevel and Spread Spectrum Clocking (SSC) signals

www.tektronix.com/signal_generators



Equalization

Understand the Effects of Equalization at the Receiver

- Understanding effects of the channel on jitter and noise
- Understanding equalization effects at the receiver
- Predict BER contours at the receiver under consideration of channel and equalization effects
- Emulation of the complete channel including equalization effects to observe the actual eye at the receiver's comparator

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Compliance Testing

Obtain Standard Specific Compliance for Receiver Designs

- Perform MOI required receiver measurements such as jitter tolerance, timing skew and amplitude sensitivity testing:
 - Perform Pre/De-emphasis testing
 - Produce repeatable and accurate results
 - Obtain standard specific compliance certification

Tektronix[®]

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Limit Stress and Margin Testing

AWG7000B with SerialXpress[™] Software and DPO/DSA70000 Oscilloscopes with DPOJET Software

- Breakthrough Arbitrary Waveform Generator with up to 24GS/s enabling receiver limit, stress and margin testing
- Cover all standards with the industry's highest real time oscilloscope bandwidth
- Create, Replicate and Generate any kind of receiver test signal, including jitter, noise and other impairments
- SerialXpress[™]- Industry's only integrated serial data signal creation tool to directly generate direct Synthesis receiver test signal
- Directly add and control jitter, noise, pre-emphasis, ISI, SSC and channel effects via S-parameters



Equalization

DSA Sampling Oscilloscopes with 80SJNB Advanced Application Software

- Over 70 GHz of sampling bandwidth and the lowest Jitter floor ensure great signal fidelity
- Highly accurate TDR modules for pinpointing locations of signal imperfections in cable/connector designs
- IConnect software provides S-Parameters Exported to SerialXpress[™], they emulate channel effects and generate real world serial data test signals
- State-of-the-art combination of FFE/DFE equalization, channel emulation, and fixture de-embedding tools



Compliance Testing

DPO/DSA70000 Oscilloscopes with Compliance Test Solutions

- Cover all standards with the industry's highest real time oscilloscope bandwidth for receiver compliance and receiver margin testing.
- TekExpress[™] software for fully automated compliance testing of SATA Gen1 and Gen2 devices
- Simple implementation and setup includes auto-recognition of all required test equipment, precise DUT/Host control and one-button testing
- Defined test suites built into TekExpress[™] software, eliminates inconsistencies around test sequence, test types required

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