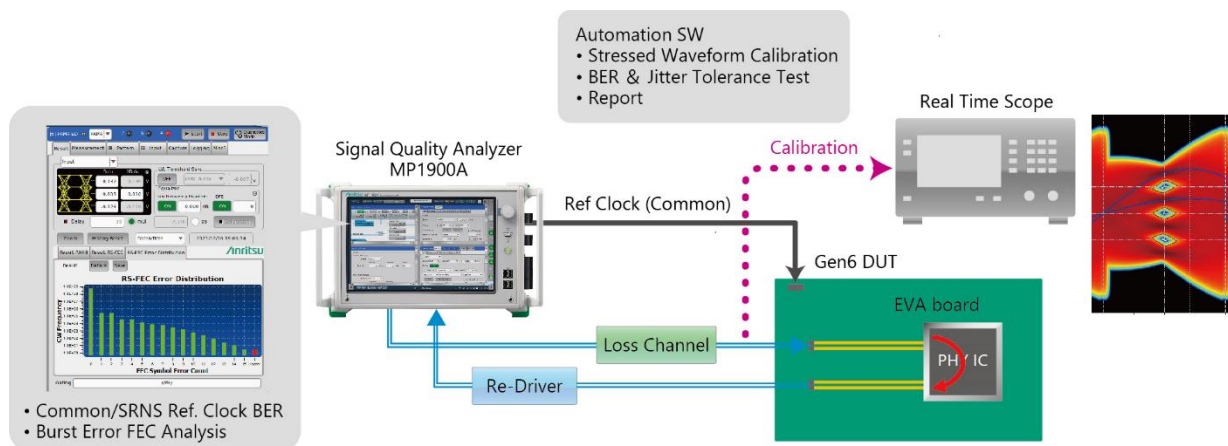**Anritsu** Advancing beyond

PCI Express 6.0 Base Specification Receiver Test Solution

Signal Quality Analyzer-R MP1900A

SQA-R

The spread of 5G (fifth generation communications systems) services is facilitating a technology revolution starting with mobile applications using edge computing, IoT, and AI driving large data communications at high speeds. Completion of the PCIe 6.0 Base Spec. for PCI-Express interfaces used by data center transmission equipment, servers, and storage is promoting development of the new CEM Spec. Compliance Test. PCIe 6.0 uses new technologies such PAM4 modulation and Forward Error Correction (FEC). As well as supporting PCIe 1.0 to PCIe 5.0 receiver tests, the Signal Quality Analyzer MP1900A certified tester helps cut design times using a new automation function for calibrating PCIe 6.0 Base Spec. PAM4 stress signals with a 1/3rd smaller Eye opening than NRZ, measuring BER, and testing jitter tolerance.

Features

- **Supports PCIe 6.0 Base Spec. design inspection requirement**
  Provides each Preset and Compliance pattern required by PCIe 6.0 as well as built-in SKP filter function for common and separate clocks (SRNS) plus real-time FEC Uncorrectable error measurement.
- **Cuts test time using automation for efficient evaluation**
  Automates stressed signal calibration and BER measurement using automation software.
- **Adds excellent performance and expandability**
  Supports device margin tests with measurement functions including high-quality PPG waveforms, high-sensitivity reception PAM4 ED, and generation of various jitter types; multi-channel platform and software architecture facilitate expansion to future PCIe 6.0 CEM specification.

Anritsu MP1900A

The Quality Signal Analyze-R MP1900A is a multi-channel BERT accommodating various plug-in modules composed of a pulse pattern generator (PPG) supporting differential interfaces outputting 32.1, 58.2, and 64.1 Gbaud signals; a high-input-sensitivity error detector (ED); a jitter generator; and a noise generator for automated jitter tolerance tests. See the Selection Guide for the recommended test and evaluation choices.

PAM4 PPG MU196020A

Baud Rate	2.4 to 32.1 Gbaud (Opt-001)
Emphasis Taps	4 Taps (Opt-011)
Tr/Tf (20% to 80%)	9 ps (typ.)

PAM4 ED MU196040B

Baud Rate	2.4 to 32.1 Gbaud (Opt-001)
Input Sensitivity	23 mV @ 32.1 Gbaud (typ.)
Phase Margin	4.5 ps @ 32.1 Gbaud (typ.)
DFE	1.4 dB @ 53 Gbaud (Opt-011)
Clock Recovery	2.4 to 32.1 Gbaud (Opt-022)
PAM4 BER Measurement	PAM4 Symbol Error Measurement (Opt-041)
FEC Analysis	FEC Error Real-time Measurement (Opt-042)

Recommended Configuration

Model	Name	Option
MP1900A	Signal Quality Analyzer-R	-
MU181000B	12.5 GHz 4 Port Synthesizer	002
MU181500B	Jitter Modulation Source	-
MU196040B	PAM4 ED	001, 011, 022, 041, 042[*2]
MU195040A[*1]	21G/32G bit/s SI ED	001, 010, 011, 022
MU196020A	PAM4 PPG	001, 011
MU195050A	Noise Generator	-
G0430A	PCIe5 Re-Driver Set	

*1: Used at PCIe 3.0/4.0/5.0 Compliance Test
*2: RS-FEC Error Real-time Measurement option. Enquire about PCIe 6.0 support.

Recommended Software Options

Jitter Tolerance Test	MX183000A-PL001
PCIe Link Training[*3]	MX183000A-PL021
PCIe 5.0 Link Training[*4]	MX183000A-PL025

*3: Supports PCIe 1.0 to 4.0; used at PCIe 3.0/4.0 Compliance Test
*4: PCIe 5.0 support requires MX183000A-PL021 and PL025; used at PCIe 5.0 Compliance Test
Note: PCIe 6.0 Link Training scheduled for future expansion

Granite River Labs Software

The GRL-PCIE6-BASE-RXA software supports the 32 Gbaud PAM4 (PCI-Express 6.0) data rate for Base Spec. Rx tests including automatic Eye calibration. It uses the customer's own real-time oscilloscope to automatically collect and analyze transmitted waveforms for signal quality tests, and outputs measurement reports in either PDF or csv format.

Ordering Information

GRL-PCIE6-BASE-RXA[*1]	PCIe 6.0 Base Specification Rx Test Software license
GRL-PCIE5-CEM-RXA[*1,3]	PCIe 5.0 CEM Specification Rx Test Software license
GRL-PCIE4-CEM-RXA[*2,3]	PCIe 3.0/4.0 CEM Specification Rx Test Software license

*1: Supported real-time oscilloscopes:
   Keysight: Infinium Q-series/Z-series/V-series (>50 GHz)
   Tektronix: DPO70000SX and DX series (>50 GHz)
*2: Supported real-time oscilloscopes:
   Keysight: Infinium Q-series/Z-series/V-series (>25 GHz)
   Tektronix: DPO70000SX and DX series (>25 GHz)
*3: Used at PCIe 3.0/4.0/5.0 Compliance Test

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Visit https://www.anritsu.com/test-measurement/support/downloads/software/dwl20003 for the latest details about verified oscilloscopes supported by the automation software.

Contact our company about Tektronix and Teledyne LeCroy software specifications.