

PCI Express 5.0 Receiver Test Solution

Signal Quality Analyzer-R MP1900A

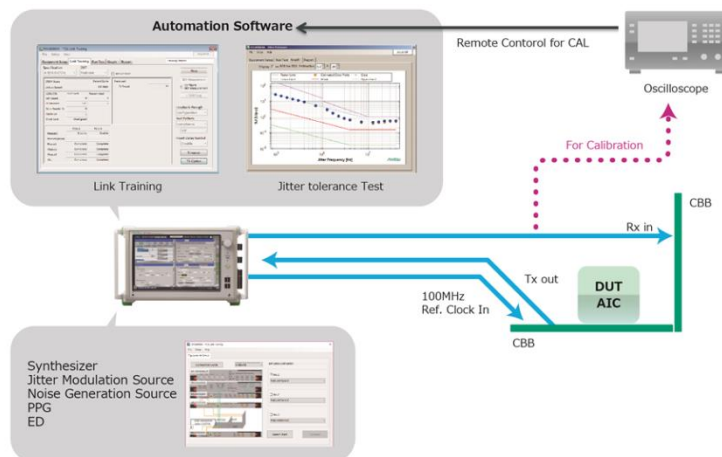
PCIe 5 Link Training MX183000A-PL025

Product Outline

Due to the huge increase in data traffic resulting from the spread of IoT devices and cloud computing applications, equipment interfaces are transitioning to higher speeds and serial transmission technologies. Although PCI-Express (PCIe) 4.0 interface technology used in data centers and by high-performance CPUs and GPUs currently achieves speeds of 16 GT/s, commercial release of 5G mobile communications supported by 400G networks requires even faster interface speeds. PCI-SIG has started work on designs and test standards for transmission equipment, service, and storage, supporting PCIe 5.0 offering twice the speed of the previous generation.

Anritsu's all-in-one Signal Quality Analyzer-R MP1900A series is a high-performance BERT for measuring high-speed interfaces including PCIe 1.0 to 5.0 and brings early support for PCIe 5.0 Link training.

With easily expandable measurement functions for future standards and operation, the MP1900A helps cut customers' design verification times.



Features

Shorter Design Verification Times

- Automation of complex PCIe 3.0 to 5.0 receiver tests cuts engineers' work loads
- Troubleshooting analysis supported by versatile debugging functions

Reduced Capital Costs

- Support for real-time oscilloscopes from three key makers makes effective use of customers' oscilloscopes while cutting costs to support PCIe 5.0 tests
- Software-based expandability from PCI Express 1.0 (2.5 Gbit/s) to 5.0 (32 Gbit/s)

High-Performance BERT

- Jitter (SJ, RJ, SSC) Addition, and Jitter Tolerance and Jitter Margin measurements
- Victim signal generation for Crosstalk test

Anritsu MP1900A

The Signal Quality Analyzer-R MP1900A series is a multichannel BERT based on plug-in modules. It is configured from a pulse pattern generator (PPG) outputting multichannel high-quality wideband NRZ signals from 2.4 to 32.1 Gbit/s, a high-input-sensitivity error detector (ED), jitter generation source, and noise generator to support automatic Jitter Tolerance tests.

21G/32G bit/s SI PPG MU195020A

Bit Rate	2.4 Gbit/s to 32.1 Gbit/s (Opt-001)
Emphasis Taps	10 (Opt-011)
Tr/Tf (20% to 80%)	12 ps (typ.)

21G/32G bit/s SI ED MU195040A

Bit Rate	2.4 Gbit/s to 32.1 Gbit/s (Opt-001)
Input Sensitivity	13 mV (21 Gbit/s Eye height) (typ.)
Clock Recovery	2.4 to 32.1 Gbit/s, SSC input (Opt-022)
CTLE	0 to 12 dB (Opt-011)

Recommended Configuration

Model	Name	Option
MP1900A	Signal Quality Analyzer-R	-
MU181000B	12.5 GHz 4-port Synthesizer	002
MU181500B	Jitter Modulation Source	-
MU195020A	21G/32G bit/s SI PPG	001, 010, 011 or 001, 020, 021 ^{*1}
MU195040A	21G/32G bit/s SI ED	001, 010, 011, 022
MU195050A	Noise Generator	-

*1: Expansion to 2ch for Crosstalk test

Recommended Software Options

Jitter Tolerance Test	MX183000A-PL001
PCIe Link Training ^{*2}	MX183000A-PL021
PCIe 5 Link Training ^{*3}	MX183000A-PL025

*2: Supports PCIe 1.0 to 4.0

*3: PCIe 5.0 support requires MX183000A-PL025 and MX183000A-PL021

Teledyne LeCroy Software

The QPHY software supports both Gen3/4 Compliance and Gen5 Base tests integrating transmitter tests (tools for collecting and analyzing transmission waveforms used for transmitter-preset and signal-quality tests as well as for combining Eye diagrams and analyzing jitter) and receiver tests (Eye calibration, Link training, equalization, LTSSM analysis). It supports^{*1} the soon-to-be-deployed Gen5 CEM standard and executes all required automation and control items for both the Teledyne LeCroy LabMaster 10Zi-A series of real-time oscilloscopes and Anritsu's MP1900A. Measurement reports can be output in either HTML or PDF format.

Ordering Information

QPHY-PCIE5-Tx-Rx ^{*2}	PCIe Compliance Test Option (Recommended main unit: 50 GHz or more)
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*1: Enquire about support for Gen5 CEM

*2: Supported real-time oscilloscopes: LabMaster 10Zi-A series



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Granite River Labs Software

The GRL-PCIE5-RXA software supports the PCI Express Gen5 data rate (32 GT/s) for implementing PCIe receiver tests including automated Eye calibration for the Base and CEM standards. Transmission waveforms can be collected and analyzed automatically using the customer's own real-time oscilloscope for transmitter-preset and signal-quality tests. Measurement reports can be output in either PDF or csv format.

Ordering Information

GRL-PCIE4-BASE-RXA ^{*3}	PCIe 3.0/4.0 Base Specification Rx Test Software license
GRL-PCIE4-CEM-RXA ^{*3}	PCIe 3.0/4.0 CEM Specification Rx Test Software license
GRL-PCIE5-BASE-RXA ^{*4}	PCIe 5.0 Base Specification Rx Test Software license
GRL-PCIE5-CEM-RXA ^{*4}	PCIe 5.0 CEM Specification Rx Test Software license

*3: Supported real-time oscilloscopes:

Keysight: Infinium Q-series/Z-series/V-series (25 GHz or more)

Tektronix: DPO70000SX and DX series (25 GHz or more)

*4: Supported real-time oscilloscopes:

Keysight: Infinium Q-series/Z-series/V-series (50 GHz or more)

Tektronix: DPO70000SX and DX series (50 GHz or more)



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For details about automation software with confirmed support for real-time oscilloscopes, visit <https://www.anritsu.com/test-measurement/support/downloads/software/dwl20003>.