

# PCI Express 5.0 Receiver Test Solution

Signal Quality Analyzer-R MP1900A

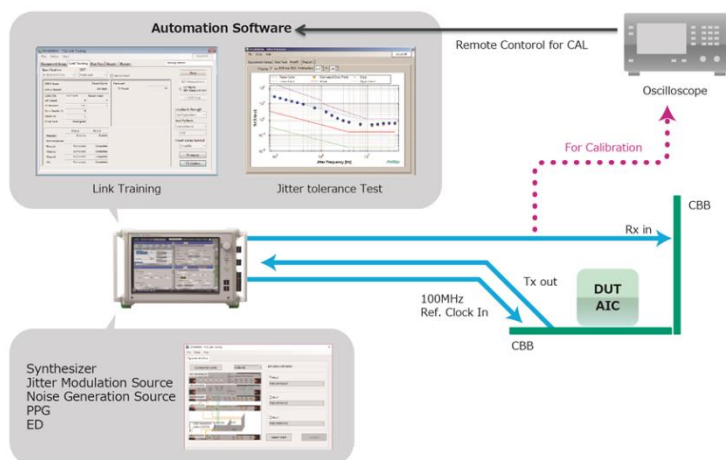
PAM4 PPG MU196020A



## Product Outline

Testing of fifth-generation (5G) communications network systems in progress and data centers forming the foundation of this technological revolution must increasingly process large data volumes at high speed. Data centers currently using PCIe 4.0 interfaces in their transmission equipment, servers, storage, etc., are planning for PCIe 5.0 compliance tests to be released by late 2020 with support for their current PCIe 4.0 equipment.

The Signal Quality Analyzer-R Series MP1900A not only supports PCIe 1.0 to 5.0 tests but also provides all-in-one coverage for next-generation PCIe 6.0 (PAM4 32 Gbaud) evaluations, helping customers cut their design testing stage.



## 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

- Supports up to PCIe 5.0 using customers' own real-time oscilloscopes from three key makers; contact us regarding expected support release.
- All-in-one coverage from PCI Express 1.0 (2.5 Gbit/s) to 5.0 (32 Gbit/s)
- Customized expandability as required by adding PAM4 PPG supporting next-generation PCI Express 6.0 (PAM4 32 Gbaud)

### High-Performance BERT, PAM4 Performance

- Jitter (SJ, RJ, SSC) Addition, and Jitter Tolerance and Jitter Margin measurements
- Supports next-generation PCI Express 6.0 (PAM4 32 Gbaud) using PAM4 PPG

## 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. Refer to the Selection Guide when selecting a PPG for tests and evaluations.

### 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)

### PAM4 PPG MU196020A

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

### 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 <sup>*1</sup>
MU195040A	21G/32G bit/s SI ED	001, 010, 011, 022
MU195050A	Noise Generator	-
MU196020A <sup>*2</sup>	PAM4 PPG	001, 011

\*1: Expansion to 2ch for Crosstalk test

\*2: Supports PCIe 6.0 (PAM4 32 Gbaud) performance evaluation

### Recommended Software Options

Jitter Tolerance Test	MX183000A-PL001
PCIe Link Training <sup>*3</sup>	MX183000A-PL021
PCIe 5 Link Training <sup>*4</sup>	MX183000A-PL025

\*3: Supports PCIe 1.0 to 4.0

\*4: PCIe 5.0 support requires the MX183000A-PL025 and MX183000A-PL021 options.

## 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<sup>\*1</sup> 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 <sup>*2,3</sup>	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

\*3: Enquire about support for PAM4 PPG MU196020A.



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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 <sup>*1</sup>	PCIe 3.0/4.0 Base Specification Rx Test Software license
GRL-PCIE4-CEM-RXA <sup>*1</sup>	PCIe 3.0/4.0 CEM Specification Rx Test Software license
GRL-PCIE5-BASE-RXA <sup>*2</sup>	PCIe 5.0 Base Specification Rx Test Software license
GRL-PCIE5-CEM-RXA <sup>*2</sup>	PCIe 5.0 CEM Specification Rx Test Software license

\*1: 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)

\*2: 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>.