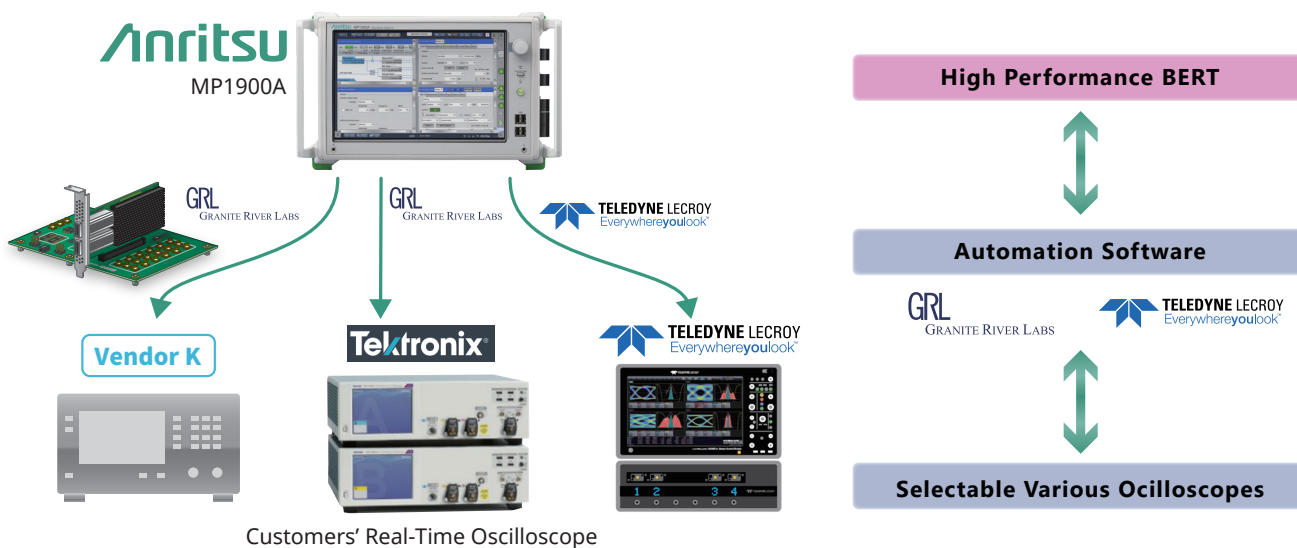




PCI Express Automated Physical-Layer Testing

PCI Express Test Solution

With PCI Express 4.0 (PCI Express Gen4) speeds up to 16 GT/s, sophisticated protocol-aware capabilities, signal quality, and troubleshooting analysis are becoming increasingly important. The Rx/Tx compliance test solution supporting the PCI Express Gen3 and Gen4 standards developed jointly by Anritsu, Teledyne LeCroy, and Granite River Labs not only solves customers' Physical layer measurement issues but also slashes test times and cuts instrument investment costs. With simplified measurements and high reproducibility, the compliance test software fully automates calibration, testing, and report creation, helping reduce test engineers' workloads. Moreover, combining Anritsu's highly customizable and expandable MP1900A BERT with the customer's preferred real-time oscilloscope model cuts equipment costs while assuring all-in-one, futureproof support for next-generation PCI Express Gen5 and PAM4 applications.



Shortening Test Times

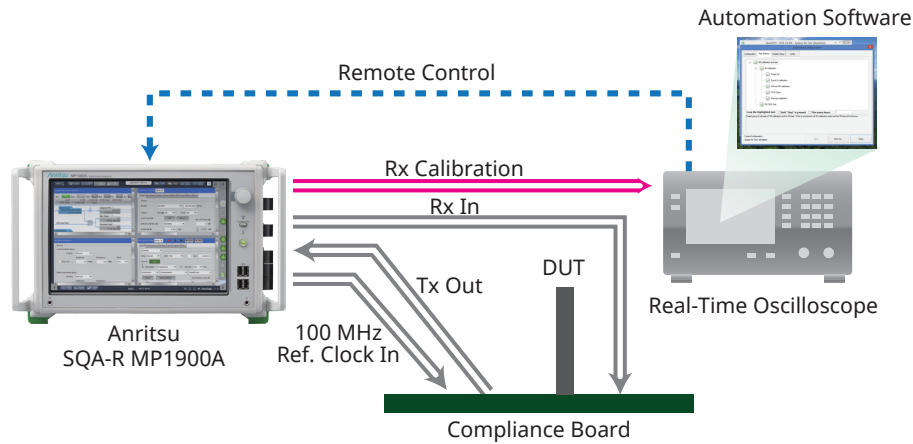
- Automates complex receiver tests to reduce engineers' workloads by cutting 10 hours for manual testing to almost no time
- Rx test : Stressed-Eye calibration, Link Training/Equalization and LTSSM Analysis
- Tx test : Automated collection and analysis of transmitted waveforms for preset and signal quality tests

Cuts Equipment Costs

- Supports customers' own real-time oscilloscopes from three main vendors
- Extensibility for PCI Express 1.0 to 5.0

High Performance BERT

- Jitter Addition (SJ, RJ, BUJ, SSC), and Jitter Tolerance /Jitter Margin test



Anritsu SQA-R MP1900A

The Signal Quality Analyzer-R MP1900A is a modular multi-channel bit error rate tester. It has a pulse pattern generator for outputting high-quality, wideband multi-channel NRZ signals at 2.4 Gbit/s to 32.1 Gbit/s, an error detector with high input sensitivity, and a Jitter modulation source supporting Jitter Tolerance and Stressed-Eye receiver tests. Moreover, the MP1900A BERT has excellent cost-performance due to its easy expandability supporting next-generation standards, including PCI Express Gen5 and PAM4.

21G/32G bit/s SI PPG MU195020A

Bit Rate	2.4 Gbit/s to 32.1 Gbit/s (Option 001)
Emphasis Taps	10Tap (Option 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 (Option 001)
Input Sensitivity	13 mV (Eye Height 21 Gbit/s) (typ.)
Clock Recovery	2.4 Gbit/s to 32.1 Gbit/s, SSC input (Option 022)
CTLE	0 to -12 dB (Option 011)

Recommended Equipment List

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

Recommended Software Options

Jitter Tolerance Test	MX183000A-PL001
PCIe Link Training	MX183000A-PL021

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Teledyne LeCroy Software

The QPHY-PCIE4-Tx-Rx software automates and controls the Teledyne LeCroy LabMaster 10ZI-A and Anritsu MP1900A BERT to implement compliance tests integrating PCI Express Tx tests (collection and analysis of transmitted waveforms for transmitter preset and signal quality tests, integrated Eye diagram and Jitter analysis tools) and Rx tests (Eye calibration, Link Training, LTSSM Analysis). Measurement reports can be created and saved as HTML or PDF files.

Ordering Information

QPHY-PCIE4-Tx-Rx*1	PCI Express Gen4 Compliance Test Option (Including Gen3)
TF-PCIE4-CTRL	PCIe 4.0 Compliance Base Board (CBB) Test Fixture Controller

*1: Supported Real-Time Oscilloscope
LabMaster 10ZI-A series



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Granite River Labs Software

The GRL-PCIE4-RXA software supports data rates of 8 GT/s and 16 GT/s (PCI Express Gen3 and Gen4) and upgradable to 32 GT/s (Gen5) for PCI Express Rx tests including automated Eye calibration for BASE and CEM. Transmitter tests using customers' own real-time oscilloscopes are supported by the GRL-PCIE34-TXP1 software with automated collection and analysis of transmitted waveforms for transmitter preset and signal quality tests. Measurement reports can be created and saved as PDF or csv files.

Ordering Information

GRL-PCIE4-BASE-RXA*2	PCIe 4.0 Base Specification Rx Test Software license
GRL-PCIE4-CEM-RXA*2	PCIe 4.0 CEM Specification Rx Test Software license
GRL-PCIE4-RXA*2	PCIe 4.0 Base & CEM Specification Rx Test Software Bundle license
GRL-PCIE34-TXP1	PCIe 3.0 & 4.0 Automated Tx Compliance Test Solution

*2: Supported Real-Time Oscilloscope
Keysight: Infinium Q-series/Z-series/V-series at 25 GHz or above
Tektronix: DPO70000SX and DX series at 25 GHz or above



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