Anritsu envision : ensure

DisplayPort™ Receiver Test Solution

Signal Quality Analyzer-R MP1900A

DisplayPort is a common and convenient digital interface standard for image transmission using a single cable for both high-resolution video and audio, and it is now being introduced widely for business PCs and displays. Moreover, adoption of DisplayPort over USB-C via USB Type-C connectors seems likely to become widespread.

Since the impact of noise and jitter cannot be ignored in achieving high-speed data transmission and high resolution, the Video Electronics Standards Association (VESA) standards body has established quality-related specifications requiring accurate and rapid measurement systems.

The Signal Quality Analyzer-R MP1900A is fully compliant with the VESA DisplayPort PHY Compliance Test Standard Version 1.4 and the DisplayPort over USB Type-C CTS Rev 1.2a recommendations described in the DisplayPort 1.4 Sink Compliance Receiver Solution Method of Implementation (MOI); jitter tolerance tests along with margin test signal calibration and testing of SINK devices are supported by combining popular oscilloscopes from key makers with automatic measurement software. Integration of the MP1900A high-quality data output with the automation software facilitates high-reproducibility measurement while reducing test workloads.

[Target Applications]
    DisplayPort 1.4

Features

- **Wideband 2.4 Gbit/s to 21 Gbit/s Operation with Hardware Modification-Free Extension to 32.1 Gbit/s**
  Same configuration supports DisplayPort (RBR* HBR HBR2 HBR3), PCIe, USB, and Thunderbolt receiver tests, with easy future support for DisplayPort 2.0, PCIe Gen5 (32 GT/s), and USB 4.0
  *: Can generate special RBR (1.62 Gbit/s) pattern.

- **Automation Solution by Combining with Keysight or Tektronix Oscilloscopes**
  Simplifies complex tests while reducing work burden by using own oscilloscope models from Keysight and Tektronix

- **High-Performance Multichannel BERT with High-Quality Waveforms (12 ps Tr/Tf and 115 fs rms Random Jitter) and High Input Sensitivity (15 mV EH)**
  For high-reproducibility latency tests

Test Setup
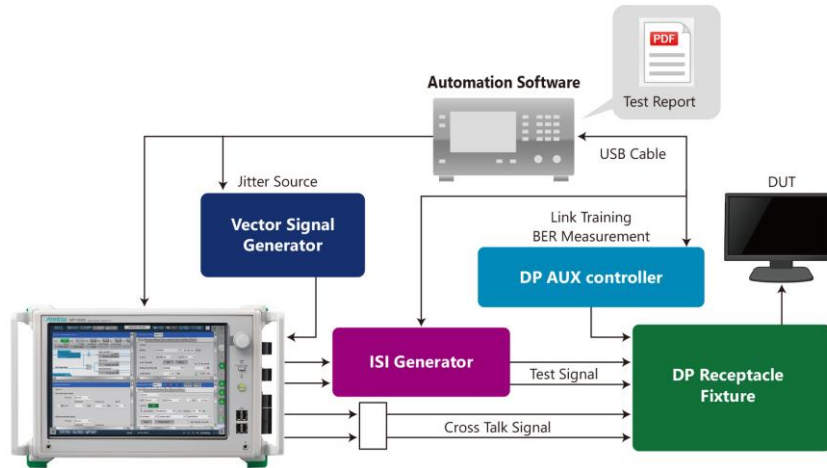
MP1900A BERT Typical Specifications

Model/Name	Item	Specification
MU195020A 21G/32G bit/s SI PPG	Bit Rate	2.4 Gbit/s to 21 Gbit/s 2.4 Gbit/s to 32.1 Gbit/s (with MU195020A-001 extension)
	No. of Channels	2
	Output Amplitude	0.2 Vp-p to 2.6 Vp-p (differential)
	Emphasis Taps	10 (MU195020A-011)
	Tr/Tf (20% to 80%)	12 ps (typical)
	Random Jitter	115 fs rms (typical)
MU195040A 21G/32G bit/s SI ED*	Bit Rate	2.4 Gbit/s to 21 Gbit/s 2.4 Gbit/s to 32.1 Gbit/s (with MU195040A-001 extension)
	Input Sensitivity	15 mV (28.1 Gbit/s, NRZ (Eye Height)
	CTLE	Peak Frequency: 14, 8, 4 GHz; Gain: 0 to −12 dB

*For USB 3.2 compliance and BER tests. DP1.4 SINK test not required.

Minimum Configuration for DisplayPort Test

Model	Name	Qty	Remarks
MP1900A	Signal Quality Analyzer-R	1	
MU181000B	12.5 GHz 4 Port Synthesizer	1	
MU181500B	Jitter Modulation Source	1	
MU195020A	21G/32G bit/s SI PPG	1	
MU195020A-020	2ch Data Output	1	
MU195020A-021	2ch 10 Tap Emphasis	1	
MU195050A	Noise Generator	1	
-	Vector Signal Generator	1	Rigol DSG815 recommended
-	ISI Generator	1	Artek CLE1000-A2 recommended
-	DisplayPort AUX Controller	1	Unigraf DPT-200 recommended Link training and BER measurement
-	VESA-Approved DisplayPort Mated Adapter Fixture Pair	1	Wilder-Tech DP-TPA-P, DP-TPA-R recommended
-	DC Block	2	Anritsu K261 recommended
-	Four-way RF Splitter	2	Anritsu AN44182A recommended
-	TTC (Transition TimeConverter)	2	For Data signal: HYPERLABS Model No. HL9450-60 recommended
		2	For Crosstalk signal: HYPERLABS Model No. HL9450-150 recommended

Ordering Information

Name	Supported Oscilloscopes
DispayPort 1.4: GRL-DP14-SINKAN (Granite River Labs)	Keysight Tektronix