

DisplayPort™ 1.4/2.0/2.1 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.

We are pleased to announce that the receiver test (Sink Test) solution for our Signal Quality Analyzer-R MP1900A supporting DisplayPort 2.1 has been certified by VESA. Automated verification and calibration of data transmission quality are achieved by combining the MP1900A with automation software from Granite River Labs (GRL) or Teledyne LeCroy. Integration of the MP1900A high-quality data output with the automation software facilitates high-reproducibility measurement while reducing test workloads.

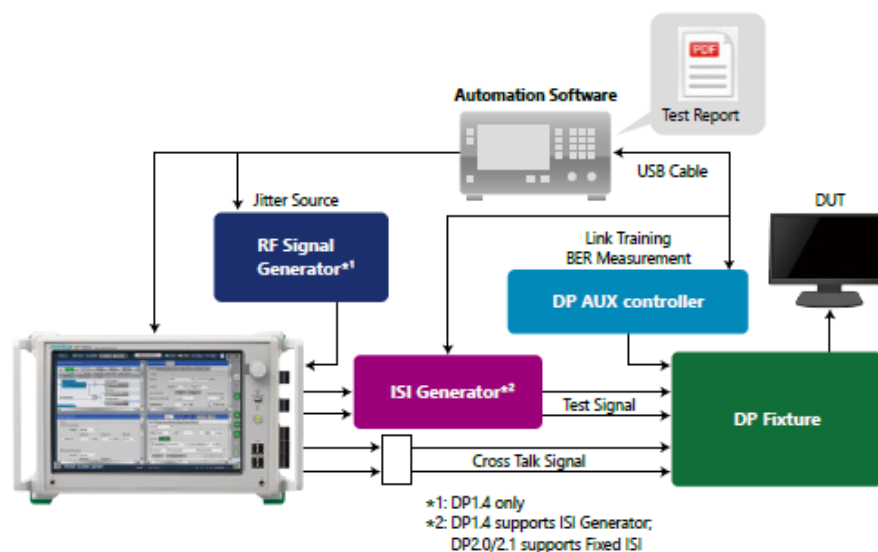
[Target Applications]
DisplayPort 1.4/2.0/2.1

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 (1.62 Gbit/s) *, HBR (2.7 Gbit/s), HBR2 (5.4 Gbit/s), HBR3 (8.1 Gbit/s), UHBR10 (10 Gbit/s), UHBR13.5 (13.5 Gbit/s), UHBR20 (20 Gbit/s), PCIe Gen1-5 (32 GT/s), and USB3
*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 or 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

DisplayPort 1.4/2.0/2.1 Sink Test



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)

BERT Configuration for DisplayPort Tests*

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	

*Refer to the Signal Quality Analyzer-R MP1900A series Selection Guide (MP1900A-E-Z-1) for information about the peripheral accessories required for DP1.4/2.0/2.1.

Automation Software

Name	Supported Oscilloscopes
Displayport1.4: GRL-DP14-SINK-AN Displayport2.1: GRL-DP21-SINK-AN (Granite River Labs)	Keysight Tektronix
Displayport1.4/2.1: QPHY-DP2-SINK (Teledyne Lecroy)	Teledyne Lecroy