Anritsu envision : ensure

Emphasized PAM4 Signal Generation and Jitter Tolerance Test

Signal Quality Analyzer-R MP1900A

SQA-R

Data center server interconnects are transitioning to faster speeds to cope with the explosive increase in data traffic resulting from the worldwide popularity of smartphones and mobile terminals. As a result, next-generation 200 GbE and 400 GbE standards are adopting PAM4 format offering twice the transmission capacity per symbol compared to the earlier NRZ format. Although PAM4 improves data transmission capacity, the amplitude of each of the three Eyes expressed by 4 levels is only one-third that of NRZ format, requiring the Rx circuit to have good input sensitivity and the FEC function. To evaluate input sensitivity accurately, like NRZ, jitter and emphasis must be adjusted, and the reproducibility of the test signal matching the input sensitivity test standard is important.

The Signal Quality Analyzer-R MP1900A series has a jiitter measurement function maintaining compatibility with the Signal Quality Analyzer MP1800A as well as a built-in, easily adjustable 10 Tap Emphasis function for matching the transmission path loss with the test standard. When used in combination with the 32 Gbaud Power PAM4 Converter G0375A, it supports jitter addition and emphasis adjustment for PAM4 signals to permit high-reproducibility jitter tolerance tests as with NRZ.

[Target Applications]
200 GbE/400 GbE, CEI-56G-PAM4, InfiniBand HDR, High-Speed Interconnect

Features

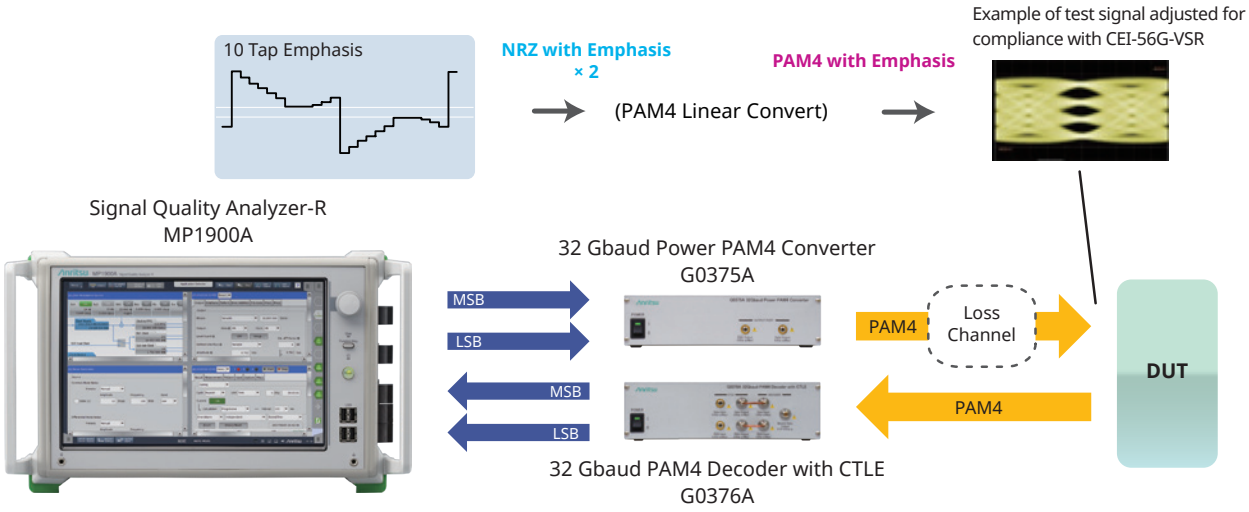
- Baud rate: 10 Gbaud to 32.1 Gbaud, Multi-channel 8ch
- Maximum 10Tap Emphasis function
- Low intrinsic jitter, high-quality output waveform, and high-sensitivity input
- Maximum 3.9 Vp-p output (PAM4 amplitude, differential)
- Real-time PAM4 BER Measurement
- Clock recovery and 12 dB CTLE functions
- Jitter Tolerance test configuration compatible with existing MP1800A series
  (The MP1900A is compatible with the MP1800A series jitter modulation source, synthesizer, and jitter tolerance software.)
- Compact remote head for close approach to DUT (connected using G0375A or G0376A)

Main New MP1900A Functions and Benefits

- Futureproof new platform with all-in-one coverage of various high-speed interfaces used in data centers to cut total infrastructure costs
  (High-expandability 8 slots and 512 Gbit/s max. transmission capacity)
- Low intrinsic Jitter signal output with flexible support for various Physical layer measurement standards plus high-sensitivity for efficient design testing
  (10Tap Emphasis, Jitter and Noise Addition, Multi-band CTLE, and CDR)

MP1900A

PAM4 Jitter Tolerance Test Outline



Typical Specifications

MU195020A + G0375A PAM4 Data Output

Item	Specifications	Remark
Baud Rate	10 Gbaud to 32.1 Gbaud	
Number of Outputs	2 (Data, $\overline{\text{Data}}$)	
Output Amplitude	0.6 Vp-p to 3.9 Vp-p (Differential)	PAM4, Emphasis Off
Emphasis Taps	10 (max.)	
Jitter Injection Functions	SJ, RJ, BUJ, SSC	
Connector	K (f)	

G0376A + MU195040A PAM4 Data Input

Item	Specifications	Remark
Baud Rate	10 Gbaud to 32.1 Gbaud (DFF On) 10 Gbaud to 28 Gbaud (DFF Off)	G0376A Decoder Input
Number of Inputs	2 (Data, $\overline{\text{Data}}$)	G0376A CTLE Input, Decoder Input for each
Decoder Input Amplitude	0.5 V (max.)	Single-end
Decoder Input Sensitivity	40 mV (typ.)	Eye Height
Clock Recovery Function	Yes	Recovery from MU195040A MSB input
Connector	K (f)	

Ordering Information

Please specify the model/order number, name and quantity when ordering.
The names listed in the chart below are Order Names. The actual name of the item may differ from the Order Name.
Contact your sales representative for more details.

Model/Order No.	Name
MP1900A	Signal Quality Analyzer-R
MU195020A	21G/32G bit/s SI PPG
MU195020A-001	32G bit/s Extension
MU195020A-020	2ch Data Output
MU195020A-021	2ch 10Tap Emphasis
MU195020A-031	2ch Data Delay
MU195040A	21G/32G bit/s SI ED
MU195040A-001	32G bit/s Extension
MU195040A-020	2ch ED
MU195040A-022	Clock Recovery

Model/Order No.	Name
MU181500B	Jitter Generation Source
MU181000B	12.5 GHz 4 port Synthesizer
G0375A	32 Gbaud Power PAM4 Converter
G0376A	32 Gbaud PAM4 Decoder with CTLE
MX183000A-PL001	Jitter Tolerance Test

The contents of this leaflet may change without prior notice.

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