

56Gbaud Emphasis/PAM4 Signal Generation

Data Signal Combiner MZ1854A
 Signal Quality Analyzer MP1800A Series



Traffic at data centers is increasing explosively with the spread of cloud computing services. Consequently, to increase the processing speed of servers and network equipment as well as the communication speed between them, new high-speed communications standards such as OIF CEI-56G and 400 GbE CDAUI interfaces are being investigated. Signal transmissions using Emphasis signals to correct the reduced Eye Opening caused by transmission losses at interfaces between server backplanes and servers, as well as 4PAM (4 Pulse-Amplitude Modulation) signals to suppress increases in symbol rates while increasing data capacity are also being investigated. In addition, attention is focusing on QAM (Quadrature Amplitude Modulation) for modulation in both the phase and amplitude directions on Core networks.

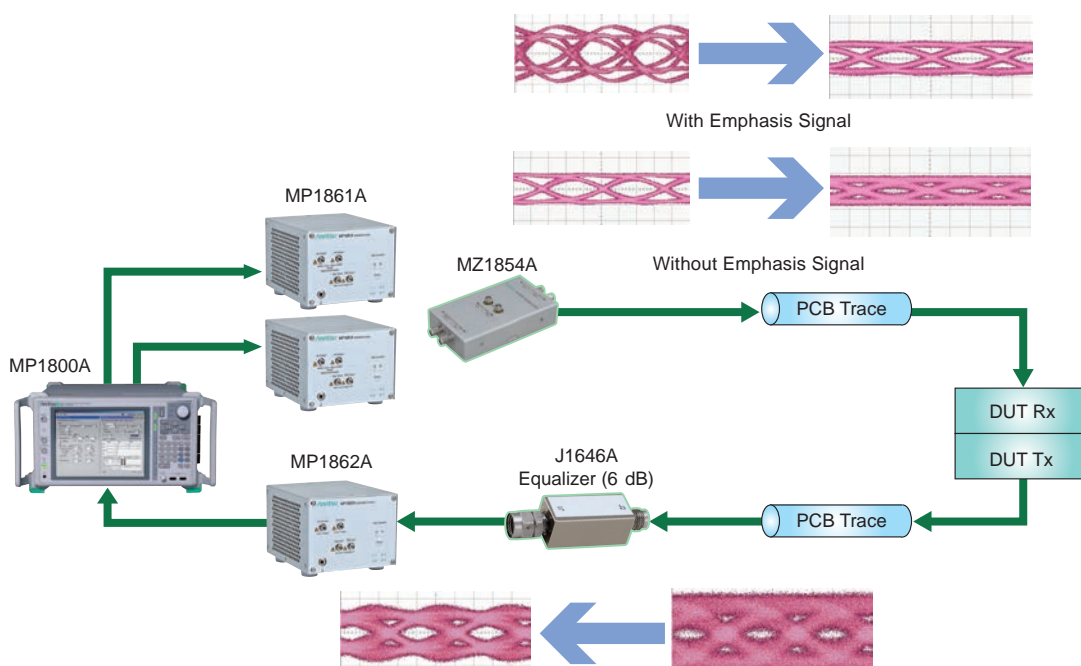
The Data Signal Combiner MZ1854A is used with the Signal Quality Analyzer MP1800A and two units of the 56G/64G bit/s MUX MP1861A to generate 2Tap Emphasis and 4PAM data signals for R&D into next-generation communications standards.

Target Applications

- CEI-56G
- PAM for 400 GbE
- High-Speed Server Interconnects
- High-Speed Backplanes

Features

- 57.8 Gbit/s 2Tap Emphasis Signal Generation: MZ1854A + MP1861A × 2
- 56.2 GBaud 4PAM Differential Signal Generation: MZ1854A + MP1861A × 2
- PAM Control GUI: Set each Emphasis and PAM signal level using MUX MP1861A Data output adjustment
- Perform BER evaluations by combining Passive Equalizer J1646A and 56G/64G bit/s DEMUX MP1862A



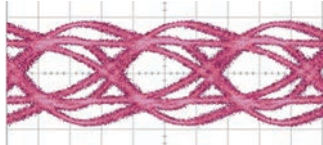
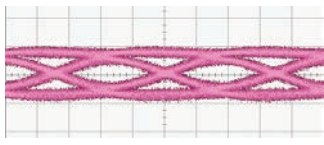
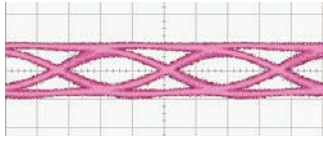
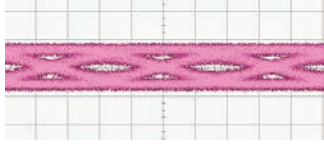
■ Typical Specifications

Data Output	Number of Outputs: 2 (Data, XData) Output Voltage Amplitude: 0.238 Vp-p to 0.594 Vp-p (connected with MP1861A-011) 0.238 Vp-p to 0.832 Vp-p (connected with MP1861A-013) Emphasis: Peak Voltage PAM: Voltage Amplitude between 0 – 3 Level Output Signal: 2Tap Emphasis 4PAM Connector: V (f)
Data Input	Number of Inputs: 4 (Data 1, XData 1, Data 2, XData 2) Amplitude: 0.5 Vp-p to 3.5 Vp-p Connector: V (m)
Input Loss	-16 dBm (nominal) (Data_n Input to Data Output)
General	Temperature Operating: +15° to +35°C Storage: -20° to +60°C Dimensions and Mass: 60.2 (W) × 108.7 (H) × 23.5 (D) mm, ≤2 kg

※: BER guaranteed to 43 Gbaud at Loopback with MUX MP1861A – Data Signal Combiner MZ1854A – DEMUX MP1862A 4PAM waveform

■ Typical Waveform Characteristics

Emphasis Waveforms

Bit Rate	Before Passage Thru	After Passage Thru
57.8 Gbit/s		
	With Emphasis Signal	
57.8 Gbit/s		
	Without Emphasis Signal	

PAM4 Waveforms

50 GBaud	56.2 GBaud
