

# 'Linked by Light'

## Evaluating Gbit/s Ultra-Fast Serial Signals

### Evaluation of MFP Internal Communications Devices

BERTWave MP2100B



Recent multifunction products (MFP) have built-in copy, scan, and fast document-editing functions. In addition, they are commonly used in a variety of businesses due to support for remote control via a built-in network interface.

Consequently, MFP require fast processing of high-definition images as well as various communications functions and a high-speed serial interface for communications between units using the user interface. The scanner and print modules are central to MFP image processing and each unit has a Gbit/s ultra-fast serial interface for communicating with the controller. Since this type of ultra-fast serial communications demands high-quality communications less of bit errors, optical transmission over Active Optical Cable (AOC) in addition to electrical differential signal transmission are used.

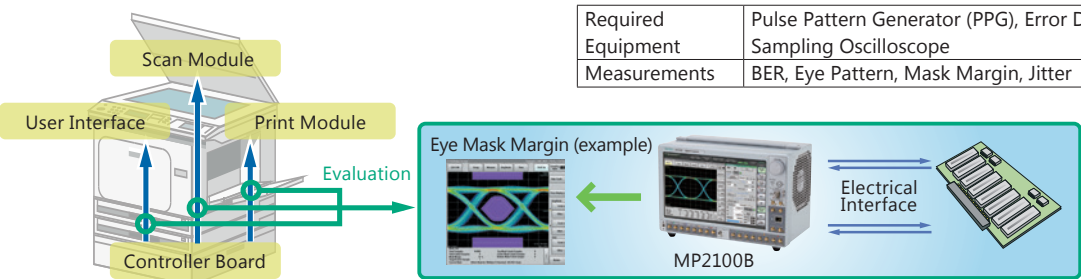
Bit Error Rate (BER) and Eye Pattern measurements are needed to assure the quality of these electrical differential signal transmission devices and AOC signals.

In addition to having both bit error rate test (BERT) and sampling-oscilloscope functions, the all-in-one BERTWave MP2100B also supports Total Jitter component analysis required for developing and manufacturing AOC.

The AOC interface can be evaluated during simultaneous sending and receiving to simplify evaluation of AOC characteristics and transmission-path quality.

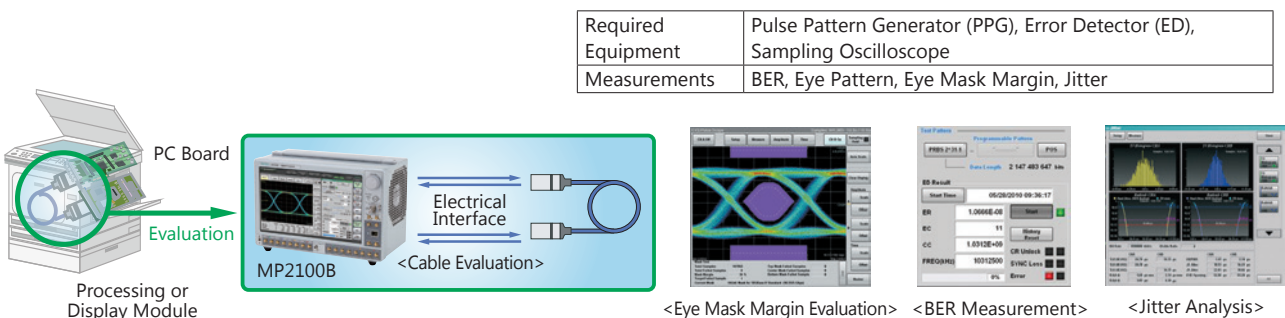
### High-Speed Interface Evaluation

Required Equipment	Pulse Pattern Generator (PPG), Error Detector (ED), Sampling Oscilloscope
Measurements	BER, Eye Pattern, Mask Margin, Jitter



### Evaluating Transmissions within Equipment (AOC)

Required Equipment	Pulse Pattern Generator (PPG), Error Detector (ED), Sampling Oscilloscope
Measurements	BER, Eye Pattern, Eye Mask Margin, Jitter



## Compact All-in-One BERT + Scope for BER, Eye Pattern and Jitter Measurements



**BERTWave**  
MP2100B



**All in One**

All-in-one built-in BERT and oscilloscope

**Jitter**  
**1**  
ps rms

Pulse Pattern Generator (PPG)  
1 ps rms Jitter

**4ch**  
**BERT**

Built-in 1ch to 4ch 12.5 Gbit/s BERT

**Sensitivity**  
**10**  
mVp-p

Error Detector (ED)  
10 mVp-p Sensitivity

### Short Measurement Time

All-in-One Simultaneous 4ch BER Measurement and Eye Pattern Analysis  
Simultaneous 4ch BER Measurement  
Fast Eye Mask Test  
Fast BER Test

### Full Analysis Functions

Wide Operating Frequency Band  
Electrical/Optical Jitter Analysis  
Clock Recovery

### No Wasted Equipment Investment

Easy Measurement System Configuration  
Multichannel BERT

## Features

- All-in-one simultaneous BER measurement and Eye Pattern analysis
- Four times faster remote control than previous models
- 10 times better BER measurement time resolution (10 ms) than previous models
- 4ch simultaneous independent BER measurement
- Fast sampling speed
- Automatic mask margin test
- Stable extinction ratio and mask margin measurement due to high-stability LPF

**BER**

**Jitter**



**Eye mask**

**Eye Pattern**