200G 1060nm VCSEL Data

Mike Huang, Berxel
Connie Chang-Hasnain, Berxel

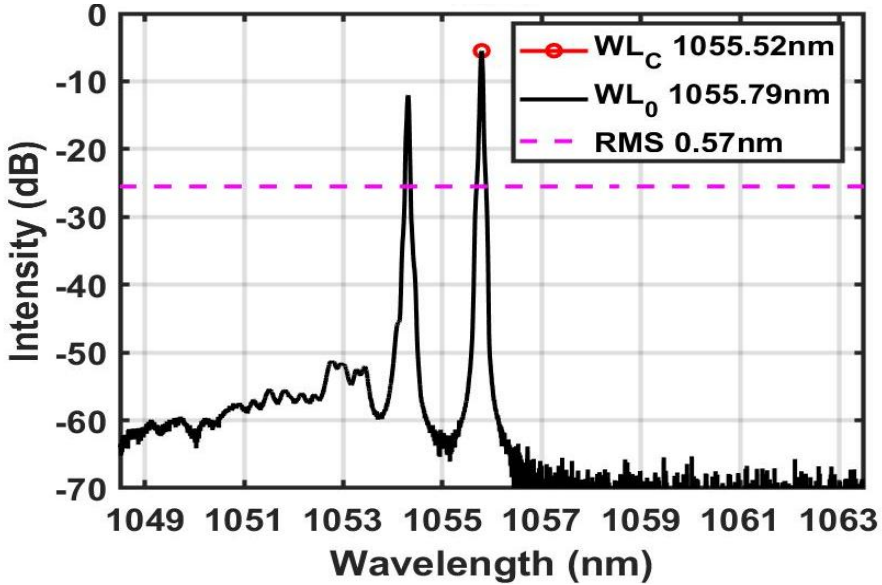
IEEE P802.3ds 200 Gb/s per Wavelength MMF PHYs
Task Force Plenary Meeting
July 13-15, 2026

This contribution

- Presents preliminary results with 1060nm Back Emitting VCSEL performance

1060nm Back Emitting VCSEL

- GSG contact layout VCSEL for high-speed modulation
- Metal contacts on the epi side and light emission through substrate.
- Output power > 2mW measured at 85C



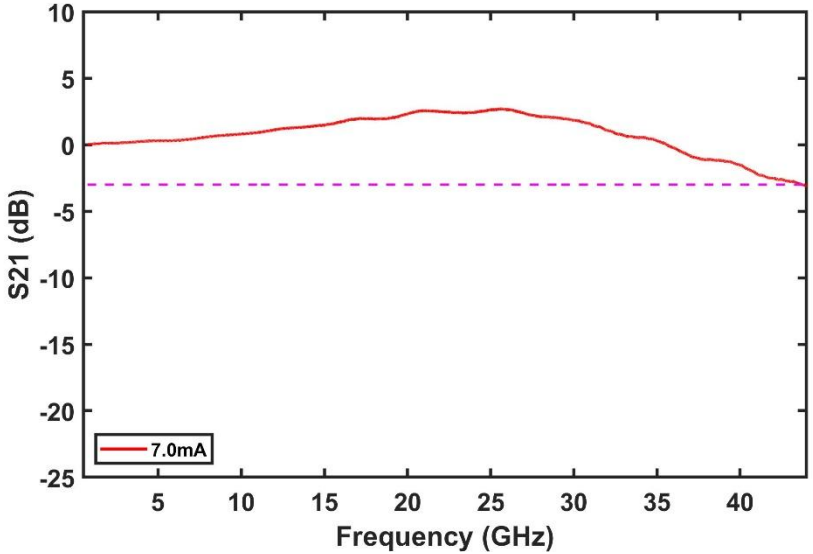
1060nm BE-VCSEL S21 Results

Measurement Method

- The small-signal modulation response of 1060 nm back-emitting VCSEL was characterized using a Keysight P5027A vector network analyzer and a Keysight 40 GHz multi-mode lightwave detector (N4377A)

Results

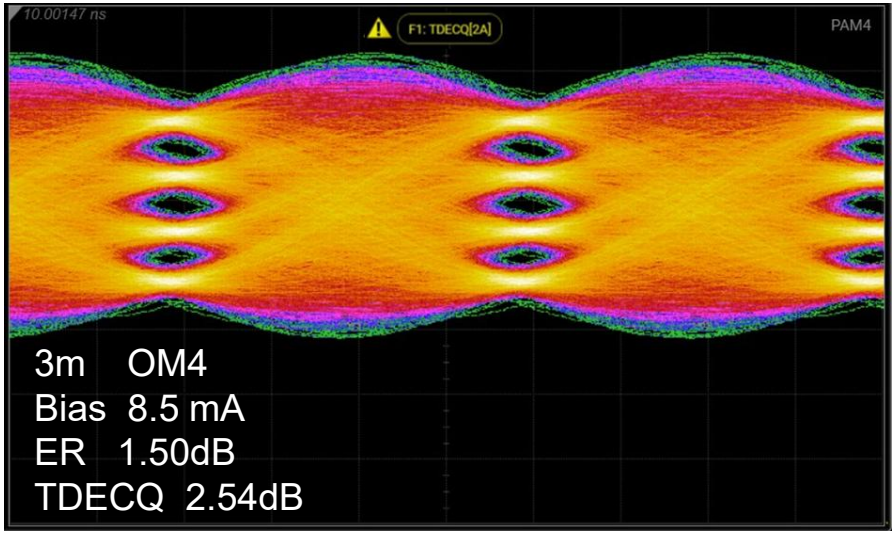
- 20 log S21: **3dB bandwidth ~44GHz at 7 mA**
- 3dB bandwidth is limited by current equipment bandwidth



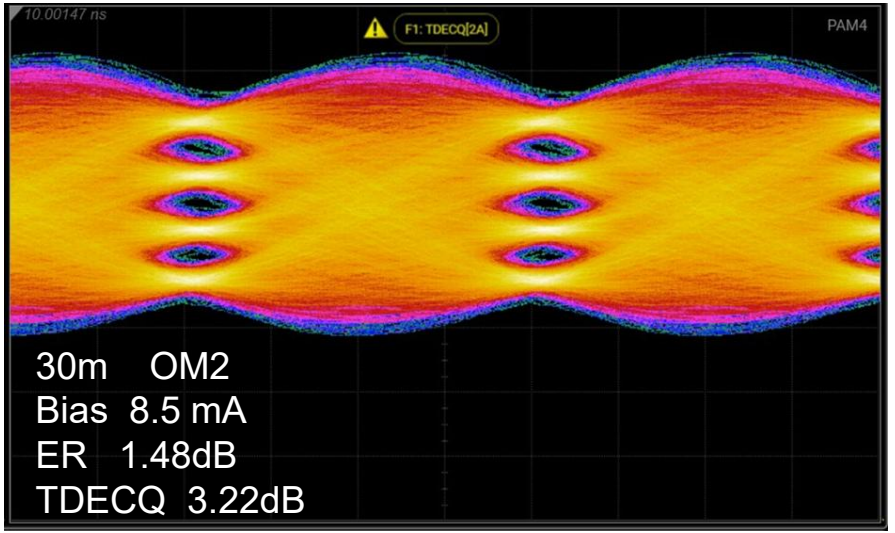
1060nm Eye Diagram with 212Gbps PAM4

- Eye diagrams of 212Gbps PAM4 **at low bias 8.5 mA** was characterized using Keysight M8050 pulse pattern generator and a 200G multimode DCA-M.

BTB



30m OM2



Summary

- Presented preliminary 1060nm Back Emitting VCSEL data
  - S21 measurements with 3dB bandwidth of 44GHz
  - 212Gbps open eye diagram with 3m OM4 and 30m OM2 fiber.