



# **Single Fiber, Single wavelength, Dual Rate GbE / FE transceiver**

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# Data Rate issues

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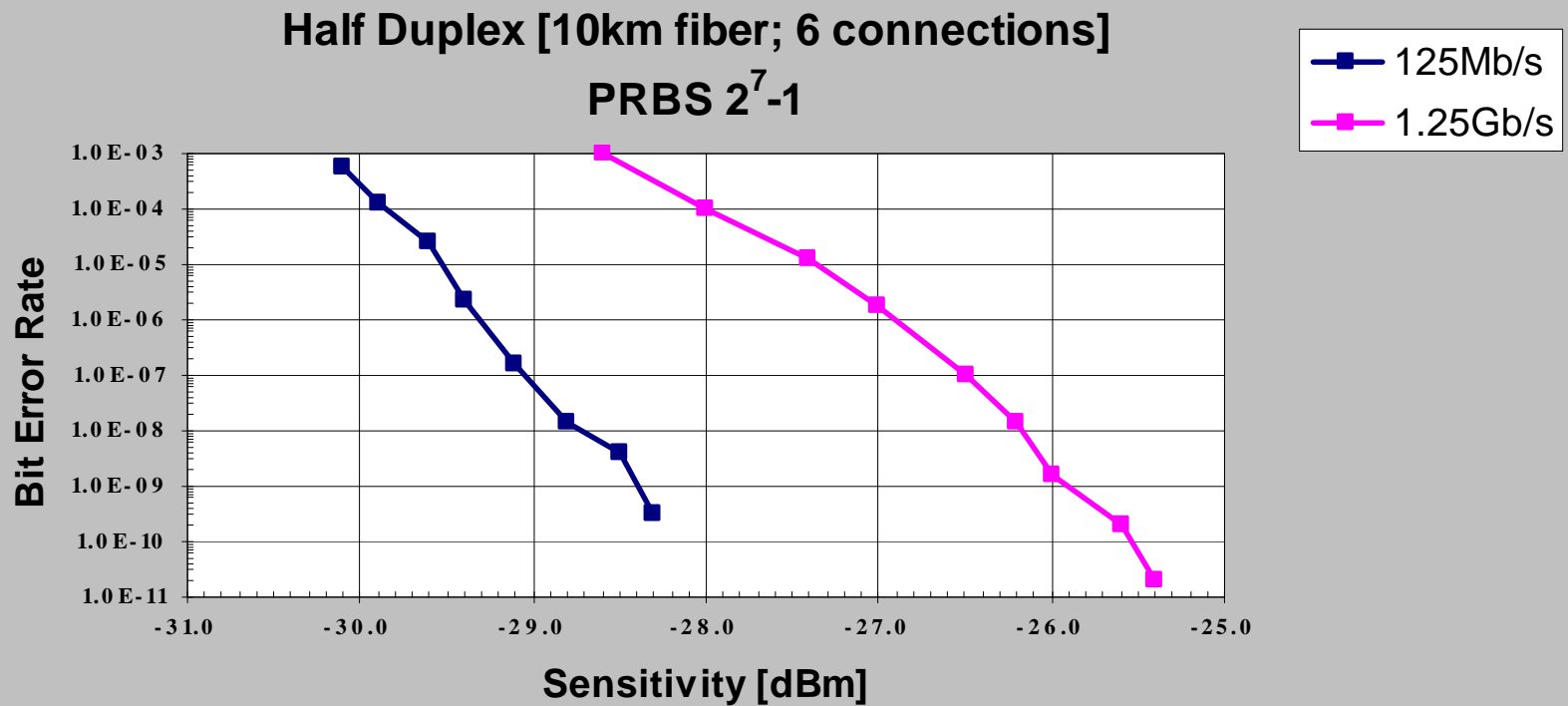
- Specification can include 125Mb/s with same range parameters
- ONE PMD IS POSSIBLE for 1.25Gb/s and 125 Mb/s
- At high volume - negligible cost difference

# SFWG - Single Fiber Single Wavelength GbE

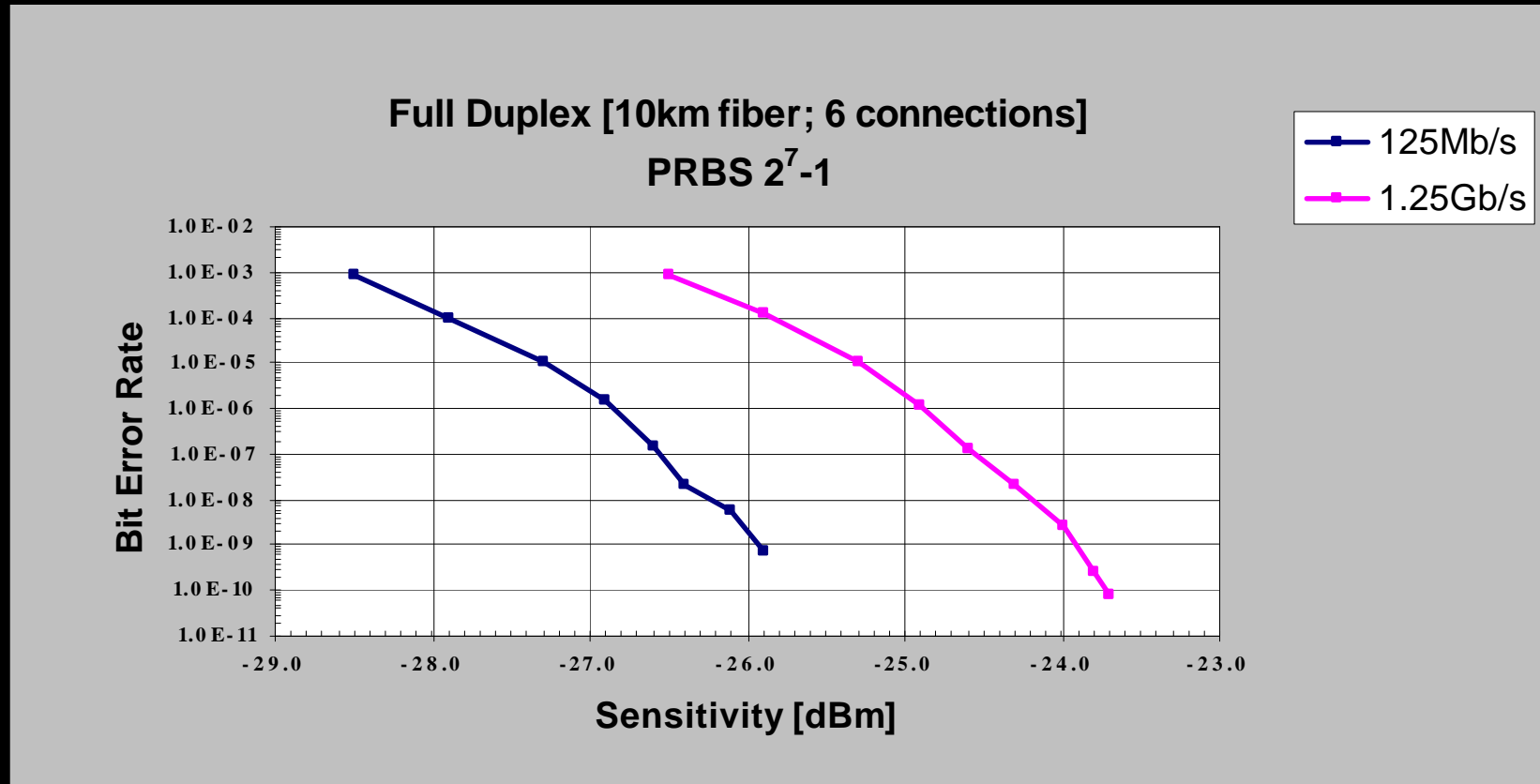
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- Dual Rate performance
  - ◆ 4b/5b coding for 125Mb/s
  - ◆ 8b/10b coding for 1.25Gb/s
  - ◆ Today OC-3 IC's can handle 72 CID (Consecutive Identical Digits). DC balancing is not an issue for either the laser driver or the limiting amp.
- Dual voltage 3.3v and 5v demonstrated (DC or AC coupled LD driver)
- Cost:
  - ◆ Main difference: testing cost
  - ◆ Secondary: chip-set (laser driver, and TIA)
  - ◆ Same laser

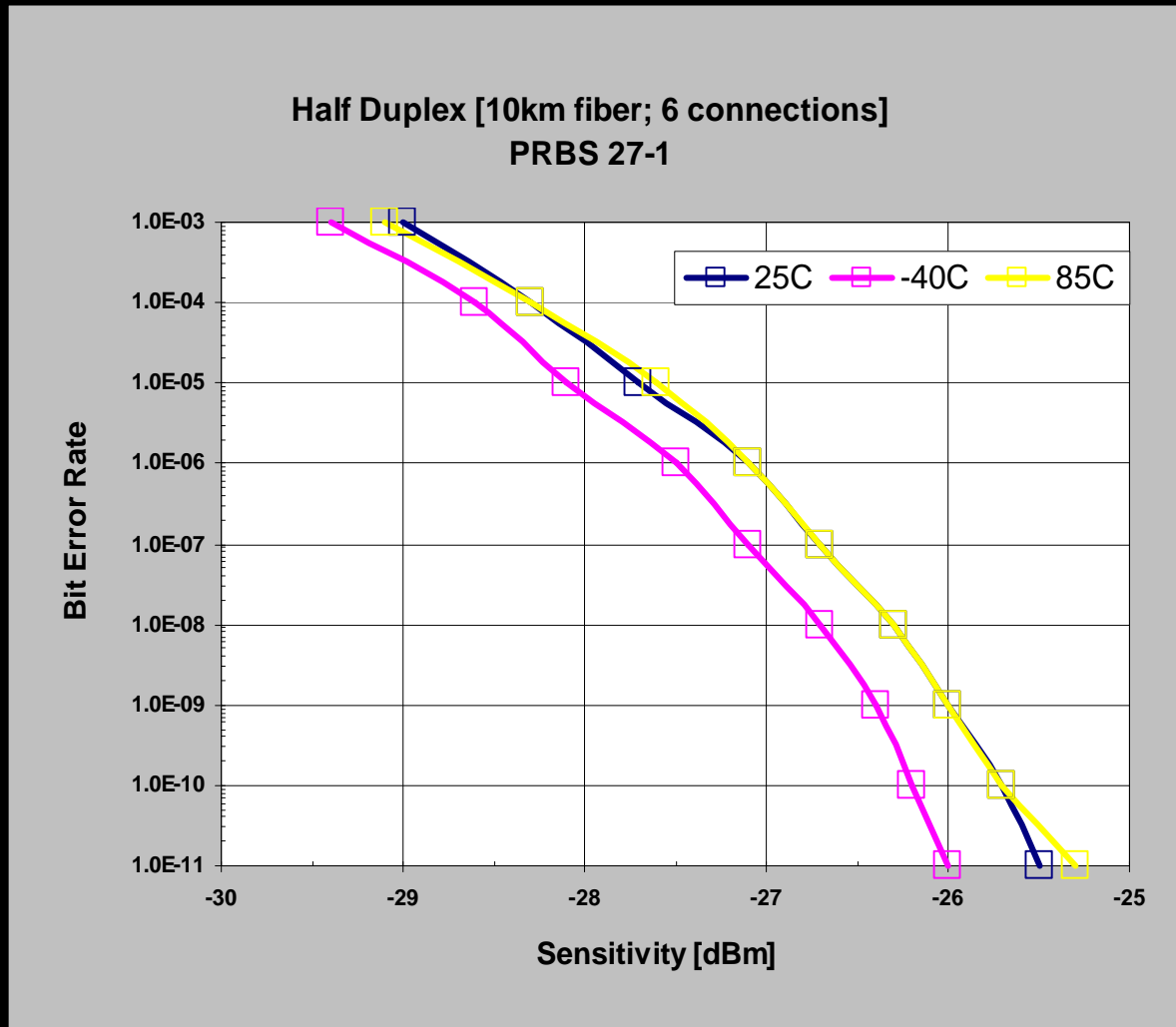
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# SFWG - Temperature effect on sensitivity



## PMD Specification

Description	ONU/OLT Module	Unit
Transmitter Type	Bi-directional, 1 fibre	
Signaling speed	1.25 / 0.125	GBd
Link length (range)	0.5 to 10,000	m
Power Budget	10	dB
Wavelength (range)	1270 to 1360	nm
$T_{\text{rise}}/T_{\text{fall}}$ (Max, 20%-80% response time)	0.26	ns
RMS spectral width (max)	2.4	nm
Average launch power (min)	-9	dBm
Average launch power (max)	-4	dBm
Extinction ratio (min)	9	dB
RIN (max)	-120	dB/Hz
Receiver sensitivity (min)	-19	dBm
Return loss of ODN (min)	20	dB
Return Loss of module (min)	18	dB

# SFSW Dual rate benefits

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- One PMD in lieu of 3 or 4 !!!
- Cost impact insignificant
- Enables future CATV overlay and upgrade path (e.g. SFP units in hardened switch)