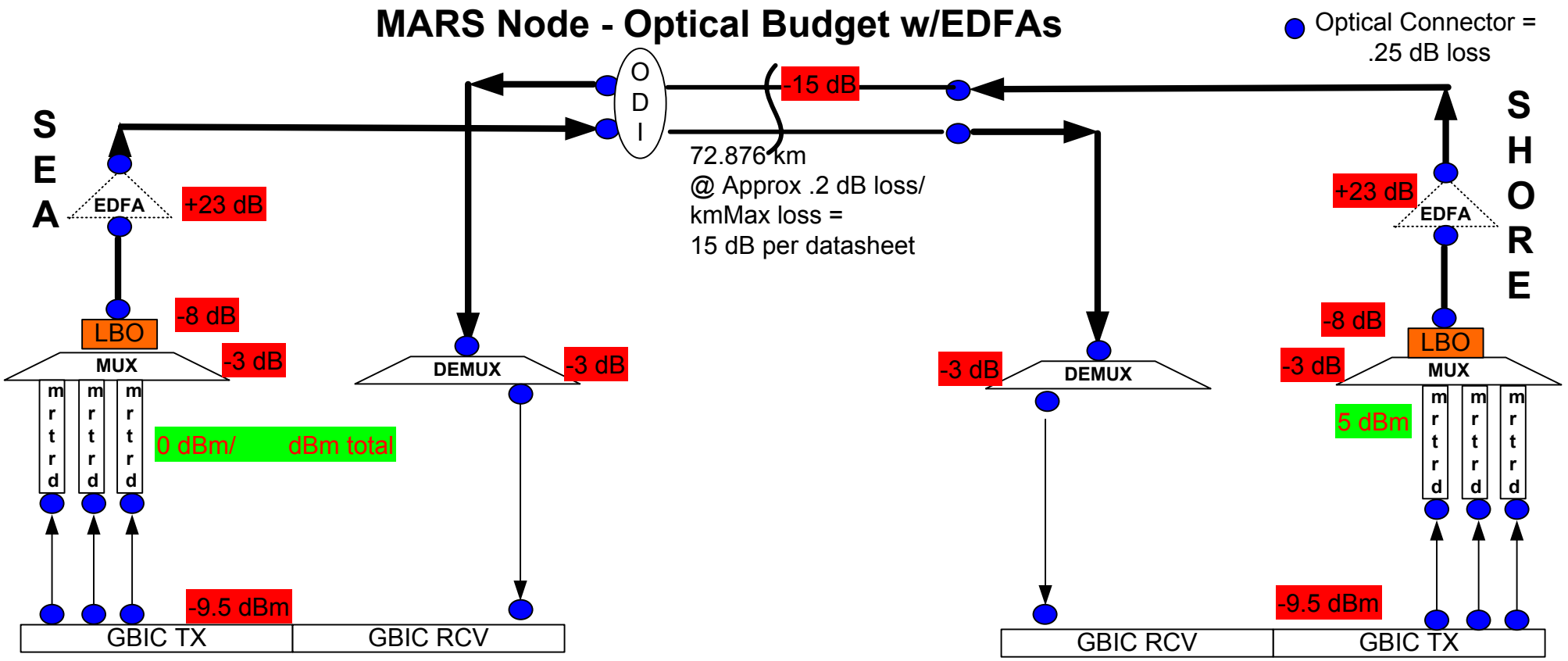
MARS Node - Optical Budget w/EDFAs

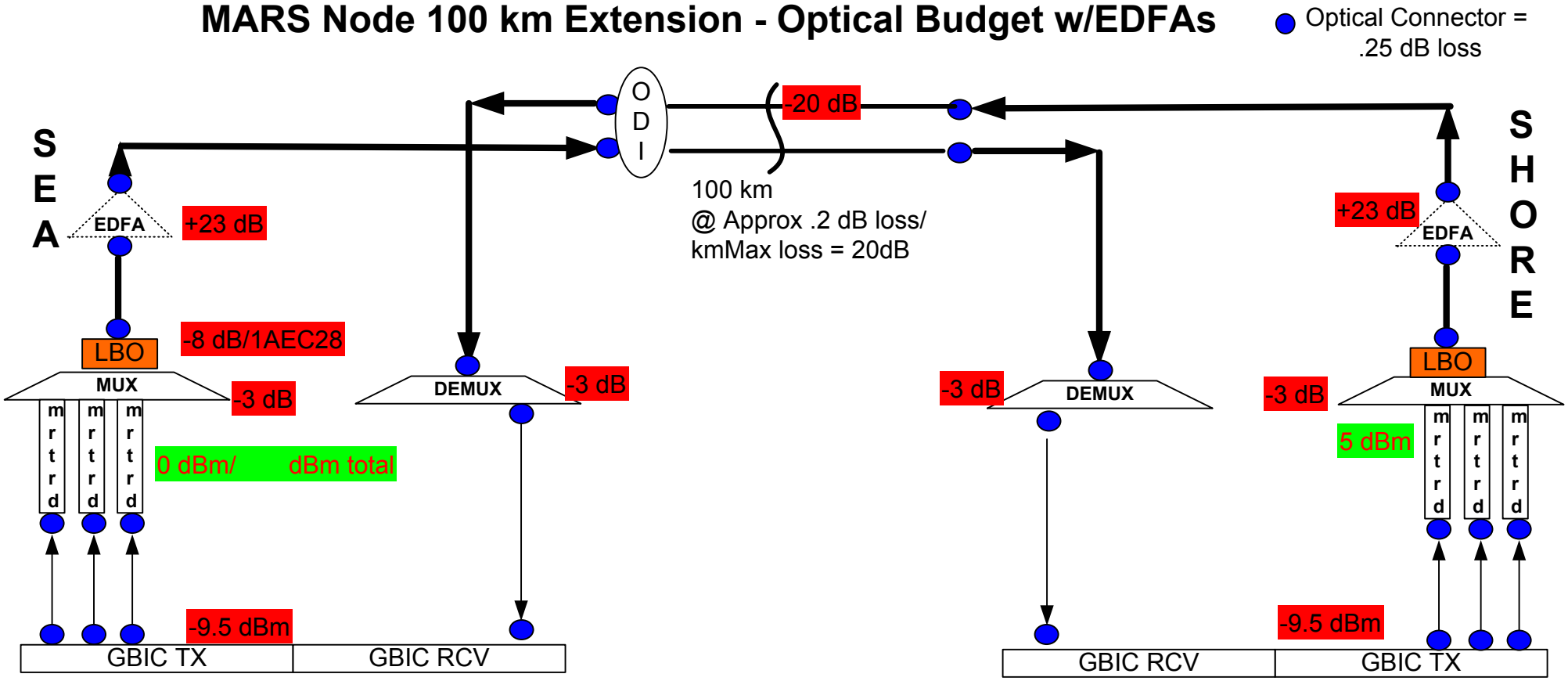


NOTES: 1-1AEC28 EDFA limited to -6dBm input. -8 dB LBO used to adjust input.Gain is 17dB
2-Receive Sensitivity: LX GBIC = -19 dBm MR-TR= -25 dbM
3-MRTRD provides 0 dBm=1mW input. All 3 inject 3mW =~5 dBm

Power for *one* added wavelength starting at sea tx GBIC thru shore rcv GBIC
0 -3 -8 +(2*-.25) +23 +(2*-.25) -15 +(2*-.25) -3 +(2*-.25) = **-9dBm**

Adding aging allowance of -.01 dB/ km/ 30 years = -0.73 dB and design margin of -3 dB
Power of wavelength at shore rcv GBIC = **-12.73 dB**

MARS Node 100 km Extension - Optical Budget w/EDFAs

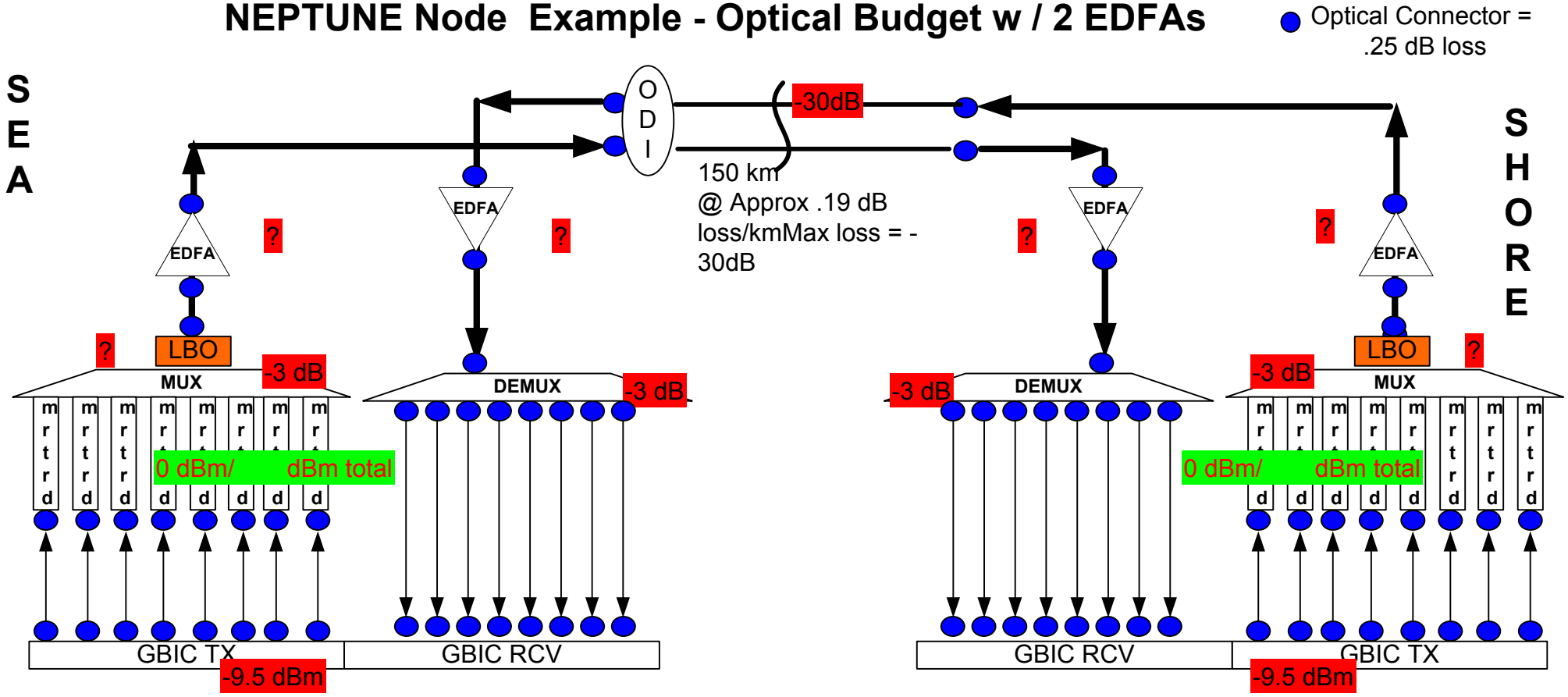


NOTES: 1-1AEC28 EDFA limited to -6dBm input. -8 dB LBO used to adjust input.Gain is 17dB
2-Receive Sensitivity: LX GBIC = -19 dBm MR-TR= -25 dbM
3-MRTRD provides 0 dBm=1mW input. All 3 inject 3mW =~5 dBm

Power for *one* added wavelength starting at sea tx GBIC thru shore rcv GBIC using 1AEC28 EDFA
0 -3 -8 +(2*-.25) +23 +(2*-.25) -20 +(2*-.25) -3 +(2*-.25) = **-14dBm**

Adding aging allowance of -.01 dB/ km/ 30 years = -0.73 dB and design margin of -3 dB
Power of wavelength at shore rcv GBIC = **-17.73 dB**

NEPTUNE Node Example - Optical Budget w / 2 EDFAs



NOTES: 1-Receive Sensitivity: LX GBIC = -19 dBm MR-TR= -25 dbM
2-MRTRD provides 0 dBm=1mW input. All 8 inject 3mW =~9 dBm