

## Quick Card

# T-BERD<sup>®</sup>/MTS OTDRs






## Typical Loss and Reflection Values

VIAVI OTDRs identify events on a fiber span including splices, connectors, bends, splitters, and multiplexers. Attenuation (Loss) and Reflectance are measured for each event. Companies with new fiber and proper fiber inspection habits will tend to see better numbers. Companies with older fiber or poor fiber inspection habits will tend to see worse numbers.

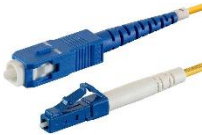

### Viavi uses Smart Icons to show OTDR events



### Typical Attenuation (Loss) Values

Event	Type	Loss
Fiber	Single mode @ 1550nm	0.2 dB/km
	Single mode @ 1310nm	0.35 dB/km
	Multimode @ 1300nm	1 dB/km
	Multimode @ 850nm	3 dB/km
Splice	 Fusion (newer)	0.05 dB
	Fusion (older)	0.1 to 0.2 dB
	Mechanical	0.15 to 0.30 dB
Bend	 Macrobend @ 1310nm	Varies
	Macrobend @ 1550nm	Varies, typically 5 to 10 times worse than 1310nm
Connector Pair	 UPC (LC, SC, etc.)	0.25 to 0.5 dB
	APC (LC, SC, etc.)	0.25 to 0.5 dB
Splitter	 1 x 2	3 to 4 dB
	1 x 4	6 to 7 dB
	1 x 8	9 to 11 dB
	1 x 16	12 to 14 dB
	1 x 32	15 to 17 dB
	1 x 64	18 to 20 dB
Multiplexor /Demultiplexor	 CWDM	1 to 3 dB
	DWDM	1 to 4 dB

## Typical Reflection Values

Event	Type	Reflectance
Splice	Fusion	No reflection
	Mechanical	-40 to -50 dB
Bend	Macrobend	No reflection
Connector Pair (connected clean)	<b>UPC (blue)</b> 	-50 to -55 dB
	<b>APC (green)</b> 	-65 to -74 dB
Fiber end	<b>UPC connector open to air</b>	-14 to -20 dB
	<b>UPC connector connected clean</b>	-50 to -55 dB
	<b>APC connector open to air</b>	-35 to -45 dB
	<b>APC connector connected clean</b>	-65 to -74 dB
Fiber Break or cut		-30 to -48 dB (average -42 dB)

## Tips and Tricks

- **Fusion splice & bends = NO reflection.**



Fusion Splice



Macrobend

- **Is there a bend on the fiber?** Test using both 1310nm and 1550nm wavelengths. Average bend can be five to ten times worse at 1550nm than 1310nm. Large bends or kinks can have a loss greater than 6 dB where no traffic would flow and would look like the end of the fiber.
- **Optical Return Loss (ORL)** is expressed in dB with a positive number. 40 dB ORL is better than 30 dB, 50 dB ORL is better than 40 dB, and so on.
- **Use a coupler with your bulkhead tip to inspect patch cables**

