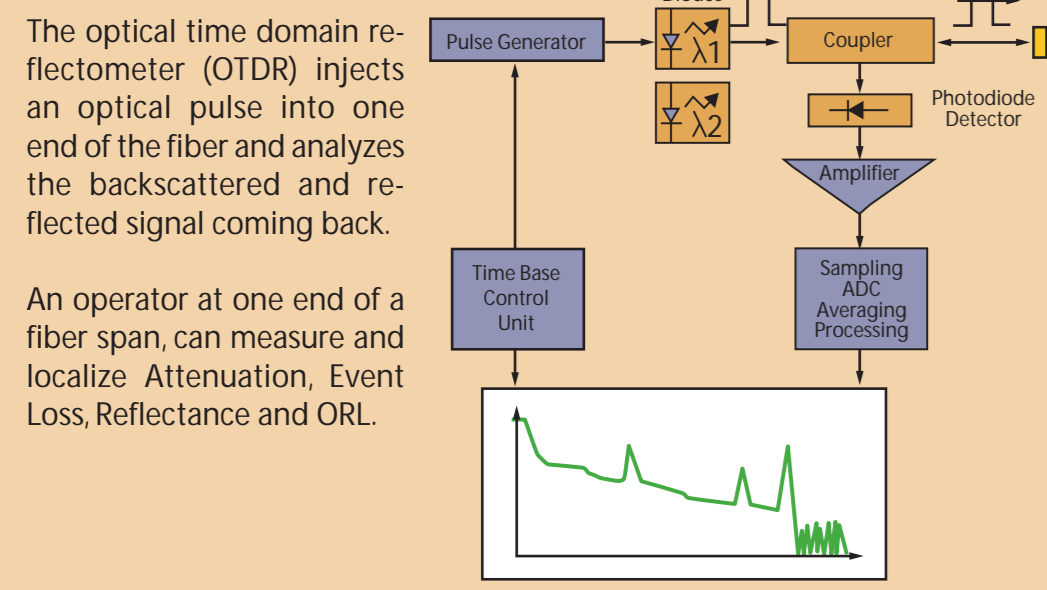


# Understanding Optical Time Domain Reflectometry

## OTDR Block Diagram



## What Does an OTDR Measure?

An OTDR detects, locates, and measures events on fiber links. It requires access to only one end of the fiber.

**Attenuation** (also called fiber loss)  
Expressed in dB or dB/km, this represents the loss or the rate of loss between 2 points along the fiber span.

**Event Loss**  
Difference of optical power level before and after an event, expressed in dB.

**Reflectance**  
Ratio of reflected power to incident power of an event, expressed as a negative dB value.

**ORL** (Optical Return Loss)  
Ratio of the reflected power to the incident power from a fiber optic link or system, expressed as a positive dB value.

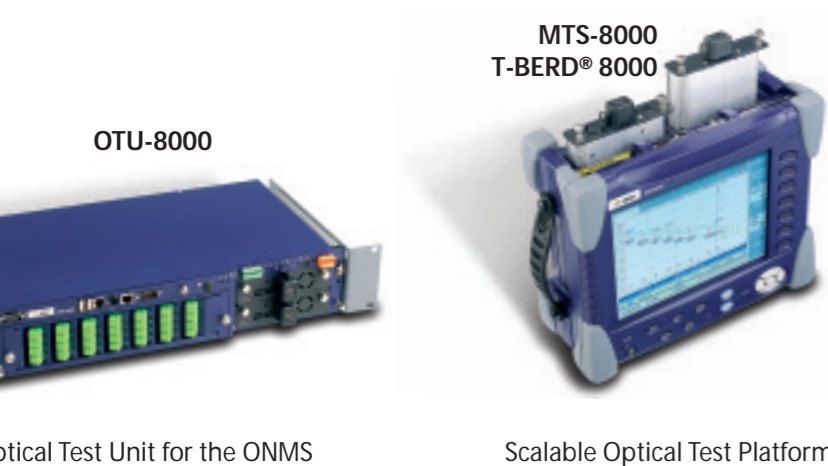
## How to Configure the Main OTDR Settings

**Pulse Width**  
The pulse width controls the amount of light injected into a fiber.  
A short pulse width enables high resolution and short dead zones but less dynamic range.  
A long pulse width enables high dynamic range but less resolution and large dead zones.

**Acquisition time**  
This is the time during which the OTDR acquires and averages data points from the fiber under test. Increasing the acquisition time improves the dynamic range without affecting the resolution and dead zones.

**Index of Refraction (IOR)**  
The IOR converts the time, measured by the OTDR, to distance, displayed on the trace.  
Entering the appropriate value for the fiber under test will ensure accurate length measurements of the fiber.

**⚠ In order to obtain accurate measurements, connectors must always be cleaned prior to OTDR testing!**



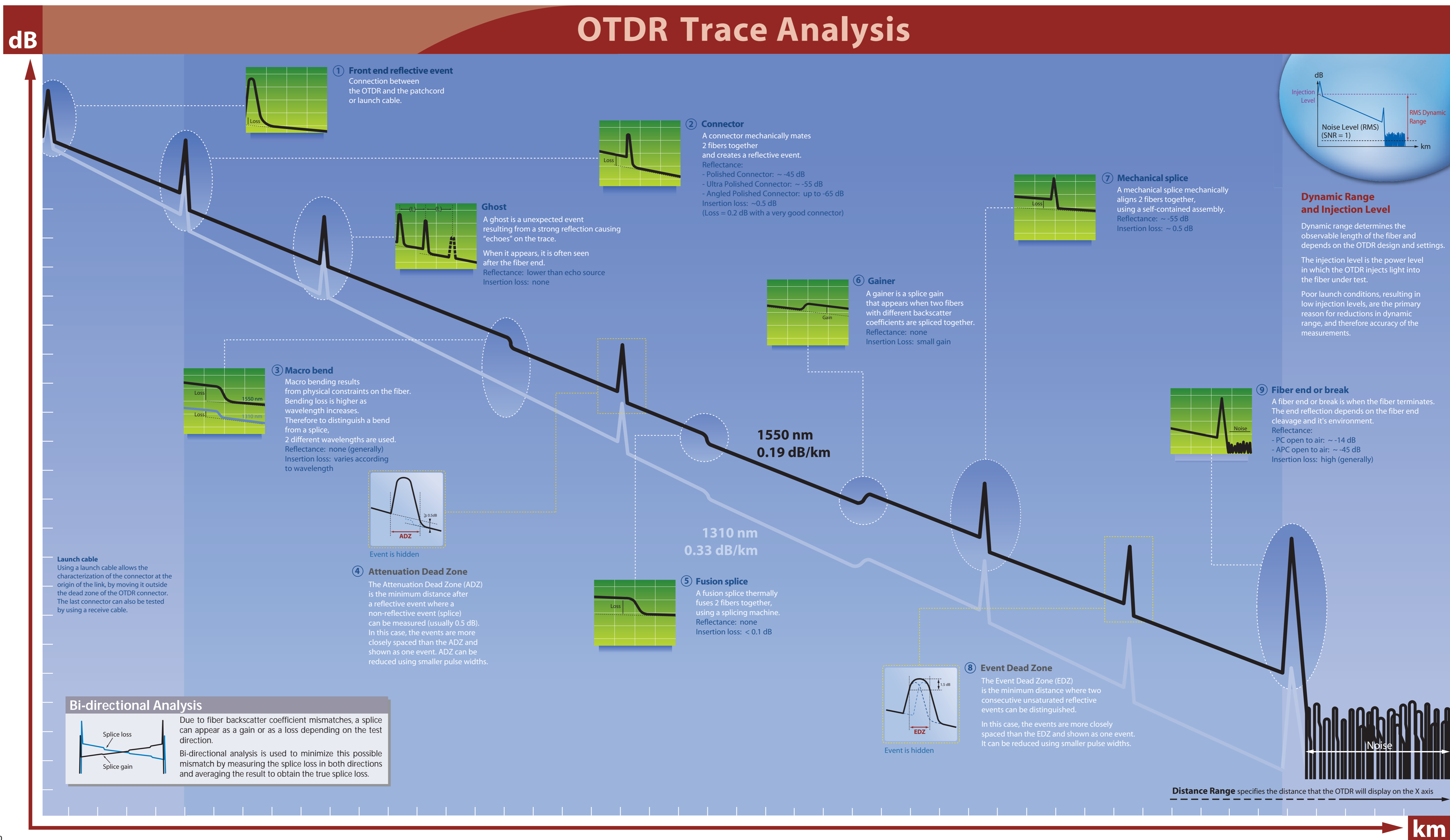
Optical Test Unit for the ONMS

Scalable Optical Test Platform

Compact Optical Test Platform

To learn more, visit [www.jdsu.com/fibertest](http://www.jdsu.com/fibertest)

## OTDR Trace Analysis



We wrote the book on Fiber Optic Testing. Visit us online for your free copy.



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