Understanding Optical Time Domain Reflectometry (OTDR)

**OTDR Trace Analysis**

**Front-end reflective event**
- An unexpected event resulting from a strong reflection creating “false” events on the trace.
- If it appears, it is often seen after the fiber end reflection. Remove fiber to source insertion loss.

**Connector**
- Mechanically mates two fiber ends together and creates a reflective event.
- Insertion loss: ~0.1 dB

**Mechanical splice**
- Mechanical splice at a point in the fiber optic link.
- Insertion loss: ~0.5 dB

**Ghost**
- An unexpected event resulting from a strong reflective event coating “false” events on the trace.
- When it appears, it is often seen after the fiber end reflection. Remove fiber to source insertion loss.

**Attenuation-Dead Zone (ADZ)**
- The attenuation-dead zone (ADZ) is the minimum distance that prevents two unsaturated reflections from appearing as one event. ADZ can be measured (usually 0.5 dB).

**Event Dead Zone (EDZ)**
- The event dead zone (EDZ) is the minimum distance that prevents two unsaturated reflective events from appearing as one event. EDZ can be seen at up to 12 dB, which is the minimum sensitivity for an unsaturated reflective event.

**Fiber end or break**
- Reflected event that appears and disappears every time the fiber under test is changed and can be seen as one event.

**Injection**
- Pulse generator that appears and disappears every time the fiber under test is changed and can be seen as one event.

**Remote cable**
- The remote cable is shown as one event.

**Mux/Demux**
- The Mux/Demux is shown as one event.

**Splice**
- A splice gain that appears and disappears every time the fiber under test is changed and can be seen as one event.

**Fiber backscatter coefficient mismatches**
- Fiber backscatter coefficient mismatches can cause a splice to appear as a gain or a loss, depending on the test direction.

**Bidirectional Analysis**
- Light loss
- Light gain

**Dynamic Range and Injection Level**
- Dynamic range determines the maximum length of the fiber and depends upon the OTDR design and settings.
- Injection level is the level of OTDR light power, which is the primary reason for reductions in dynamic range and, therefore, measurement accuracy.

**Smart Link Mapper (SLM)**
- OTDR results. Each event is displayed in a unique color-coded fashion. SLM can completely automate the entire OTDR trace at expert levels.

**Smart Link Mapper - Icon based fiber link view**

To learn more, visit viavisolutions.com

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