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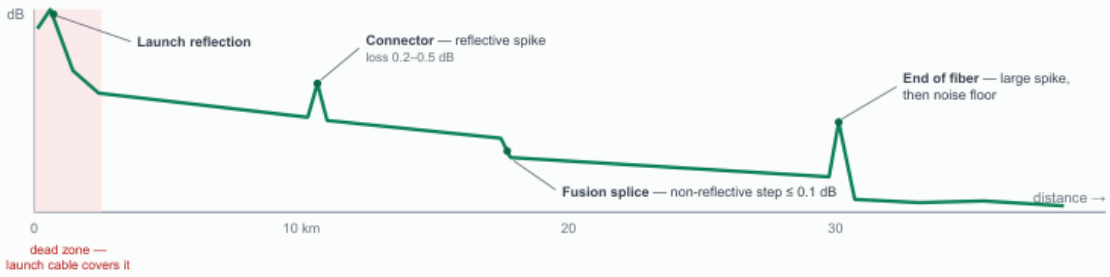
# OTDR Testing Field Cheat Sheet

Trace decoder & test-parameter quick reference — print it, laminate it, keep it in the kit bag.

glinkotdr.com
OTDR · PON OTDR · FAMS
Fiber Monitoring Systems

## 1 Read the Trace — Annotated Example

Single-mode span, 1550 nm, launch cable attached




## 2 Trace Event Decoder

Name the shape → name the event

| Trace shape | What it is | What "good" looks like |
|---|---|---|
| **Gentle downward slope** | Normal fiber attenuation (Rayleigh backscatter) | **≈0.35 dB/km @ 1310 nm · ≈0.20 dB/km @ 1550 nm** (G.652D) |
| **Sharp spike up** | Reflective event — connector or mechanical splice | Connector loss 0.2–0.5 dB · reflectance **≥ −40 dB (UPC) / ≥ −60 dB (APC)** |
| **Step down, no spike** | Non-reflective event — fusion splice or bend | Good fusion splice **≤ 0.1 dB** · **investigate > 0.3 dB** |
| **Step *up* ("gainer")** | Backscatter mismatch artifact — **not** amplification | Verify from the other end; the **bidirectional average** is the real (small) loss |
| **Large spike, then noise** | End of fiber — or a break | Spike **before** the expected end = **fault location** |
| **Spike at ≈2× a real event** | Ghost — double reflection between connectors | Not real; disappears after cleaning / replacing reflective connectors |

## 3 Test Parameters — Set These Right First

Wrong settings defeat even a 45 dB instrument

| Parameter | What it controls | Field rule of thumb |
|---|---|---|
| **Pulse width** | Dead zone vs. reach (narrower = sharper events, shorter reach) | Short premises **5–30 ns** · metro / PON **100 ns–1 µs** · long-haul up to **20 µs** |
| **Range** | The fiber-length window the OTDR samples | **≈1.5–2×** the expected link length — too long adds noise, too short hides the end |
| **IOR** | Distance accuracy of every event | Take it from the fiber datasheet — a wrong IOR **shifts all distances** systematically |
| **Averaging time** | Signal-to-noise ratio of the trace | **30–90 s** typical · **180 s+** on high-loss or through-splitter spans |

### THREE GOLDEN RULES

1. **Locate the end of fiber first.** If the trace dies in noise before the expected end, that point **is** your fault — full stop.
2. **Never trust a single-direction splice loss.** Standards and warranties require bidirectional testing; only the averaged value is defensible.
3. **No launch cable = blind first connector.** 500 m single-mode launch fiber covers most FTTH work; add a receive cable to see the last connector.

Testing **live PON**? You need 40–45 dB dynamic range + a filtered 1625 nm port.
G-Link **TRP800 PON OTDR** — field-validated through 1:128 splits by a top Indonesian telco.

**glinkotdr.com/otdr-testing/**


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