FIBER OPTIC FIELD GUIDE

Fiber Trace Analyzer

A step-by-step walk-through of the browser-based OTDR trace analyzer. Drop a file, read the headline numbers, work the event table, set pass/fail thresholds, and print a clean acceptance record. Written by a working tech, for working techs.

Johnstone Technical Services · https://johnstonetechs.com/guides/fiber-analyzer

What it does

Drop a trace file, read what's on the link, decide what to do next.

The Fiber Trace Analyzer opens OTDR traces directly in your browser. It supports Bellcore SR-4731 SOR files (the universal OTDR format produced by Viavi, EXFO, AFL Noyes, Anritsu, Yokogawa, AQ7280, Tempo, and most others), Viavi MSOR multi-wavelength containers, EXFO TRC files exported from FastReporter or FiberTrace, and the JSON sidecar exports produced by EXFO FTBx-series and Viavi ONA-800 / MTS-series instruments. Parsing happens in your browser. Files never leave your device.

Recently added: expanded compatibility for AFL / Noyes OFL280B SOR files. Some OFL280B firmware writes a non-standard map header that earlier rejected those traces with a “not a valid SOR file” error; they now open normally.

You'll usually reach for it when you need to do one of three things: confirm a clean acceptance trace before submitting a record, isolate a bad splice or connector on a span that's failing its budget, or sanity-check a trace someone else captured before you walk it back to the truck.

Load a file

Three ways:

- Drag and drop the file onto the drop zone at the top of the page.
- Click the drop zone to open a file picker.
- Pick a sample from the "Try a sample file" dropdown if you just want to see what the output looks like before you commit a real trace.

You can drop a single .sor, a multi-wavelength .msor, a .trc, an EXFO or Viavi .json export, or several files at once for bidirectional comparison.

Read the headline numbers

The result card up top is the 10-second summary of the trace:

- Fiber length — total span length from the launch event to the end of fiber, computed from each event's distance and the file's stored index of refraction (IOR). If the IOR on the trace is wrong, every distance number it reports will be off by the same percentage.
- Total loss — end-to-end attenuation in dB. This is the number you compare against the loss budget for the link.

Free in your browser: OTDR trace analyzer, splice matrix builder, fiber analysis, link loss calculator, and more at johnstonetechs.com.
Informational guidance; verify critical measurements against certified test equipment.

- Worst reflectance — the most reflective event on the link, in dB ORL. Anything worse than about 40 dB on single-mode is usually a dirty connector or an unmated bulkhead and worth investigating.
- Pass / Fail verdict — overall thumbs up/down based on the thresholds you've set (defaults are reasonable starting values; see the thresholds section below).

Work through the event table

Below the headline card is the event table — every splice, connector, mechanical splice, and end-of-fiber event the analyzer found, with distance, loss, and reflectance for each.

Two columns matter most when you're hunting a fault:

- Event type — fusion splice, mechanical splice, connector, or end. The analyzer classifies each event based on its reflectance signature: a clean fusion splice has essentially no Fresnel return; connectors and mechanical splices always do. If something is mis-classified you can usually tell at a glance from the reflectance column.
- Loss column — how much insertion loss that single event added to the span. A loud splice at 2.4 km is your problem; a connector at the panel at 0.4 dB is normal.

Click any row to see the event highlighted on the OTDR waveform plot. The plot itself supports zoom, pan, and unit switching.

Pulse-width fit warnings

The analyzer cross-checks the pulse width stored in the file against the span length and warns you if the two don't fit. Roughly:

- 10 ns for spans under 3 km
- 50–100 ns for 5–20 km
- 200–500 ns for 20–60 km
- 1 s for 30–80 km
- 3 s for 80–130 km

Too short a pulse loses the far end of the fiber in the noise floor; too long a pulse hides close events inside the dead zone. If the warning fires, the trace is still readable — just know the event table near either end may be missing real events.

Pass / fail thresholds

The Pass/Fail panel has three knobs:

- Splice loss — default 0.10 dB. Tighten to 0.05 dB if you're testing acceptance against a carrier spec; loosen to 0.15 or 0.20 for older or repaired fibers.
- Connector loss — default 0.50 dB. Most carriers spec 0.30–0.50 dB. APC pairs in good shape will typically come in under 0.40 dB.
- Reflectance — default 40 dB. Anything worse points at a dirty or damaged endface. APC connectors should be cleaner than 55 dB when mated cleanly.

Whatever you set, the headline verdict and the per-event verdict in the table both update instantly.

Multi-wavelength files

If you drop a Viavi .msor, a multi-wavelength EXFO .trc, or a Viavi .json sidecar with multiple wavelengths, each wavelength shows up as its own tab in the result panel. You can compare 1310 / 1550 / 1625 nm on the same span side-by-side — useful when a span passes at 1310 but flags a macrobend at 1625.

Switching distance units

The unit selector switches every distance number in the page and the waveform plot at once. Five options:

- meters (default)
- kilometers (most international specs)
- feet (close-range OSP)
- kilofeet (US OSP budgets)
- miles

The choice persists in your browser between sessions.

Print, save, or share

The Print button at the top right opens the browser print dialog formatted for a clean one-page acceptance record — including the date stamp and the thresholds you applied. From the print dialog you can save as PDF instead if you want to email or attach to a ticket.

The Share button copies a short text summary of the headline numbers and the event table to your clipboard, ready to drop into a message or work order.

Drop a trace, see what's on the link.

Free, browser-based, no signup. The sample dropdown is loaded with real field traces if you want to see what the output looks like first.