

OTDR: Quality Inspection of Optical Fiber Surface

Applicable Model: AQ7280 series/AQ1210 series

A number of types of optical connectors are used to interface communication systems with optical networks. If the end surface of an optical fiber is contaminated, it can cause a communication network failure. In fact, more than 50% of communication network failures are caused by connector surface conditions. In addition, defects on the connector surface greatly affect Optical Time Domain Reflectometer (OTDR) measurement results.

Fig. 1 shows the measurement trace resulting from a dirty end face while Fig. 2 shows the trace with the same connector after its end face has been cleaned. In the trace for the contaminated connector surface, a slope appearing after the reflection becomes larger. Since an attenuation dead zone also becomes longer, an event cannot be detected correctly. On a high power communication path such as WDM or PON, connector burn out can result from contamination such as sebum and dust or scratches. Cleaning connector surfaces is crucial for the installation and maintenance of optical fibers. Thus, the quality assurance inspection using a fiber inspection probe with judgment criteria that conforms to a global standard becomes a critical tool to avoid costly consequences.

By connecting a fiber probe, inspection of the fiber end is available with the AQ7280 and AQ1210. The fiber surface inspection function included in the these OTDRs (/FST option) automatically performs pass/fail judgment on contamination and scratches on the fiber surface. This is based on the IEC 61300-3-35 standard or user-defined criteria. The judgment result can be saved and added to a PDF report as an effective evidence after installation is complete.

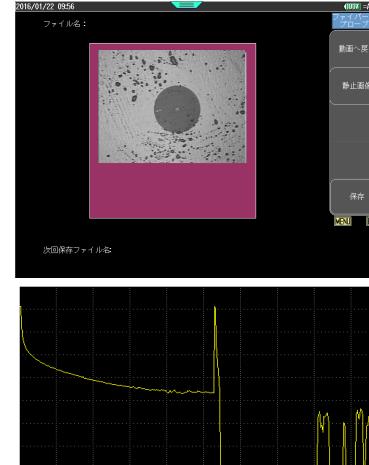


Fig. 1: Incorrect measurement trace due to an end face with scratches and stains.

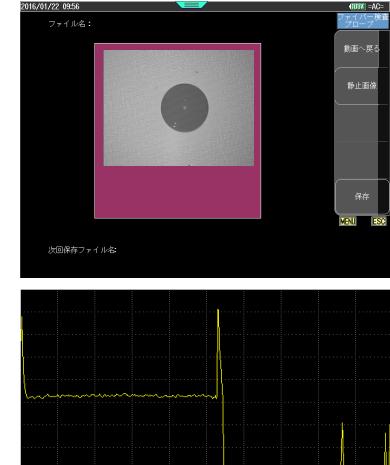


Fig. 2: Correct measurement trace for a clean end face.

AQ7280 /FST option



LIGHTEL DI-1000-B2 probe

Pass/fail judgment display

