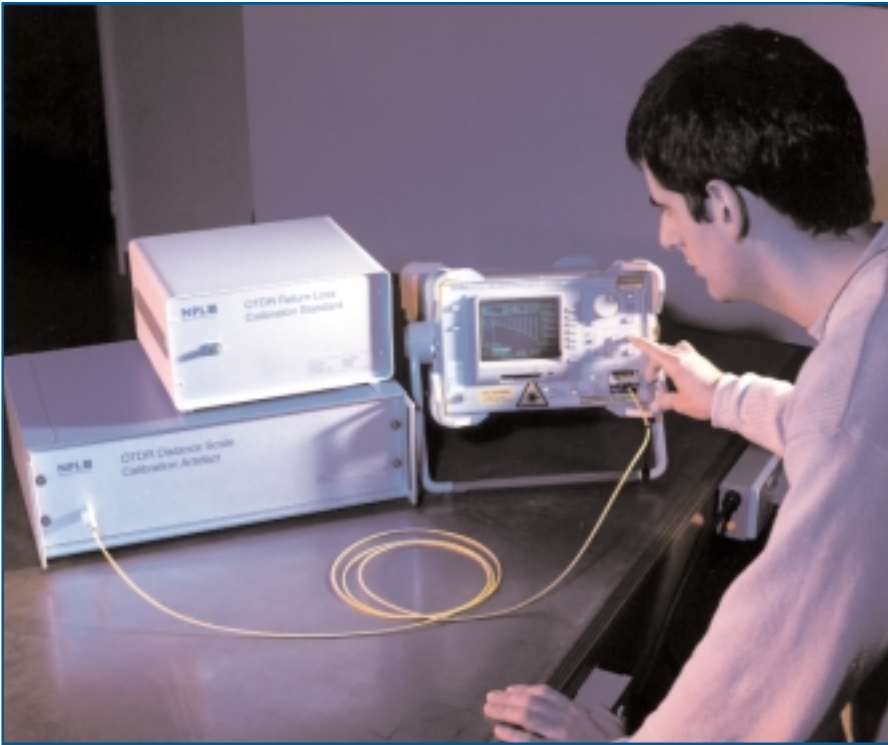


CALIBRATION ARTEFACTS FOR OPTICAL TIME DOMAIN REFLECTOMETERS



The Optical Time Domain Reflectometer (OTDR) is one of the most versatile and widely used pieces of fibre optic test equipment. The instrument is used both in the laboratory and in the field to probe the attenuation along lengths of fibre and to locate the position of breaks, defects and other features such as reflections from joints.

An OTDR is only useful if it has accurate attenuation and distance scales. NPL has developed a range of calibrated artefacts which enable manufacturers and users to be certain of the performance of their instruments.

Calibration artefacts for optical time domain reflectometers

As there are many different combinations of measurement settings for an OTDR, it is important that the instrument is calibrated for the particular settings which are used for a measurement. NPL has developed the following calibrated reference standards to enable you to calibrate your OTDR under the conditions that it will be used:

'Golden Fibre'

A single mode 'Golden Fibre' calibrated for total attenuation (by the cut-back technique) and attenuation coefficient uniformity is available to calibrate OTDR loss scales with uncertainties better than ± 0.02 dB/dB (2σ). The optical length of the fibre can also be calibrated using the time of flight measurement technique. The chromatic dispersion of the fibre can also be determined on request.

OTDR distance scale calibration artefact

An artefact based on a recirculating optical delay line can be supplied for generating calibration features along the distance scale of OTDRs. A calibrated 12 km loop will provide features every 6 km out to 40 km, but other lengths can be supplied to suit a customer's needs.

Return loss artefacts

OTDRs can also determine the return loss at fibre connectors and splices from the amplitude of reflections and the pulse width. However, as a number of assumptions are made in the calculation, it is important that the OTDR should be calibrated for the measurement of this parameter. NPL can supply calibrated return loss artefacts for this purpose covering the range -30 dB to -50 dB. Others are available on request.

Associated Services

NPL can provide you with wide range of complementary services including:

- Calibration of other test instrumentation such as optical power meters and OSAs
- Characterisation of optical fibres, passive fibre components and integrated optic components
- Calibration of detectors and sources
- Characterisation of fibre amplifiers

For further information or to discuss your particular calibration requirements

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