KINGFISHER INTERNATIONAL
Fiber Optic Test Equipment Manufacturer

Insertion Loss Measurement Procedure
One Cord, MMF Permanent Link
ISO-IEC 14763-3:2006-Amd 1:2009

One or three cord referencing methodology is mandated. The default referencing methodology is the three cord method.

<u>In this document we cover the alternate one cord method</u>.

To achieve consistent results, clean all connectors, through-connects and adapters associated with the test prior to and during measurement.

Ensure all MMF test cords meet IL specification of ≤ 0.1 dB.

Ensure the source has warmed up before commencing measurements.

1. Fit correctly sized mandrel to source end of launch cord.

Fibre cladding	3 mm jacketed mm /(inch
Fibre core	
50 µm	18 (0.7)
62.5 µm	20 (0.8)

Table 1, Mandrel diameters - IEC 61300-3-4

2. Connect launch cord to meter and set the reference.

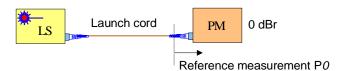   For clarity the air coil is not shown.

Figure 1, One cord reference

3. Disconnect launch cord from meter and connect to one end of the cabling under test (CUT / DUT).

   Using a second test cord, connect the meter to the other end of the DUT.
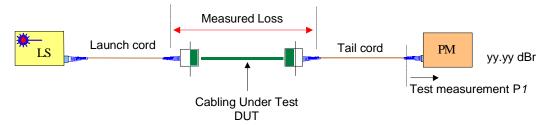

Figure 2, One cord measure

4. Read the insertion loss directly in dBr.

5. Standard based pass/ fail calculations as detailed over the page can be applied to the result.

ISO-IEC 14763-3 / 11801

For installations tested in accordance with ISO/IEC specifications, the following maximum limits apply to the various cable plant components.

Item	Specification
Connector loss	0.75 dB
Splice loss	0.3 dB
850 nm	3.5 dB/km
1300 nm	1.5 dB/km

Table 2, ISO-IEC cable plant specification

Pass / Fail formula

The international pass-fail standard uses a complex formula which is designed to allow for the differing insertion losses between a Reference-DUT connection and a DUT–DUT connection.

Further complexity is added by mandating a different referencing methodology for a Channel to that of a Permanent Link.
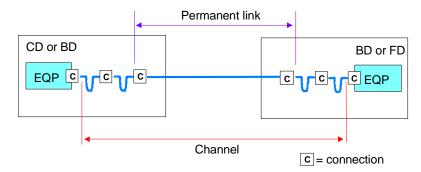

Figure 3, Link - channel definition

Alternate one cord

Maximum IL at 850 nm = 0.6 + 3.5L + 0.3N + 0.75(C-2)

Maximum IL at 1300 nm = 0.6 + 1.5L + 0.3N + 0.75(C-2)

Where:-

    L = Cable length in km,

    N = number of splices and

    C = number of connectors.