Insertion Loss Measurement Procedure

MPO Connector, One Cord MMF

TIA 568-C.0

The basic principles are presented.

- Testing is performed one fibre at a time using a Kingfisher International optical power meter with Large Area Detector and two launch cords.
- The use of verified reference grade test cords is mandatory.
- For clarity, mode filters and the necessary presence of pinned and non-pinned connectors are not shown.
- To achieve consistent results, clean all connectors, through-connects and adapters associated with the test prior to and during measurement.
- Ensure the source has warmed up before commencing measurement.

1. Connect 'the breakout launch cord to the single fibred' launch cord and power meter. Set the reference.

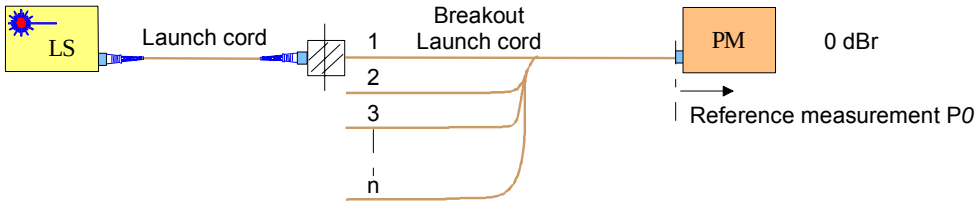

Figure 1, One cord reference

2. Disconnect breakout launch cord from meter. Connect breakout launch cord to one end of the cabling under test (CUT/DUT). Connect MPO tail cord (TC) to other end of the DUT.

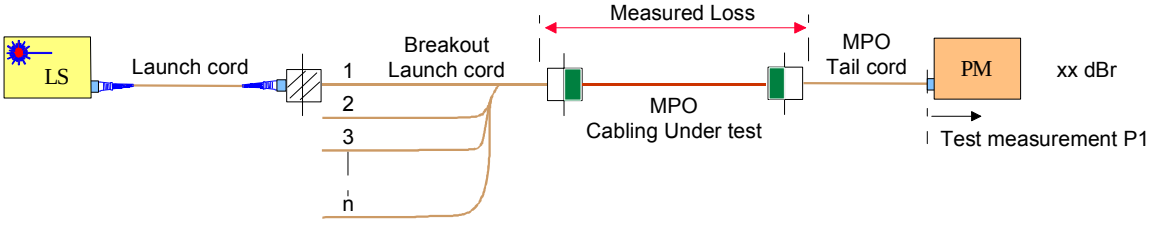

Figure 2, One cord measure, fibre 1

3. Read the insertion loss directly in dBr.

4. Maintaining cleanliness, move launch cord through fibres 2 to n and measure IL. Do not disconnect the MPO TC.

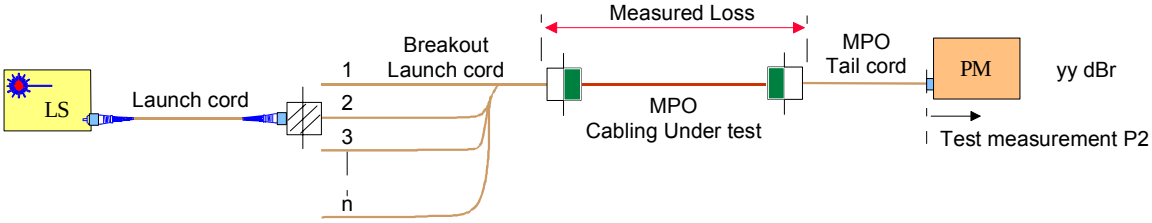

Figure 3, One cord measure, fibres 2 ~ n

Mandrel coil specifications

MMF mandrel specifications.

Mandrel should be placed towards the source end of the launch cord.

Fibre core	3 mm jacketed mm /(inch
50 µm	22 (0.87)
62.5 µm	17 (0.67)

Table 1, Mandrel diameters for 3 mm launch cord

TIA Cabling Specifications 568.C.3

For installations tested in accordance with TIA 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, TIA 568.C.3 cable plant specification

Pass / Fail formula

The American TIA pass-fail standard uses a standard Telco type formula.

One cord referencing is specified.

MMF

Maximum IL at 850 nm = 3.5L + 0.3N + 0.75C

Maximum IL at 1300 nm = 1.5L + 0.3N + 0.75C

Where:-

L = Cable length in Km,

N = number of splices and

C = number of connectors.