Insertion Loss Measurement Procedure

One Cord Reference. SMF

TIA 568.3-D

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 measurements.

1. If testing to TIA-568.3-D, fit correctly sized air coil to source end of launch cord.

Minimum of 1 single air-coiled turn or mandrel wrap of 30 mm / 1.2 inch diameter.

Table 1, Air Coil specification for TIA-568.3-D:
Annex E, Clause E.5.1.4.2

2. Connect launch cord to meter and set the reference.
   For clarity mandrels are not shown.

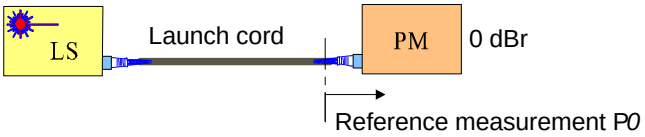

Figure 1, One cord reference

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

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

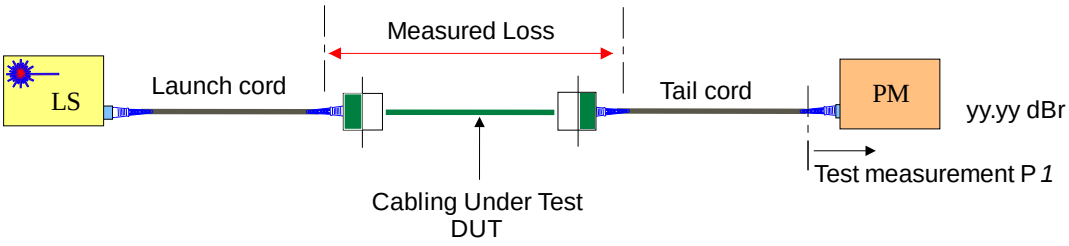

Figure 2, One cord measure

4. Read the insertion loss directly in dBr.

5. Standard based pass/ fail calculations as shown over the page can be applied to the result. Testing may be required in one or both directions (Bi-directional).

TIA Cabling Specifications 568.3-D

For installations tested in accordance with TIA specifications, the following maximum SMF limits apply to the various cable plant components.

Item	Specification
Connector loss Ref - Std	0.5 dB
Connector loss Std - Std	0.75 dB
Splice loss	0.3 dB
OS2, Outside Plant 1310 / 1550 nm	0.4 dB/km
OS1, Indoor – Outdoor Plant 1310 / 1550 nm	0.5 dB/km
Inside Plant 1310 / 1550 nm	1.0 dB/km

Table 2, TIA 568.3-D cable plant specification:
Clauses 4.2 & 7.3.4

Pass / Fail formula

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

Where One cord referencing is specified.

Maximum IL = Length Loss + splice loss + 2 end connector losses + other connector losses

SMF *Formulae require checking*

Reference (Ref) grade test cords

OS2, Outside Plant: *Maximum IL at 1310 / 1550 nm = 0.4L + 0.3N + 1 + 0.75(C-2)*

OS1, Indoor-Outdoor plant: *Maximum IL at 1310 / 1550 nm = 0.5L + 0.3N + 1 + 0.75(C-2)*

Inside plant: *Maximum IL at 1310 / 1550 nm = 1.0L + 0.3N + 1 + 0.75(C-2)*

Standard (Std) grade test cords

OS2, Outside Plant: *Maximum IL at 1310 / 1550 nm = 0.4L + 0.3N + 1.5 + 0.75(C-2)*

OS1, Indoor-Outdoor plant: *Maximum IL at 1310 / 1550 nm = 0.5L + 0.3N + 1.5 + 0.75(C-2)*

Inside plant: *Maximum IL at 1310 / 1550 nm = 1.0L + 0.3N + 1.5 + 0.75(C-2)*

Where:-

L = Cable length in Km,
N = number of splices and
C = number of connectors.