Insertion Loss Measurement Procedure
2-way tester - One Cord Reference. MMF
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. When necessary, fit correctly sized mandrel to source end of launch cord. e.g. Kingfisher OPT701 mandrels.

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

Table 1, Mandrel diameters for 3 mm launch cord:
Clause 7.3.1 refers to requirements of TIA 526-14

2. Connect a test cord to each 2-way Loss Test Set (LTS) and set the reference on both instruments. For clarity the mandrels are not shown.

Figure 1, One cord reference

3. Disconnect test cord from the meter side of an instrument and connect to the cabling under test (CUT / DUT).

Similarly, connect the other instrument's test cord, to the other end of the DUT.
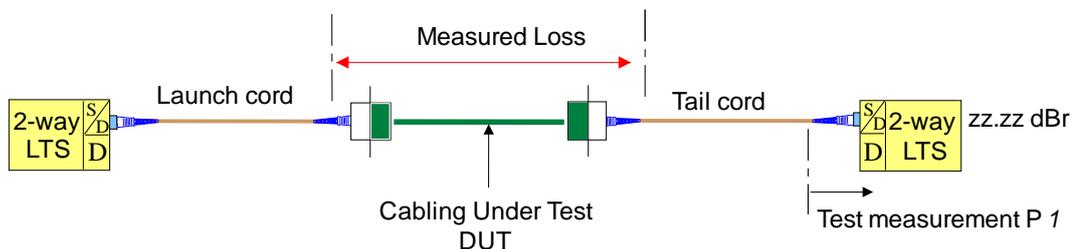

Figure 2, One cord measure

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.

_____

TIA Cabling Specifications 568.3-D

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

Item	Specification
Connector loss Ref-Std	0.3 dB
Connector loss Std-Std	0.75 dB
Splice loss	0.3 dB
850 nm 50 µm	3.0 dB/km
1300 nm 50 µm	1.5 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 + End Connector Loss + Other Connector Losses.

MMF *Formulae require checking*
Reference (Ref) grade test cords
Maximum IL at 850 nm = 3.0L + 0.3N + 0.6 + 0.75(C-2)
Maximum IL at 1300 nm = 1.5L + 0.3N + 0.6 + 0.75(C-2)

Standard (Std) grade test cords
Maximum IL at 850 nm = 3.0L + 0.3N + 1.5 + 0.75(C-2)
Maximum IL at 1300 nm = 1.5L + 0.3N + 1.5 + 0.75(C-2)

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

_____

DRAFT 1
November 2022
TIA 568.3-D

Page 2 of 2
2-way tester - One Cord Reference. MMF