Insertion Loss Measurement Procedure
2-way tester - One Cord / Configuration A.   SMF
TIA 526-7-A

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

Figure 1, One cord reference

2. 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.
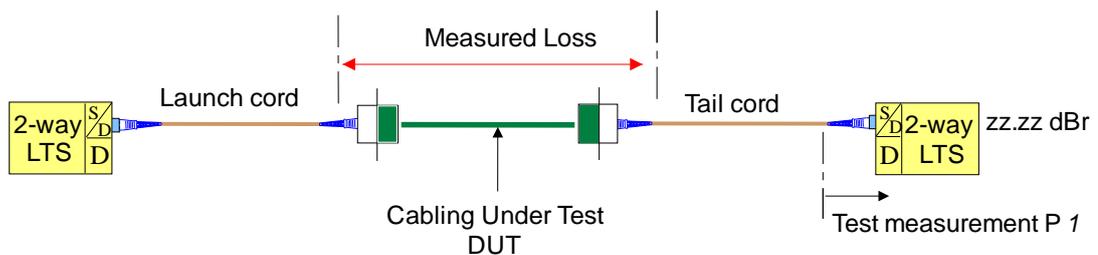
Figure 2, One cord measure

3. Read the insertion loss directly in dBr.

4. 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).

   When bi-directional testing to, Clause 4.3.8 requires that test results from each end should be very similar. (e.g. 0.5 dB)

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TIA Cabling Specifications 526-7-A

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	0.5 dB
Connector loss Std-Std	0.75 dB
Splice loss	0.3 dB Note 1
OS2, Outside plant 1310 / 1550 nm	0.4 dB/km Note 1
OS1, Indoor – Outdoor plant 1310 / 1550 nm	0.5 dB/km Note 1
Inside plant 1310 / 1550 nm	1.0 dB/km Note 1

Table 1, TIA 526-7-A cable plant specification:
Table G.1

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   **Formulas 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.

Note 1: Specifications for splice and cable loss not in the standard. Data taken from TIA-568.3-D.

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