Insertion Loss Measurement Procedure

MPO test cord validation

The basic principles are presented.

- For clarity, mode filters and the necessary presence of pinned and non-pinned connectors are not shown.
- Testing is performed one fibre at a time using a Kingfisher International optical power meter with Large Area Detector and two launch cords.
- Reference grade test cord IL specifications are:-

  MMF test cord IL specification of ≤ 0.1 dB.

  SMF test cord IL specification of ≤ 0.2 dB.

- 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. Validate the 'single fibred' launch cord in the usual way.
2. Connect validated launch cord to the meter and set the reference.

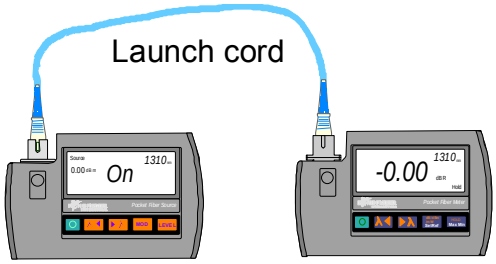

Figure 1, Set Launch cord reference

3. Connect the breakout launch cord to the single fibred launch cord and power meter.

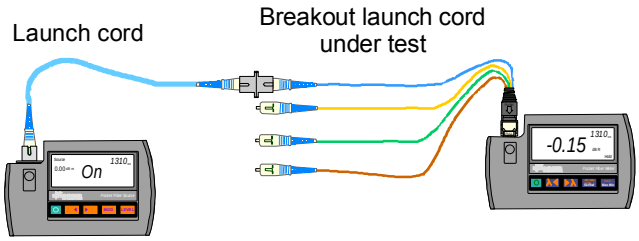

Figure 2, Breakout launch cord validation

4. If insertion loss (IL) of fibre 1 is within specification, continue.
5. Measure and record IL for all of the break-out cord connectors. Refer Column C1 in Table 1 below.

	Breakout launch Cord	MPO Tail Cord			
	Max MM ≤ 0.1 dB, Max SM ≤ 0.2 dB	Max MM ≤ 0.1 dB, Max SM ≤ 0.2 dB			
	C1	C2	C2-C1= IL A end	C3	C3-C1= IL B end
Fibre	SC End	A End		B End	
1	0.15	0.34	0.19	0.33	0.18
2	*0.13*	*0.31*	*0.18*	0.30	0.17
3	0.17	0.32	0.15	0.31	0.14
4	0.14	0.28	0.14	0.29	0.15
5	0.13	0.31	0.18	0.31	0.18
6	0.12	0.30	0.18	0.28	0.16
7	0.18	0.31	0.13	0.31	0.13
8	*0.19*	0.34	0.15	*0.33*	*0.14*
9	0.20	0.39	0.19	0.39	0.19
10	0.11	0.28	0.17	0.28	0.17
11	0.15	0.29	0.14	0.28	0.13
12	0.14	0.33	0.19	0.32	0.18

Table 1, Example - MPO cord test validation

6. If results are within reference cord specifications, then proceed to Step 7 below.
   If IL results are too high, then re-clean and re-test. If IL remains too high, then the cord under test does not meet test cord requirements.

7. Connect an MPO tail cord to the break out launch cord

8. Measure and record IL via all of the break-out cord connectors. Refer column C2 in Table 1 above.

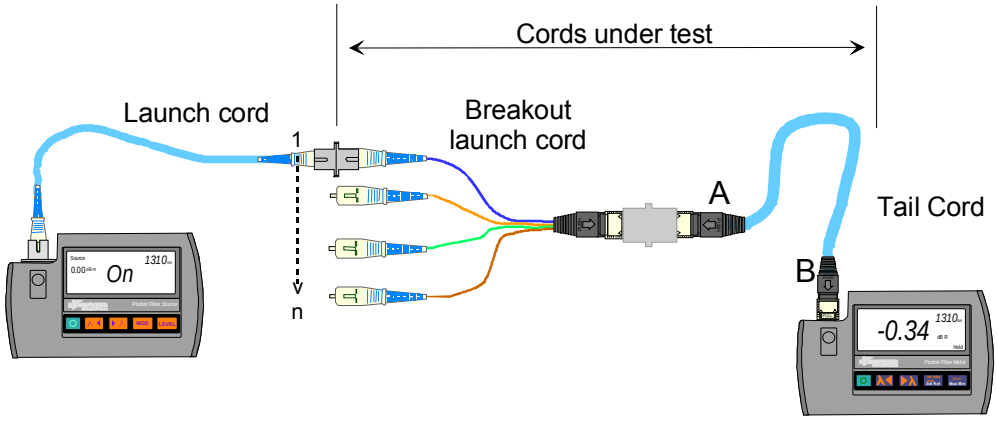

Figure 3, Tail cord 'A' end validation

9. Calculate mated loss of 'A' end MPO connections. C2-C1.

10. If results are within reference cord specifications, proceed to Step 11 over.
    If IL results are too high, then re-clean and re-test. If IL remains too high, then the cord under test does not meet test cord requirements.

11. Reverse MPO tail cord under test.

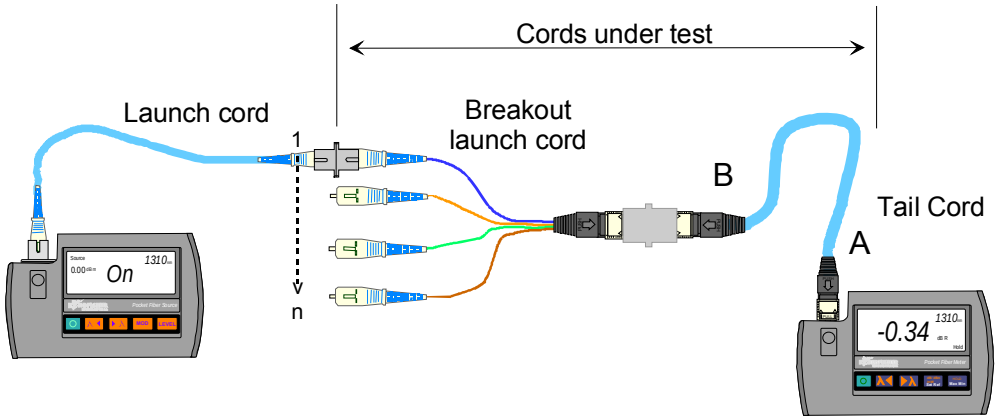

Figure 4, Tail cord 'B' end validation

12. Measure and record IL via all of the break-out cord connectors. Refer column C3 in Table 1 above.
13. Calculate mated loss of 'B' end MPO connections. C3-C1.
14. If results are within reference cord specifications, then both test cords are validated as performing to test cord IL specification.

- - - - - - - - - - - - - - - - - - -

Table 2 below may be used to record test cord validation tests.

	Breakout launch Cord	MPO Tail Cord			
	Max MM ≤ 0.1 dB, Max SM ≤ 0.2 dB	Max MM ≤ 0.1 dB, Max SM ≤ 0.2 dB			
	C1	C2	C2-C1= IL A end	C3	C3-C1= IL B end
Fibre	SC End	A End		B End	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Table 2, Blank MPO cord test validation