Kingfisher International Multimode Source E.F. Compliance Report

EF Compliance by comparison

Using 50 µm test cords, the insertion loss at 850 nm and 1300 nm of 0.56 Km of multimode fiber was measured with several Kingfisher multimode sources, both with and without an external EF compliant artifact, in this case a Mod Con II.

All results showed excellent agreement, much better than the EF insertion loss objective correlation limit of 10% set in the standards.

This demonstrates excellent and consistent compliance of our multimode sources with Encircled Flux requirements in the latest draft standard IEC 61282-11/TR/Ed2.

This report applies to any current Kingfisher multimode test source / LTS.

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LOSS C0MPARISON TEST OF MM SOURCES

All Kingfisher multimode test sources use a EF control arrangement, which first entered manufacture in the year 2008. The current arrangement entered service in August 2014.

850 nm

The sources were found to have an average Insertion Loss (IL) approximately 0.5% lower than that indicated when the Mod Con II was used. The maximum measurement variation was about 1%.

Si Meter		Loss tested with source only @ 850 nm		Loss tested with Mod Con II @ 850nm		Absolute variation	
Source	**S/N**	**special mod**		**via Mod Con II**			
		Test 1	**Test 2**	**Test 1**	**Test 2**	**Dif 1**	**Dif 2**
KI9812A	26539			1.69	1.7		
	26540	1.66	1.66	1.7	1.69	0.04	0.03
	26541	1.7	1.69	1.72	1.72	0.02	0.03
	26542	1.64	1.64	1.66	1.67	0.02	0.03
	26543	1.66	1.66	1.66	1.67	0	0.01
	26544	1.69	1.68	1.71	1.7	0.02	0.02
	26545	1.66	1.66	1.67	1.67	0.01	0.01
	26546	1.7	1.69	1.72	1.72	0.02	0.03
	26547	1.67	1.67	1.68	1.67	0.01	0
	26548	1.66	1.65	1.68	1.67	0.02	0.02
	Average	1.67	1.67	1.69	1.69	0.02	0.02
	Max	1.7	1.69	1.72	1.72	0.04	0.03
	Min	1.64	1.64	1.66	1.67	0	0
	Max-Min	0.06	0.05	0.06	0.05	0.04	0.03

Table 1, Standards Comparison Summary – 850 nm

For an IL of 1.69 dB, the IEC 61282 source induced IL variation objective of 10% can be seen to be in the range of 1.86 <-> 1.54 dB.

The range we achieved in this test of 1.7 <-> 1.64 dB using 9 randomly selected sources, are in percentage terms, about ten times better than the standards requirement.

The nine randomly selected Kingfisher International sources tested showed excellent performance conformance at 850 nm to the EF standards requirement.

1300 nm

The sources were found to have an average Insertion Loss (IL) approximately 3% lower than that indicated when the Mod Con II was used. The maximum measurement variation was about 10%.

Ge meter		Loss tested with source only @ 1300 nm		Loss tested with Mod Con II @ 1300 nm		Absolute variation	
Source		**Special Mod**		**Mod Con II**			
	S/N	**Test 1**	**Test 2**	**Test 1**	**Test 2**	**Dif 1**	**Dif 2**
KI9812A	26870	0.36	0.35	0.33	0.32	-0.03	-0.03
	26871	0.32	0.32	0.32	0.32	0	0
	26872	0.32	0.31	0.33	0.33	0.01	0.02
	26873	0.34	0.34	0.33	0.33	-0.01	-0.01
	26874	0.33	0.32	0.33	0.32	0	0
	26959	0.35	0.35	0.33	0.32	-0.02	-0.03
	26960	0.33	0.33	0.33	0.32	0	-0.01
	Average	0.34	0.33	0.33	0.32	-0.01	-0.01
	Max	0.36	0.35	0.33	0.33	0.01	0.02
	Min	0.32	0.31	0.32	0.32	-0.03	-0.03
	Max-Min	0.04	0.04	0.01	0.01	0.04	0.05

Table 2, Standards Comparison Summary – 1300 nm

For an IL of 0.33 dB, the IEC 61282 source induced IL variation objective of 10% can be seen to be in the range of 0.36 <-> 0.30 dB.

The range we achieved in this test of 0.36 <-> 0.31 dB using 7 randomly selected sources, meet the 10% standards requirement.

The seven randomly selected Kingfisher International sources tested showed good performance conformance at 1300 nm to the EF standards requirement.

The level of measurement confidence at 1300 nm is unavoidably lower than at 850 nm due to a combination of smaller absolute losses, and use of a Ge detector power meter, however it's adequate or this purpose.

REFERENCES

The following documents have been sourced in preparation of this document;

	Document	Name
1	61282-11/TR/Ed2	IEC 61282-11/TR/Ed2: Fibre optic communication system design guides – Part 11: Multimode launch conditions

VERSION HISTORY

	Date	Change
1	8 August 2014	Document creation
2	7 October 2014	Added 1300 nm