

DIAMOND
Test & Calibration Laboratory STS 333 / SCS 101

Product Specification Qualification Test Report



FC APC/PC Standard SM Titanium



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FC APC SM on fibre patch cords

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FC PC SM on fibre patch cords

Measurement / test	Method	Page	Edition ¹⁾	Requalified ²⁾	Similarity ³⁾
Insertion loss	IEC 61300-3-4	9	03.'10	-	-
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Fibre retention	IEC 61300-2-4	19	03.'10	-	-
Mating durability	IEC 61300-2-2	20	03.'10	-	-

1) Edition: This column states the date of the Qualification;

2) Requalified: This column states the date of the Requalification;

3) Similarity: This column lists the product for which similarity principle has been applied.



The present Qualification Test Report (QTR) summarizes the qualification measurements and tests performed to verify the design and the optical, mechanical and environmental performance of the FC APC/PC SM connector at the accredited test & calibration laboratory STS 333 / SCS 101 at Diamond SA, Losone. This current QTR is a summary of the internal qualification report no. 2110 performed at the test & calibration laboratory STS 333 / SCS 101 (www.sas.ch).

The qualification test program of the FC APC/PC SM connector is determined under the guideline of IEC 61753-2-1, which defines the minimum requirements and severities which a single-mode connector must satisfy in order to be considered as meeting category C (controlled environment) respectively category U (uncontrolled environment) of IEC 61753-1.

The qualified product is subject to periodic requalification with the purpose of guaranteeing the product compliance to the specifications measured in the present report over the years.

For requalification purposes the principle of similarity is applied, where the qualification data of similar products can be used if they meet the same technology platform and are manufactured using the same process.

For additional information, please contact Diamond or your Diamond Sales Representative.

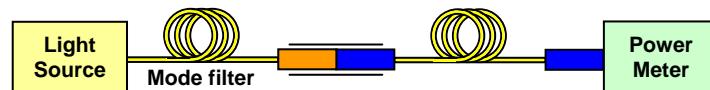
Insertion loss

Methods: Method B according to IEC 61300-3-4

a) Reference measurement:



b) DUT measurement:



Requirements: $IL_{Max} \leq 0.20 \text{ dB}$

Samples:

- DUT: 10 SM fibre patch cords terminated with Diamond FC APC SM connectors
- Fibre type: 9/125/900 μm , Diamond art. no. 1005155
- Reference connectors: 1 Diamond FC APC SM connector
- Mating adapters: 1 Diamond FC SM mating adapter

Parameters:

- Wavelengths: 1310 nm / 1550 nm
- No. of measurements: 20

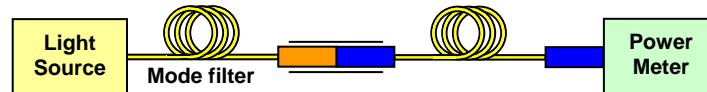
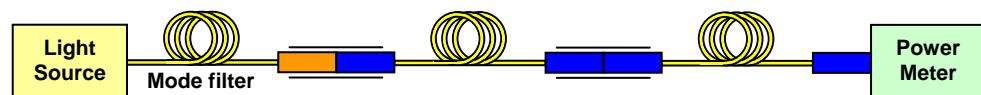
Results:

Statistics	Insertion loss IL against reference connector [dB]	
	at 1310 nm	at 1550 nm
Mean value	0.09	0.07
Standard deviation	0.05	0.03
Maximum value	0.21	0.17
Minimum value	0.01	0.02

Insertion loss, random mated

Methods:

- Insertion loss measurement method B according to IEC 61300-3-4
- Random mating method 1 according to IEC 61300-3-34

a) Reference measurement:

b) DUT measurement:

Requirements:

Grade C

$$IL_{\text{Mean}} \leq 0.25 \text{ dB}$$

$$IL_{97\%} \leq 0.50 \text{ dB}$$

Samples:

- DUT: 5 SM fibre patch cords terminated with Diamond FC APC SM connectors
- Fibre type: 9/125/900 μm , Diamond art. no. 1005155
- Mating adapters: 1 Diamond FC SM mating adapter

Parameters:

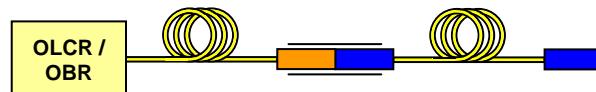
- Wavelengths: 1310 nm / 1550 nm
- No. of measurements: 80

Results:

Statistics	Insertion loss IL, random mated [dB]	
	at 1310 nm	at 1550 nm
Mean value	0.16	0.11
Standard deviation	0.07	0.05
97% value	0.34	0.24
Maximum value	0.36	0.25
Minimum value	0.05	0.03

Return loss

Methods: OLCR / OTDR method according to IEC 61300-3-6



Requirements: $RL_{Min} \geq 70 \text{ dB}$

Samples:

- DUT: 11 SM fibre patch cords terminated with FC APC SM connectors
- Fibre type: 9/125/900 μm , Diamond art. no. 1005155
- Reference connectors: 1 Diamond FC APC SM connector
- Mating adapters: 1 Diamond FC SM mating adapter

Parameters:

- Wavelengths: 1310 nm / 1550 nm
- No. of measurements: 22

Results:

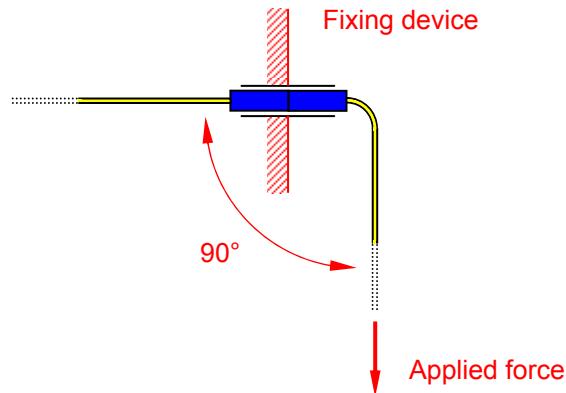
Statistics	Return loss RL against reference connector [dB]	
	at 1310 nm	at 1550 nm
Mean value	-	91.0
Standard deviation	-	4.2
Maximum value	-	97.0
Minimum value	> 85 ¹⁾	82.2

1) All measured values are beyond the dynamic range of the used instrument.

Static side load

Methods:

- Insertion loss measurement method B according to IEC 61300-3-4
- Active monitoring of attenuation and return loss according to IEC 61300-3-3
- Static side load test according to IEC 61300-2-42



Requirements: $\Delta IL_{Max} \leq 0.20 \text{ dB}$ during test

Samples:

- DUT: 4 SM fibre patch cords terminated with FC APC SM connectors
- Fibre type: 9/125/900/ μm , Diamond art. no. 1005155
- Mating adapters: 1 Diamond FC SM mating adapter

Parameters:

- | | |
|-------------------------------|--|
| - Wavelengths: | 1310 nm / 1550 nm |
| - Monitored channels: | 4 |
| - Applied force: | 0.2 N |
| - Force direction: | 90° respect to the longitudinal connector axis |
| - Duration of applied force: | 5 min |
| - Force application distance: | 20 cm |

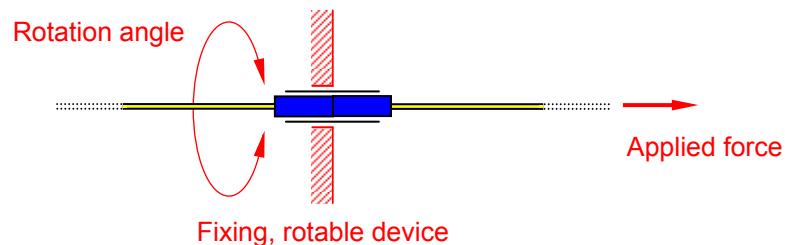
Results:

Sample no.	Insertion loss IL [dB]							Variation of insertion loss ΔIL [dB]	
	before test		during test		after test				
	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm	
1	0.12	0.10	0.12	0.11	0.13	0.09	0.01	0.02	
2	0.04	0.04	0.04	0.04	0.04	0.03	0.00	0.01	
3	0.29	0.19	0.29	0.19	0.29	0.20	0.00	0.01	
4	0.13	0.10	0.12	0.10	0.12	0.10	0.01	0.00	
Maximum value								0.01	0.02
Minimum value								0.00	0.00

Fibre torsion

Methods:

- Insertion loss measurement method B according to IEC 61300-3-4
- Active monitoring of attenuation and return loss according to IEC 61300-3-3
- Fibre torsion test according to IEC 61300-2-5



Requirements: $\Delta IL_{Max} \leq 0.20 \text{ dB}$ during test

Samples:

- DUT: 4 SM fibre patch cords terminated with FC APC SM connectors
- Fibre type: 9/125/900 μm , Diamond art. no. 1005155
- Mating adapters: 1 Diamond FC SM mating adapter

Parameters:

- | | |
|-------------------------------|-----------------------------|
| - Wavelengths: | 1310 nm / 1550 nm |
| - Monitored channels: | 4 |
| - Applied force: | 2 N |
| - Force direction: | Longitudinal connector axis |
| - Rotation angle: | +180° to -180° and back |
| - Number of cycles: | 25 |
| - Force application distance: | 40 cm |

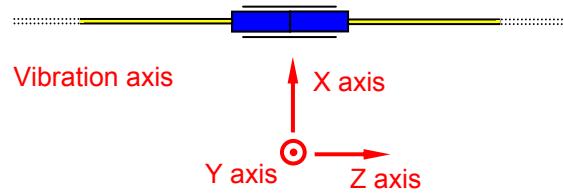
Results:

Sample no.	Insertion loss IL [dB]						Variation of insertion loss ΔIL [dB]	
	before test		during test		after test			
	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm
1	0.24	0.19	0.25	0.21	0.24	0.19	0.01	0.02
2	0.24	0.16	0.25	0.16	0.25	0.16	0.01	0.00
3	0.16	0.09	0.17	0.11	0.15	0.08	0.02	0.03
4	0.16	0.17	0.15	0.18	0.16	0.17	0.01	0.01
Maximum value							0.02	0.03
Minimum value							0.01	0.00

Vibration, sinusoidal

Methods:

- Insertion loss measurement method B according to IEC 61300-3-4
- Active monitoring of attenuation and return loss according to IEC 61300-3-3
- Sinusoidal vibration test according to IEC 61300-2-1



Requirements: $\Delta IL_{Max} \leq 0.20$ dB during test

Samples:

- DUT: 4 SM fibre patch cords terminated with FC APC SM connectors
- Fibre type: 9/125/900 µm, Diamond art. no. 1005155
- Mating adapters: 1 Diamond FC SM mating adapter

Parameters:

- | | |
|------------------------------|------------------------|
| - Wavelengths: | 1310 nm / 1550 nm |
| - Monitored channels: | 4 |
| - Upper vibration frequency: | 55 Hz |
| - Lower vibration frequency: | 10 Hz |
| - Vibration amplitude: | 0.75 mm (peak-to-peak) |
| - Sweep rate: | 1 Oct/min |
| - Sweep cycles: | 15 |
| - Duration per axis: | 30 min |

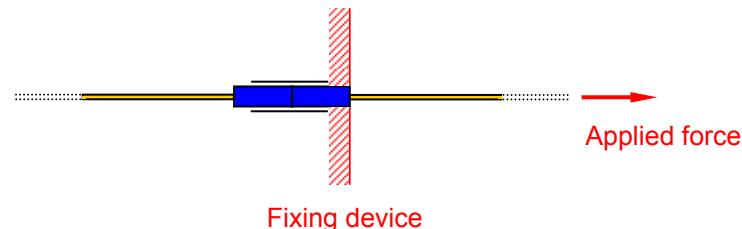
Results:

Sample no.	Vibration axis	Insertion loss IL [dB]						Variation of insertion loss ΔIL [dB]	
		before test		during test		after test			
		at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm
1	X (Y)	0.22	0.10	0.21	0.08	0.21	0.09	0.01	0.02
	Z	0.32	0.19	0.32	0.19	0.33	0.21	0.01	0.02
2	X (Y)	0.12	0.11	0.12	0.12	0.11	0.11	0.01	0.01
	Z	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01
3	X (Y)	0.11	0.06	0.11	0.07	0.11	0.05	0.00	0.02
	Z	0.03	0.01	0.03	0.02	0.03	0.02	0.00	0.01
4	X (Y)	0.18	0.16	0.18	0.15	0.18	0.16	0.00	0.01
	Z	0.08	0.06	0.09	0.06	0.09	0.07	0.01	0.01
Maximum value								0.01	0.02
Minimum value								0.00	0.01

Fibre retention

Methods:

- Insertion loss measurement method B according to IEC 61300-3-4
- Active monitoring of attenuation and return loss according to IEC 61300-3-3
- Fibre retention test according to IEC 61300-2-4



Requirements: $\Delta IL_{Max} \leq 0.20 \text{ dB}$ during test

Samples:

- DUT: 4 SM fibre patch cords terminated with FC APC SM connectors
- Fibre type: 9/125/900 μm , Diamond art. no. 1005155
- Mating adapters: 1 Diamond FC SM mating adapter

Parameters:

- | | |
|-------------------------------|-----------------------------|
| - Wavelengths: | 1310 nm / 1550 nm |
| - Monitored channels: | 4 |
| - Applied force: | 5 N |
| - Force direction: | Longitudinal connector axis |
| - Duration of applied force: | 1 min |
| - Force application distance: | 30 cm |

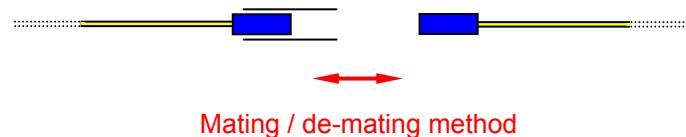
Results:

Sample no.	Insertion loss IL [dB]								Variation of insertion loss ΔIL [dB]			
	before test		during test		after test							
	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm				
1	0.23	0.12	0.23	0.12	0.23	0.12	0.00	0.00	0.01	0.01		
2	0.10	0.08	0.11	0.08	0.11	0.08	0.01	0.00	0.01	0.01		
3	0.09	0.07	0.10	0.07	0.10	0.07	0.01	0.00	0.01	0.01		
4	0.07	0.06	0.08	0.06	0.07	0.07	0.01	0.01	0.01	0.01		
Maximum value							0.01	0.01				
Minimum value							0.00	0.00				

Mating durability

Methods:

- Insertion loss measurement method B according to IEC 61300-3-4
- Active monitoring of attenuation and return loss according to IEC 61300-3-3
- Mating durability test according to IEC 61300-2-2



Requirements: $\Delta IL_{Max} \leq 0.20$ dB during test

Samples:

- DUT: 2 SM cable patch cords terminated with FC APC SM connectors
- Fibre type: 9/125/900 µm, Diamond art. no. 1005155
- Mating adapters: 1 Diamond FC SM mating adapter

Parameters:

- Wavelengths: 1310 nm / 1550 nm
- Monitored channels: 1
- Mating / de-mating cycles: 500

Results:

Sample no.	Insertion loss IL [dB]				Variation of insertion loss ΔIL [dB]	
	maximum value		minimum value		at 1310 nm	at 1550 nm
	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm		
1	0.15	0.13	0.02	0.02	0.13	0.11

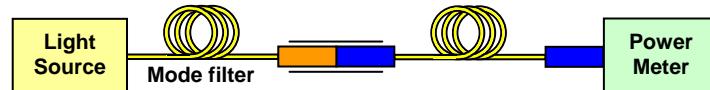
Insertion loss

Methods: Method B according to IEC 61300-3-4

a) Reference measurement:



b) DUT measurement:



Requirements: $IL_{Max} \leq 0.20 \text{ dB}$

Samples:

- DUT: 10 SM fibre patch cords terminated with Diamond FC PC SM connectors
- Fibre type: 9/125/900 μm , Diamond art. no. 1005155
- Reference connectors: 1 Diamond FC PC SM connector
- Mating adapters: 1 Diamond FC SM mating adapter

Parameters:

- Wavelengths: 1310 nm / 1550 nm
- No. of measurements: 20

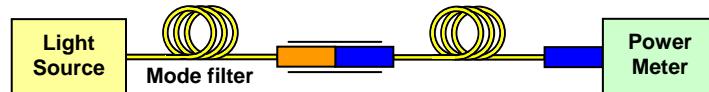
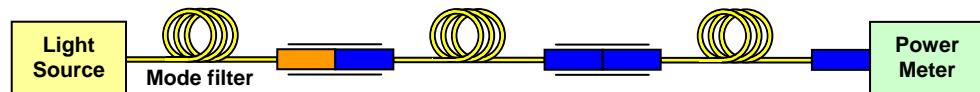
Results:

Statistics	Insertion loss IL against reference connector [dB]	
	at 1310 nm	at 1550 nm
Mean value	0.09	0.06
Standard deviation	0.04	0.03
Maximum value	0.17	0.12
Minimum value	0.01	0.01

Insertion loss, random mated

Methods:

- Insertion loss measurement method B according to IEC 61300-3-4
- Random mating method 1 according to IEC 61300-3-34

a) Reference measurement:

b) DUT measurement:

Requirements:

Grade C

$$IL_{\text{Mean}} \leq 0.25 \text{ dB}$$

$$IL_{97\%} \leq 0.50 \text{ dB}$$

Samples:

- DUT: 5 SM fibre patch cords terminated with Diamond FC PC SM connectors
- Fibre type: 9/125/900 μm , Diamond art. no. 1005155
- Mating adapters: 1 Diamond FC SM mating adapter

Parameters:

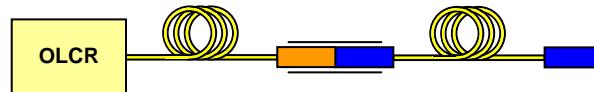
- Wavelengths: 1310 nm / 1550 nm
- No. of measurements: 80

Results:

Statistics	Insertion loss IL, random mated [dB]	
	at 1310 nm	at 1550 nm
Mean value	0.12	0.10
Standard deviation	0.07	0.05
97% value	0.27	0.21
Maximum value	0.32	0.24
Minimum value	0.01	0.01

Return loss

Methods: OLCR method according to IEC 61300-3-6



Requirements: $RL_{Min} \geq 50 \text{ dB}$

Samples:

- DUT: 11 SM fibre patch cords terminated with FC PC SM connectors
- Fibre type: 9/125/900 μm , Diamond art. no. 1005155
- Reference connectors: 1 Diamond FC PC SM connector
- Mating adapters: 1 Diamond FC SM mating adapter

Parameters:

- Wavelengths: 1310 nm / 1550 nm
- No. of measurements: 22

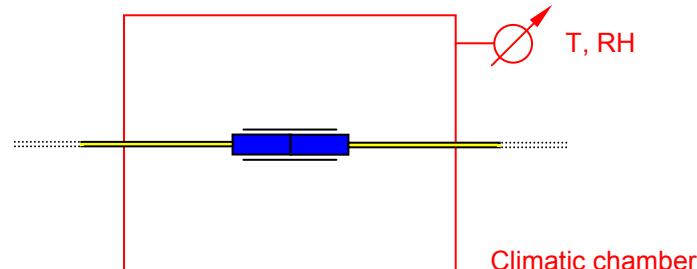
Results:

Statistics	Return loss RL against reference connector [dB]	
	at 1310 nm	at 1550 nm
Mean value	60.8	59.8
Standard deviation	2.7	2.7
Maximum value	65.7	68.0
Minimum value	54.3	55.6

Change of temperature

Methods:

- Insertion loss measurement method B according to IEC 61300-3-4
- Active monitoring of attenuation and return loss according to IEC 61300-3-3
- Change of temperature test according to IEC 61300-2-22



Requirements: $\Delta IL_{Max} \leq 0.20$ dB during test

Samples:

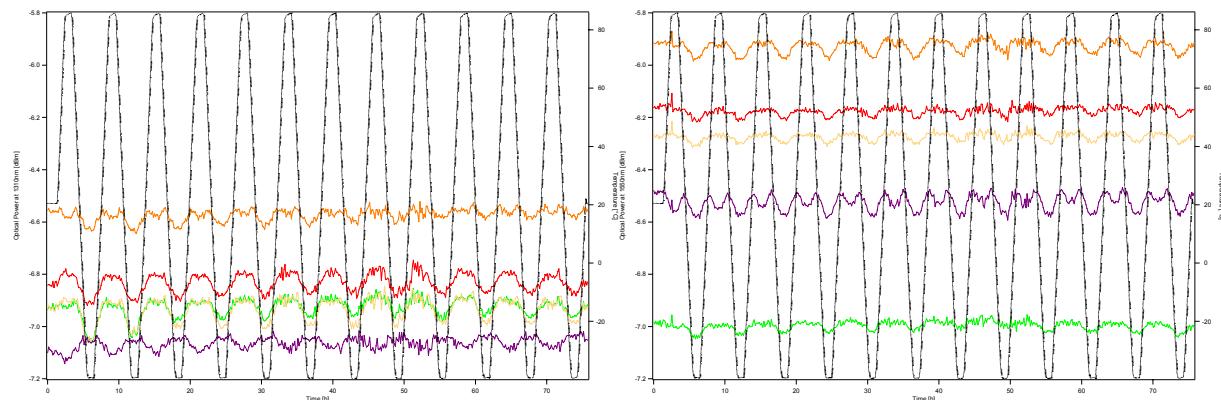
- DUT: 10 SM fibre patch cords terminated with FC PC SM connectors
- Fibre type: 9/125/900 µm, Diamond art. no. 1005155
- Mating adapters: 5 Diamond FC SM mating adapters

Parameters:

- Wavelengths: 1310 nm / 1550 nm
- Monitored channels: 5
- Upper cycling temperature: +85°C
- Lower cycling temperature: -40°C
- Relative humidity: Not controlled
- Dwell time at extreme temperatures: 1 h
- Variation of temperature at slopes: 1°C/min
- Number of cycles: 12
- Duration: 74 h

Results:

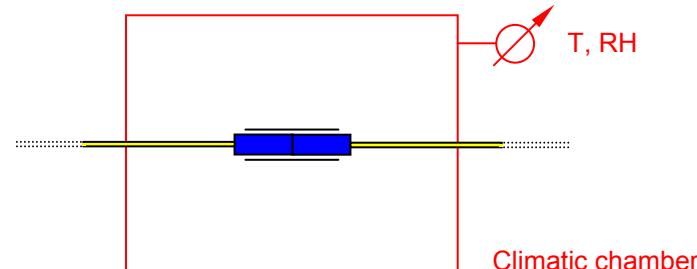
Statistics	Variation of insertion loss ΔIL during test [dB]	
	at 1310 nm	at 1550 nm
Maximum value	0.21	0.12
Minimum value	0.12	0.09



Cold

Methods:

- Insertion loss measurement method B according to IEC 61300-3-4
- Active monitoring of attenuation and return loss according to IEC 61300-3-3
- Cold test according to IEC 61300-2-17



Requirements: $\Delta IL_{Max} \leq 0.20$ dB during test

Samples:

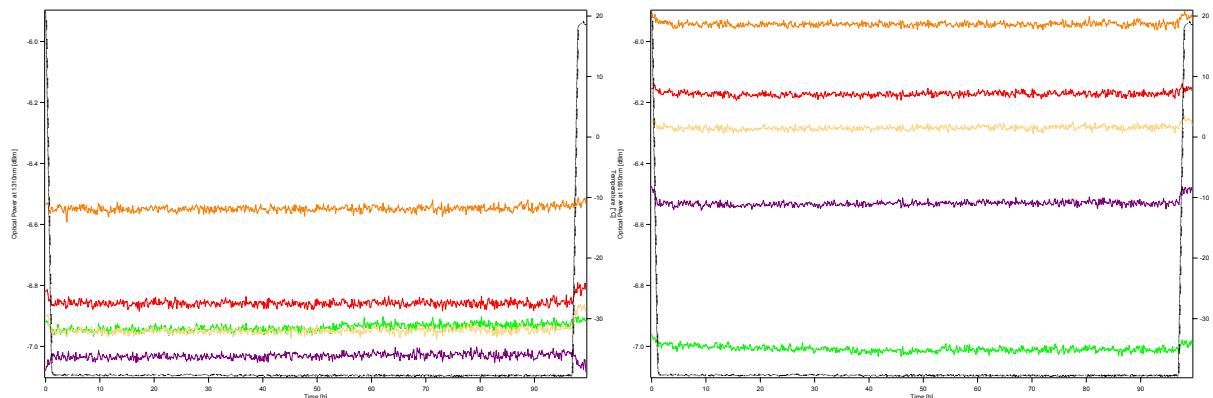
- DUT: 10 SM fibre patch cords terminated with FC PC SM connectors
- Fibre type: 9/125/900 µm, Diamond art. no. 1005155
- Mating adapters: 5 Diamond FC SM mating adapters

Parameters:

- | | |
|-------------------------|-------------------|
| - Wavelengths: | 1310 nm / 1550 nm |
| - Monitored channels: | 5 |
| - Constant temperature: | -40°C |
| - Relative humidity: | Not controlled |
| - Duration: | 96 h |

Results:

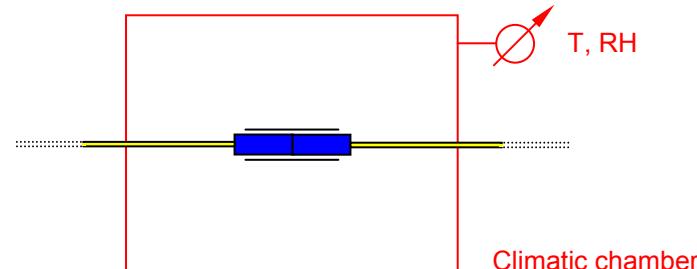
Statistics	Variation of insertion loss ΔIL during test [dB]	
	at 1310 nm	at 1550 nm
Maximum value	0.12	0.08
Minimum value	0.07	0.05



Dry heat

Methods:

- Insertion loss measurement method B according to IEC 61300-3-4
- Active monitoring of attenuation and return loss according to IEC 61300-3-3
- Dry heat test according to IEC 61300-2-18



Requirements: $\Delta IL_{Max} \leq 0.20 \text{ dB}$ during test

Samples:

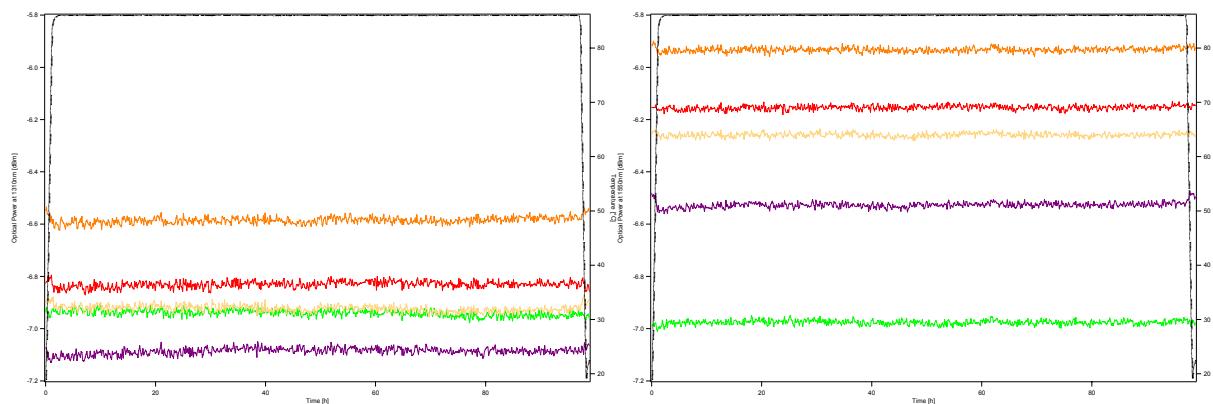
- DUT: 10 SM fibre patch cords terminated with FC PC SM connectors
- Fibre type: 9/125/900 μm , Diamond art. no. 1005155
- Mating adapters: 5 Diamond FC SM mating adapters

Parameters:

- | | |
|-------------------------|-------------------|
| - Wavelengths: | 1310 nm / 1550 nm |
| - Monitored channels: | 5 |
| - Constant temperature: | +85°C |
| - Relative humidity: | Not controlled |
| - Duration: | 96 h |

Results:

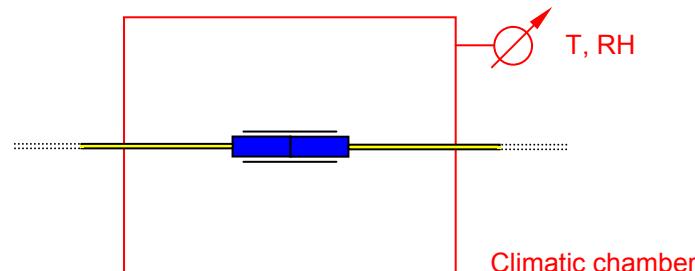
Statistics	Variation of insertion loss ΔIL during test [dB]	
	at 1310 nm	at 1550 nm
Maximum value	0.09	0.09
Minimum value	0.07	0.05



Damp heat, cyclic

Methods:

- Insertion loss measurement method B according to IEC 61300-3-4
- Active monitoring of attenuation and return loss according to IEC 61300-3-3
- Damp heat, cyclic, test according to IEC 61300-2-46



Requirements: $\Delta IL_{Max} \leq 0.20 \text{ dB}$ during test

Samples:

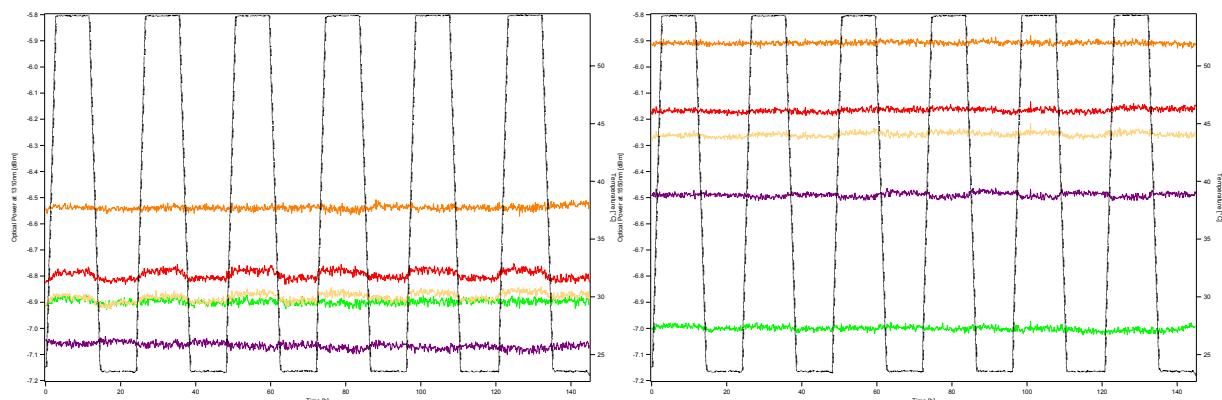
- DUT: 10 SM fibre patch cords terminated with FC PC SM connectors
- Fibre type: 9/125/900 μm , Diamond art. no. 1005155
- Mating adapters: 5 Diamond FC SM mating adapters

Parameters:

- Wavelengths: 1310 nm / 1550 nm
- Monitored channels: 5
- Upper cycling temperature: +55°C
- Lower cycling temperature: +25°C
- Relative humidity: 95% r.h.
- Dwell time at extreme temperatures: 9 h
- Variation of temperature at slopes: 10°C/h
- Number of cycles: 6
- Duration: 144 h

Results:

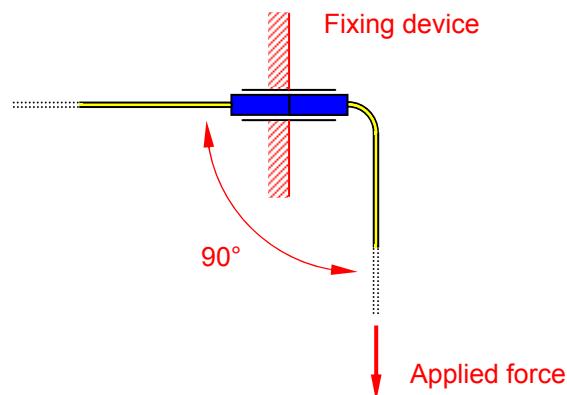
Statistics	Variation of insertion loss ΔIL during test [dB]	
	at 1310 nm	at 1550 nm
Maximum value	0.12	0.08
Minimum value	0.10	0.05



Static side load

Methods:

- Insertion loss measurement method B according to IEC 61300-3-4
- Active monitoring of attenuation and return loss according to IEC 61300-3-3
- Static side load test according to IEC 61300-2-42



Requirements: $\Delta IL_{Max} \leq 0.20$ dB during test

Samples:

- DUT: 4 SM fibre patch cords terminated with FC PC SM connectors
- Fibre type: 9/125/900 µm, Diamond art. no. 1005155
- Mating adapters: 1 Diamond FC SM mating adapters

Parameters:

- | | |
|-------------------------------|--|
| - Wavelengths: | 1310 nm / 1550 nm |
| - Monitored channels: | 4 |
| - Applied force: | 1 N |
| - Force direction: | 90° respect to the longitudinal connector axis |
| - Duration of applied force: | 60 min |
| - Force application distance: | 30 cm |

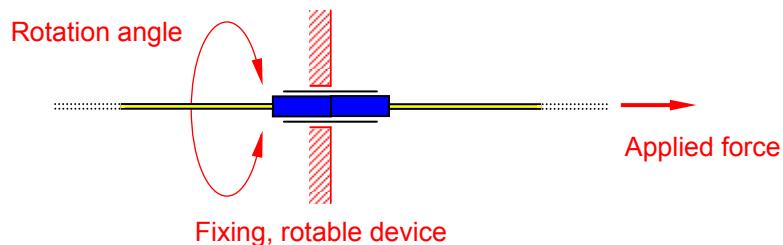
Results:

Sample no.	Insertion loss IL [dB]								Variation of insertion loss ΔIL [dB]			
	before test		during test		after test							
	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm				
1	0.13	0.16	0.13	0.16	0.13	0.16	0.00	0.00	0.00	0.00		
2	0.11	0.13	0.11	0.13	0.11	0.13	0.00	0.00	0.00	0.00		
3	0.39	0.40	0.39	0.40	0.39	0.40	0.00	0.00	0.00	0.00		
4	0.16	0.10	0.16	0.10	0.16	0.10	0.00	0.00	0.00	0.00		
Maximum value								0.00	0.00			
Minimum value								0.00	0.00			

Fibre torsion

Methods:

- Insertion loss measurement method B according to IEC 61300-3-4
- Active monitoring of attenuation and return loss according to IEC 61300-3-3
- Fibre torsion test according to IEC 61300-2-5



Requirements: $\Delta IL_{Max} \leq 0.20 \text{ dB}$ during test

Samples:

- DUT: 4 SM fibre patch cords terminated with FC PC SM connectors
- Fibre type: 9/125/900 μm , Diamond art. no. 1005155
- Mating adapters: 1 Diamond FC SM mating adapter

Parameters:

- | | |
|-------------------------------|-----------------------------|
| - Wavelengths: | 1310 nm / 1550 nm |
| - Monitored channels: | 4 |
| - Applied force: | 2 N |
| - Force direction: | Longitudinal connector axis |
| - Rotation angle: | +180° to -180° and back |
| - Number of cycles: | 25 |
| - Force application distance: | 40 cm |

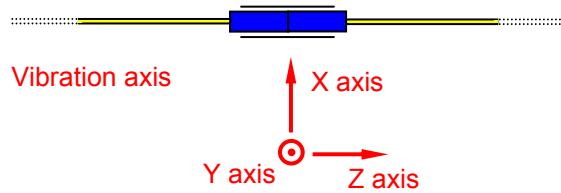
Results:

Sample no.	Insertion loss IL [dB]						Variation of insertion loss ΔIL [dB]	
	before test		during test		after test			
	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm
1	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.00
2	0.06	0.05	0.06	0.05	0.06	0.05	0.00	0.00
3	0.11	0.06	0.10	0.07	0.10	0.06	0.01	0.01
4	0.04	0.03	0.05	0.04	0.05	0.04	0.01	0.01
Maximum value							0.01	0.01
Minimum value							0.00	0.00

Vibration, sinusoidal

Methods:

- Insertion loss measurement method B according to IEC 61300-3-4
- Active monitoring of attenuation and return loss according to IEC 61300-3-3
- Sinusoidal vibration test according to IEC 61300-2-1



Requirements: $\Delta IL_{Max} \leq 0.20$ dB during test

Samples:

- DUT: 4 SM fibre patch cords terminated with FC PC SM connectors
- Fibre type: 9/125/900 µm, Diamond art. no. 1005155
- Mating adapters: 1 Diamond FC SM mating adapter

Parameters:

- | | |
|------------------------------|------------------------|
| - Wavelengths: | 1310 nm / 1550 nm |
| - Monitored channels: | 4 |
| - Upper vibration frequency: | 55 Hz |
| - Lower vibration frequency: | 10 Hz |
| - Vibration amplitude: | 0.75 mm (peak-to-peak) |
| - Sweep rate: | 1 Oct/min |
| - Sweep cycles: | 15 |
| - Duration per axis: | 30 min |

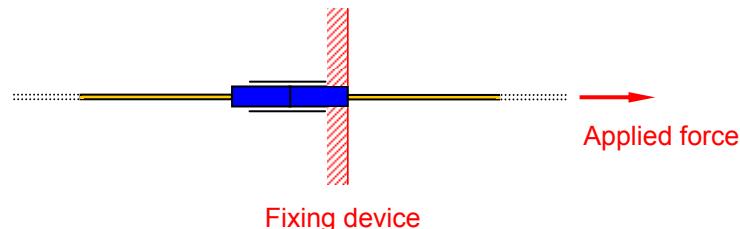
Results:

Sample no.	Vibration axis	Insertion loss IL [dB]						Variation of insertion loss ΔIL [dB]			
		before test		during test		after test					
		at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm				
1	X (Y)	0.28	0.19	0.28	0.19	0.27	0.19	0.01	0.00		
	Z	0.14	0.08	0.16	0.09	0.13	0.08	0.03	0.01		
2	X (Y)	0.21	0.18	0.21	0.18	0.21	0.18	0.00	0.00		
	Z	0.11	0.10	0.12	0.09	0.11	0.10	0.01	0.01		
3	X (Y)	0.10	0.11	0.12	0.12	0.11	0.11	0.02	0.01		
	Z	0.06	0.02	0.07	0.02	0.06	0.03	0.01	0.01		
4	X (Y)	0.24	0.22	0.23	0.22	0.23	0.21	0.01	0.01		
	Z	0.08	0.07	0.08	0.07	0.08	0.07	0.00	0.00		
Maximum value								0.03	0.01		
Minimum value								0.00	0.00		

Fibre retention

Methods:

- Insertion loss measurement method B according to IEC 61300-3-4
- Active monitoring of attenuation and return loss according to IEC 61300-3-3
- Fibre retention test according to IEC 61300-2-4



Requirements: $\Delta IL_{Max} \leq 0.20 \text{ dB}$ during test

Samples:

- DUT: 4 SM fibre patch cords terminated with FC PC SM connectors
- Fibre type: 9/125/900 μm , Diamond art. no. 1005155
- Mating adapters: 1 Diamond FC SM mating adapter

Parameters:

- | | |
|-------------------------------|-----------------------------|
| - Wavelengths: | 1310 nm / 1550 nm |
| - Monitored channels: | 4 |
| - Applied force: | 5 N |
| - Force direction: | Longitudinal connector axis |
| - Duration of applied force: | 1 min |
| - Force application distance: | 30 cm |

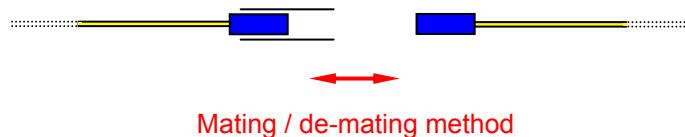
Results:

Sample no.	Insertion loss IL [dB]								Variation of insertion loss ΔIL [dB]			
	before test		during test		after test							
	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm				
1	0.05	0.07	0.06	0.07	0.06	0.07	0.01	0.00				
2	0.08	0.09	0.07	0.09	0.07	0.09	0.01	0.00				
3	0.02	0.02	0.02	0.02	0.02	0.02	0.00	0.00				
4	0.18	0.17	0.19	0.17	0.20	0.18	0.02	0.01				
Maximum value							0.02	0.01				
Minimum value							0.00	0.00				

Mating durability

Methods:

- Insertion loss measurement method B according to IEC 61300-3-4
- Active monitoring of attenuation and return loss according to IEC 61300-3-3
- Mating durability test according to IEC 61300-2-2



Mating / de-mating method

Requirements: $\Delta IL_{Max} \leq 0.20$ dB during test

Samples:

- DUT: 2 SM fibre patch cords terminated with FC PC SM connectors
- Fibre type: 9/125/900 µm, Diamond art. no. 1005155
- Mating adapters: 1 Diamond FC SM mating adapter

Parameters:

- Wavelengths: 1310 nm / 1550 nm
- Monitored channels: 1
- Mating / de-mating cycles: 500

Results:

Sample no.	Insertion loss IL [dB]				Variation of insertion loss ΔIL [dB]	
	maximum value		minimum value		at 1310 nm	at 1550 nm
	at 1310 nm	at 1550 nm	at 1310 nm	at 1550 nm		
1	0.14	0.09	0.03	0.03	0.11	0.06