GHMT PVP Testplan-LWL Ed. 2.0 (summary)

Fibre Optic Interconnecting Devices and Passive Components – Terminated Cable Assemblies and Mating Adapters

Performance Requirements

Optical Parameters

	Ferrule	Level 1	Level 2	Level 3
Max. Attenuation*	PC / APC	≤ 0,15 dB	≤ 0,25 dB	≤ 0,50 dB
Min. Return Loss** (SM only)	PC	≥ 50 dB	≥ 45 dB	-
	APC	≥ 80 dB	≥ 60 dB	-

*according IEC 61300-3-4 (setup with reference connector – method B; limit for 100% of plugs)
**according IEC 61300-3-6

Geometric Parameters (Ferrule Endface)

		Level 1	Level 2	Level 3
APEX Offset	**Mounted Housing**	≤ 70 µm	≤ 70 µm	≤ 70 µm
Fibre Height (Spherical Fit)	**Min. (undercut)**	Calc. acc. IEC	Calc. acc. IEC	Calc. acc. IEC
	Max.	100 nm	100 nm	100 nm
Radius of Curvature	**2,5 mm Ferrule PC**	10-25 mm	5-30 mm	5-30 mm
	2,5 mm Ferrule APC	5-12 mm	5-12 mm	5-12 mm
	1,25 mm Ferrule PC	7-25 mm	5-30 mm	5-30 mm
	1,25 mm Ferrule APC	5-12 mm	5-12 mm	5-12 mm
Roughness	**Fibre Roughness**	0-50 nm	0-50 nm	0-50 nm
	Ferrule Roughness	0-50 nm	0-50 nm	0-50 nm
Angle (APC)		8° ± 0,3°	8° ± 0,5°	8° ± 0,5°

Mating Cycle Test (Fibre Optic Mating Adapters)

	ΔIL Max.:	≤ 0,20 dB

Remarks:

1. The tested component has to PASS the limits **before** and **after** the change of temperature test.
2. In performance class **Level 1**, the manufacturer is required to ensure 100 percent testing with regard to both **squint angle [τ]** and **concentricity [α]** during production.
   The determined test result must be attached to the product. Geometric parameters are used to calculate attenuation according to the following formula:

$$IL\ (dB) = -10 \times \log\left(\left(\frac{2 \times W_1 \times W_2}{\left(W_1^2 + W_2^2\right)}\right)^2 \times e^{-\left(\frac{2\times(\pi\times N_1\times W_1\times W_2\times\tau)^2}{\lambda^2\times(W_1^2+W_2^2)} + \frac{2\times\alpha^2}{(W_1^2+W_2^2)}\right)}\right)$$

Test Conditions			
Change of Temperature Test [IEC 61300-2-22 Cat. C]			
Test Procedure:	**Number of Cycles:**	5	
	Min. Temperature:	-10 °C	
	Max. Temperature:	+60 °C	
	Humidity:	-	
	Rate of Change:	1 K/min	
	Time of Exposure:	60 min.	
Mating Cycle Test (Fibre Optic Coupler)			
Test Procedure:	**Number of Matings:**	3 x 50	