

GHMT PVP Testplan-LWL Ed. 2.0 (summary)

Fibre Optic Interconnecting Devices and Passive Components –
Terminated Cable Assemblies (Titanium / Copper Nickel Composite Ferrule)
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.	200 nm	200 nm	200 nm
Radius of Curvature	2,5 mm Ferrule PC	10-20 mm	7-20 mm	7-20 mm
	2,5 mm Ferrule APC	10-20 mm	7-20 mm	7-20 mm
	1,25 mm Ferrule PC	7-20 mm	7-20 mm	7-20 mm
	1,25 mm Ferrule APC	7-20 mm	7-20 mm	7-20 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:				
$IL \text{ (dB)} = -10 \times \log \left(\left(\frac{2 \times W_1 \times W_2}{(W_1^2 + W_2^2)} \right)^2 \times e^{-\left(\frac{2 \times (\pi \times N_1 \times W_1 \times W_2 \times \tau)^2}{\lambda^2 \times (W_1^2 + W_2^2)} + \frac{2 \times \alpha^2}{(W_1^2 + W_2^2)} \right)} \right)$				

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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	