

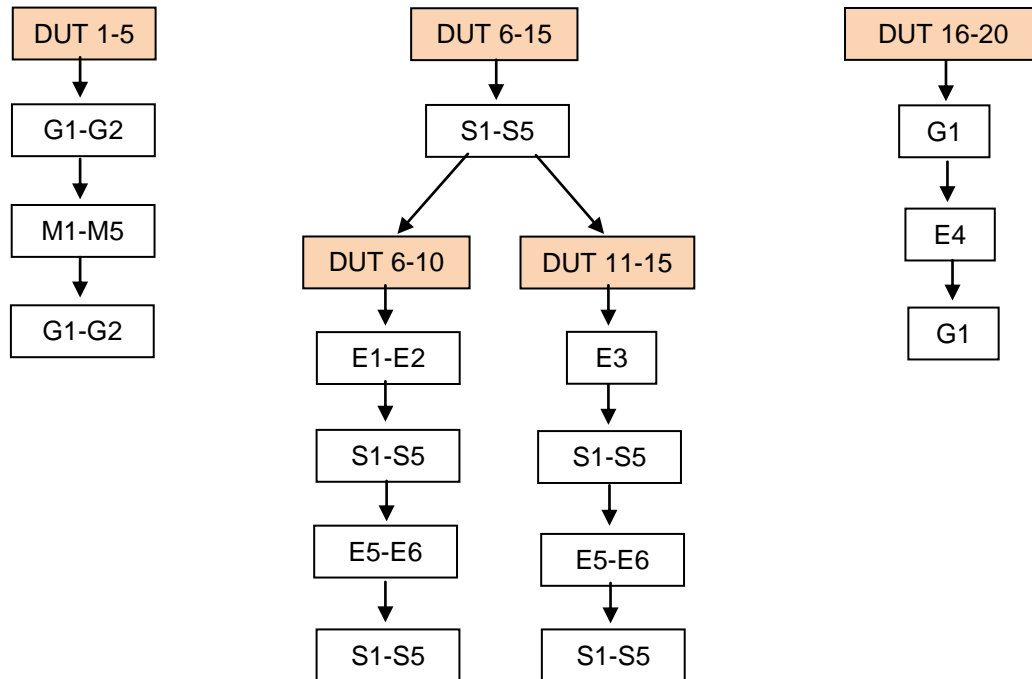
GHMT PVP Testplan- SFP+ 10Gb/s (SFF-8083/SFP10)

⇒ **Passive Copper Cable Assemblies (DAC)**



Initial Certification

The initial certification tests are carried out on 20 samples (10x shortest and 10x longest cable assemblies). This test procedure applies to every cable construction.



Note:

Additionally the general information stored on the EEPROM will be read and documented.

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⇒ **Passive Copper Cable Assemblies (DAC)**



General Electrical Requirements			
Item	Parameter	Specification	Test Method
G1	Low level contact resistance	Mated cable assembly and I/O connector with 20mV@100mA max.	EIA-364-23
G2	Withstanding voltage	300V DC for 1 min	EIA-364-20 D

Mechanical Requirements			
Item	Parameter	Requirement	Test Method
M1	Durability	After 50 mating cycles no physical damage	SFF 8432
M2	SFP module retention	No damage to module up 90N / 170N	
M3	SFP module insertion	18N max	
M4	SFP module extraction	12.5N max	
M5	SFP cable pullout (cable clamps)	170N min	EIA-364-38

Environmental Requirements			
Item	Parameter	Requirement	Test Method
E1	Temperature life*	Mated specimen +70°C for 500h	referring to: EIA-364-32D & SFF8432
E2	Thermal Shock*	10 cycles, air-air cycle time 30min, Cycle: -20°C / +70°C	referring to: SFF8071
E3	Cyclic Temperature and Humidity*	25°C @ 80% for 30mins -> ramp 30min -> 70°C @ 50% for 60mins -> ramp 30mins to 25°C = 24 cycles	referring to: EIA-364-32D & SFF8432
E4	Salt Spray test*	Specimens are stored in salt spray test chamber on the scaffolding below the spray nozzle (distilled water with 5% salt solution). Duration of test 3 x 8h.	referring to: EIA-364-32D & SFF8432
E5	Vibration	Frequency 100Hz/1h	referring to: EIA-364-32D & SFF8432
E6	Mechanical Shock	Drop test with 0.5m height 10 times	referring to: EIA-364-32D & SFF8432

)* After environmental test, the samples are stored for 12 hours at room temperature. Further tests start after 12 hours.

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⇒ **Passive Copper Cable Assemblies (DAC)**

Signal Integrity Requirements			
Item	Parameter	Requirement	Test Method
S1	Insertion Loss	Maximum @ 5.15625 GHz: 17.04dB Minimum @ 5.15625 GHz: 3dB	IEEE 802.3ba; 85.10.2
S2	Insertion Loss deviation	$ILD(f) \begin{cases} \min(f) = -07 - 0.2 \times 10^{-3} f \text{ (dB)} \\ \max(f) = 07 + 0.2 \times 10^{-3} f \text{ (dB)} \end{cases}$ <i>for 50MHz ≤ f ≤ 7500MHz</i>	IEEE 802.3ba; 85.10.3
S3	Return Loss	$RL(f) \begin{cases} 12 - 2\sqrt{f} & 0,05 \leq f < 4,1\text{GHz} \\ 6.3 - 13\log_{10}(f/5,5) & 4,1 \leq f \leq 10\text{GHz} \end{cases} \geq \text{(dB)}$	IEEE 802.3ba; 85.10.4
S4	MDNEXT Loss	<i>Help tool for Integrated crosstalk noise (ICN); 0,05 ≤ f ≤ 10GHz</i>	IEEE 802.3ba; 85.10.5
S5	Integrated crosstalk noise (ICN)	$\sigma_{x,ca} \begin{cases} 10 & 3 \leq IL \leq 5.3\text{dB} \\ 12.4 - 0.45 * IL & 5.3 < IL \leq 17.04\text{dB} \end{cases} \leq \text{(mV)}$	IEEE 802.3ba; 85.10.7

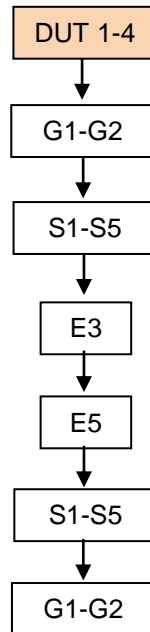
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⇒ **Passive Copper Cable Assemblies (DAC)**



Re- Certification

The re- certification tests are carried out on 4 samples (2x shortest and 2x longest cable assemblies). This test procedure applies to every cable construction.



Note:

Additionally the general information stored on the EEPROM will be read and documented.

GHMT PVP Testplan- SFP+ 10Gb/s (SFF-8083/SFP10)



⇒ **Passive Copper Cable Assemblies (DAC)**

General Electrical Requirements			
Item	Parameter	Specification	Test Method
G1	Low level contact resistance	Mated cable assembly and I/O connector with 20mV@100mA max.	EIA-364-23
G2	Withstanding voltage	300V DC for 1 min	EIA-364-20 D

Environmental Requirements			
Item	Parameter	Requirement	Test Method
E3	Cyclic Temperature and Humidity*	25°C @ 80% for 30mins -> ramp 30min -> 70°C @ 50% for 60mins -> ramp 30mins to 25°C = 24 cycles	referring to: EIA-364-32D & SFF8432
E5	Vibration	Frequency 100Hz/1h	referring to: EIA-364-32D & SFF8432

)* After environmental test, the samples are stored for 12 hours at room temperature. Further tests start after 12 hours.

Signal Integrity Requirements			
Item	Parameter	Requirement	Test Method
S1	Insertion Loss	Maximum @ 5.15625 GHz: 17.04dB Minimum @ 5.15625 GHz: 3dB	IEEE 802.3ba; 85.10.2
S2	Insertion Loss deviation	$ILD(f) \begin{cases} \min(f) = -07 - 0.2 \times 10^{-3} f \text{ (dB)} \\ \max(f) = 07 + 0.2 \times 10^{-3} f \text{ (dB)} \end{cases}$ for 50MHz ≤ f ≤ 7500MHz	IEEE 802.3ba; 85.10.3
S3	Return Loss	$RL(f) \begin{cases} 12 - 2\sqrt{f} & 0,05 \leq f < 4,1\text{GHz} \\ 6.3 - 13\log_{10}(f/5,5) & 4,1 \leq f \leq 10\text{GHz} \end{cases} \geq \text{(dB)}$	IEEE 802.3ba; 85.10.4
S4	MDNEXT Loss	Help tool for Integrated crosstalk noise (ICN); 0,05 ≤ f ≤ 10GHz	IEEE 802.3ba; 85.10.5
S5	Integrated crosstalk noise (ICN)	$\sigma_{x,ca} \begin{cases} 10 & 3 \leq IL \leq 5.3\text{dB} \\ 12.4 - 0.45 * IL & 5.3 < IL \leq 17.04\text{dB} \end{cases} \leq \text{(mV)}$	IEEE 802.3ba; 85.10.7