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1. Scope:

This Product Specification covers the requirement of GEN Z 1C cable assemblies on product performance, test methods and quality assurance provisions

2. Product Application & Features:

The GEN Z 1C cable assembly is designed for in the servers, Data storage, Workstation, etc.

Product Features:

- Provide 4 channels signal transmission as per industry standard.
- Data speed: support PCIE GEN5 32Gbps.
- Meet Gen Z and SFF-TA-1002 Specification.

3. Ratings:

Voltage Rating:	30 VAC /contact;
Current:	1.1 A /contact;
Insulation Resistance:	10MegaOhm;
Withstanding Voltage:	500V DC 1 minute ;
Durability:	25 cycles

4. Electrical Performance

Item	Description	Test Condition	Requirement
4.1	Low Level Contact Resistance	EIA-364-23 (termination of connector to board carrier shall be included in the measurements)	Refer to EIA-364-23, Table 5.4.2. LLCR Initial: 30mΩ Delta: 20mΩ
4.2	Insulation Resistance	(EIA 364-21) Testing by applying the specified voltage (DC 100 V) between adjacent contacts for one minute.	10MegaOhm Minimum
4.3	Dielectric withstanding voltage	(EIA 364-20) Testing by applying the specified voltage (AC 300 V) between adjacent contacts for one minute.	No defect between adjacent contacts

5. Mechanical Performance

Item	Description	Test Condition	Requirement
5.1	Mating Force	(EIA 364-13) Measuring the required force for complete mated to the mated connector at 10mm/minutes Max.	SFF-TA-1002 40. 8N MAX



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5.2	UnMating Force	(EIA 364-13) Measuring the required force for complete mated to the mated connector at 10mm/minutes Max.	SFF-TA-1002 2. 8N Min
5.2	Axial Latch Retention	Pull in direction parallel to insertion, hold for minimum of 60 seconds	50N, no damage
5.3	Durability (preconditioning)	EIA-364-09, perform 5 plug/unplug cycles	No evidence of physical damage
5.4	Durability	EIA-364-30	25 cycles min
5.5	Mechanical Vibration	EIA-364-28 Test Condition D Random profile: 5 Hz @ 0.01 g ² /Hz to 20 Hz @ 0.02 g ² /Hz (slope up) 20 Hz to 500 Hz @ 0.02 g ² /Hz (flat) Input acceleration is 3.13 g RMS 10 minutes per axis for all 3 axes on all samples Random control limit tolerance is ± 3 dB Shock and Vibration board, Annex D	No damage No discontinuity longer than 1 microsecond allowed 20 milliohms maximum change from initial (baseline) contact resistance
5.6	Mechanical Shock	EIA-364-27, Test Condition A Trapezoidal shock 50 G, $\pm 10\%$ Duration 11 ms Velocity change 170 inch/sec, $\pm 10\%$ Three drops in each of six directions are applied to each of the samples Shock and Vibration board, Annex D	No damage 20 milliohms maximum change from initial (baseline) contact resistance
5.7	Latitudinal / Longitudinal Pull Force	25N applied perpendicular to mating interface. 360 degrees in 45 degree increments, beginning perpendicular to long end of the connector body.	-Monitor LLCR, no discontinuities - No damage - 20m Ω maximum change from initial (baseline) contact resistance

6. Environmental Performance

Item	Description	Test Condition	Requirement
6.1	Storage Temperature & Humidity	-20°C to +85°C degrees 80% Relative Humidity	None
6.2	Thermal Shock	EIA-364-32, Method A, Table 2, Test Condition 1, -55 °C to 85 °C, perform 5 cycles in mated condition	Electrical, mechanical and environmental criteria



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6.3	Cyclic Temperature and Humidity	EIA-364-31B, Method III without conditioning, initial measurements, cold shock and vibration. Ramp times should be 0.5 hour and dwell times should be 1.0 hour. Dwell times start when the temperature and humidity have stabilized within specified levels, perform 24 cycles in mated condition.	Electrical, mechanical and environmental criteria
6.4	Temperature Life Temperature Life (preconditioning)	EIA-364-17, Method A (without electrical load) 60°C field temperature. for 5 years Test Temperature and Test Duration per EIA 364-1000 Table 8 90°C/456hour Test Temperature and Test Duration per EIA 364-1000 Table 9 90°C/240hour	Electrical, mechanical and environmental criteria
6.5	Thermal Disturbance	EIA-364-1000 Cycle the connector between 15 ± 3 °C and 85 ± 3 °C, as measured on the part. Ramps should be a minimum of 2 °C/minute. Dwell times should ensure that the contacts reach the temperature extremes (a minimum of 5 minutes), humidity is not controlled; perform 10 cycles in mated condition.	Electrical, mechanical and environmental criteria

7. High frequency Performance

7.1 PCIE 5.0:

ITEM	PCIE5.0
Rise time	23ps(20%~80%)
SDD21/SD12	-4dB;0.01Ghz<f<=8Ghz -8dB;8Ghz<f<=16Ghz
SDD11/SDD22	-15dB 0.01Ghz~2Ghz; -15dB to -8dB 2GHz~8GHz -8dB 8Ghz~16Ghz; -8dB to -5dB 16GHz~20GHz
NEXT	MDNEXT: -45dB 0.05GHz~8GHZ -45dB~-40dB 8GHz~12GHz; -40dB 12GHz~20GHz
FEXT	MDFEXT: -40dB 0.05GHz~6GHZ -40dB~-35dB 6GHz~12GHz; -35dB 12GHz~20GHz
SCD21	0.05Ghz~16Ghz, -18dB Max.
SCD21-SDD21	-10dB 0.05GHz~16GHz.
SCD11/SCD22	-20dB to -12dB 0.01GHz~12GHz -12dB 12GHz~16GHz
SCC11/SC22	-4dB 0.05GHz~16GHz
Difference Impedance	Cable 85 Ω +/-5 Connector 85 Ω +/-15%

Delay

≤5.3ns

8.

Test Sequence and
Sample Quantity/
测试顺序及样品数

量

Test Item 测试项目	Group (测试分组)							
	A	B	C		E	F	G	H
Examination of product	1,	1	1	1	1	1	1	1
Insulation Resistance					2	2	2	
Dielectric withstanding voltage					3	3	3	
Low Level Contact Resistance	2,9	2,6	2,4,6,8	2,5,7	4,7	4,7,9	4,7,9	
Durability(preconditioning)	3			3	5	5	5	
Mating Force	4							
unMating Force	5							
Durability Cycles	6			4				
Axial Latch Retention	7	5		6				
Longitudinal Force	8	4	7	9				
Mechanical Shock		3	5	8				
vibration			3					
Temperature Life					6			
Temperature Life (preconditioning)							6	
Thermal Shock						6		
Cyclic Temp and Humidity						8		
Thermal Disturbance							8	
Difference Impedance								2
SCD21-SDD21								3
SCD11/SCD22								4
SCC11/SC22								5
SDD21/SD12								6
SDD11/SDD22								7
NEXT								8
FEXT								9
SCD21								10
Delay								11
Sample QTY(PCS)	5	5	5	5	5	5	5	5
The number of group is test sequence 测试分组中的序号为试验顺序.								



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