1.0 OBJECTIVE

This specification covers the performance, tests and quality requirements for the External Serial ATA Connector.

2.0 SCOPE

This specification is applicable to the termination characteristics of the External Serial ATA family Of products.

3.0 GENERAL

The document is composed of the following sections:

4.0 APPLICABLE DOCUMENTS

The following documents from a part of this sepecification to the extent specified herein.
Unless otherwise specified, the latest edition of the document applies. In the event of conflict between the requirements of this specification and the product drawing , the product drawing shell take precedence
In the event of conflict between the requirement of this specification and the reference document, this Specification shall take precedence.

5.0 REQUIREMENT

5.1 Qualification

Connector furnished under this specification shell be capable of meeting the qualification test requirement specified herein. Unless otherwise specified, all measurements shall be performed within the following lab condition;

Temperature: 15 to 35 C
Relative Humidity: 20% to 80%
Atmospheric Pressure: 650mm to 800mm of Hg (86 ~ 106 Kpa)

5.2 Material

5.2.1 Housings – Thermoplastic High Temp., UL94 V-0
5.2.2 Contact – Copper Alloy
5.2.3 Shield – Copper Alloy

5.3 Finish

5.3.1 Contact – Gold plating on contact area, Tin plating on solder tail, Nickel underplating overall.
5.3.2 Shield – Nickel under plating overall.

5.4 Design and Construction

The design, construction and physical dimensions of product shall be specified on the product drawing.

5.4.1 Standard Data

5.4.1.1 Rated Current – 1.5A per contact.
5.4.1.2 Rated Voltage – 12V AC Max.
5.4.1.3 Operating Temperature Range - -40C to 105C

5.4.2 **Mating** The connectors should be capable of mating and unmating manually without the use of special tools.

5.4.3 **Workmanship** Connector shall be uniform in quality and shall be free from burrs, scratches, cracks, voids, chips, blisters, pin holes, sharp edges , and other defects that will adversely affect product's life or serviceability.

6.0 PERFORMANCE REQUIREMENT AND TEST DESCRIPTION

6.1.1 TEST REQUIREMENT AND PROCEDURES SUMMARY

The product shall be designed to meet the electrical, mechanical and environmental performance Requirements specified in Table 1.

	Test Item	Requirement	Procedure
1	Examination of Product	Meets requirements of product drawing. No physical damage.	Visual inspection.
Electrical Requirement			
2	Contact Resistance	30mΩ Max Initial 45mΩ Max Final	EIA-364-6B Subject mated contacts assembled in housing to 20mV Max open circuit at 10mA Max.
3	Dielectric withstanding Voltage	No creeping discharge or flashover. Current leakage: 0.5mA MAX	EIA-364-20B 500VAC for 1minute Test between adjacent circuits of unmated connector.
4	Insulation Resistance	1000MΩ Min	EIA-364-21C Impressed voltage 500VDC. Test between adjacent circuits of unmated connector.
Mechanical Requirement			
5	Mating Force	40N Max	EIA-364-13B Operation Speed：12.5mm/min. Measure the force required to mate connector.
6	Un-mating Force	10N Min	EIA-364-13B Operation Speed：12.5mm/min. Measure the force required to un-mate connector.
7	Durability	See Note	EIA-364-9C Operation Speed：200cycle/hour. Durability Cycles：2500Cycles
8	Vibration	No electrical discontinuity greater than 0.1 or 1 μsec shall occur. See Note.	EIA-364-28D Subject mated connectors to 5.35 G's RMS. 30 minutes in each of three mutually perpendicular planes.
9	Mechanical Shock	No electrical discontinuity greater than 0.1 or 1 μsec shall occur. See Note.	EIA-364-27B Accelerate Velocity：30G Waveform：Half-sine shock plus Duration：11msec No. of Drops：3 drops each to normal and reversed directions of X,Y and Z axes, totally 18 drops, passing DC 1mA current during the test.

Table 1.

Mechanical Requirement			
Test Item		**Requirement**	**Procedure**
10	Solder ability	Wet solder coverage：95% Min.	J-STD-002 category 3 aging Steam Aging Preconditioning: 93 +3/-5°C, 100% H.R., 8 hrs. Solder temperature: 245±5°C for 5sec.
Environmental Requirements			
11	Resistance to Wave Soldering Heat (DIP)	No physical damage shall occur.	Solder Temp.：265±5℃, 10±0.5sec.
12	Resistance to Reflow Soldering Heat (SMT)	No physical damage shall occur.	Pre-soak condition, 85℃/85% RH for 168 hours. Pre Heat：150~180℃, 90±30sec. Heat：230℃ Min., 30±10sec. Peak Temp.：260+0/-5℃, 20~40sec. Duration：3 cycles
13	Thermal Shock	See Note	EIA-364-32C Mated Connector to 10cycles between -55+/-3℃ and +85+/-2℃
14	Humidity-Temperature	See Note	EIA-364-31B. Mated Connector to 96hours at 40℃ with 90~95% RH
15	Temperature Life	See Note	EIA-364-17B. Mated Connector to 500hours at 85℃
16	Salt Spray	No detrimental corrosion allowed in contact area and base metal exposed.	EIA-364-26B. Subject mated connectors to 35+/-2 ℃ and 5+/-1% salt condition for 48hours. After test, rinse the sample with water and recondition the room temperature for 1 hour.

Table 1（Con't）

6.2 QUALIFICATION TESTING MATRIX

Test or Examination	Test Group							
	A	B	C	D	E	F	G	H
	Test Sequence (a)							
Examination of Product	1,9	1,6	1,9	1,5	1,5	1,5	1	1
Contact Resistance	2,8	2,5	2,8	2,4	2,4	2,4		
Insulation Resistance			3,6					
Dielectric withstanding voltage			4,7					
Mating Force	3,6							
Un-mating Force	4,7							
Durability	5							
Vibration		3						
Physical shock		4						
Humidity Temperature			5					
High Temperature Life				3				
Salt Spray					3			
Thermal Shock						3		
Solderability							2	
Resistance to Soldering Heat								2

7.0 REVISION RECORD

Revision	Page	Description	ECN	Date
A	All	New Release	T06-0155	