QUALIFICATION TEST REPORT QTR-2000 Rev.1A

Title: **2x1, 8Positions Right Angle Shielded PCB Jack**

Part Number: **XMD-9731-881X-2BA-D**

Description: **8Positions 8Contacts, 2x1 Ports Type**

Inspector:	Date:	Approved By:	Date:
Jason	**2010/8/30**	**Kari**	**2010/8/30**

TEST RESULT SUMMARY

GROUP A							
ITEM	**DESCRIPTION**	**SPEC**	**TEST CONDUCTION**	**HIGH**	**LOW**	**AVE.**	**REMARK**
1	Visual & Mechanical Examination	Mechanical Structure & Appearance & Cosmetic Spec. and Drawing.		**PASS**			
	Dimensions (Unit: mm)	1. 3.50±0.5	MICROSCOPE	3.69	3.55	3.62	
		2. 28.6±0.25	MICROSCOPE	28.73	28.64	28.69	
		3. 17.25±0.25	MICROSCOPE	17.31	17.23	17.27	
2	Termination Resistance. (Unit: mΩ)	40 mΩ Max Initial.	DIGITAL MILLI-OHM METER	13.9	11.5	12.7	
3	Mating Force	8 contacts 2.3 Kgf max	COMPRESSION/TENSILE TESTER	1.76	1.65	1.71	
4	Durability	Mate and unmate for 500 cycles at a rate of 20~30 cycles per minute without load.	AUTO PUSH-PULL EQUIPMENT	**PASS**			
5	Mating Force (Unit: Kgf)	8 contacts 2.3 Kgf max.	COMPRESSION/TENSILE TESTER	1.67	1.56	1.62	
6	Termination Resistance. (Unit: mΩ)	50 mΩ Max Final.	DIGITAL MILLI-OHM METER	15.0	12.8	13.9	
7	Visual & Mechanical Examination	Mechanical Structure & Appearance & Cosmetic Spec. and Drawing.		**PASS**			

GROUP B							
ITEM	**DESCRIPTION**	**SPEC**	**TEST CONDUCTION**	**HIGH**	**LOW**	**AVE.**	**REMARK**
1	Visual & Mechanical Examination	Mechanical Structure & Appearance & Cosmetic Spec. and Drawing.		**PASS**			
2	Termination Resistance. (Unit: mΩ)	40 mΩ Max Initial.	DIGITAL MILLI-OHM METER	13.5	11.1	12.3	
3	Humidity test	At 40℃±2 ℃and 90%to 95% for 96 hours.	CONST TEMP.& HUMIDITY CHAMBER	**PASS**			

4	Termination Resistance. (Unit: mΩ)	50 mΩ Max Final.	DIGITAL MILLI-OHM METER	14.8	12.4	13.6	
5	Visual & Mechanical Examination	Mechanical Structure & Appearance & Cosmetic Spec. and Drawing.		**PASS**			

GROUP C

ITEM	DESCRIPTION	SPEC	TESTCONDUCTION	HIGH	LOW	AVE.	REMARK
1	Visual & Mechanical Examination	Mechanical Structure & Appearance & Cosmetic Spec. and Drawing.		**PASS**			
2	Termination Resistance. (Unit: mΩ)	40 mΩ Max Initial.	DIGITAL MILLI-OHM METE	14.0	11.7	12.9	
3	Temperature Life	at 65℃±2℃ for 96 hours.	TEMPERATURE EQUIPMENT	**PASS**			
4	Termination Resistance. (Unit: mΩ)	50 mΩ Max Final.	DIGITAL MILLI-OHM METE	15.3	13.0	14.2	
5	Visual & Mechanical Examination	Mechanical Structure & Appearance & Cosmetic Spec. & Drawing.		**PASS**			

GROUP D

ITEM	DESCRIPTION	SPEC	TEST CONDUCTION	HIGH	LOW	AVE.	REMARK
1	Visual & Mechanical Examination	Mechanical Structure & Appearance & Cosmetic Spec. and Drawing.		**PASS**			
2	Dielectric Withstanding Voltage.	AC 1KVrms up at 60Hz	PUNCTURE	1KVrms up			Adjacent contacts
		AC 1.5KVrms up at 60Hz		1.5KVrms up			Between contact and shield
3	Insulation Resistance	500 MΩ Min. Initial.	SUPER MEGOHMMETER	500 MΩ up			
4	Humidity test	At 40℃±2℃ and 90% to 95% for 96 hours.	CONST TEMP.& HUMIDITY CHAMBER	**PASS**			
5	Dielectric Withstanding Voltage.	AC 1KVrms up at 60Hz	PUNCTURE	1KVrms up			Adjacent contacts
		AC 1.5KVrms up at 60Hz		1.5KVrms up			Between contact and shield
6	Insulation Resistance	200 MΩ Min. Final.	SUPER MEGOHMMETER	200 MΩ up			
7	Visual & Mechanical Examination	Mechanical Structure & Appearance & Cosmetic Spec. and Drawing.		**PASS**			

GROUP E

ITEM	DESCRIPTION	SPEC	TEST CONDUCTION	HIGH	LOW	AVE.	REMARK
1	Contact Normal Force.(Unit: gf)	100g Min.	COMPRESSION/ TENSILE TESTER	125	112	119	

1. SCOPE

This report contains the requirements, test procedures and results of a qualification test program on XMULTIPLE modular jack connector.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. In the Event of conflict between the requirements of this specification and the product drawing, the Product drawing shall take precedence. In the event of conflict between the requirements of this Specification and the referenced documents, this specification shall take precedence.

2.1 SPECIFICATIONS

XMULTIPLE Documents

A. PS-2000 Test specifications as indicated in Figure 1.

B. TR-2000 Test report.

Federal

QQ-B-626 Brass; bar, plate, rod, strip, flat wire and special shaped sections

QQ-B-750 Bronze, phosphor; bar, plate, rod, sheet, strip, flat, wire, and structural and Special shaped sections

QQ-N-290 Plating, nickel (electrodeposited)

Military

MIL-STD-105E Sampling procedures for inspection by attributes

MIL-STD-1344A Test methods for electrical connectors

MIL-C-39012C General specification for connectors, coaxial, radio frequency

MIL-G-45204 Gold plating (electrodeposited)

Underwriters' Laboratories, Inc.

UL-std-94 Tests for flammability of plastic material for parts in devices and appliances.

Others

FCC Rules for Registration of Telephone Equipment Part 68, Subpart F, connectors.

3. CONCLUSION

The connectors under test passed all the requirements, as **TEST RESULT SUMMARY.**

4. TEST PROGRAM

4.1 Test Equipment

NO	Description	Manufacture & Model
1	PROFILE PROJECTOR	NIKON V-12
2	MICROSCOPE INSTRUMENT	NIKON SMZ-1B
3	DIGITAL MULTIMETER	GW GDM-8055
4	DIGITAL MILLI-OHM METER<1m-200Ω>	GW
5	PULSE DETECTOR<0-1uS UP>	GW
6	PULSE GENERATOR	GW GPG-8018G
7	TEMPERATURE EQUIPMENT <20-200℃>	GF
8	PUNCTURE<0-5KV AC>	GW GPI-5005T
9	SUPER MEGOHMMETER<10MM OHM UP>	TOA SM-5E
10	COMPRESSION/TENSILE TESTER <0-2Kg>	IMAPA DPRSX-2TR

11	PULL-FORCE TESTER<0-1,000Kg>	GF PTTS-2A
12	VIBRATION TESTER<5-55Hz,4mmP-P>	GF
13	CONST TEMP.& HUMIDITY CHAMBER <0-100℃,20%-98% RH>	GF GTH-040S
14	SALT SPRAY <CORROSION> EQUIPMENT	GF GSST-060
15	DC POWER SUPPLY (DC 60V)	GW GPR-6030D
16	AUTO PUSH-PULL EQUIPMENT	XMULTIPLE

4.2 Test Samples

The test samples consisted of 25 pcs which were divided into 5 groups (A,B,C,D and E) with 5 pcs in each group for each corresponding test group defined in section 4.3 Test Sequence.

4.3 Test Sequence

Items	Test Group				
	A	B	C	D	E
1	1 , 7	1 , 5	1 , 5	1 , 7	
2	2 , 6	2 , 4	2 , 4		
3				2 , 5	
4				3 , 6	
5					1
6	4				
7	3 , 5				
8		3		4	
9			3		

5. TEST PROCEDURES AND REQUIREMENTS

5.1 Visual and Mechanical Examination

The connector shall be examined prior or after certain testing, to verify that the design, construction, material, finish and workmanship meet the requirements of the applicable specifications and drawings.

5.2 Termination Resistance

Contact resistance was measured as detailed in Figure I. The voltage drop shall be measured between point A and point B. Current was set at 100 mA with the open circuit. The contact resistance to be measured are: Subject mated jack and plug assembly.

Requirements:

A. The contact resistance shall not than 40 mΩ initial.

B. The contact resistance shall not than 50 mΩ after environmental exposure.

5.3 Dielectric Withstanding Voltage

The samples were tested as specified in **MIL-STD-1344A, Method 3001.1,Test condition I** Without breakdown or any current leakage greater than 0.5 mA.

Requirements:

A. At 1KVrms for one minute between adjacent contacts.

B. At 1.5KVrms for one minute between shield and contacts.

C. Shall meet visual requirements, show no physical damage.

5.4 Insulation Resistance

The samples were tested in accordance with **MIL-STD-1344A, Method 3003**. The resistance was measured after an electrification time of one minute between adjacent contacts.

Requirements:

A. The insulation resistance shall not be less than 500 MΩ at 100V DC.

B. The insulation resistance shall not be less than 200 MΩ at 100V DC after environmental exposure.

5.5 Contact Normal Force

The samples were measured by a compression / tensile force tester, in accordance with **MIL-STD-1344A, Method 2014.** The contact normal force was measured using gage (ϕ 0.56mm diameter pin) Which is shifted from h2 vertically to the h1 horizontal position, as detailed in Figure 2.

Requirements:

The contact normal force: 100grams minimum.

5.6 Durability

The samples were mated and unmated for 500 cycles at a rate of 20 ~ 30 cycles per minute without Load, latch inoperative.

Requirements:

Shall meet visual requirements, show no physical damage.

5.7 Mating Force

The samples were measured by a compression / tensile force tester, required to mate plug and jack. When plug latch was locked.

Requirements:

2 contacts 1.6 Kgf max.

4 contacts 1.8 Kgf max.

6 contacts 2.1 Kgf max.

8 contacts 2.3 Kgf max.

10 contacts 2.5 Kgf max.

5.8 Humidity Test

Subject mated plug and jack to a temperature of 40℃±2℃ and relative humidity of 90%to 95% for 96 hours.

Requirements:

No evidence of physical damaged.

5.9 Temperature Life

Subject mated plug and jack exposing in a heat chamber at a temperature of 65℃±2℃ for 96 hours.

Requirements:

No evidence of physical damaged.

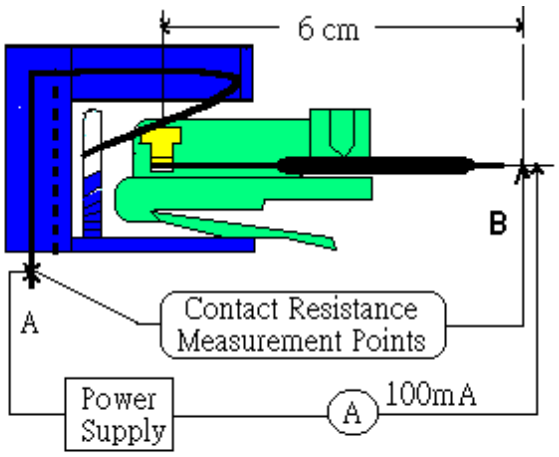
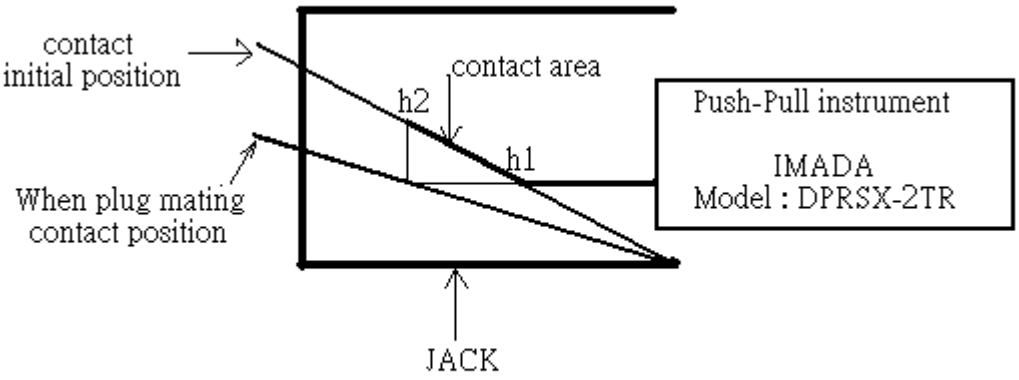


Figure: Four Wires Type for Contact Resistance Test.

Note: Resistance of 6 cm wire length and contact pin shall be subtracted from all readings.

Figure 1



Contact area (from h1 to h2) is the trace of attrition , when plug mating.

Figure 2