RF, RECEPTACLE CONNECTOR GENERATION 1

1. Introduction

1.1 Testing was performed on the Receptacle for Micro Coaxial RF Receptacle Connector to determine if it meets the requirements of Product Specification, 108-140209 Rev. A.

1.2 Scope

This report covers the electrical, mechanical and environmental performance requirements of the Receptacle for RF, RECEPTACLE CONNECTOR GENERATION 1.

The qualification testing was performed between - 15 MAR, 2016 and 24 MAR, 2016.

1.3 Conclusion

The Receptacle for Micro Coaxial RF Receptacle Connector meets the electrical, mechanical and environmental performance requirements of Product Specification, 108-140209 Rev. A.

1.4 Test Samples

The test samples were randomly selected from normal current production lots, and the following

Part numbers were used for test:

Description	Part Number
RF, RECEPTACLE CONNECTOR GENRATION1	2337019-1

2. Test Contents

Para.	Test Items	Requirements	Procedures
2.1	Examination of Product	Meets applicable requirements specified, customer drawing, and application specification.	Visual inspection No physical damage.
		Electric Performance	
2.2	Insulation resistance (shielded version only)	Test voltage: 100 VDC. Duration: 1 minute.	100 VDC for 1 minute. Test between adjacent circuits of mated connectors.
2.3	Dielectric Withstand Voltage	Test voltage: 200 VAC. Duration: 1 minute.	200 VAC for 1 minute. Test between adjacent circuits of mated connectors.
2.4	Contact Resistance	Inner Contact Initial: 20 m Ω MAX. After: 25 m Ω MAX. Outer Contact Initial: 10 m Ω MAX. After: 15 m Ω MAX.	Solder the receptacle connector to the test board and mate the plug connector together.
2.5	V.S.W.R	VSWR<1.3 , at 0~6GHz	Measured 50Ω system of network analyzer under mating condition with plug connector. See Fig-1
		Meannical Performance	
2.6	Shock test	No electrical discontinuity greater than 1 μ sec. shall occur. Must be met the electrical spec(2.4) before and after the test	Peak acceleration 735m/s2, Duration of pulse: 11ms（Time）， Waveform：Half-wave waveform, 6 Cycles In Each X-Y-Z axis
2.7	Vibration	No electrical discontinuity greater than 1 μ sec. shall occur. Must be met the electrical spec(2.4) before and after the test	Frequency:10-100Hz,single amplitude of 1.5mm,acceleration of 59m/s2.for 5cycles in the direction of each of the 3axis.
		Environment Performance	
2.8	Temperature & Humidity Cycling	Must be met the electrical spec (2.4) before and after the test.	TEM.：60℃ Relative Humidity：95% RH Time：96 hours
2.9	Solder ability	The Sn Immersed Area must beyond by 95%.	Solder Temperature: 250+/-5℃

Table. 1

3.0 Test plan and Results

Test Examination	Test Group							
	A	B	C	D	E	F	G	H
	(a)							
Contact resistance		1,3	1,3	1,3	1,5	1,5	1,3	
Withstanding Voltage					2,6	2,6		
Insulation resistance					3,7	3,7		
VSWR	1							
Mechanical life		2						
Attack			2					
vibration				2				
Steady heat					4			
Thermal shock						4		
Salt spray test							2	
Can solder								1
Number of test samples	5	5	5	5	5	5	5	5

4.0 Test Results

Group	Test Item	N	Condition	Test Result				Requirement	Conclusion
				Max	Min	Ave	Unit		
	Examination of Product	5	Initial	No physical damage occurred			/	No abnormalities	Meet spec
	Inner contact Resistance	5	Initial	8.45	8.02	8.21	mΩ	15mΩ Max	Meet spec
	Outer contact Resistance			7.02	6.22	6.5			
1	Vabration	5	Final	Frequency：10-100-10Hz; amplitude：3mm（P-P); Peak value of acceleration：6g (g=9.8m/s2); Direction & durability :3 times at each of X、Y、Z axis, 10-100-10Hz/20min 1us， No discontinuities more than 1μs,1 times at the testing process			/	No abnormalities	Meet spec
	Examination of Product	5	Final	No physical damage occurred			mΩ	Δ5m Max	Meet spec
	Inner contact Resistance			0.78	0.0	0.35			
	Outer contact Resistance			0.71	-0.62	0.2			
	Examination of Product	5	Initial	No physical damage occurred			/	No abnormalities	Meet spec
	Inner contact Resistance	5	Initial	8.89	8.45	8.63	mΩ	15mΩ Max	Meet spec
	Outer contact Resistance			6.89	6.23	6.52			
2	Salt spray	5	Final	Apply the following condition to the mated connectors: chamber temperature：35+/-2℃ Salt water density：5+/-1% Spray speed：1~2ml/h/8cm2 Duration：48 hours			/	No abnormalities	Meet spec
	Inner contact Resistance	5	Final	0.57	-0.40	0.13	mΩ	Δ5mΩ Max	Meet spec
	Outer contact Resistance			0.63	-0.03	0.37			
	Examination of Product	5	Final	No physical damage occurred			/	No abnormalities	Meet spec
	Examination of Product	5	Initial	No physical damage occurred			/	No abnormalities	Meet spec
	Inner contact Resistance	5	Initial	8.56	8.12	8.3	mΩ	15mΩ Max	Meet spec
	Outer contact Resistance			6.58	6.15	6.26			
	Unmating force			1.5	1.07	1.24	kgf	0.4kgf min	
3	Mechanical Durability	5	Final	Fixate the samples on the test board, then mating & Un-mating 100 times at speed 25mm/s; 			/	No abnormalities	Meet spec
	Examination of Product	5	Final	No physical damage occurred			mΩ	Δ5mΩ Max	Meet spec
	Inner contact Resistance			0.33	-0.33	0			
	Outer contact Resistance			2.33	0.82	1.6			
	Unmating force			0.10	-0.03	0.06	kgf	Δ0.8kgf max	
	Examination of Product	5	Initial	No physical damage occurred			/	No abnormalities	Meet spec
	Inner contact Resistance	5	Initial	8.59	8.12	8.4	mΩ	15mΩ Max	Meet spec
	Outer contact Resistance			6.89	6.23	6.58			
4	Mechanical Shock	5	Final	Peak acceleration：735m/s2, Duration：11ms Wave type：Half-sine wave Shock direction & times :Each 3 times at six surfaces of X、Y、Z axis, total 18 times, No discontinuities more than 1μs,1times at the testing.			/	No abnormalities	Meet spec
	Inner contact Resistance	5	Final	0.44	0.09	0.20	mΩ	Δ5mΩ Max	Meet spec
	Outer contact Resistance			0.36	-0.56	-0.16			
	Examination of Product	5	Final	No physical damage occurred			/	No abnormalities	Meet spec
	Examination of Product	5	Initial	No physical damage occurred			/	No abnormalities	Meet spec
	Inner contact Resistance	5	Initial	8.89	8.15	8.46	mΩ	15mΩ Max	Meet spec
	Outer contact Resistance			6.89	6.56	6.72			

Fig. 4 (to be continued)

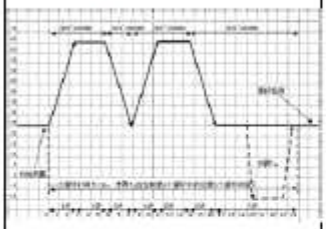
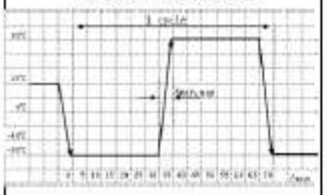
5	Humidity test	5	Final	Apply the following enviroment conditions to the mated connector 10 cycles and follow the condition 7a;Remark: Measurements should be done within 1~2hours at the room conditions. 		/	No abnormalities	Meet spec
	Inner contact Resistance	5	Final	0.15	-0.33	-0.07	mΩ	Δ5mΩ Max	Meet spec
	Outer contact Resistance			0.19	-0.81	-0.16			
	Examination of Product	5	Final	No physical damage occurred			/	No abnormalities	Meet spec
6	Examination of Product	5	Initial	No physical damage occurred			/	No abnormalities	Meet spec
	Inner contact Resistance	5	Initial	8.81	8.12	8.43	mΩ	15mΩ Max	Meet spec
	Outer contact Resistance			6.59	6.22	6.48			
	Thermal Shock	5	Final	Apply the following enviroment conditions to the mated connector 10 cycles and follow the condition 7a;Remark: Measurements should be done within 1~2hours at the room conditions.  Measurements should be done within 1~2hours at the room conditions.			/	No abnormalities	Meet spec
	Inner contact Resistance	5	Final	0.25	-0.25	0.04	mΩ	Δ5mΩ Max	Meet spec
	Outer contact Resistance			0.67	-0.13	0.08			
	Examination of Product	5	Final	No physical damage occurred			/	No abnormalities	Meet spec
7	Examination of Product	5	Initial	No physical damage occurred			/	No abnormalities	Meet spec
	Solderability	5	Final	1,Adjust the tin stove temperature to 245 + / - 2 ℃; 2, immersing the test samples in scaling powder at a speed of 25 mm/s , keep 2 ~ 3 s; 3, take out the samples to the natural state of vertical at room temperature keep 60 s (that flux drops dry); 4, immersing test samples at a speed of about 25 mm/s in tin stove about 1 ~ 2 cm, and maintain 3 + / - 0.5 s; 5,take out the test sample at a speed of 25 mm/s ,natural cooling at room temperature; 6, observed with 10 x microscope on the test area which the surface dipping tin;			/	No abnormalities	Meet spec
	Examination of Product	5	Final	>95% Soldering Coverage			/	No abnormalities	Meet spec

Fig. 4 (End)