

MHF® I Connector

Ground contact gold plating
(Anti-static reel version)

Part No. Plug: 20351-1**R-37 Receptacle: 20279-001E-0* / 20431-001E-01 / 20441-001E-01

Test Report

Product Specification no. PRS-1726

9	T23067	December 20, 2023	M.Toida	K.Yufu	Y.Hashimoto
8	T23058	November 28, 2023	K.Tanaka	K.Yufu	Y.Hashimoto
7	T21163	November 17, 2021	S.Taguchi	-	M.Takemoto
6	T20093	November 10, 2020	S.Taguchi	J.Tonai	M.Takemoto
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of MHF I Connector in accordance with PRS-1726.

2. Specimen

(1) MHF I PLUG (Part No. 20351-112R-37)

(2) MHF I RECEPTACLE (Part No. 20279-001E-0* , 20431-001E-01, 20441-001E-01)

*The evaluation results are representative of 20279-001E-01.

3. Test Sequence

All the evaluations were performed in accordance with Table 1. Test Sequence.

4. Result

See Table 1 to 2, Graph 1 to 10. For the details of the testing conditions and requirements, see PRS-1726.

The “n” in the tables show the number of measurement points.

5. Conclusion

All the specimens met the requirements of PRS-1726.

Table 1 Test Sequence and Sample Quantity

Test Item	Group													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
Contact Resistance					1,3	1,3	1,3	1,3	1,4	1,4	1,3	1,3		
Insulation Resistance									2,5	2,5				
Dielectric Withstanding Voltage	1													
VSWR		1												
Unmating Force			1											
Crimp Strength				1										
Durability					2									
Cable Retention Force						2								
Vibration							2							
Shock								2						
Thermal Shock									3					
Humidity (Steady State)										3				
Salt Water Spray											2			
High Temperature Life												2		
Solder ability													1	
Soldering Heat Resistance														1
Sample Quantity	10	5	10	10	10	10	10	10	10	10	10	10	10	10

Numbers indicate sequence in which tests are performed.

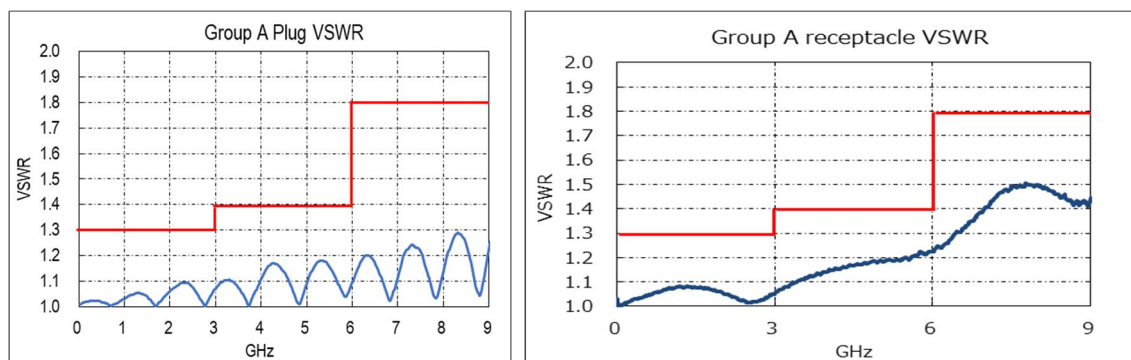
Table 2 Test result

Group	Test items		Specification	n	Unit	AVE.	MAX.	MIN.	S	Judgement
	Measurements									
A	Dielectric withstanding voltage									
	Spec: No abnormalities such as creeping discharge, flashover, insulator breakdown occur.									
	-			10	-	No abnormality			Pass	
B	VSWR									
	Plug	20351-112R-37								
		0.1~3.0GHz	1.3 MAX.	5	-	1.093	1.11	1.07	0.009	Pass
		3.0~6.0GHz	1.5 MAX.	5	-	1.175	1.22	1.14	0.021	Pass
		6.0~9.0GHz	1.9 MAX.	5	-	1.286	1.35	1.22	0.031	Pass
	Receptacle	20279-001E-01								
		0.1~3.0GHz	1.3 MAX.	5	-	1.085	1.09	1.08	0.006	Pass
		3.0~6.0GHz	1.4 MAX.	5	-	1.233	1.27	1.18	0.033	Pass
		6.0~9.0GHz	1.8 MAX.	5	-	1.515	1.60	1.41	0.068	Pass
C	Unmating force									
	Total force									
	Initial		5 MIN.	10	N	16.30	17.7	14.2	1.20	Pass
	30 cycles		3 MIN.	10	N	11.34	12.8	10.4	0.72	Pass
	Inner contact									
	Initial		0.15 MIN.	10	N	0.368	0.39	0.35	0.012	Pass
	30 cycles		0.10 MIN.	10	N	0.238	0.25	0.22	0.010	Pass
	D	Crimp strength								
		15N MIN.	10	N	33.42	35.1	30.9	1.55	Pass	
E	Durability									
	Contact resistance of main contact									
	Initial		20 MAX.	10	mΩ	6.19	6.9	5.3	0.59	Pass
	After testing		25 MAX.			7.11	8.0	6.2	0.58	Pass
	Contact resistance of ground contact									
	Initial		10 MAX.	10	mΩ	4.63	5.7	4.0	0.57	Pass
	After testing		15 MAX.			6.34	6.9	5.0	0.58	Pass
	Appearance									
	Initial		No abnormality adversely affecting	10	-	No abnormality			Pass	
	After testing		the performance shall occur.			No abnormality			Pass	

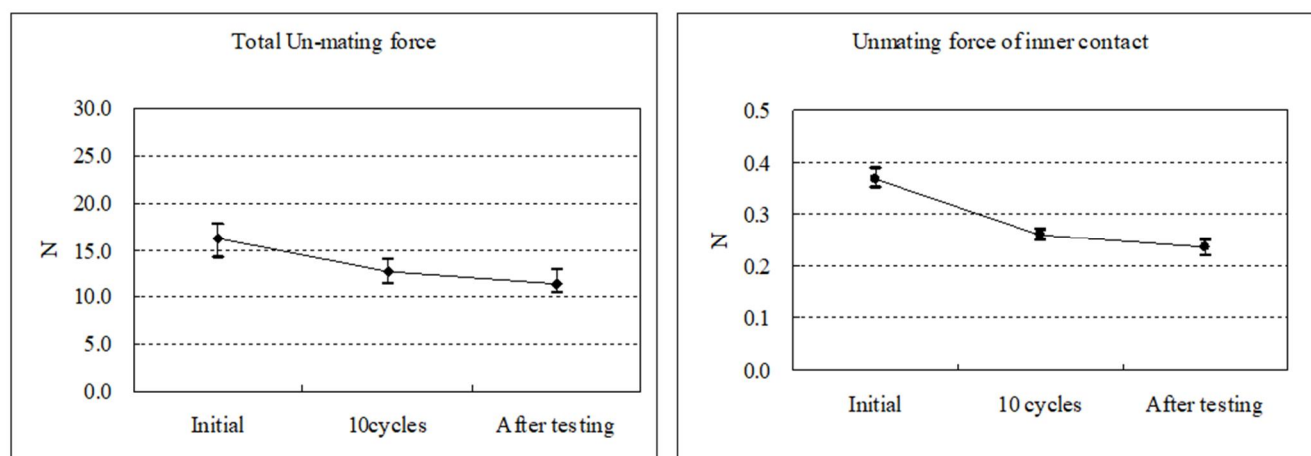
Group	Test items	Specification	n	Unit	AVE.	MAX.	MIN.	S	Judgement	
	Measurements									
F	Cable retention force									
	Contact resistance of main contact									
	Initial	20 MAX.	10	mΩ	6.15	6.9	5.7	0.36	Pass	
	After testing	25 MAX.			7.18	7.8	6.3	0.50	Pass	
	Contact resistance of ground contact									
	Initial	10 MAX.	10	mΩ	5.36	6.0	4.5	0.57	Pass	
	After testing	15 MAX.			6.15	6.9	5.6	0.42	Pass	
	Electrical discontinuity									
	Spec: No creeping discharge, flashover, no insulator breakdown shall occur.									
	After testing	-	10	-	No abnormality			Pass		
	Appearance									
	Initial	No abnormality adversely affecting	10	-	No abnormality			Pass		
	After testing	the performance shall occur.			No abnormality			Pass		
G	Vibration									
	Contact resistance of main contact									
	Initial	20 MAX.	10	mΩ	5.54	6.6	5.0	0.59	Pass	
	After testing	25 MAX.			6.82	7.9	6.0	0.73	Pass	
	Contact resistance of ground contact									
	Initial	10 MAX.	10	mΩ	5.13	6.0	4.0	0.69	Pass	
	After testing	15 MAX.			6.24	6.9	5.5	0.51	Pass	
	Electrical discontinuity									
	Spec: No creeping discharge, flashover, no insulator breakdown shall occur.									
	After testing	-	10	-	No abnormality			Pass		
	Appearance									
	Initial	No abnormality adversely affecting	10	-	No abnormality			Pass		
	After testing	the performance shall occur.			No abnormality			Pass		
H	Shock									
	Contact resistance of main contact									
	Initial	20 MAX.	10	mΩ	5.54	6.6	5.0	0.59	Pass	
	After testing	25 MAX.			7.01	7.7	6.1	0.51	Pass	
	Contact resistance of ground contact									
	Initial	10 MAX.	10	mΩ	4.79	5.8	4.1	0.58	Pass	
	After testing	15 MAX.			6.06	6.8	5.0	0.72	Pass	
	Electrical discontinuity									
	Spec: No creeping discharge, flashover, no insulator breakdown shall occur.									
	After testing	-	10	-	No abnormality			Pass		
	Appearance									
	Initial	No abnormality adversely affecting	10	-	No abnormality			Pass		
	After testing	the performance shall occur.			No abnormality			Pass		

Group	Test items		Specification	n	Unit	AVE.	MAX.	MIN.	S	Judgement
		Measurements								
J	Thermal shock									
		Initial	20 MAX.	10	mΩ	5.91	6.4	5.0	0.44	Pass
		After testing	25 MAX.			6.95	8.0	6.4	0.53	Pass
	Contact resistance of ground contact									
		Initial	10 MAX.	10	mΩ	5.24	6.0	4.2	0.62	Pass
		After testing	15 MAX.			6.08	6.9	5.0	0.63	Pass
	Insulation residence									
		Initial	500MΩ MIN.	10	MΩ	10,000MΩ MIN.				Pass
		After testing	100MΩ MIN.			10,000MΩ MIN.				Pass
	Appearance									
	Initial	No abnormality adversely affecting the performance shall occur.	10	-	No abnormality				Pass	
	After testing				No abnormality				Pass	
K	Humidity(Steady State)									
	Contact resistance of main contact									
		Initial	20 MAX.	10	mΩ	6.38	7.0	5.7	0.46	Pass
		After testing	25 MAX.			7.14	7.9	6.1	0.66	Pass
	Contact resistance of ground contact									
		Initial	10 MAX.	10	mΩ	5.13	5.8	4.3	0.60	Pass
		After testing	15 MAX.			6.15	7.0	5.4	0.59	Pass
	Insulation residence									
		Initial	500MΩ MIN.	10	MΩ	10,000MΩ MIN.				Pass
		After testing	100MΩ MIN.			10,000MΩ MIN.				Pass
Appearance										
	Initial	No abnormality adversely affecting the performance shall occur.	10	-	No abnormality				Pass	
	After testing				No abnormality				Pass	
L	Salt water spray									
	Contact resistance of main contact									
		Initial	20 MAX.	10	mΩ	6.05	6.9	5.4	0.44	Pass
		After testing	25 MAX.			6.76	7.7	6.2	0.54	Pass
	Contact resistance of ground contact									
		Initial	10 MAX.	10	mΩ	4.80	5.3	4.0	0.35	Pass
		After testing	15 MAX.			6.06	6.9	5.0	0.66	Pass
	Appearance									
		Initial	No abnormality adversely affecting the performance shall occur.	10	-	No abnormality				Pass
		After testing				No abnormality				Pass

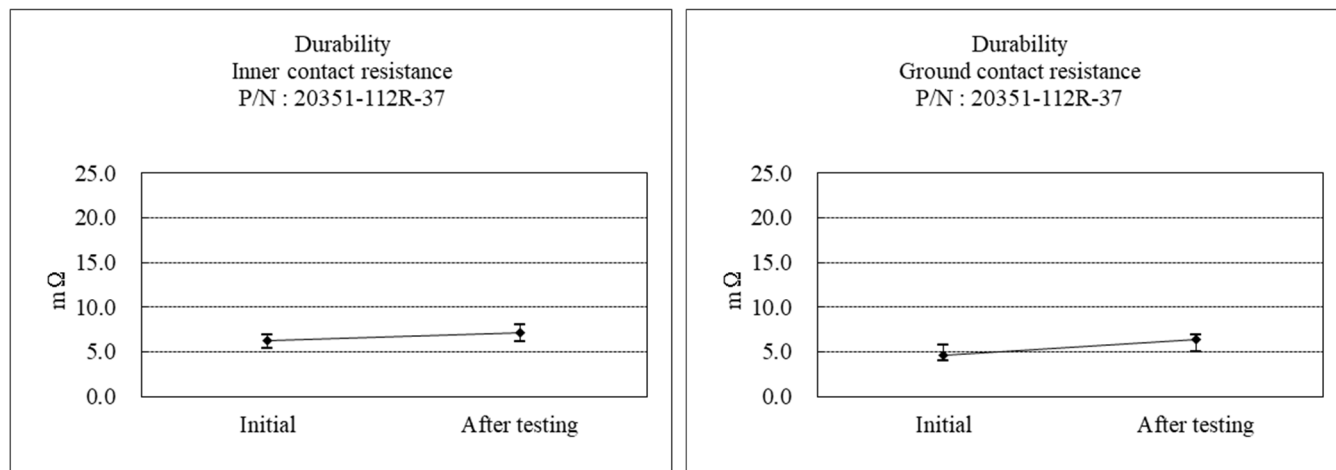
Group	Test items	Specification	n	Unit	AVE.	MAX.	MIN.	S	Judgement
	Measurements								
M	High Temperature Life								
	Contact resistance of main contact								
	Initial	20 MAX.	10	mΩ	5.91	6.8	5.1	0.52	Pass
	After testing	25 MAX.			7.42	8.0	6.8	0.40	Pass
	Contact resistance of ground contact								
	Initial	10 MAX.	10	mΩ	5.03	5.7	4.1	0.60	Pass
	After testing	15 MAX.			5.86	6.7	5.1	0.59	Pass
	Appearance								
	Initial	No abnormality adversely affecting the performance shall occur.	10	-	No abnormality				Pass
	After testing				No abnormality				Pass
N	Solder ability								
	Spec: More than 95% of the dipped surface shall be evenly wet.								
	After testing	-	10	-	No abnormality				Pass
P	Reflow soldering heat resistance								
	Appearance								
	Spec: No abnormality adversely affecting the performance shall occur.								
	After testing	-	10	-	No abnormality				Pass



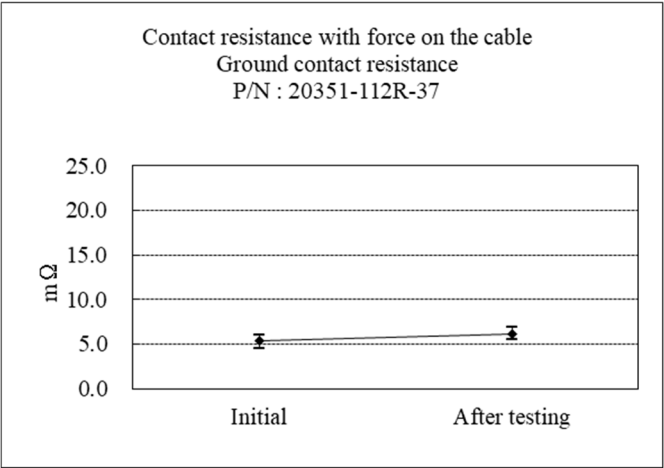
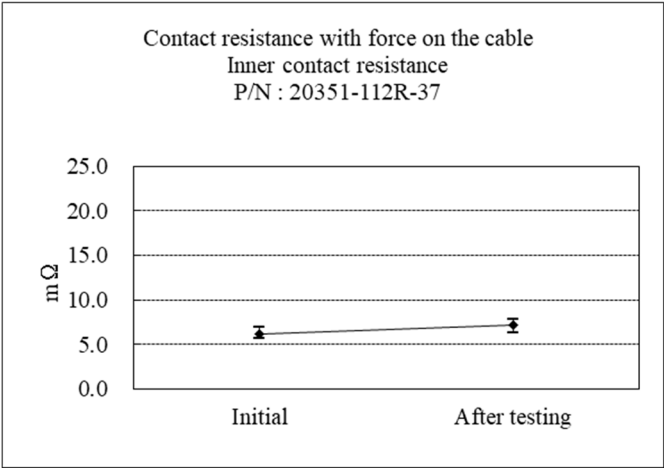
(Graph 1) VSWR



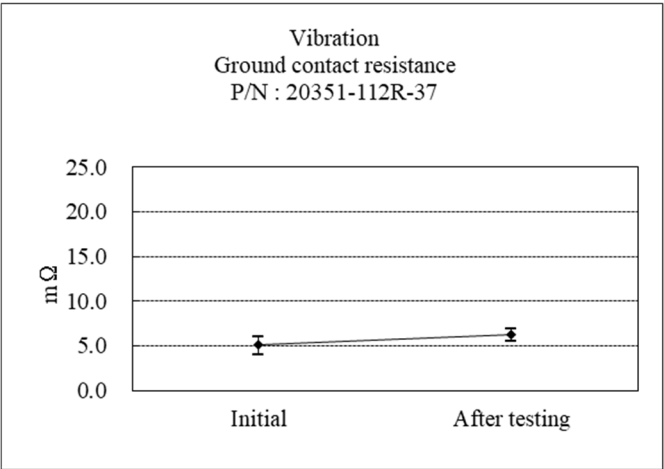
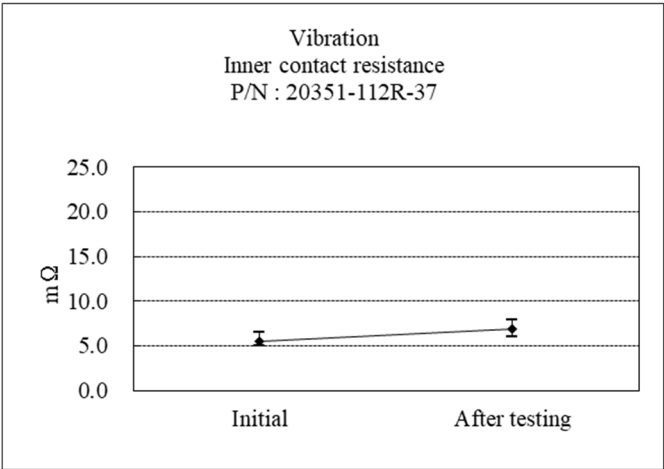
(Graph 2) Unmating force



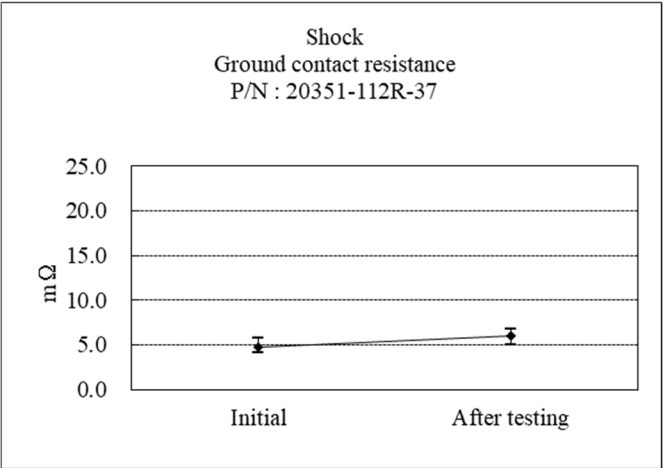
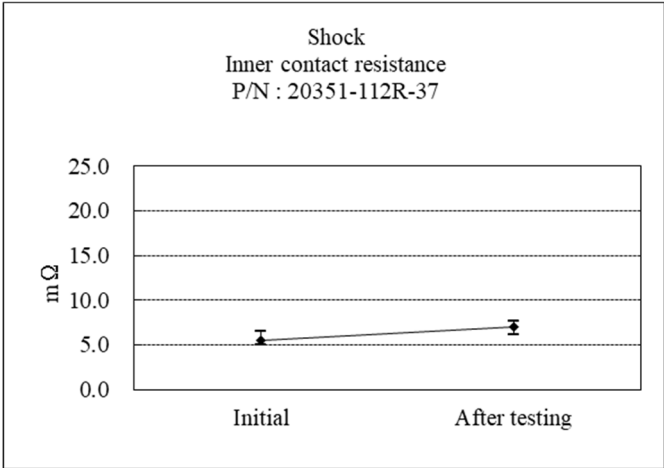
(Graph 3) Durability



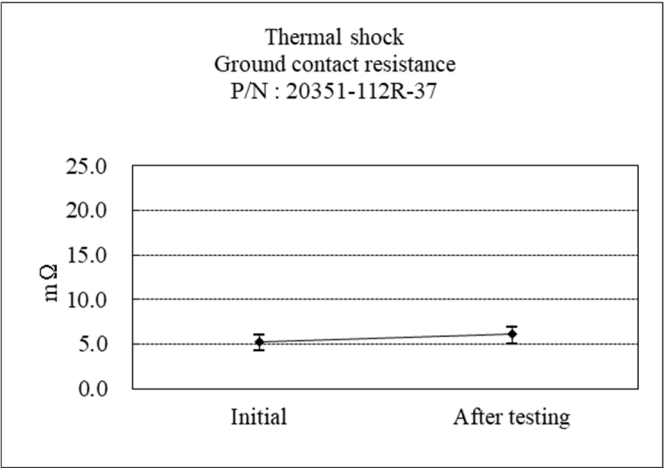
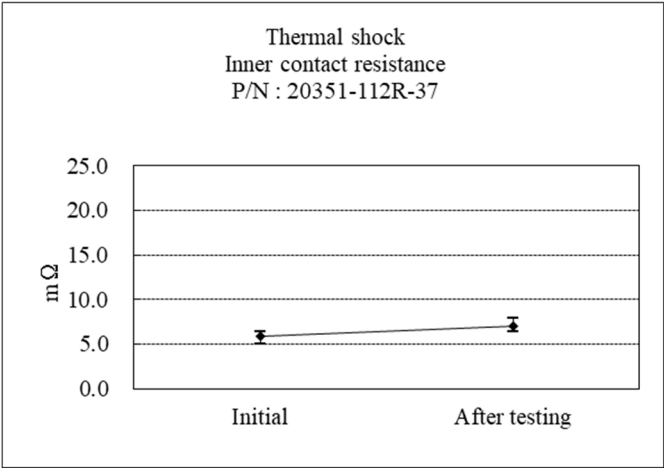
(Graph 4) Cable Retention Force



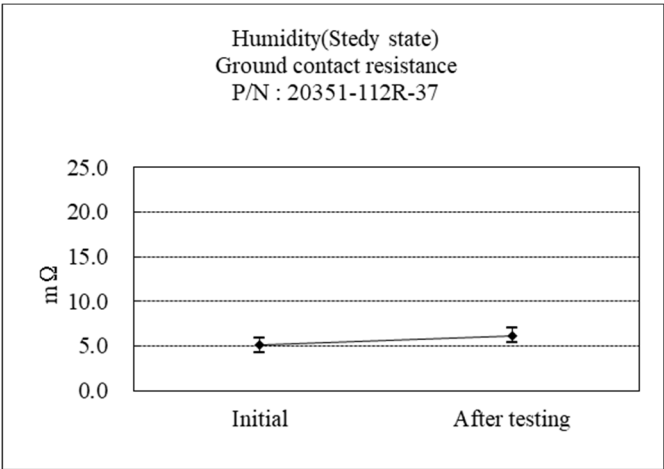
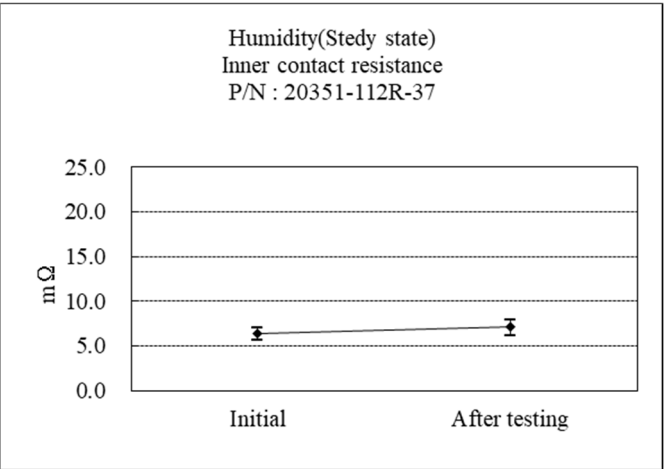
(Graph 5) Vibration



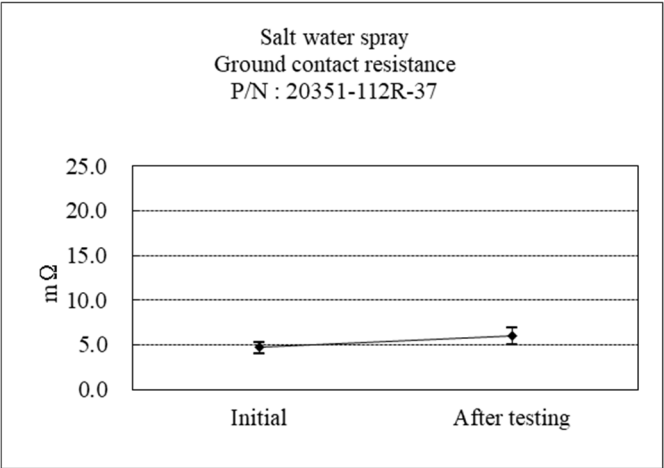
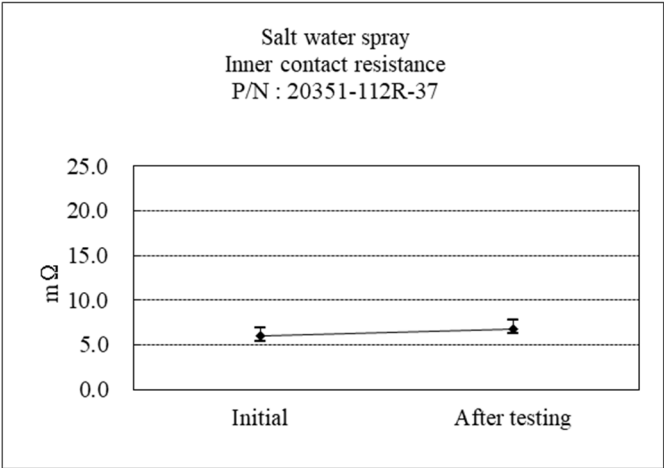
(Graph 6) Shock



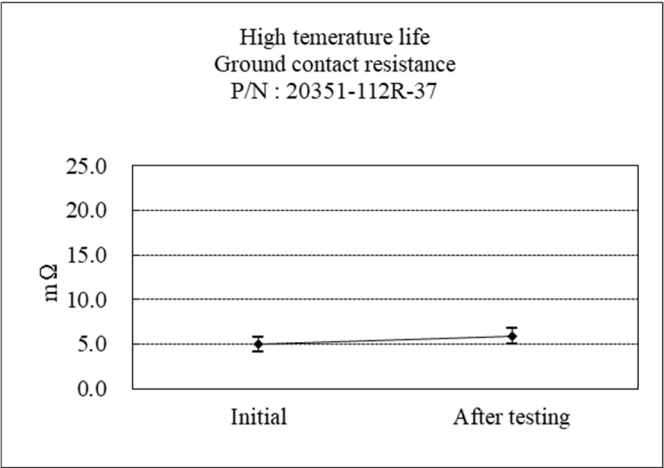
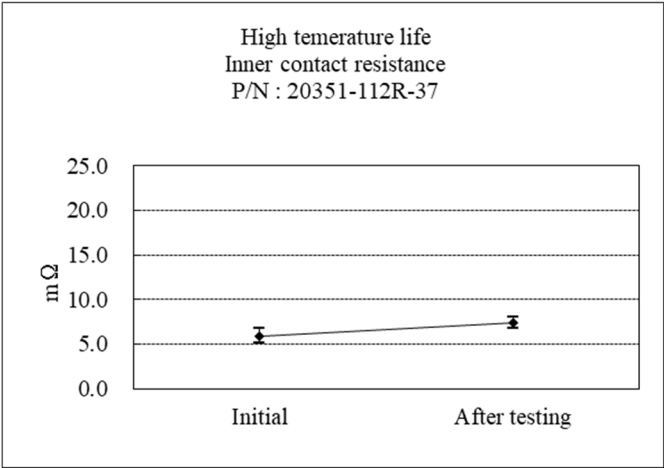
(Graph 7) Thermal Shock



(Graph 8) Humidity (Steady State)



(Graph 9) Salt Water Spray



(Graph 10) High Temperature Life