

# MHF<sup>®</sup> I Connector (Plug: 2.00 Type)

Part No. Plug: 20767-001R-20 Receptacle: 20279-001E-\*\*

## Test Report

Product Specification no. PRS-2490

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Rev.	ECN	Date	Prepared by	Checked by	Approved by

# MHF I Connector (Plug: 2.00 Type) Test Report

## 1. 目的/Purpose

MHF I Connector コネクタの性能を PRS-2490 に基づいて評価する。

To evaluate the performance of MHF I Connector in accordance with PRS-2490.

## 2. 試料/Specimen

(1) MHF I PLUG (Part No:20767-001R-20)

Cable:AWG#26 coaxial cable (Jacket diameter 2.00mm)

(2) MHF I RECEPTACLE (Part No:20279-001E-\*\*) )

## 3. 試験順序/Test Sequence

全ての評価は表 1 の試験順序に従って行った。

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

## 4. 結果/Result

表 2-1~2-3、グラフ 1~18 参照。試験条件の詳細は PRS-2490 参照。n 数は測定データを意味する。

See Table 2-1 to 2-3, Graph 1 to 18. For the details of the testing conditions and requirements, see PRS-2490.

The "n" in the tables show the number of measurement points.

## 5. 結論/Conclusion

全ての資料が製品規格 (PRS-2490) の必要条件を満足した。

All the specimens met the requirements of PRS-2490.

## MHF I Connector (Plug: 2.00 Type) Test Report

Table 1 試験順序と試料数/Test Sequence and Sample Quantity

試験項目 Test Item	グループ/Group													
	A	B	C	D	E	F	G	H	J	K	L	M	N	
接触抵抗 Contact resistance					1,3	1,3	1,3	1,4	1,4		1,3			
絶縁抵抗 Insulation resistance								2,5	2,5					
耐電圧 D. W. Voltage	1													
電圧定在波比 VSWR		1												
抜去力 Unmating force			1											
引張り強度 Crimp strength				1										
耐久性 Durability					2									
耐振動性 Vibration						2								
耐衝撃性 Shock							2							
熱衝撃 Thermal shock								3						
湿度 (定常状態) Humidity (Steady state)									3					
塩水噴霧 Salt water spray										1				
高温 High temperature life											2			
半田付け性 Solder ability												1		
半田耐熱性 Soldering heat resistance													1	
試料数 Sample Quantity	Plug	10	5	10	10	10	10	10	10	10	10	10	-	-
	Receptacle	10	5	10	-	10	10	10	10	10	10	10	10	10
Test board (pcs.)	10	5	10	-	10	10	10	10	10	10	10	10	-	10

※グループ表中の番号は、試験順序を示す。/Numbers indicate sequence in which tests are performed.

## MHF I Connector (Plug: 2.00 Type) Test Report

表(Table)2-1 試験結果/Test Result

A	Test items 試験項目	Measurements 測定内容	Spec. 規格	n	Unit	Data				Judge 判定	
						AVE	MAX	MIN	S		
A	D.W.Voltage	Initial	No abnormality	5	-	No abnormality				OK	
B	VSWR Plug	0.1~3.0GHz	1.3 MAX.	5	-----	1.100	1.10	1.09	0.015	OK	
		3.0~6.0GHz	1.5 MAX.		-----	1.170	1.19	1.16	0.022	OK	
	VSWR Rece.	0.1~3.0GHz	1.3 MAX.		-----	1.101	1.11	1.09	0.012	OK	
		3.0~6.0GHz	1.4 MAX.		-----	1.257	1.34	1.24	0.010	OK	
C	Un-mating force 抜去力	Initial	5N MIN.	10	N	12.74	13.5	12.0	0.50	OK	
		30 cycles	3N MIN.		N	8.03	9.1	7.5	0.46	OK	
D	Crimp strength 引張強度	Initial	15N MIN.	10	N	30.75	32.4	29.1	0.91	OK	
E	Durability 耐久性	<b>Contact resistance of inner contact (中心導体 接触抵抗)</b>									
		Initial	20mΩ MAX.	10	mΩ	7.91	8.89	6.9	0.81	OK	
		After testing	-----	10	mΩ	7.03	8.3	6.1	0.72	OK	
		ΔR	20mΩ MAX.	10	mΩ	-1.03	2.16	-2.58	1.51	OK	
		<b>Contact resistance of ground contact (外部導体 接触抵抗)</b>									
		Initial	20mΩ MAX.	10	mΩ	3.95	4.2	3.7	0.18	OK	
		After testing	-----	10	mΩ	4.22	5.6	3.6	0.55	OK	
		ΔR	100mΩ MAX.	10	mΩ	0.27	1.76	-0.38	1.51	OK	
F	Vibration 耐振動性	<b>Contact resistance of inner contact (中心導体 接触抵抗)</b>									
		Initial	20mΩ MAX.	10	mΩ	6.71	7.2	6.3	0.30	OK	
		After testing	-----	10	mΩ	8.18	8.9	7.8	0.33	OK	
		ΔR	20mΩ MAX.	10	mΩ	-0.35	0.31	-1.02	0.94	OK	
		<b>Contact resistance of ground contact (外部導体 接触抵抗)</b>									
		Initial	20mΩ MAX.	10	mΩ	4.09	4.3	3.9	0.15	OK	
		After testing	-----	10	mΩ	4.17	4.6	3.6	0.33	OK	
		ΔR	100mΩ MAX.	10	mΩ	0.03	0.68	-0.60	0.46	OK	
		Electrical Discontinuity 電氣的瞬断	Spec. : No electrical discontinuity grater than 1μ sec. shall occur. 規格 : 1μ秒以上の電氣的瞬断の無き事								
		Appearance 外觀	Initial	10	-----	No discontinuity(電氣的瞬断無し)				OK	
		Appearance 外觀	After testing	10	-----	No abnormality (異常無し)				OK	
		G	Shock 耐衝擊性	<b>Contact resistance of inner contact (中心導体 接触抵抗)</b>							
Initial	20mΩ MAX.			10	mΩ	6.58	7.0	5.6	0.48	OK	
After testing	-----			10	mΩ	6.58	7.3	5.8	0.56	OK	
ΔR	20mΩ MAX.			10	mΩ	0.00	0.91	-0.95	0.68	OK	
<b>Contact resistance of ground contact (外部導体 接触抵抗)</b>											
Initial	20mΩ MAX.			10	mΩ	4.23	4.7	3.8	0.32	OK	
After testing	-----			10	mΩ	4.33	4.9	3.9	0.32	OK	
ΔR	100mΩ MAX.			10	mΩ	0.10	0.7	-0.6	0.40	OK	
Electrical Discontinuity 電氣的瞬断	Spec. : No electrical discontinuity grater than 1μ sec. shall occur. 規格 : 1μ秒以上の電氣的瞬断の無き事										
Appearance 外觀	Initial			10	-----	No discontinuity(電氣的瞬断無し)				OK	
Appearance 外觀	After testing			10	-----	No abnormality (異常無し)				OK	

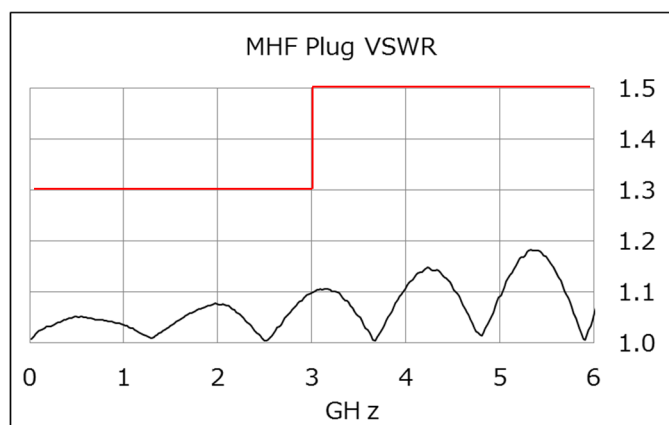
## MHF I Connector (Plug: 2.00 Type) Test Report

表(Table)2-2 試験結果/Test Result

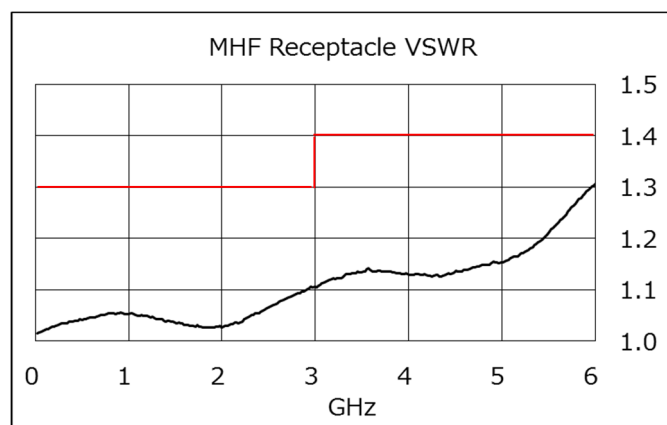
	試験項目 Test items	測定内容 Measurements	規格 Spec.	n	Unit	Data				判定 Judge
						AVE	MAX	MIN	S	
H	熱衝撃 Thermal shock	<b>Contact resistance of inner contact (中心導体 接触抵抗)</b>								
		Initial	20mΩ MAX.	10	mΩ	7.76	9.0	7.1	0.62	OK
		After testing	-----	10	mΩ	7.88	9.2	6.7	0.71	OK
		ΔR	20mΩ MAX.	10	mΩ	0.13	0.8	-0.5	0.43	OK
		<b>Contact resistance of ground contact (外部導体 接触抵抗)</b>								
		Initial	20mΩ MAX.	10	mΩ	4.00	4.2	3.9	0.10	OK
		After testing	-----	10	mΩ	5.66	6.0	5.5	0.15	OK
		ΔR	100mΩ MAX.	10	mΩ	1.67	1.9	1.4	0.15	OK
		絶縁抵抗 Insulation resistance	Initial	10	MΩ	10,000 (minimum value)				OK
			After testing	10	MΩ	10,000 (minimum value)				OK
		外観 Appearance	Initial	10	-----	No abnormality (異常無し)				OK
			After testing	10	-----	No abnormality (異常無し)				OK
J	湿度(定常状態) Humidity Steady state	<b>Contact resistance of inner contact (中心導体 接触抵抗)</b>								
		Initial	20mΩ MAX.	10	mΩ	7.08	7.6	6.6	0.32	OK
		After testing	-----	10	mΩ	7.16	8.3	6.1	0.63	OK
		ΔR	20mΩ MAX.	10	mΩ	0.09	1.1	-1.1	0.65	OK
		<b>Contact resistance of ground contact (外部導体 接触抵抗)</b>								
		Initial	20mΩ MAX.	10	mΩ	4.40	5.1	4.1	0.26	OK
		After testing	-----	10	mΩ	4.46	4.7	4.3	0.10	OK
		ΔR	100mΩ MAX.	10	mΩ	0.05	0.4	-0.4	0.24	OK
		絶縁抵抗 Insulation resistance	Initial	10	MΩ	10,000 (minimum value)				OK
			After testing	10	MΩ	10,000 (minimum value)				OK
		外観 Appearance	Initial	10	-----	No abnormality (異常無し)				OK
			After testing	10	-----	No abnormality (異常無し)				OK
K	塩水噴霧 Salt water spray	<b>Contact resistance of inner contact (中心導体 接触抵抗)</b>								
		Initial	20mΩ MAX.	10	mΩ	7.14	7.7	6.2	0.56	OK
		After testing	-----	10	mΩ	6.71	7.2	6.3	0.30	OK
		ΔR	20mΩ MAX.	10	mΩ	-0.43	0.3	-1.1	0.46	OK
		<b>Contact resistance of ground contact (外部導体 接触抵抗)</b>								
		Initial	20mΩ MAX.	10	mΩ	3.81	4.2	3.6	0.21	OK
		After testing	-----	10	mΩ	5.74	6.3	5.5	0.27	OK
		ΔR	100mΩ MAX.	10	mΩ	1.93	2.6	1.3	0.39	OK
		外観 Appearance	Initial	10	-----	No abnormality (異常無し)				OK
			After testing	10	-----	No abnormality (異常無し)				OK

**表(Table)2-3 試験結果/Test Result**

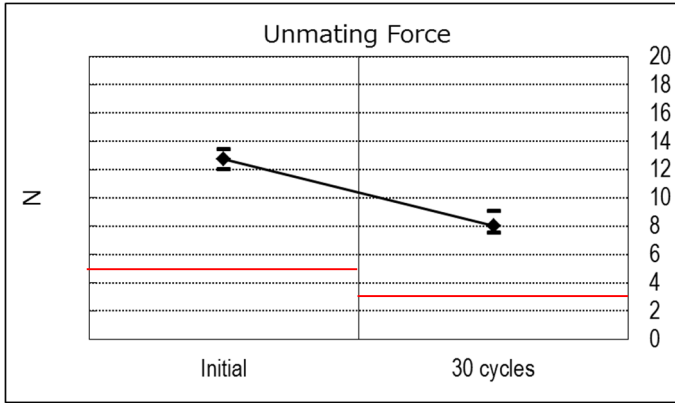
	試験項目 Test items	測定内容 Measurements	規格 Spec.	n	Unit	Data				判定 Judge
						AVE	MAX	MIN	S	
L	高温寿命 High temperature Life	<b>Contact resistance of inner contact (中心導体 接触抵抗)</b>								
		Initial	20mΩ MAX.	10	mΩ	7.33	8.9	6.2	0.90	OK
		After testing	-----	10	mΩ	9.01	10.1	7.4	1.04	OK
		ΔR	20mΩ MAX.	10	mΩ	1.68	3.0	0.7	0.86	OK
		<b>Contact resistance of ground contact (外部導体 接触抵抗)</b>								
		Initial	20mΩ MAX.	10	mΩ	4.14	4.3	4.0	0.10	OK
		After testing	-----	10	mΩ	5.95	6.2	5.7	0.17	OK
		ΔR	100mΩ MAX.	10	mΩ	1.81	2.1	1.5	0.16	OK
		外観 Appearance	Initial	10	-----	No abnormality (異常無し)				OK
			After testing	10	-----	No abnormality (異常無し)				OK
M	半田付け性 Solder ability		規格 : 浸した面積の95%以上に半田が付着し、 かつピンホール空隙が1箇所集中せず、5%以下である事 Spec. : More than 95% of the dipped surface becomes wet and the pinhole that should not gather at one point is less than 5%.							
			-----	10	-----	No abnormality (異常無し)			OK	
N	半田耐熱性 Reflow soldering heat resistance		規格 : 機能を損なう変形及び欠陥の無い事 Spec. : Abnormality adversely affecting the performance should not occur.							
			-----	10	-----	No abnormality (異常無し)			OK	



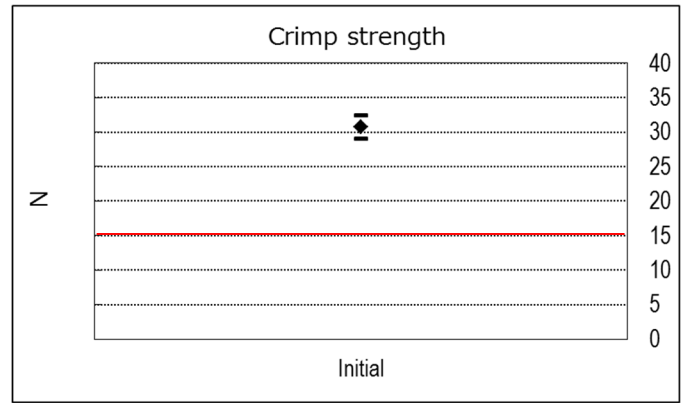
(Graph 1) MHF I Plug VSWR



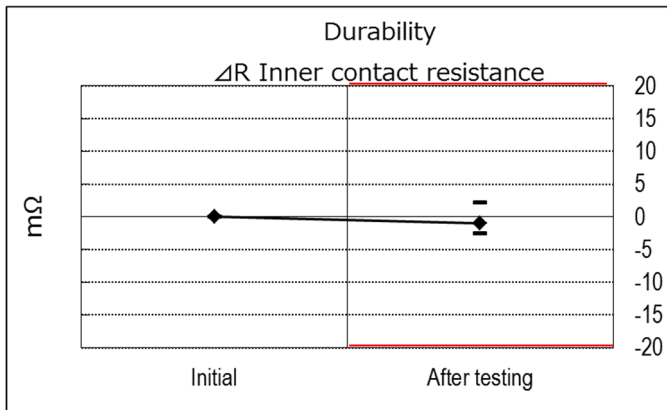
(Graph 2) MHF I Receptacle VSWR



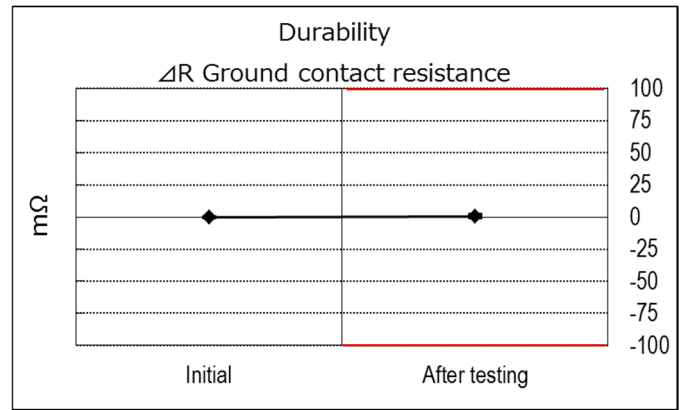
(Graph 3) Unmating Force



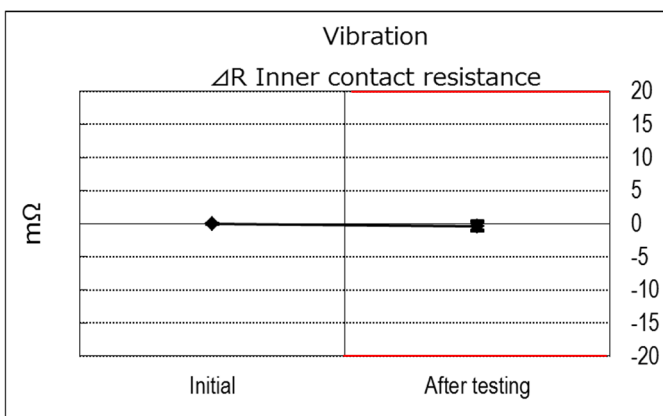
(Graph 4) Crimp strength



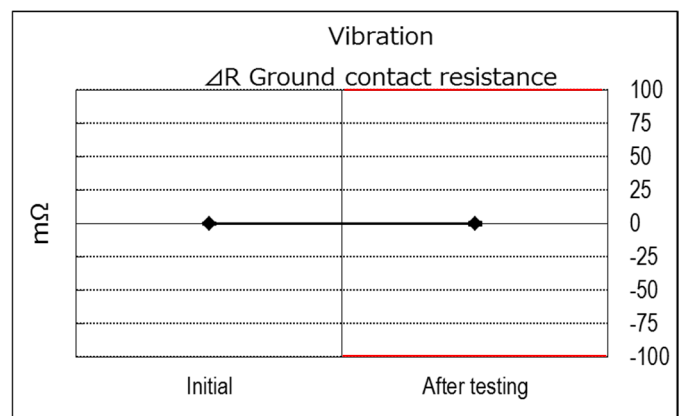
(Graph 5) Durability  
ΔR Inner contact resistance



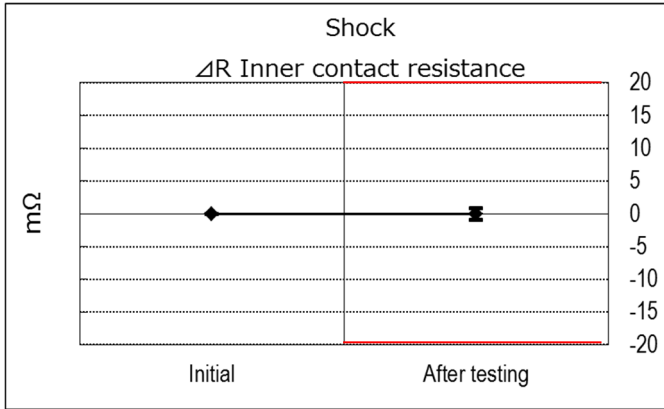
(Graph 6) Durability  
ΔR Ground contact resistance



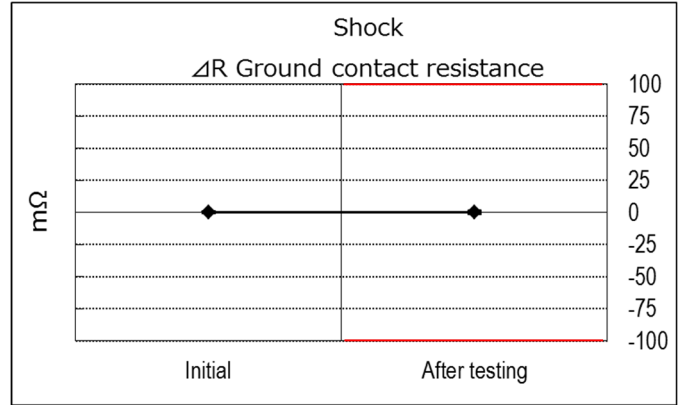
(Graph 7) Vibration  
ΔR Inner contact resistance



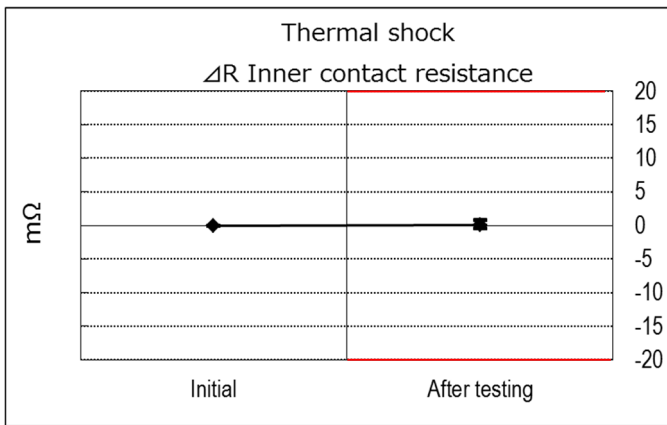
(Graph 8) Vibration  
ΔR Ground contact resistance



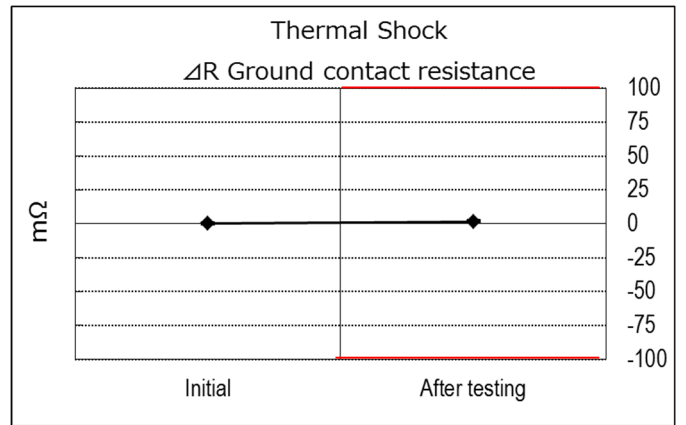
(Graph 9) Shock  
ΔR Inner contact resistance



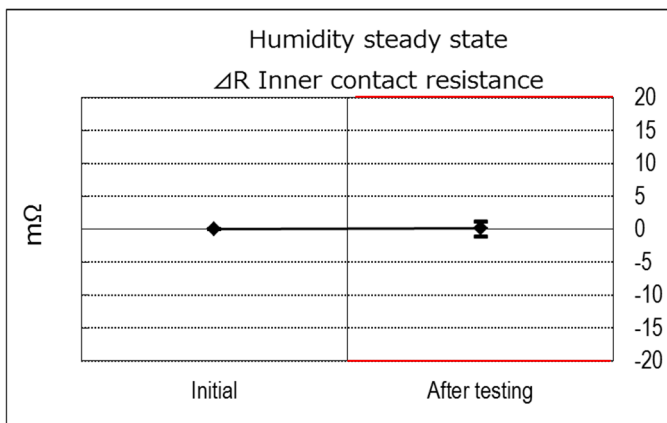
(Graph 10) Shock  
ΔR Ground contact resistance



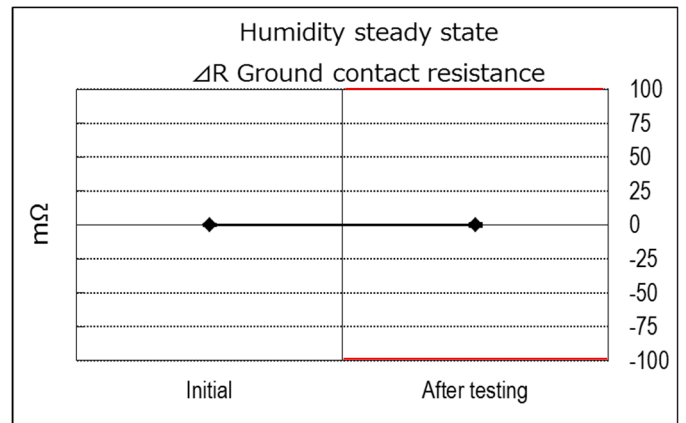
(Graph 11) Thermal Shock  
ΔR Inner contact resistance



(Graph 12) Thermal Shock  
ΔR Ground contact resistance

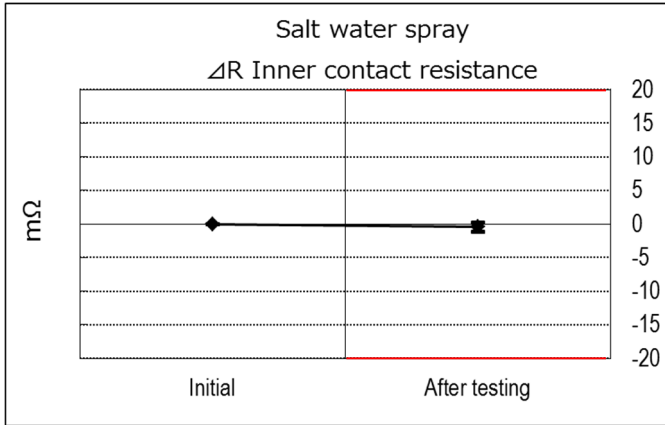


(Graph 13) Humidity steady state  
ΔR Inner contact resistance

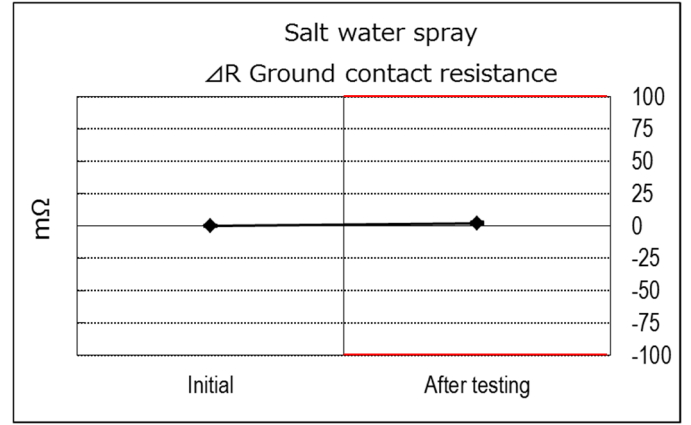


(Graph 14) Humidity steady state  
ΔR Ground contact resistance

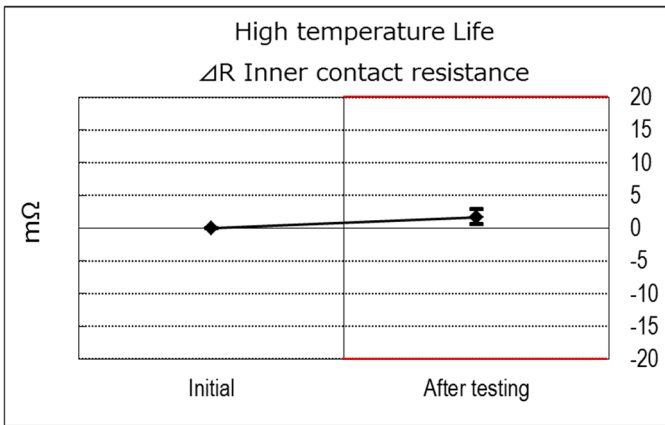




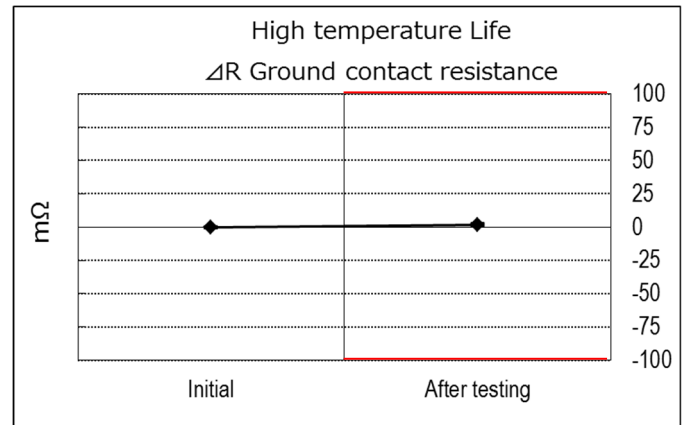
(Graph 15) Salt water spray  
ΔR Inner contact resistance



(Graph 16) Salt water spray  
ΔR Ground contact resistance



(Graph 17) High temperature life  
ΔR Inner contact resistance



(Graph 18) High temperature life  
ΔR Ground contact resistance