

NOVASTACK® 35-HDN

Part No. Plug: 20864-0**E-0# Receptacle: 20865-0**E-0#

Test Report

Product Specification no. PRS-2607

5	T21131	November 1, 2021	H. Higuchi	S. Suzuki	Y. Hashimoto
4	T21009	January 29, 2021	M. Hidaka	S. Suzuki	Y. Hashimoto
3	T20017	January 31, 2020	A. Kagoshima	T. Yayoshi	Y. Shimada
2	T19165	December 11, 2019	R. Itokawa	T. Yayoshi	Y. Shimada
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

NOVASTACK 35-HDN コネクタの性能を PRS-2607 に基づいて評価する。

2. Specimen

- (1) NOVASTACK 35-HDN Plug Ass'y (Part No. 20864-0**E-0#)
- (2) NOVASTACK 35-HDN Receptacle Ass'y (Part No. 20865-0**E-0#)

3. Test Sequence

全ての評価は表 1 の試験順序に従って行った。

4. Result

Table2-1～2-3、Graph1～22 参照。試験条件の詳細は PRS-2607 参照。n 数は測定データ数を意味する。

5. Conclusion

全ての資料が製品規格（PRS-2607）の必要条件を満足した。

Table 1 試験順序と試料数

試験項目	グループ												
	A	B	C	D	E	F	G	H	J	K	L	M	N
接触抵抗		2,6		1,3,5	1,5	1,3	1,5	1,5	1,3	1,3			
絶縁抵抗					2,6		2,6	2,6					
耐電圧					3,7		3,7	3,7					
温度上昇	1												
挿入力		1,5											
抜去力		3,7											
耐久性		4											
端子保持力			1										
耐振動性				2									
耐衝撃性				4									
熱衝撃					4								
高温寿命						2							
湿度 (定常状態)							4						
湿度 (サイクリング)								4					
塩水噴霧									2				
硫化水素ガス										2			
半田付け性											1		
半田耐熱性												1	
手半田													1
試料数	5 pcs.	5 pcs.	20 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	10 pcs.	10 pcs.	10 pcs.

※グループ表中の番号は、試験順序を示す。

Table 2-1. 試験結果

Group	Contents of Measurement	Spec.	Unit	Q'ty	n	Data					Judge.		
						AVE.	MAX.	MIN.	S	X±3s			
A	Temperature Rising												
	10P Signal Contact 1.0A/Contact (Total:10.0A)	ΔT 30 MAX.	℃	5	-	ΔT	18.1	MAX.			Pass		
	20P Signal Contact 0.6A/Contact (Total:12.0A)		℃	5	-	ΔT	21.8	MAX.					
	30P Signal Contact 0.4A/Contact (Total:12.0A)		℃	5	-	ΔT	14.0	MAX.					
B	Durability												
	Contact Resistance												
	Signal Contact	Initial	40 MAX.	mohm	5	50	8.225	10.11	6.66	0.755	10.491	Pass	
		After 10 cycles	ΔR 40 MAX.				-1.018	0.02	-2.66	0.626	-2.896	Pass	
	Ground	Initial	20 MAX.				10	1.157	1.30	1.00	0.104	1.468	Pass
		After 10 cycles	ΔR 20 MAX.					0.487	1.58	-0.70	0.722	2.655	Pass
	Mating Force												
	10P	Initial	20.0 MAX.	N	5	-	15.788	16.94	14.78	-	-	Pass	
		After 10 cycles					6.258	6.59	5.83	-	-	Pass	
	20P	Initial	40.0 MAX.	N	5	-	17.771	18.475	17.177	-	-	Pass	
		After 10 cycles					8.544	9.682	7.188	-	-	Pass	
	30P	Initial	60.0 MAX.	N	5	-	28.912	29.96	27.06	-	-	Pass	
		After 10 cycles					13.902	14.92	13.04	-	-	Pass	
	Unmating Force												
	10P	Initial	1.5 MIN.	N	5	-	8.920	9.75	7.93	-	-	Pass	
		After 10 cycles					5.054	5.81	4.54	-	-	Pass	
	20P	Initial	3.0 MIN.	N	5	-	12.371	13.733	11.255	-	-	Pass	
		After 10 cycles					6.853	7.616	5.949	-	-	Pass	
	30P	Initial	4.5 MIN.	N	5	-	18.084	19.02	17.32	-	-	Pass	
		After 10 cycles					11.642	11.92	11.13	-	-	Pass	
C	Contact Retention Force												
	Receptacle												
	Signal Contact	Initial	0.1 MIN.	N	-	20	0.66 N MIN.					Pass	
		After Test					0.59 N MIN.					Pass	
	Ground	Initial					1.13 N MIN.					Pass	
		After Test					1.04 N MIN.					Pass	
D	Vibration → Shock												
	Contact Resistance												
	Signal Contact	Initial	40 MAX.	mohm	5	50	8.260	10.99	6.37	0.866	10.858	Pass	
		After Vibration	ΔR 40 MAX.				-0.228	1.56	-1.90	0.754	-2.490	Pass	
		After Shock					-0.332	0.95	-2.37	0.693	-2.411	Pass	
	Ground	Initial	20 MAX.				10	1.405	2.39	1.03	0.483	2.854	Pass
		After Vibration	ΔR 20 MAX.					0.412	1.12	-0.22	0.413	1.652	Pass
		After Shock						0.369	1.33	-0.10	0.450	1.718	Pass
	Electrical Discontinuity												
		During Test	1 MAX.	μs	5	-	No Discontinuity					Pass	
	Appearance												
		After Test	*	-	5	-	No Abnormality					Pass	

*Appearance spec.: 機能を損なう異常無き事。

Table 2-2. 試験結果

Group	Contents of Measurement	Spec.	Unit	Q'ty	n	Data					Judge.			
						AVE.	MAX.	MIN.	S	X±3s				
E	Thermal Shock													
	Contact Resistance													
	Signal Contact	Initial	40 MAX.	mohm	5	50	8.280	9.51	7.00	0.706	10.398	Pass		
		After Test	ΔR 40 MAX.				0.749	3.09	-0.92	0.863	3.337	Pass		
	Ground	Initial	20 MAX.				10	1.413	2.11	1.05	0.309	2.341	Pass	
		After Test	ΔR 20 MAX.					0.539	1.48	-0.24	0.606	2.358	Pass	
	Insulation Resistance													
		Initial	1000 MIN.				Mohm	5	-	2.18 x 10 ⁴ MIN.				
		After Test	500 MIN.	1.08 x 10 ⁴ MIN.						Pass				
	Dielectric Withstanding Voltage													
	After Test	**	-	5	-	No Abnormality					Pass			
Appearance														
	After Test	*	-	5	-	No Abnormality					Pass			
F	High Temperature Life													
	Contact Resistance													
	Signal Contact	Initial	40 MAX.	mohm	5	50	8.862	10.73	7.35	0.951	11.714	Pass		
		After Test	ΔR 40 MAX.				1.301	2.88	-0.08	0.665	3.297	Pass		
	Ground	Initial	20 MAX.				10	1.465	1.93	1.05	0.274	2.287	Pass	
		After Test	ΔR 20 MAX.					0.651	1.39	-0.40	0.600	2.451	Pass	
Appearance														
	After Test	*	-				5	-	No Abnormality					Pass
G	Humidity (Steady State)													
	Contact Resistance													
	Signal Contact	Initial	40 MAX.	mohm	5	50	8.769	11.01	6.83	0.880	11.410	Pass		
		After Test	ΔR 40 MAX.				-0.180	1.94	-1.87	0.737	-2.392	Pass		
	Ground	Initial	20 MAX.				10	1.647	2.14	1.21	0.281	2.490	Pass	
		After Test	ΔR 20 MAX.					0.918	2.04	0.43	0.514	2.460	Pass	
	Insulation Resistance													
		Initial	1000 MIN.				Mohm	5	-	1.15 x 10 ⁴ MIN.				
		After Test	500 MIN.	1.58 x 10 ⁴ MIN.						Pass				
	Dielectric Withstanding Voltage													
	After Test	**	-	5	-	No Abnormality					Pass			
Appearance														
	After Test	*	-	5	-	No Abnormality					Pass			

*Appearance Spec. : 機能を損なう異常無き事。

**Dielectric Withstanding Voltage Spec.: 沿面放電、空中放電、絶縁破壊等の異常無き事。

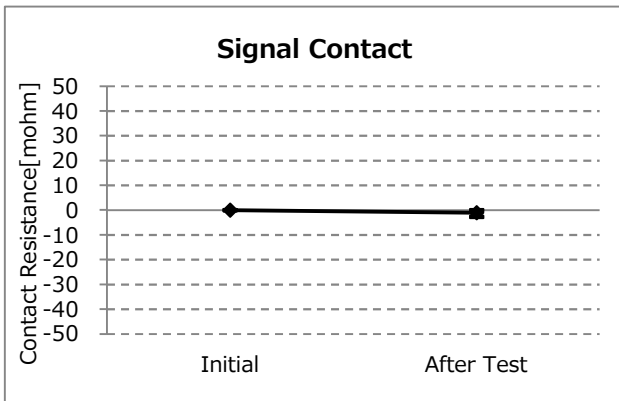
Table 2-3. 試験結果

Group	Contents of Measurement	Spec.	Unit	Q'ty	n	Data					Judge.		
						AVE.	MAX.	MIN.	S	X±3s			
H	Humidity (Cycling)												
	Signal Contact	Initial	40	MAX.	mohm	5	50	8.897	11.93	6.76	1.105	12.212	Pass
		After Test	ΔR	40				MAX.	0.160	2.67	-1.87	0.907	2.882
	Ground	Initial	20	MAX.	mohm	5	10	1.607	2.09	1.08	0.286	2.466	Pass
		After Test	ΔR	20				MAX.	1.472	2.88	0.45	0.914	4.215
	Insulation Resistance												
		Initial	1000	MIN.	Mohm	5	-	1.98 x 10 ⁴ MIN.					Pass
		After Test	500	MIN.				5.24 x 10 ⁴ MIN.					Pass
	Dielectric Withstanding Voltage												
		After Test	**	-	5	-	No Abnormality					Pass	
Appearance													
	After Test	*	-	5	-	No Abnormality					Pass		
J	Salt Water Spray												
	Contact Resistance												
	Signal Contact	Initial	40	MAX.	mohm	5	50	7.831	9.08	6.75	0.608	9.654	Pass
		After Test	ΔR	40				MAX.	-0.507	0.60	-1.42	0.443	-1.837
	Ground	Initial	20	MAX.	mohm	5	10	1.340	1.90	1.09	0.286	2.197	Pass
		After Test	ΔR	20				MAX.	0.305	1.33	-0.83	0.664	2.298
	Appearance												
	After Test	*	-	5	-	No Abnormality					Pass		
K	H ₂ S Gas												
	Contact Resistance												
	Signal Contact	Initial	40	MAX.	mohm	5	50	8.697	11.67	6.78	1.092	11.973	Pass
		After Test	ΔR	40				MAX.	-0.400	0.57	-1.73	0.564	-2.093
	Ground	Initial	20	MAX.	mohm	5	10	1.685	2.11	1.30	0.267	2.486	Pass
		After Test	ΔR	20				MAX.	0.473	1.40	-0.69	0.653	2.431
	Appearance												
	After Test	*	-	5	-	No Abnormality					Pass		
L	Solder Ability												
	Solder Wetting Area												
	After Test	95	MIN.	%	10	-	95 MIN.					Pass	
M	Resistance to Reflow Soldering Heat												
	Appearance												
	After Test	*	-	10	-	No Abnormality					Pass		
N	Soldering Iron												
	Appearance												
	After Test	*	-	10	-	No Abnormality					Pass		

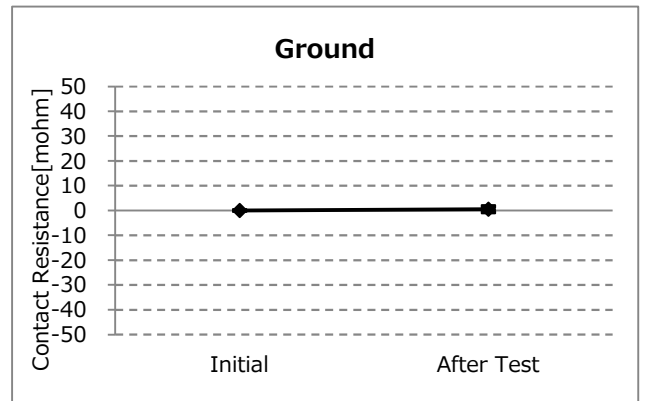
*Appearance Spec. : 機能を損なう異常無き事。

**Dielectric Withstanding Voltage Spec.: 沿面放電、空中放電、絶縁破壊等の異常無き事。

B Group / Durability

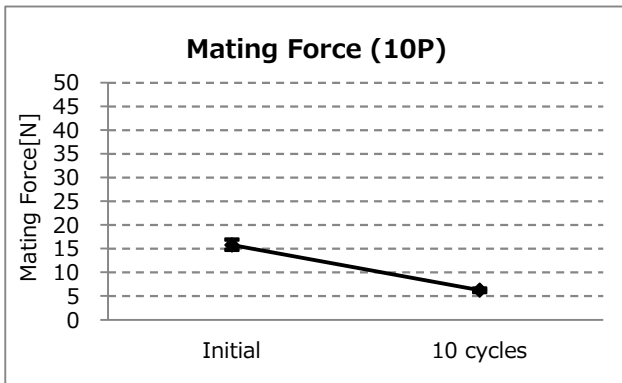


Graph-1. A Change of Signal Contact Resistance

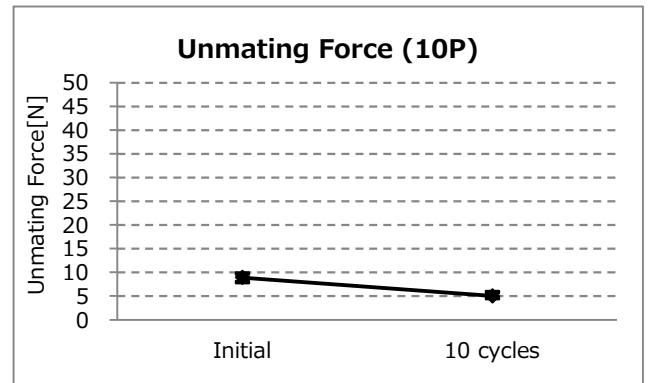


Graph-2. A Change of Ground Resistance

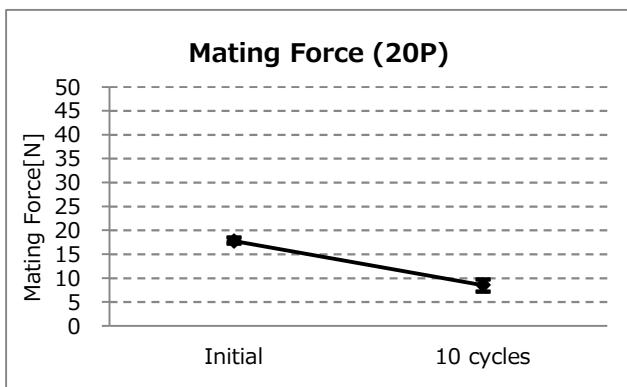
B Group / Durability



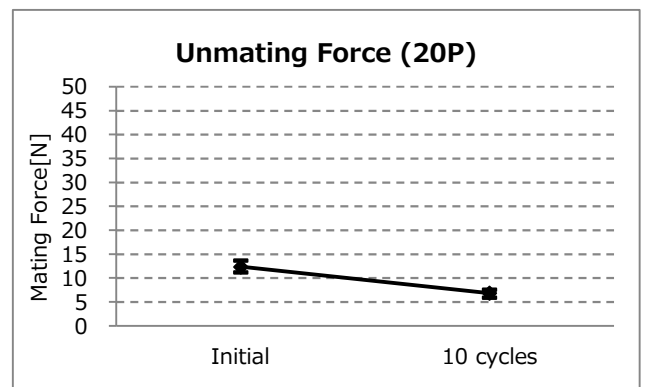
Graph-3. A Change of Mating Force (10P)



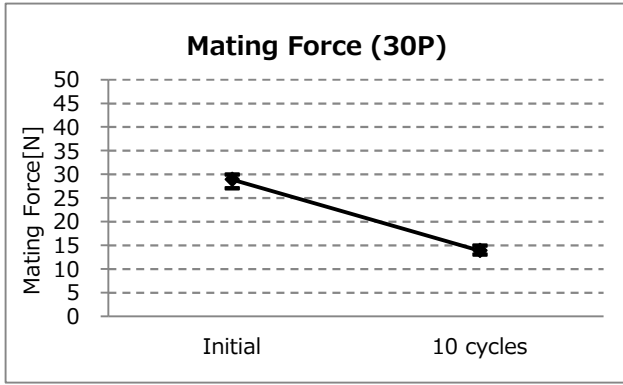
Graph-4. A Change of Unmating Force (10P)



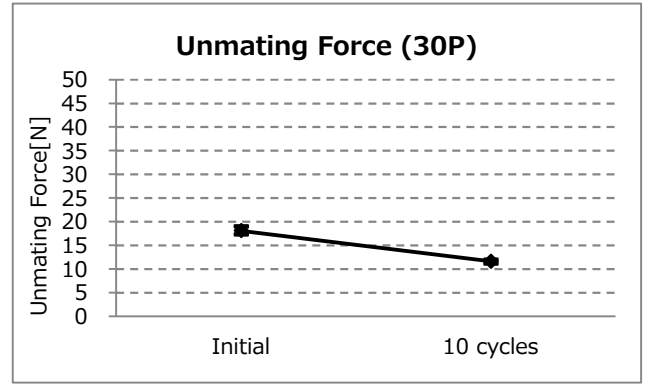
Graph-5. A Change of Mating Force (20P)



Graph-6. A Change of Unmating Force (20P)

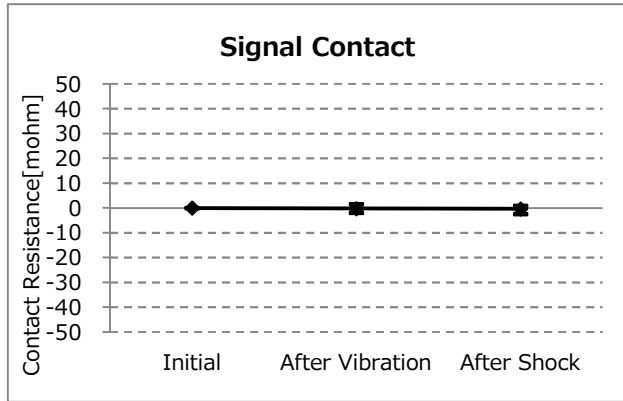


Graph-7. A Change of Mating Force (30P)

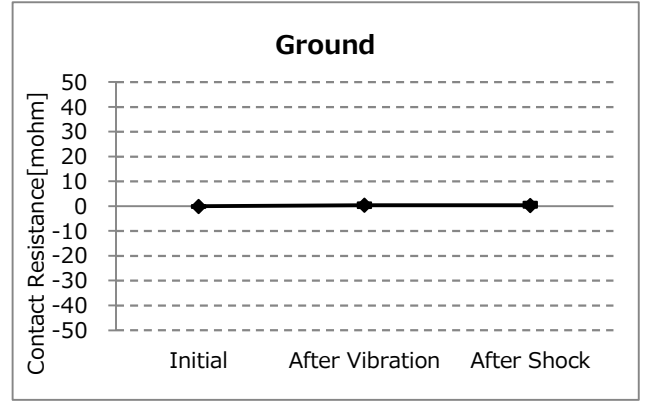


Graph-8. A Change of Unmating Force (30P)

D Group / Vibration → Shock

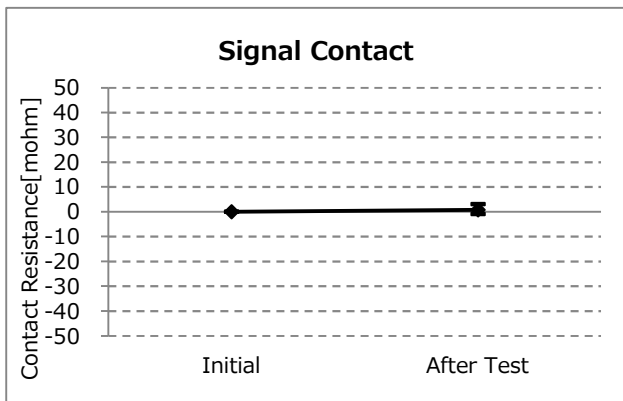


Graph-9. A Change of Signal Contact Resistance

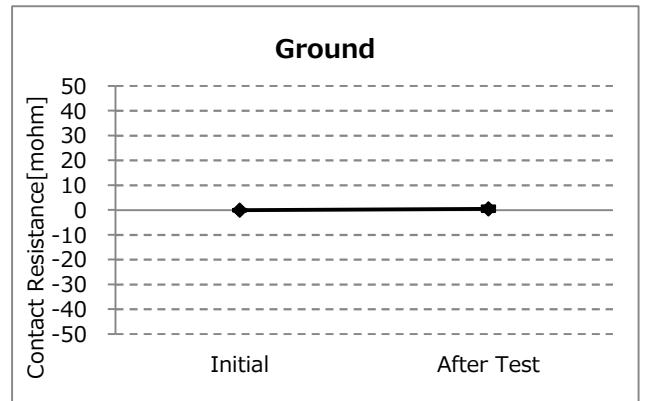


Graph-10. A Change of Ground Resistance

E Group / Thermal Shock

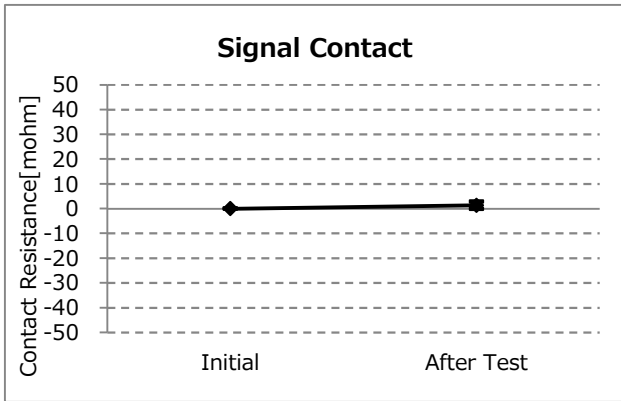


Graph-11. A Change of Signal Contact Resistance

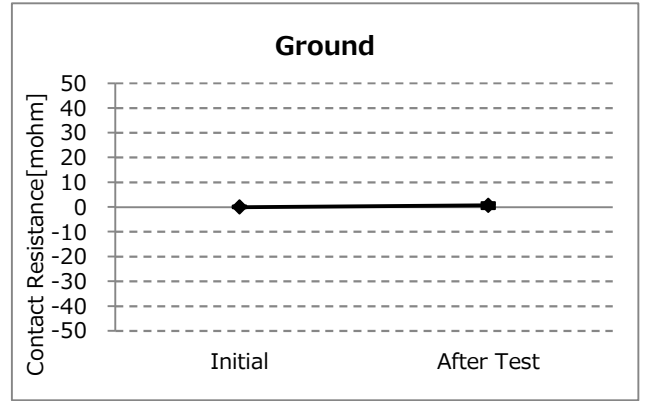


Graph-12. A Change of Ground Resistance

F Group / High Temperature Life

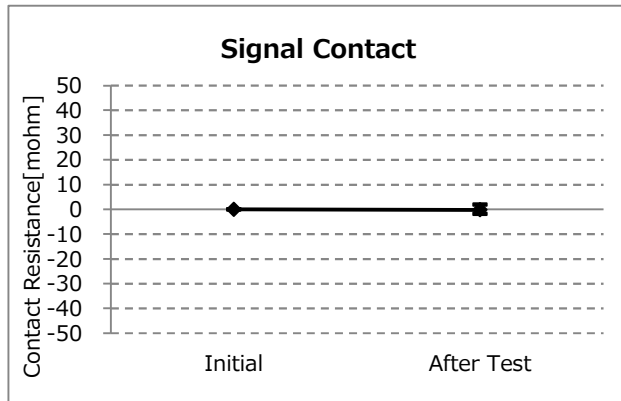


Graph-13. A Change of Signal Contact Resistance

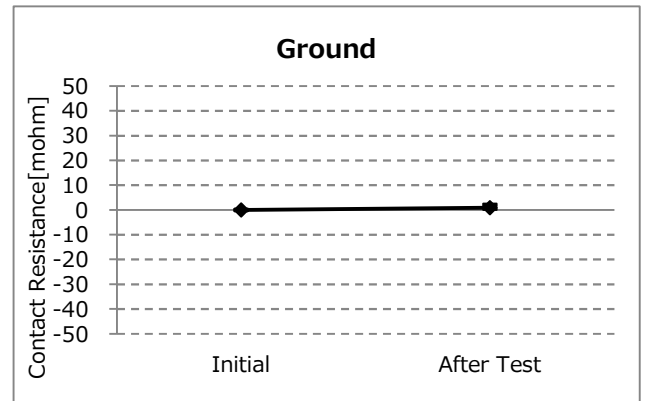


Graph-14. A Change of Ground Resistance

G Group / Humidity (Steady State)

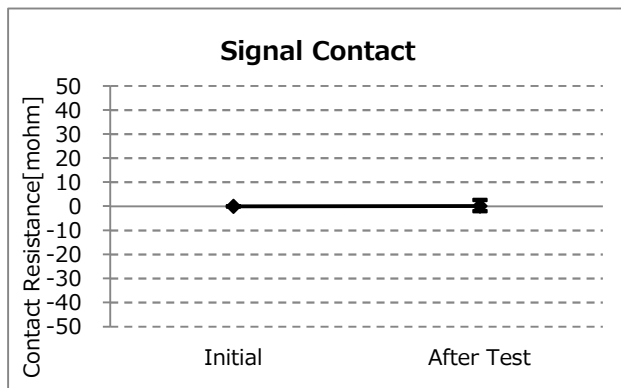


Graph-15 A Change of Signal Contact Resistance

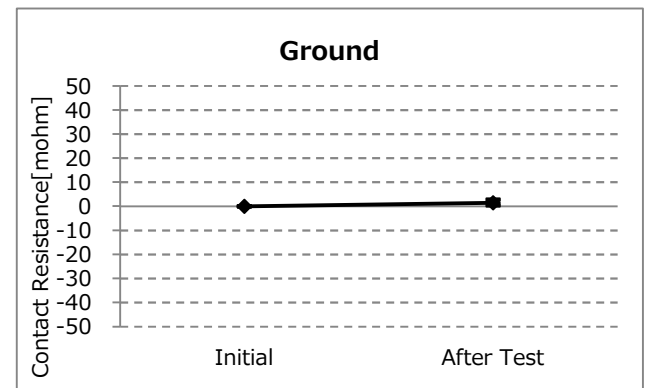


Graph-16. A Change of Ground Resistance

H Group / Humidity (Cycling)

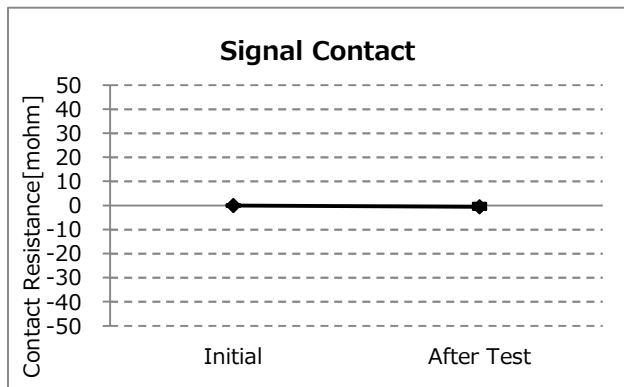


Graph-17. A Change of Signal Contact Resistance

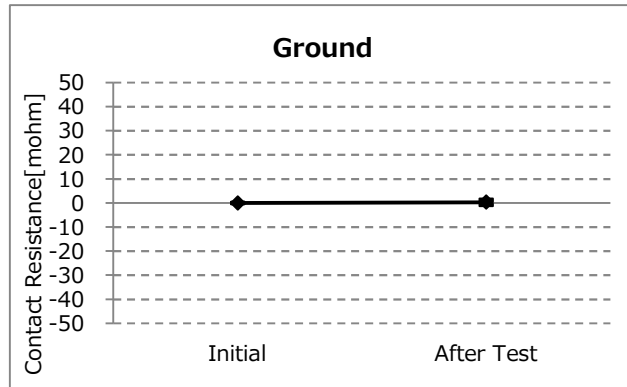


Graph-18. A Change of Ground Resistance

J Group / Salt Water Spray

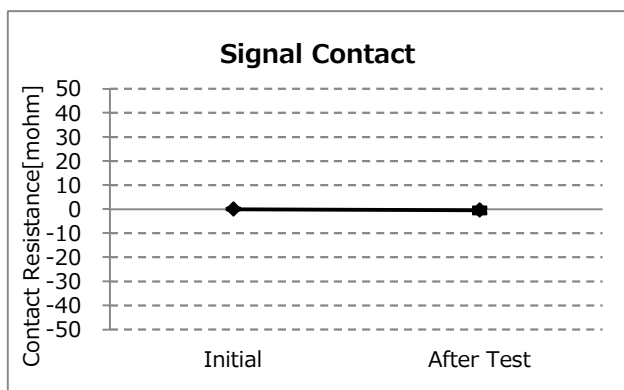


Graph-19. A Change of Signal Contact Resistance

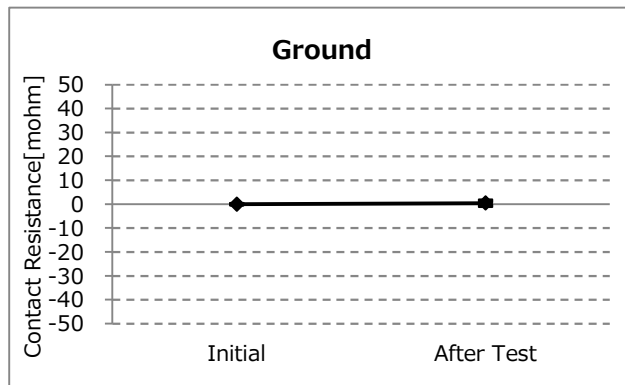


Graph-20. A Change of Ground Resistance

K Group / H₂S Gas



Graph-21. A Change of Signal Contact Resistance



Graph-22. A Change of Ground Resistance