

NOVASTACK® 35-HDN

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

Test Report

Product Specification no. PRS-2607

6	T22156	May 26, 2023	W. Lau	Y. Shimizu	M. Takemoto
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
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
	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
	Insulation Resistance												
		Initial	1000	MIN.	Mohm	5	-	2.18 x 10 ⁴ MIN.					Pass
		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
	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
	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
	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
	Insulation Resistance												
		Initial	1000	MIN.	Mohm	5	-	1.15 x 10 ⁴ MIN.					Pass
		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。

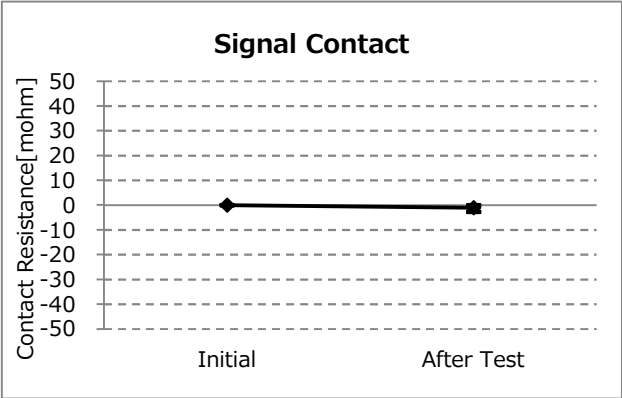
Table 2-3. 試験結果

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	Pass
	Ground	Initial	20 MAX.			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	Pass
	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	Pass
	Ground	Initial	20 MAX.			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	Pass
	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	Pass
	Ground	Initial	20 MAX.			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	Pass
	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

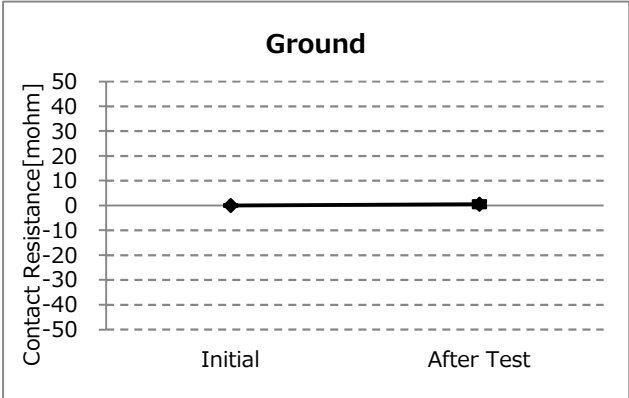
*Appearance Spec. : 機能を損なう異常無き事。

**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

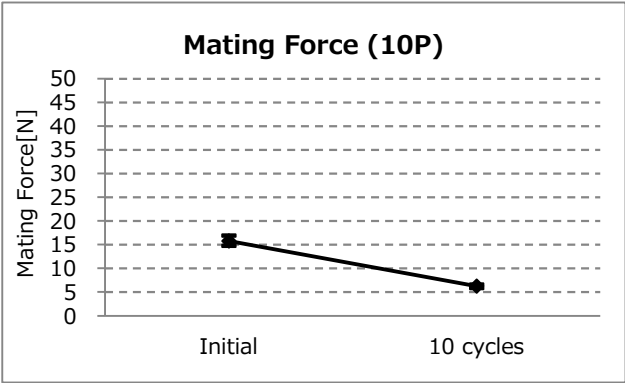


Graph-1. A Change of Signal Contact Resistance

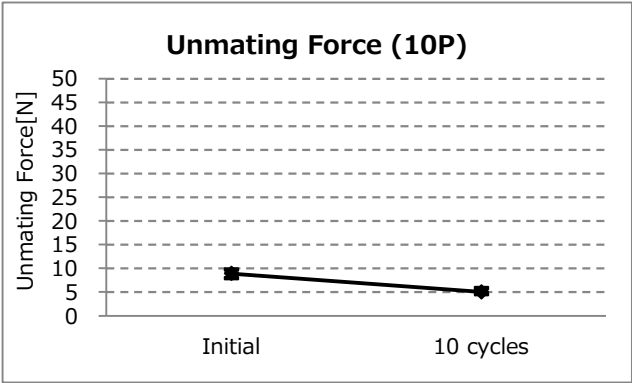


Graph-2. A Change of Ground Resistance

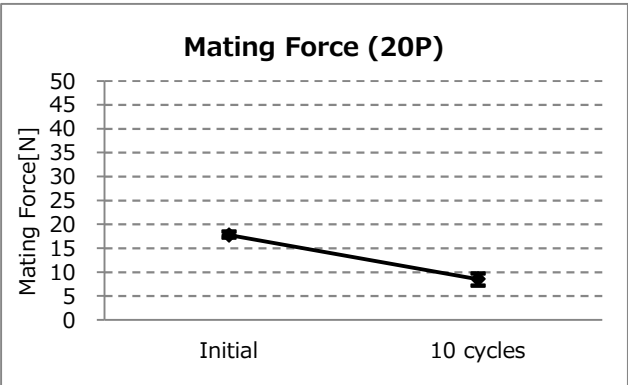
B Group / Durability



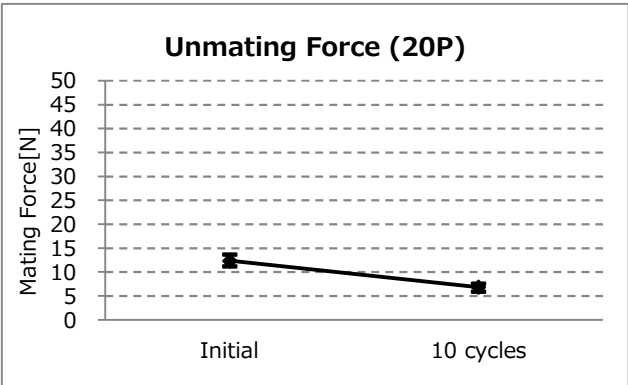
Graph-3. A Change of Mating Force (10P)



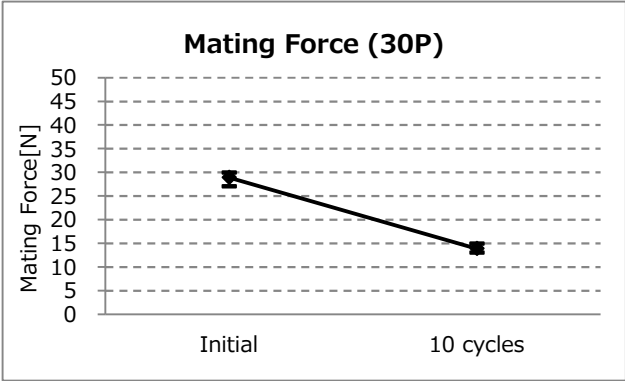
Graph-4. A Change of Unmating Force (10P)



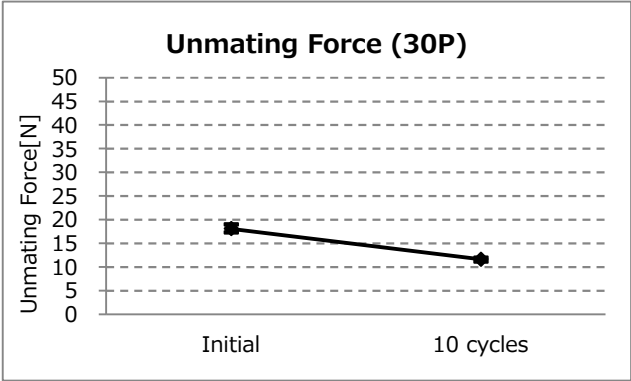
Graph-5. A Change of Mating Force (20P)



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

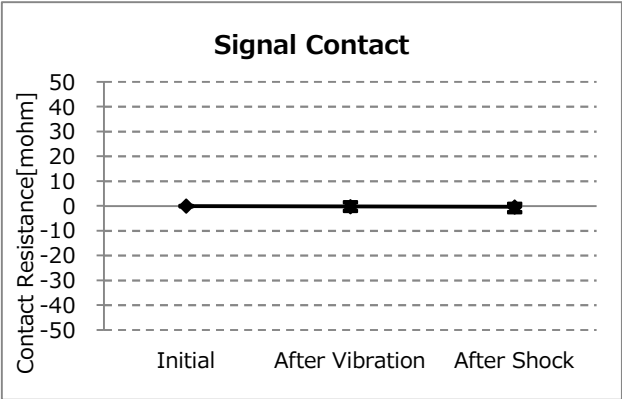


Graph-7. A Change of Mating Force (30P)

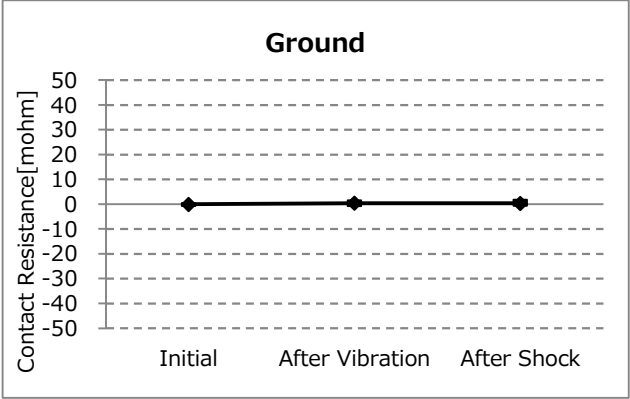


Graph-8. A Change of Unmating Force (30P)

D Group / Vibration → Shock

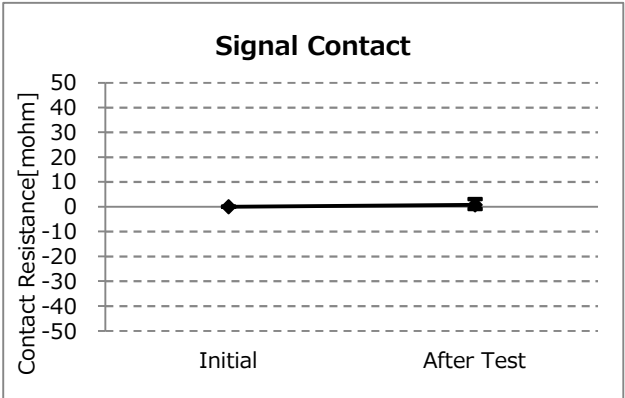


Graph-9. A Change of Signal Contact Resistance

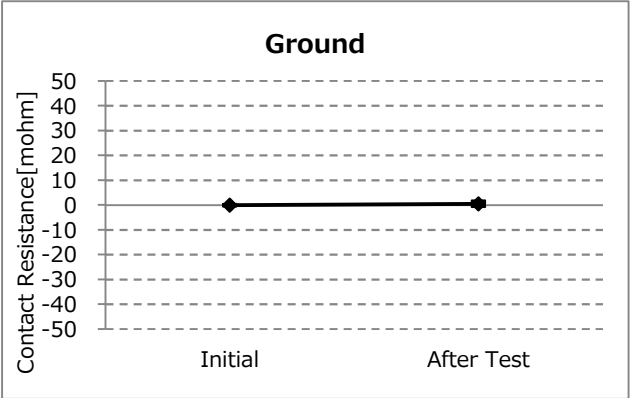


Graph-10. A Change of Ground Resistance

E Group / Thermal Shock

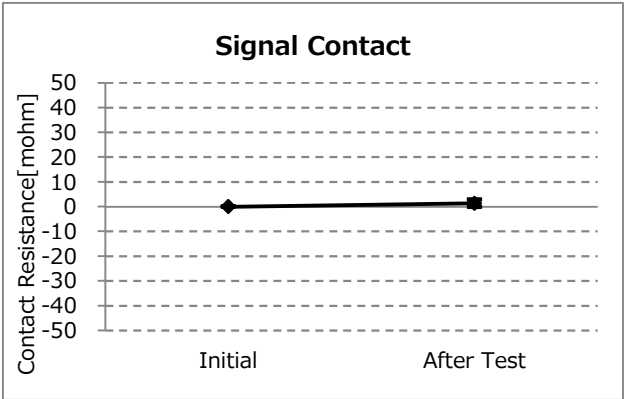


Graph-11. A Change of Signal Contact Resistance

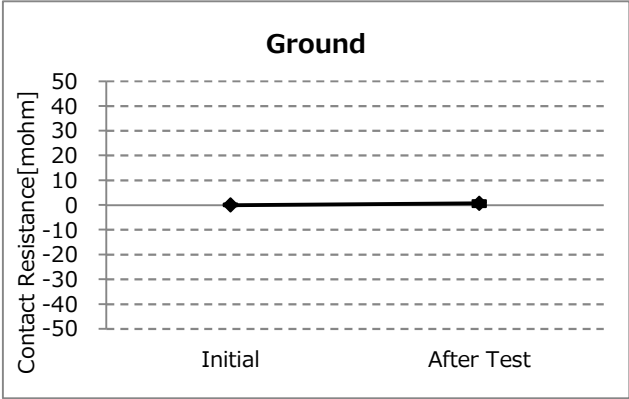


Graph-12. A Change of Ground Resistance

F Group / High Temperature Life

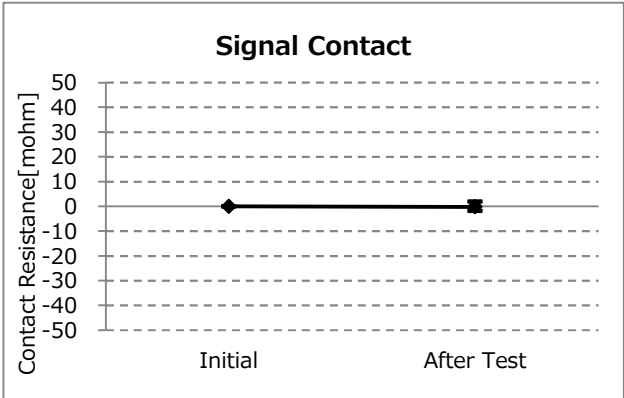


Graph-13. A Change of Signal Contact Resistance

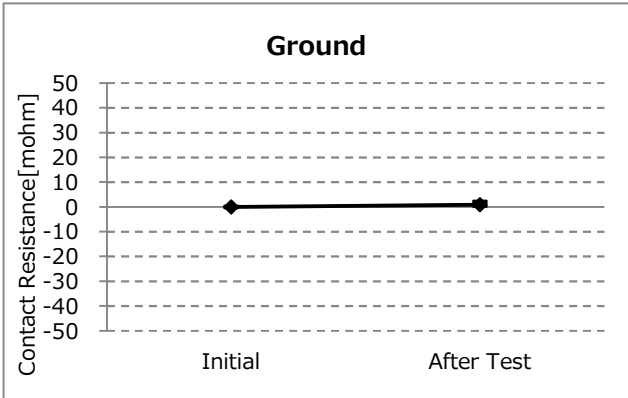


Graph-14. A Change of Ground Resistance

G Group / Humidity (Steady State)

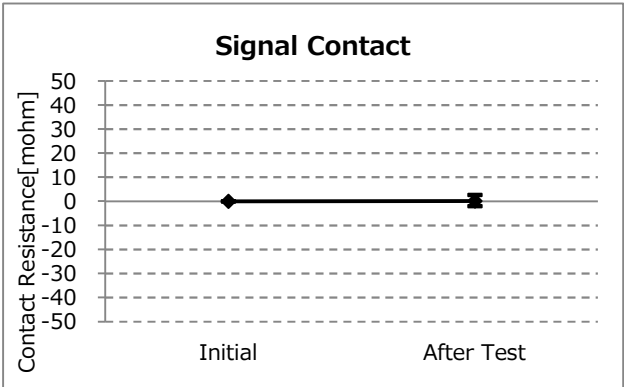


Graph-15 A Change of Signal Contact Resistance

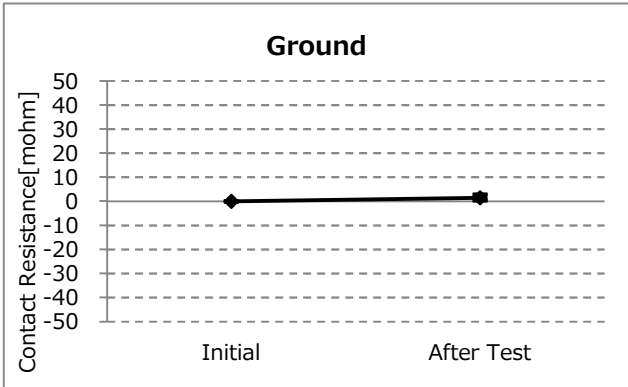


Graph-16. A Change of Ground Resistance

H Group / Humidity (Cycling)

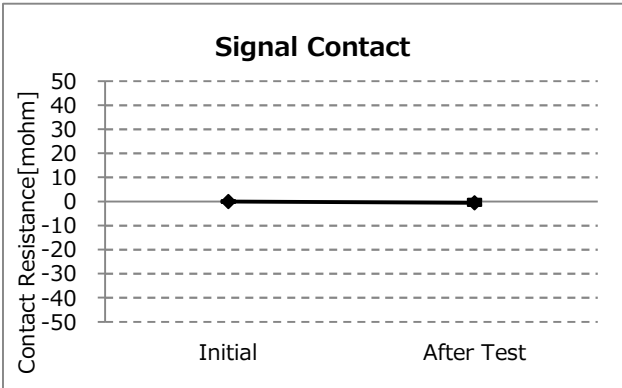


Graph-17. A Change of Signal Contact Resistance

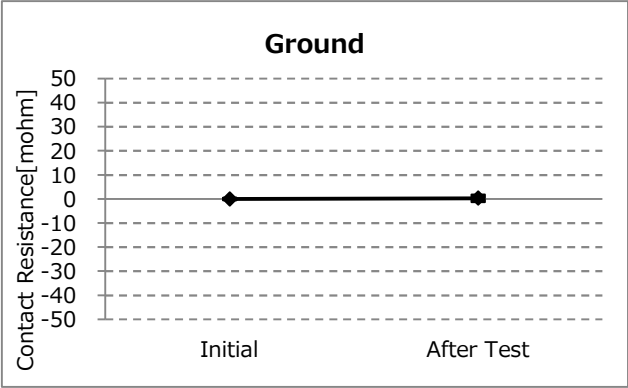


Graph-18. A Change of Ground Resistance

J Group / Salt Water Spray

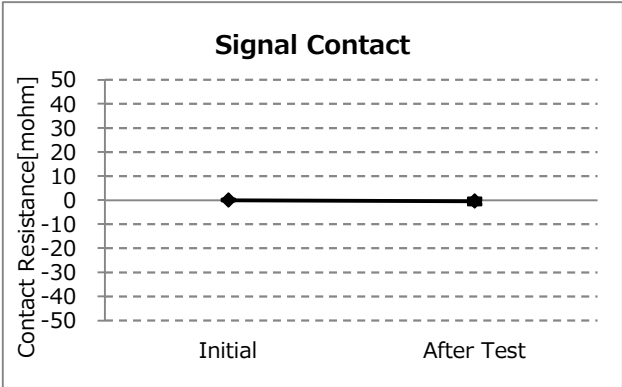


Graph-19. A Change of Signal Contact Resistance

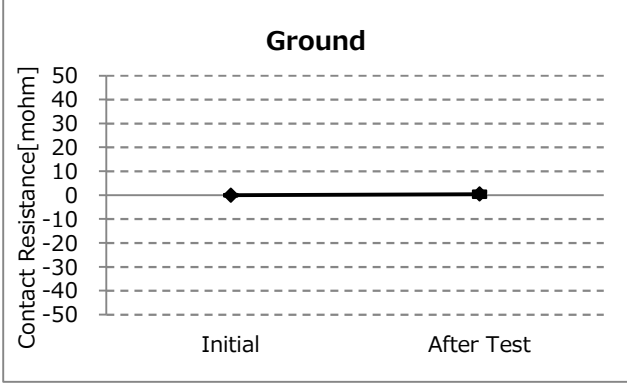


Graph-20. A Change of Ground Resistance

K Group / H₂S Gas



Graph-21. A Change of Signal Contact Resistance



Graph-22. A Change of Ground Resistance