

NOVASTACK® 35-PH

Part No. Plug: 20842-0**E-21 Receptacle: 20843-0**E-21

Test Report

Product Specification no. PRS-2463

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Rev.	ECN	Date	Prepared by	Checked by	Approved by

NOVASTACK 35-PH Test Report

1. Purpose

NOVASTACK35-PH コネクタの性能を PRS-2463 に基づいて評価する。

To evaluate the performance of NOVASTACK35-PHConnector in accordance with PRS-2463.

2. Specimen

(1) NOVASTACK 35-PH PLUG ASS'Y (Part No. 20842-0**E-21)

(2) NOVASTACK 35-PH RECEPTACLE ASS'Y (Part No. 20843-0**E-21)

3. 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. Result

表 2-1～2-3、グラフ 1～26 参照。試験条件の詳細は PRS-2463 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 26. For the details of the testing conditions and requirements, see PRS-2463.

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

5. Conclusion

全ての資料が製品規格（PRS-2463）の必要条件を満足した。

All the specimens met the requirements of PRS-2463.

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	P
接触抵抗 Contact Resistance	2,6		1,3, 5	1,5	1,3	1,3	1,5	1,5	1,3	1,3				
絶縁抵抗 Insulation Resistance				2,6			2,6	2,6						
耐電圧 D. W. Voltage				3,7			3,7	3,7						
温度上昇 Temperature rising											1			
挿入力 Mating Force	1,5													
抜去力 Unmating Force	3,7													
耐久性 Durability	4													
端子保持力 Contact Retention Force		1												
耐振動性 Vibration			2											
耐衝撃性 Shock			4											
熱衝撃 Thermal Shock				4										
高温寿命 High Temperature Life					2									
低温寿命 Low Temperature Life						2								
湿度 (定常状態) Humidity (Steady State)							4							
湿度 (サイクリング) Humidity (Cycling)								4						
塩水噴霧 Salt Water Spray									2					
硫化水素ガス H2S Gas										2				
半田付け性 Solder ability												1		
半田耐熱性 Soldering Heat Resistance													1	
手半田 Soldering iron														1
試料数 Specimen Quantity.	5 pcs.	20 pcs.	5 pcs.	5 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。 / Numbers indicate sequence in which tests are performed.

Table 2-1. 試験結果 / Table.2-1 Test result

Group	Contents of measurement	Spec.	Unit	Q'ty	n	Data					Judge.					
						AVE.	MAX.	MIN.	S	X±3s						
A	Durability															
	Contact resistance															
	Signal contact	Initial	80 MAX.	mΩ	5	200	16.193	18.18	14.55	0.765	18.487	OK				
		After 30 cycles	ΔR 20 MAX.				-0.890	2.43	-4.19	1.289	2.977	OK				
	Power contact	Initial	80 MAX.				10	10.185	11.17	9.31	0.499	11.683	OK			
		After 30 cycles	ΔR 20 MAX.					0.086	1.32	-1.13	0.580	1.825	OK			
	Mating force															
	10P	Initial	10 MAX.					N	5	-	6.623	6.84	6.35	-	-	OK
		After 30 cycles		5.161	5.34	4.98					-	-	OK			
	30P	Initial	30 MAX.	13.904	14.17	13.68					-	-	OK			
		After 30 cycles		10.410	10.77	10.06	-				-	OK				
	40P	Initial	40 MAX.	20.382	23.64	18.94	-				-	OK				
		After 30 cycles		13.334	14.08	12.40	-				-	OK				
	50P	Initial	50 MAX.	23.374	24.05	22.15	-				-	OK				
		After 30 cycles		15.721	16.18	15.45	-				-	OK				
	Unmating force															
	10P	Initial	1.5 MIN.	N	5	-	6.508				6.76	6.15	-	-	OK	
		After 30 cycles					5.938				6.34	5.66	-	-	OK	
	30P	Initial	4.5 MIN.				10.533				11.09	10.14	-	-	OK	
		After 30 cycles					9.907	10.14	9.72	-	-	OK				
	40P	Initial	6 MIN.				13.612	14.32	12.65	-	-	OK				
		After 30 cycles					13.385	14.32	12.23	-	-	OK				
	50P	Initial	7.5 MIN.				16.659	17.06	16.00	-	-	OK				
After 30 cycles			15.534				15.77	15.38	-	-	OK					
B	Contact retention force															
	Plug Power contact	0.1 MIN.	N				10	-	0.986	1.18	0.89	-	-	OK		
	Receptacle Signal contact	0.1 MIN.	N				20	-	1.424	1.83	1.14	-	-	OK		
	Receptacle Power contact	0.1 MIN.	N				10	-	6.212	6.64	5.77	-	-	OK		
C	Vibration → Shock															
	Contact resistance															
	Signal contact	Initial	80 MAX.	mΩ	5	200	17.211	22.02	15.43	1.077	20.442	OK				
		After vibration	ΔR 20 MAX.				0.722	3.73	-3.09	1.166	4.219	OK				
		After shock					1.018	6.22	-2.51	1.504	5.529	OK				
	Power contact	Initial	80 MAX.				10	10.232	11.57	8.36	0.766	12.531	OK			
		After vibration	ΔR 20 MAX.					0.271	2.27	-1.12	0.956	3.139	OK			
		After shock						1.538	5.28	-1.33	1.639	6.456	OK			
	Electrical discontinuity															
		During test	1 MAX.	μs	5	-		No discontinuity					OK			
Appearance																
	After test	No abnormality	-	5	-	No abnormality					OK					

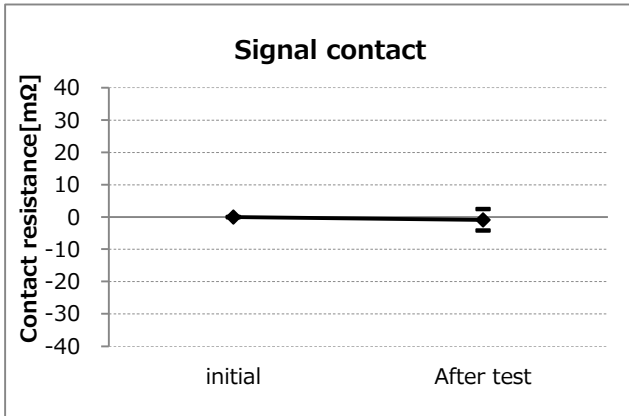
Table 2-2. 試験結果 / Table.2-2 Test result

Group	Contents of measurement	Spec.	Unit	Q'ty	n	Data					Judge.		
						AVE.	MAX.	MIN.	S	X±3s			
D	Thermal shock												
	Contact resistance												
	Signal contact	Initial	80 MAX.	mΩ	5	200	16.918	21.41	15.34	0.785	19.273	OK	
		After test	ΔR 20 MAX.				1.723	6.39	-1.46	1.366	5.820	OK	
	Power contact	Initial	80 MAX.				10	10.608	11.82	9.62	0.501	12.111	OK
		After test	ΔR 20 MAX.					0.320	1.61	-0.81	0.728	2.503	OK
	Insulation resistance												
		Initial	1000 MIN.	MΩ	5	-	1.07×10 ⁴ Min.					OK	
		After test	500 MIN.				1.62×10 ⁴ Min.					OK	
	Dielectric Withstanding Voltage												
	After test	No abnormality	-	5	-	No abnormality					OK		
Appearance													
	After test	No abnormality	-	5	-	No abnormality					OK		
E	High temperature life												
	Contact resistance												
	Signal contact	Initial	80 MAX.	mΩ	5	200	16.530	18.44	15.15	0.764	18.822	OK	
		After test	ΔR 20 MAX.				0.090	1.89	-1.84	0.844	2.623	OK	
	Power contact	Initial	80 MAX.				10	8.834	11.51	7.90	0.971	11.748	OK
		After test	ΔR 20 MAX.					0.291	0.90	-0.70	0.358	1.364	OK
	Appearance												
	After test	No abnormality	-	5	-	No abnormality					OK		
F	Low temperature life												
	Contact resistance												
	Signal contact	Initial	80 MAX.	mΩ	5	200	17.371	20.81	15.51	0.763	19.662	OK	
		After test	ΔR 20 MAX.				0.166	3.79	-3.36	0.978	3.098	OK	
	Power contact	Initial	80 MAX.				10	10.629	12.45	9.01	0.825	13.104	OK
		After test	ΔR 20 MAX.					0.397	3.11	-1.59	1.175	3.922	OK
	Appearance												
	After test	No abnormality	-	5	-	No abnormality					OK		
G	Humidity(steady state)												
	Contact resistance												
	Signal contact	Initial	80 MAX.	mΩ	5	200	16.935	19.78	15.60	0.797	19.327	OK	
		After test	ΔR 20 MAX.				2.182	6.55	-2.05	1.278	6.017	OK	
	Power contact	Initial	80 MAX.				10	10.097	11.40	8.76	0.663	12.086	OK
		After test	ΔR 20 MAX.					1.675	3.70	0.02	1.129	5.063	OK
	Insulation resistance												
		Initial	1000 MIN.	MΩ	5	-	1.00×10 ⁴ Min.					OK	
		After test	500 MIN.				1.02×10 ⁴ Min.					OK	
	Dielectric Withstanding Voltage												
	After test	No abnormality	-	5	-	No abnormality					OK		
Appearance													
	After test	No abnormality	-	5	-	No abnormality					OK		

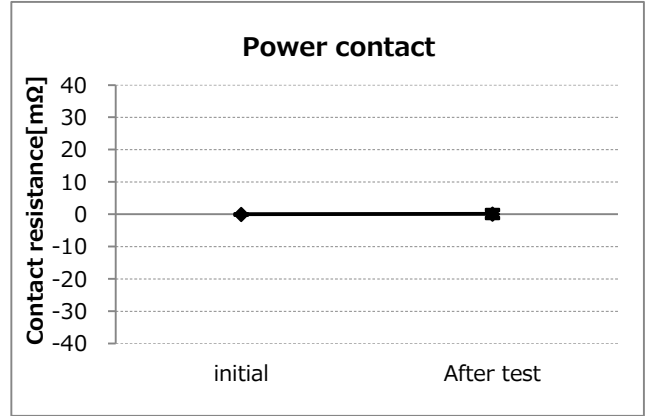
Table 2-3. 試験結果 / Table.2-3 Test result

Group	Contents of measurement		Spec.	Unit	Q'ty	n	Data					Judge.
							AVE.	MAX.	MIN.	S	X±3s	
H	Humidity(cycling)											
	Contact resistance											
	Signal contact	Initial	80 MAX.	mΩ	5	200	14.207	16.89	12.12	0.874	16.828	OK
		After test	ΔR 20 MAX.				4.514	7.93	1.32	1.133	7.914	OK
	Power contact	Initial	80 MAX.	mΩ	5	10	7.095	9.46	4.71	1.206	10.714	OK
		After test	ΔR 20 MAX.				4.343	7.65	1.71	1.296	8.232	OK
	Insulation resistance											
		Initial	1000 MIN.	MΩ	5	-	1.22×10 ⁴ Min.					OK
		After test	500 MIN.				1.79×10 ⁴ Min.					OK
	Dielectric Withstanding Voltage											
	After test	No abnormality	-	5	-	No abnormality					OK	
Appearance												
	After test	No abnormality	-	5	-	No abnormality					OK	
J	Salt water spray											
	Contact resistance											
	Signal contact	Initial	80 MAX.	mΩ	5	200	17.495	21.40	15.98	0.750	19.745	OK
		After test	ΔR 20 MAX.				0.311	4.81	-4.01	1.118	3.663	OK
	Power contact	Initial	80 MAX.	mΩ	5	10	10.389	11.56	9.58	0.530	11.980	OK
		After test	ΔR 20 MAX.				0.633	1.57	-0.41	0.532	2.228	OK
	Appearance											
	After test	No abnormality	-	5	-	No abnormality					OK	
K	H2S Gas											
	Contact resistance											
	Signal contact	Initial	80 MAX.	mΩ	5	200	15.232	17.69	13.44	0.771	17.546	OK
		After test	ΔR 20 MAX.				3.547	8.47	0.58	1.296	7.434	OK
	Power contact	Initial	80 MAX.	mΩ	5	10	7.982	9.74	5.35	0.980	10.923	OK
		After test	ΔR 20 MAX.				3.207	7.01	1.54	1.212	6.842	OK
	Appearance											
	After test	No abnormality	-	5	-	No abnormality					OK	
L	Temperature rising											
	Signal contact	Side	ΔT 30	℃	5	-	25.620	26.90	24.50	-	-	OK
		Center	ΔT 30	℃	5	-	26.160	27.20	24.90	-	-	OK
Power contact		ΔT 30	℃	5	-	23.040	24.10	22.10	-	-	OK	
M	Solder ability											
	Solder wetting area											
	After test	95 MIN.	%	10	-	95 MIN.					OK	
N	Resistance to reflow soldering heat											
	Appearance											
	After test	No abnormality	-	10	-	No abnormality					OK	
P	Soldering iron											
	Appearance											
	After test	No abnormality	-	10	-	No abnormality					OK	

Group A / Durability

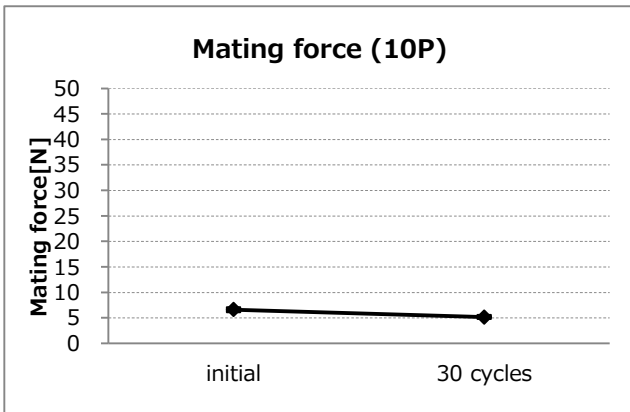


Graph-1. A change of signal contact resistance

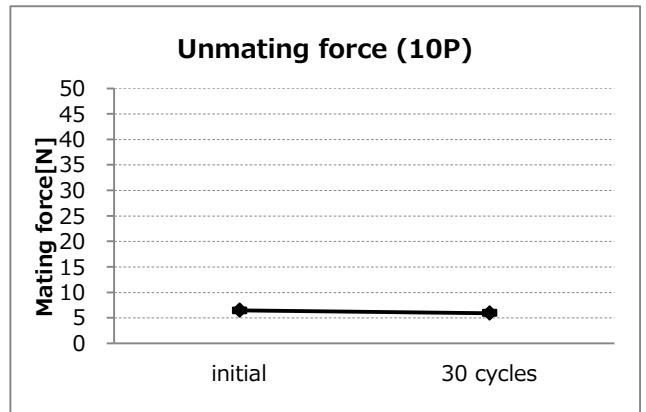


Graph-2. A change of power contact resistance

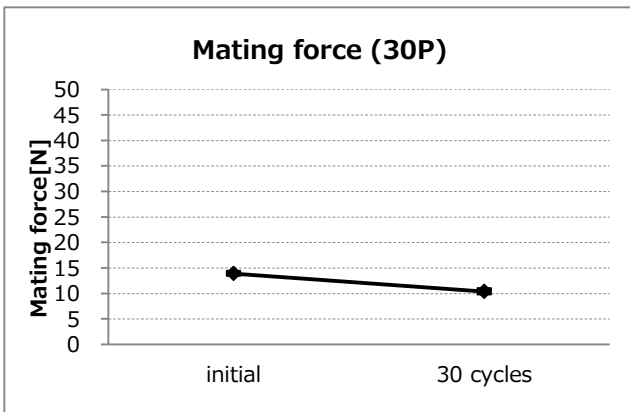
Group A / Durability



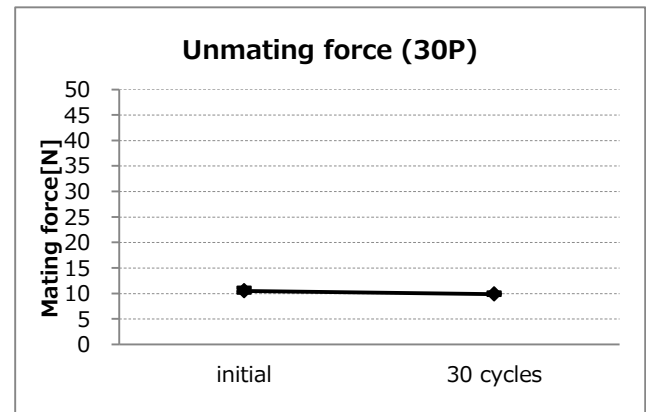
Graph-3. A change of mating force



Graph-4. A change of unmating force

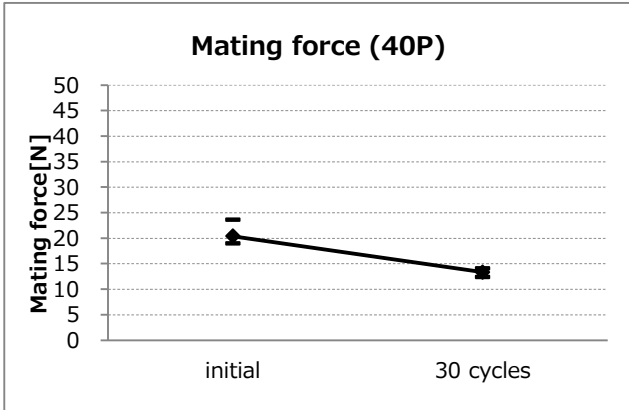


Graph-5. A change of mating force

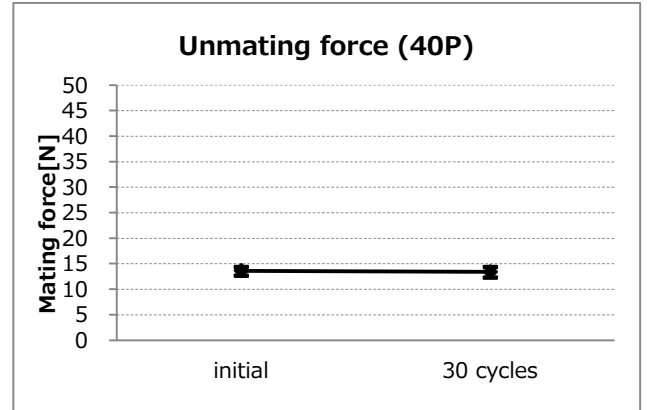


Graph-6. A change of unmating force

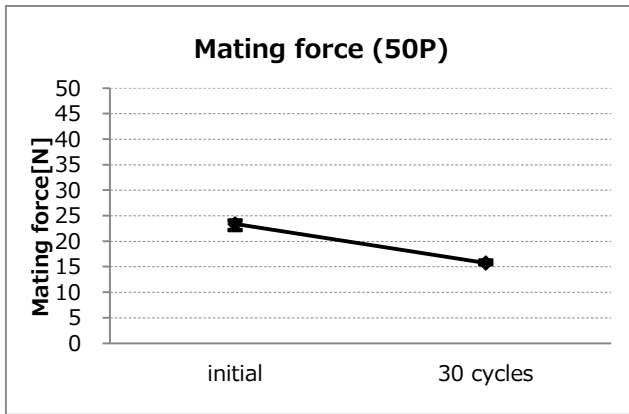
Group A / Durability



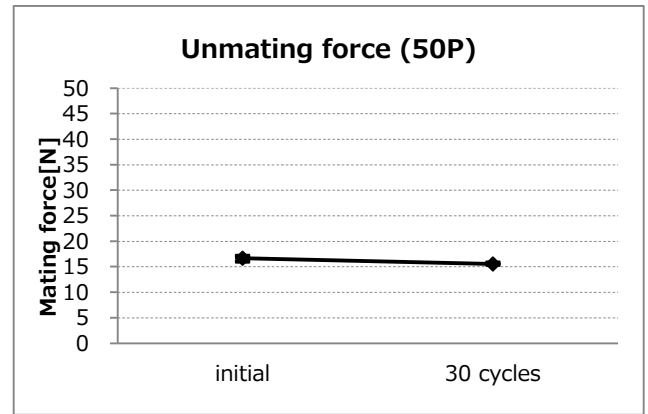
Graph-7. A change of mating force



Graph-8. A change of unmatting force

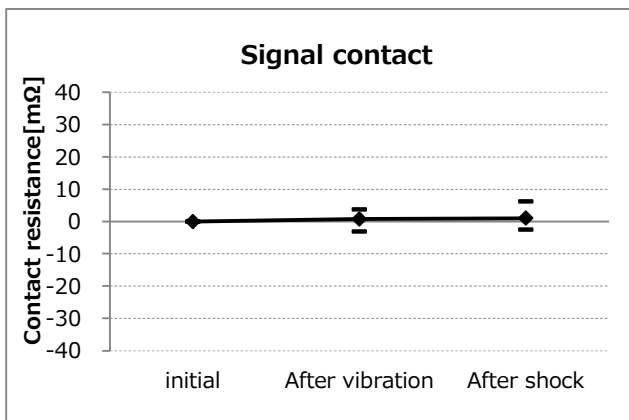


Graph-9. A change of mating force

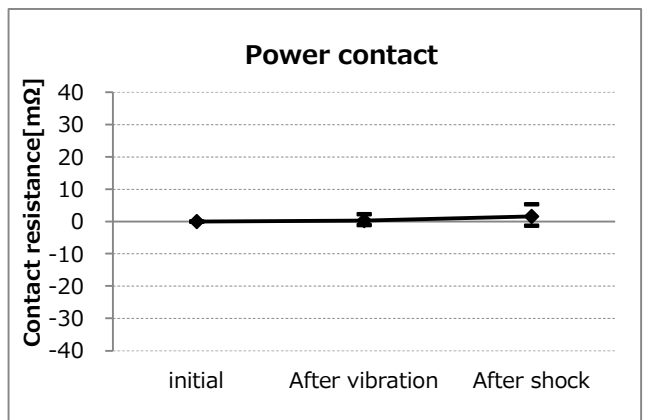


Graph-10. A change of unmatting force

Group C / Vibration and shock

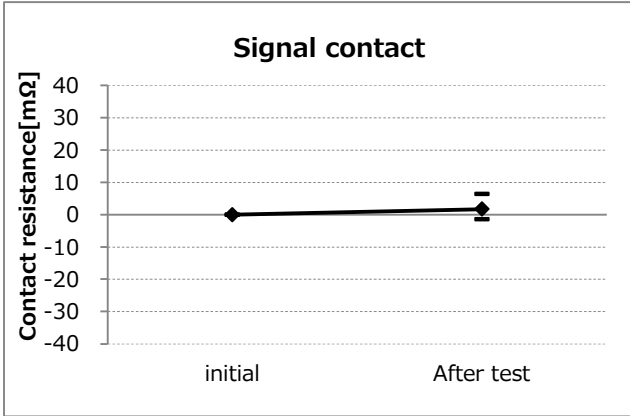


Graph-11. A change of signal contact resistance

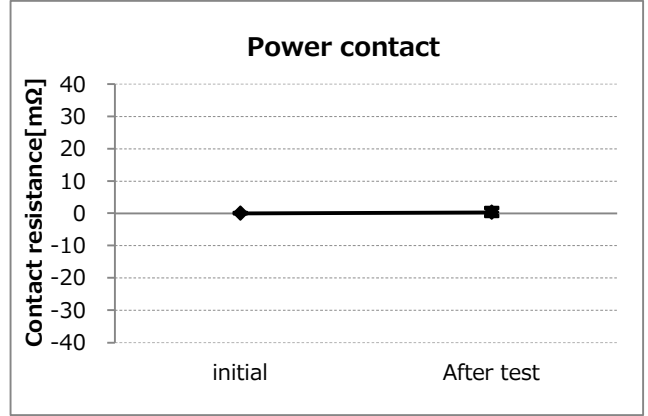


Graph-12. A change of power contact resistance

Group D / Thermal shock

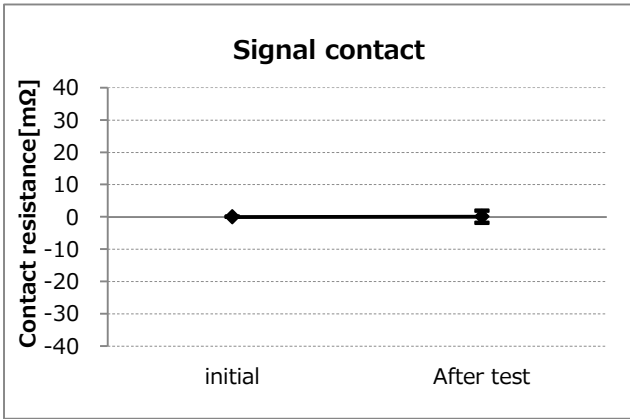


Graph-13. A change of signal contact resistance

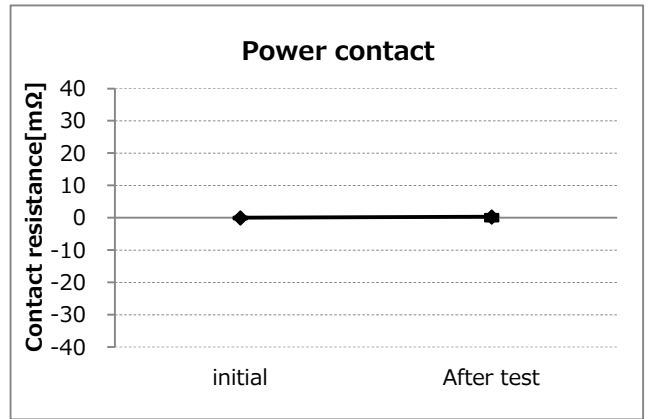


Graph-14. A change of power contact resistance

Group E / High temperature life

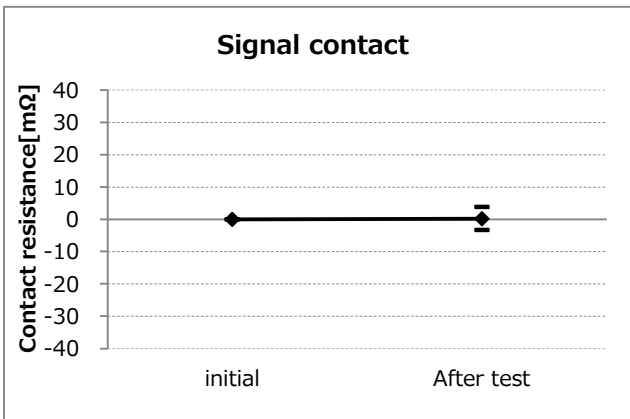


Graph-15. A change of signal contact resistance

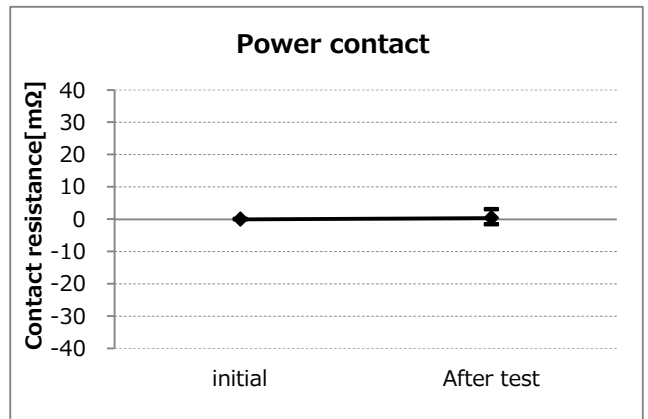


Graph-16. A change of power contact resistance

Group F / Low temperature life

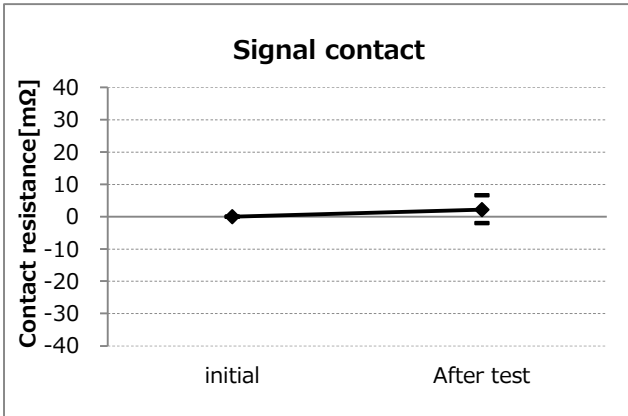


Graph-17. A change of signal contact resistance

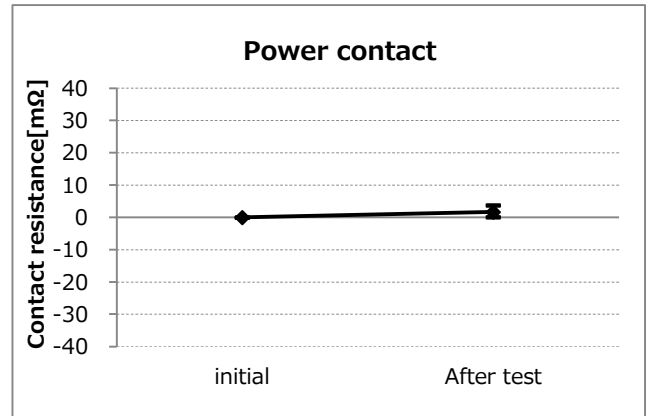


Graph-18. A change of power contact resistance

Group G / Humidity (steady state)

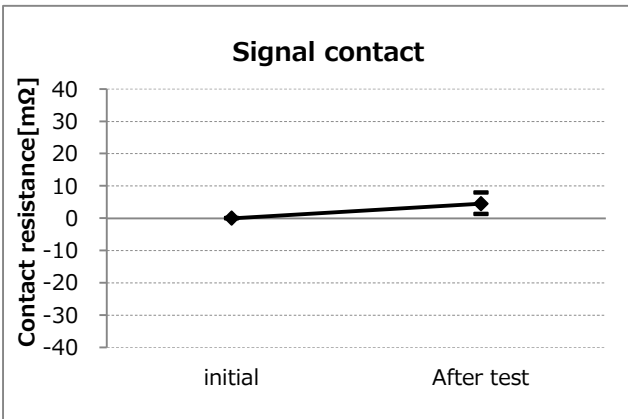


Graph-19. A change of signal contact resistance

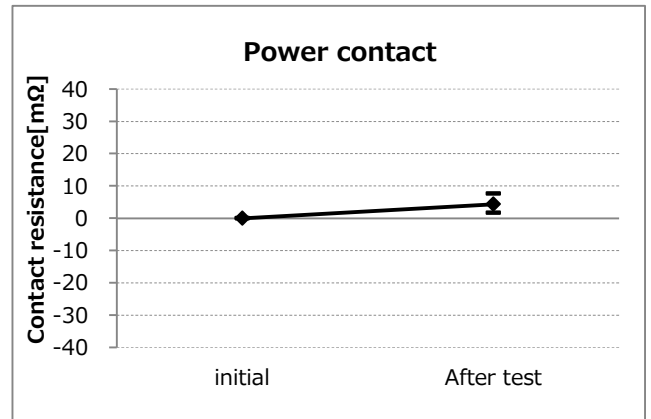


Graph-20. A change of power contact resistance

Group H / Humidity (cycling)

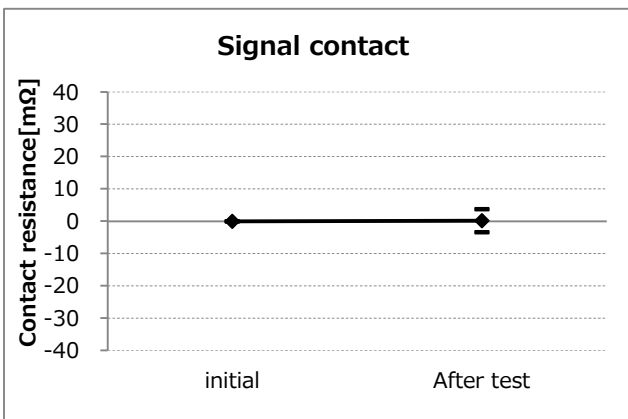


Graph-21. A change of signal contact resistance

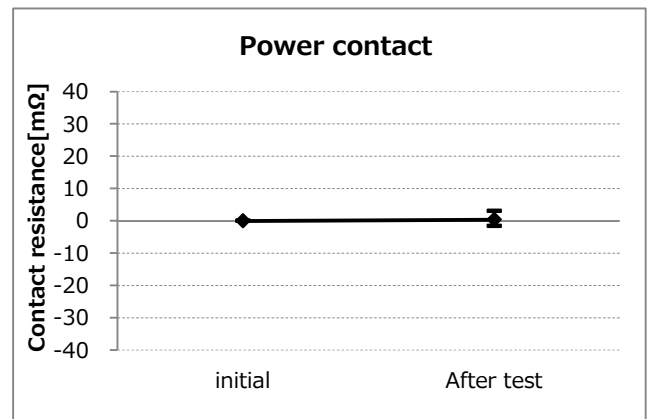


Graph-22. A change of power contact resistance

Group J / Salt water spray

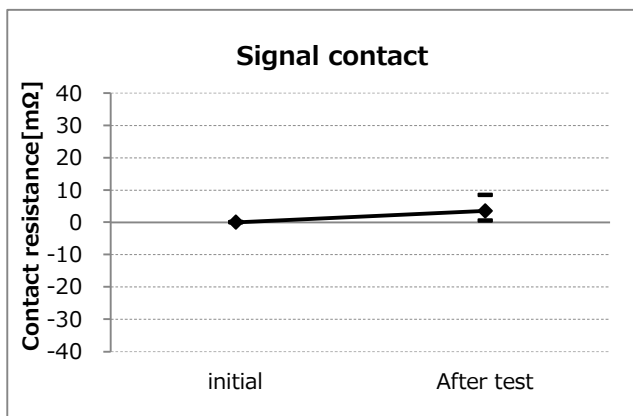


Graph-23. A change of signal contact resistance

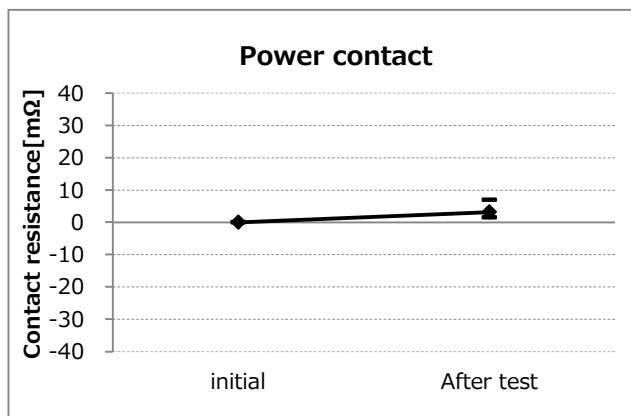


Graph-24. A change of power contact resistance

Group K / H2S gas



Graph-25. A change of signal contact resistance



Graph-26. A change of power contact resistance