

CABLINE®-UX II Connector

P Part No. Plug: 20531-0**T-02-1, Receptacle: 20533-2**E

Test Report

Product Specification no. PRS-2887

0	T24023	November 21, 2024	A.Koyanagi	T.Tanigawa	H.Ikari
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of CABLINE-UX II Connector in accordance with PRS-2887.

2. Specimen

- (1) CABLINE-UX II PLUG CABLE ASSEMBLY (Part No. 20531-0**T-*2-1)
 - CABLINE-UX II PLUG HOUSING ASSEMBLY (Part No. 20532-0**T-*2-1)
 - CABLINE-UX II PLUG METAL COVER (Part No. 2799-0**1)
- (2) CABLINE-UX II RECEPTACLE ASSEMBLY (Part No.20533-2**E)

3. Test Sequence

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

4. Result

See Table 2-1 to 2-4, Graph 1 to 18. For the details of the testing conditions and requirements, see PRS-2887.
The “n” in the tables show the number of measurement points.

5. Conclusion

All the specimens met the requirements of PRS-2887.

Table 1 Test Sequence and Sample Quantity

Test Item	Group											
	A	B	C	D	E	F	G	H	I	J	K	L
Contact resistance	2,6		1,3,5	1,5	1,3	1,5	1,5,7	1,3	1,3			
Insulation resistance				2,6		2,6	2,8					
Dielectric withstanding voltage				3,7		3,7	3,9					
Temperature rising												1
Mating force	1,5											
Unmating force	3,7											
Durability	4						4					
Contact retention force		1										
Cable retention force	8											
Vibration			2									
Shock			4									
Thermal shock				4								
High temperature life					2							
Humidity (Steady State)						4						
Humidity (Cycling)							6					
Saltwater spray								2				
H ₂ S gas									2			
Solder ability										1		
Soldering heat resistance											1	
Specimen quantity.	5 pcs.	20 pos.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	10 pcs.	10 pcs.	5 pcs.

※Numbers indicate test sequences

Table 2-1. Test result

Test Item	Contents of Measurement		Specifications	Set	n	Data					Judgment		
						AVE.	MAX.	MIN.	s	X±3s			
A Group Durability ↓ Cable Retention Force	Contact Resistance (mΩ)		Initial	AWG#44 1080mΩMAX.	5	250	817.100	836.57	799.40	6.760	837.378	Pass	
			After 20Cycles	AWG#44 ΔR=40mΩMAX.			-1.518	7.51	-12.75	3.548	9.126	Pass	
	Ground Resistance (mΩ)		Initial	100mΩMAX.	5	-	26.510	30.17	23.62	-	-	Pass	
			After 20Cycles	ΔR=40mΩMAX.			-0.760	4.29	-6.50	-	-	Pass	
	30P	Mating Force (N)		Initial	26.4N MAX.	5	-	18.320	19.49	17.43	-	-	Pass
				After 20Cycles	26.4N MAX.			9.254	9.93	8.24	-	-	Pass
		Un-mating Force (N)		Initial	1.50N MIN.	5	-	6.168	6.82	5.18	-	-	Pass
				After 20Cycles	1.50N MIN.			3.692	4.44	3.22	-	-	Pass
		Cable Retention Force			15.0N MIN.	5	-	30.662	35.48	27.23	-	-	Pass
	34P	Mating Force (N)		Initial	27.6N MAX.	5	-	18.782	19.06	18.32	-	-	Pass
				After 20Cycles	27.6N MAX.			9.446	9.77	9.08	-	-	Pass
		Un-mating Force (N)		Initial	1.90N MIN.	5	-	6.288	6.69	5.84	-	-	Pass
				After 20Cycles	1.90N MIN.			3.928	4.50	3.48	-	-	Pass
		Cable Retention Force			17.0N MIN.	5	-	52.284	54.28	51.24	-	-	Pass
	40P	Mating Force (N)		Initial	29.4N MAX.	5	-	20.688	22.14	17.96	-	-	Pass
				After 20Cycles	29.4N MAX.			10.992	12.62	9.37	-	-	Pass
		Un-mating Force (N)		Initial	2.50N MIN.	5	-	7.754	8.40	7.25	-	-	Pass
				After 20Cycles	2.50N MIN.			4.750	5.47	4.07	-	-	Pass
		Cable Retention Force			20.0N MIN.	5	-	62.956	63.53	61.21	-	-	Pass
	50P	Mating Force (N)		Initial	32.4N MAX.	5	-	25.442	27.19	24.63	-	-	Pass
After 20Cycles				32.4N MAX.	14.740			15.91	13.07	-	-	Pass	
Un-mating Force (N)		Initial	3.50N MIN.	5	-	7.776	8.34	7.32	-	-	Pass		
		After 20Cycles	3.50N MIN.			5.478	5.79	5.02	-	-	Pass		
Cable Retention Force			25.0N MIN.	5	-	73.082	75.35	69.85	-	-	Pass		

Table 2-2. Test result

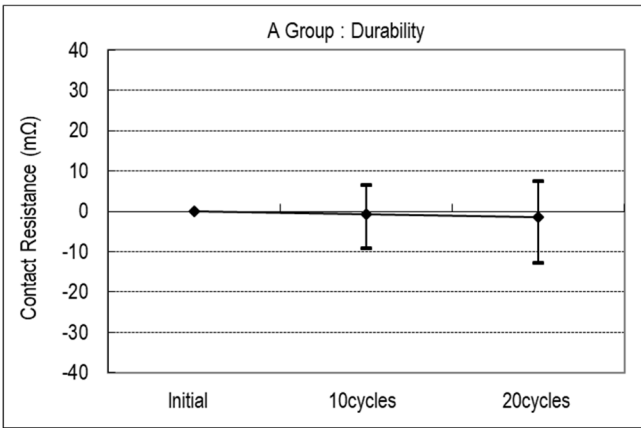
Test Item	Contents of Measurement		Specifications	Set	n	Data					Judgment
						AVE.	MAX.	MIN.	s	X±3s	
B Group Contact Retention Force	Plug Contact Retention Force(N)		0.5N MIN	—	20	It does not pull out,even if it applies the power of 2.0N to a terminal.					Pass
	Rece.Contact Retention Force(N)		0.2N MIN	—	20	0.416	0.51	0.33	—	—	Pass
C Group Vibration ↓ Shock	Contact Resistance (mΩ)	Initial	AWG#44 1080mΩMAX.	5	250	821.24	845.52	804.37	7.634	844.14	Pass
		After Vibration	AWG#44 ΔR=40mΩMAX.			-4.982	-1.84	-7.78	0.972	-2.066	Pass
		After Shock	AWG#44 ΔR=40mΩMAX.			-4.828	-0.06	-10.58	1.986	1.130	Pass
	Ground Resistance (mΩ)	Initial	100mΩMAX.	5	—	26.363	31.80	22.61	—	—	Pass
		After Vibration	ΔR=40mΩMAX.			2.212	7.95	-2.20	—	—	Pass
		After Shock	ΔR=40mΩMAX.			0.438	6.58	-5.22	—	—	Pass
	Electrical Discontinuity	During Vibration/Shock	1μsec. MAX.	5	—	No abnormality					Pass
Appearance	After test	No abnormality adversely affecting the performance shall occur.	5	—	No abnormality					Pass	
D Group Thermal Shock	Contact Resistance (mΩ)	Initial	AWG#44 1080mΩMAX.	5	250	824.41	854.54	802.51	10.631	856.303	Pass
		After test	AWG#44 ΔR=40mΩMAX.			-0.341	9.88	-13.10	4.997	14.650	Pass
	Ground Resistance (mΩ)	Initial	100mΩMAX.	5	—	26.948	31.51	23.60	—	—	Pass
		After test	ΔR=40mΩMAX.			0.568	5.22	-2.23	—	—	Pass
	Insulation Resistance	Initial	100MΩMIN.	5	—	1.05×10 ⁵ MΩ MIN.					Pass
		After test	100MΩMIN.			1.03×10 ⁵ MΩ MIN.					Pass
	D.W.Voltage		No abnormalities such as creeping discharge, flashover, insulator breakdown occur.	5	—	No abnormality					Pass
Appearance	After test	No abnormality adversely affecting the performance shall occur.	5	—	No abnormality					Pass	
E Group High Temperature Life	Contact Resistance (mΩ)	Initial	AWG#44 1080mΩMAX.	5	250	821.696	843.03	800.89	7.601	844.499	Pass
		After test	AWG#44 ΔR=40mΩMAX.			-2.549	9.66	-16.08	5.031	12.544	Pass
	Ground Resistance (mΩ)	Initial	100mΩMAX.	5	—	28.197	30.81	23.88	—	—	Pass
		After test	ΔR=40mΩMAX.			0.150	4.71	-4.14	—	—	Pass
	Appearance	After test	No abnormality adversely affecting the performance shall occur.	5	—	No abnormality					Pass

Table 2-3. Test result

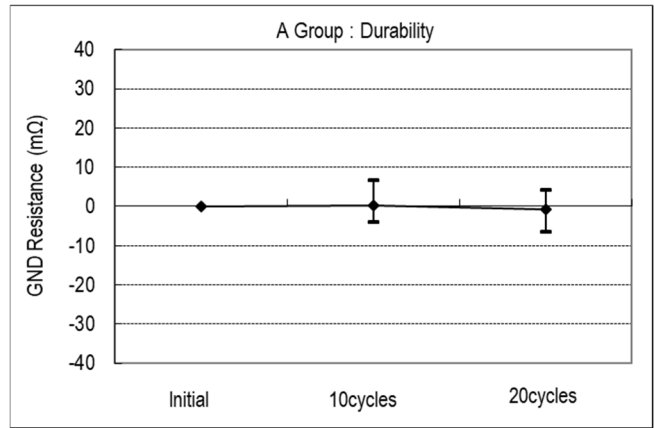
Test Item	Contents of Measurement		Specifications	Set	n	Data					Judgment
						AVE.	MAX.	MIN.	s	X±3s	
F Group Humidity (Steady State)	Contact Resistance (mΩ)	Initial	AWG#44 1080mΩMAX.	5	250	816.131	841.86	794.53	7.860	839.711	Pass
		After test	AWG#44 ΔR=40mΩMAX.			-5.077	1.36	-14.17	2.899	3.620	Pass
	Ground Resistance (mΩ)	Initial	100mΩMAX.	5	-	25.268	29.57	22.09	-	-	Pass
		After test	ΔR=40mΩMAX.			-0.016	3.20	-2.74	-	-	Pass
	Insulation Resistance	Initial	100MΩMIN.	5	-	1.02×10 ⁵ MΩ MIN.					Pass
		After test	100MΩMIN.			5.54×10 ⁴ MΩ MIN.					Pass
D.W.Voltage		No abnormalities such as creeping discharge, flashover, insulator breakdown occur.		5	-	No abnormality					Pass
Appearance	After test	No abnormality adversely affecting the performance shall occur.		5	-	No abnormality					Pass
G Group Humidity (Cycling)	Contact Resistance (mΩ)	Initial	AWG#44 1080mΩMAX.	5	250	821.240	845.52	804.37	7.634	844.140	Pass
		After durability	AWG#44 ΔR=40mΩMAX.			-4.982	-1.84	-7.78	0.972	-2.066	Pass
		After test	AWG#44 ΔR=40mΩMAX.			-4.828	-0.06	-10.58	1.986	1.130	Pass
	Ground Resistance (mΩ)	Initial	100mΩMAX.	5	-	26.360	31.27	22.61	-	-	Pass
		After durability	ΔR=40mΩMAX.			2.112	7.95	-2.20	-	-	Pass
		After test	ΔR=40mΩMAX.			-0.062	5.90	-3.22	-	-	Pass
Insulation Resistance	Initial	100MΩMIN.	5	-	1.02×10 ⁵ MΩ MIN.					Pass	
	After test	100MΩMIN.			5.75×10 ⁴ MΩ MIN.					Pass	
Appearance	After test	No abnormality adversely affecting the performance shall occur.		5	-	No abnormality					Pass
H Group Salt Water Spray	Contact Resistance (mΩ)	Initial	AWG#44 1080mΩMAX.	5	250	820.324	839.94	798.45	7.152	841.78	Pass
		After test	AWG#44 ΔR=40mΩMAX.			-2.318	9.88	-11.95	4.960	12.562	Pass
	Ground Resistance (mΩ)	Initial	100mΩMAX.	5	-	25.823	30.07	23.41	-	-	Pass
		After test	ΔR=40mΩMAX.			1.245	4.18	-3.55	-	-	Pass
Appearance	After test	No abnormality adversely affecting the performance shall occur.		5	-	No abnormality					Pass
I Group H2S Gas	Contact Resistance (mΩ)	Initial	AWG#44 1080mΩMAX.	5	250	820.259	839.02	802.77	7.459	842.636	Pass
		After test	AWG#44 ΔR=40mΩMAX.			-0.990	10.52	-12.63	5.239	14.727	Pass
	Ground Resistance (mΩ)	Initial	100mΩMAX.	5	-	24.839	27.74	23.12	-	-	Pass
		After test	ΔR=40mΩMAX.			3.166	6.36	0.27	-	-	Pass
Appearance	After test	No abnormality adversely affecting the performance shall occur.		5	-	No abnormality					Pass

Table 2-4. Test result

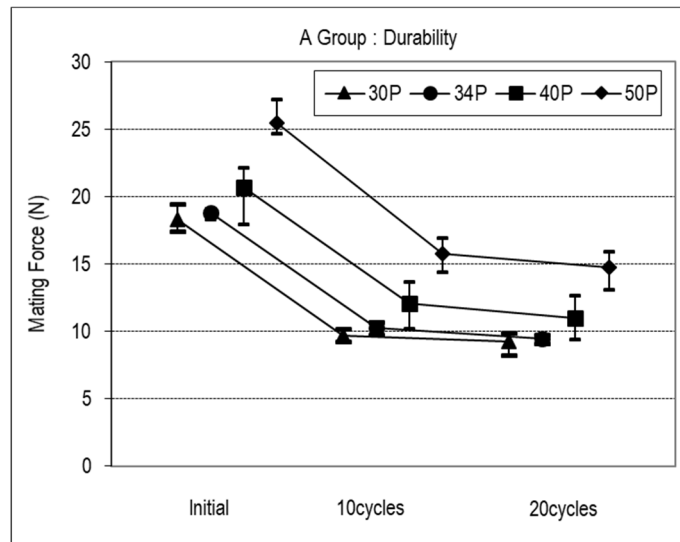
Test Item	Contents of Measurement	Specifications	Set	n	Data					Judgment
					AVE.	MAX.	MIN.	s	X±3s	
J Group Solder ability	Appearance	More than 95% wet	10	—	Wet 95% MIN.					Pass
K Group Soldering Heat Resistance	Appearance	No deformation nor defect adversely affecting the performance occur.	10	—	No abnormality					Pass
L Group Temperature rising	AWG#44 0.15A	$\Delta T=30^{\circ}\text{C}$ MAX.	5	—	$\Delta T=28.0^{\circ}\text{C}$ MAX. (50P)					Pass
	AWG#46 0.10A	$\Delta T=30^{\circ}\text{C}$ MAX.	5	—	$\Delta T=24.3^{\circ}\text{C}$ MAX. (50P)					Pass



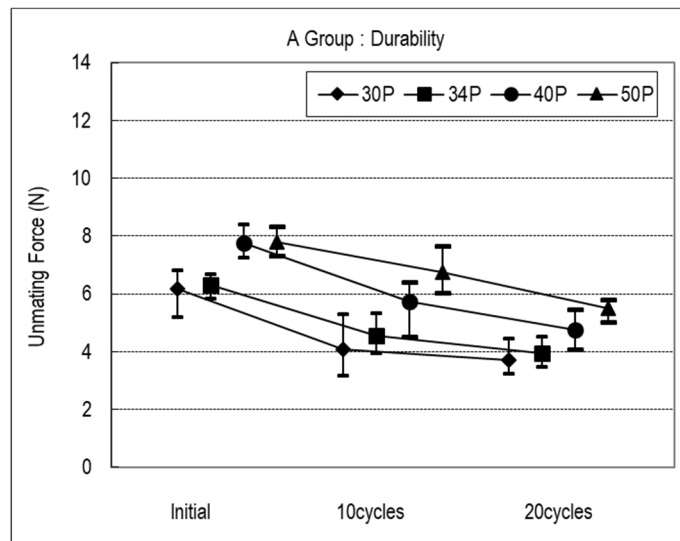
Graph1. A change of contact resistance (A Group : Durability)



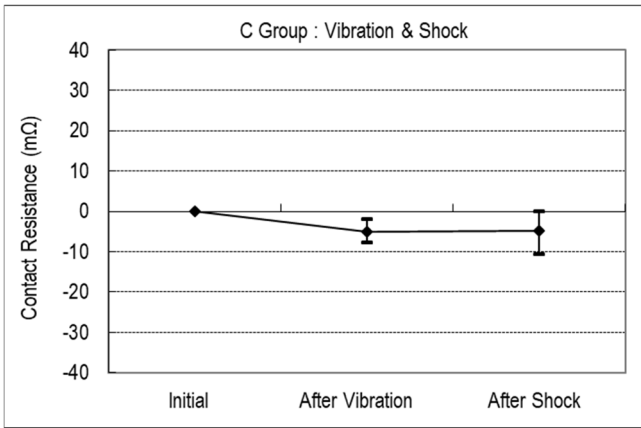
Graph2. A change of Ground resistance (A Group : Durability)



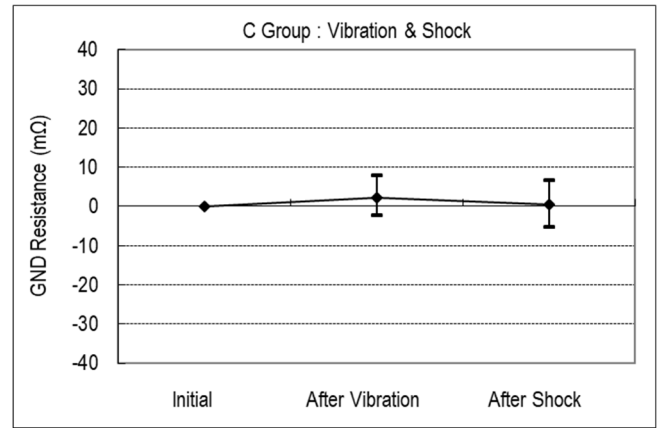
Graph3. A change of mating force (A Group : Durability)



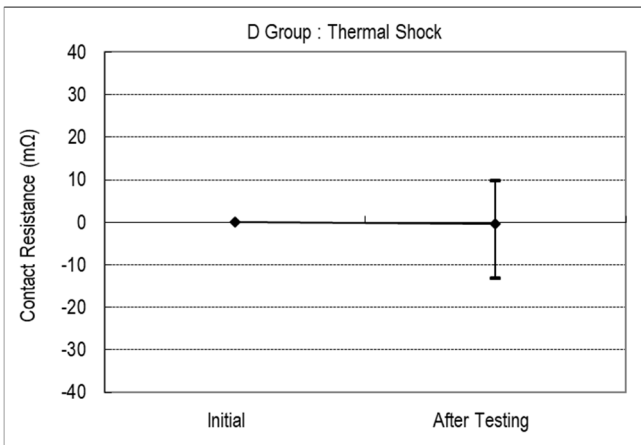
Graph 4. A change of un-mating force (A Group : Durability)



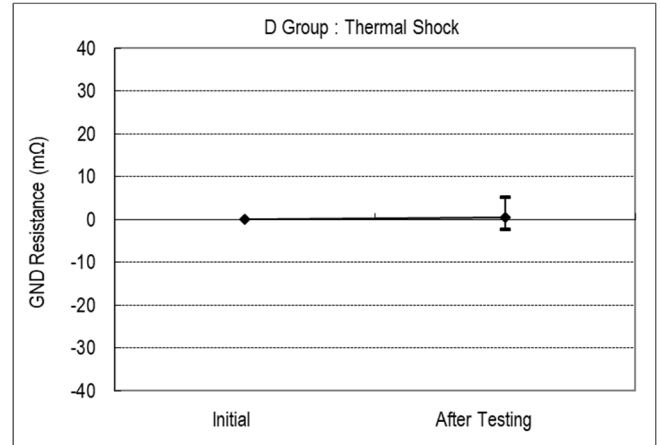
Graph5. A change of contact resistance (C Group : Vibration • shock)



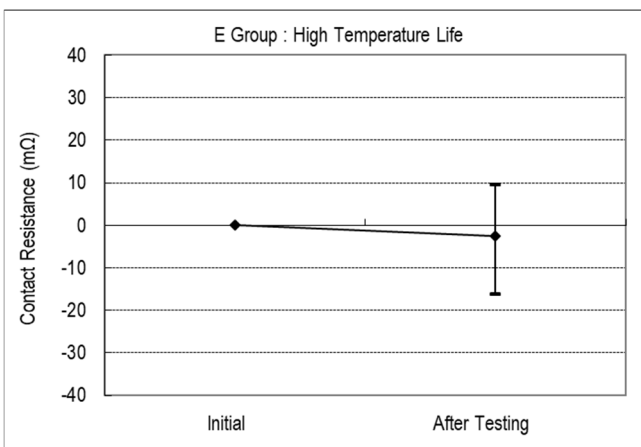
Graph6. A change of ground resistance (C Group : Vibration • shock)



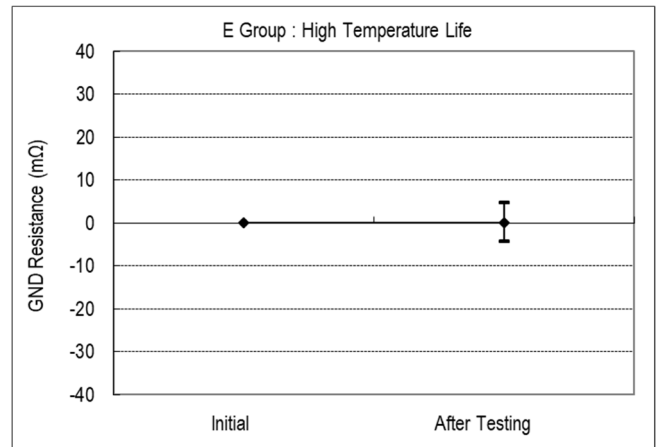
Graph7. A change of contact resistance (D Group : Thermal shock)



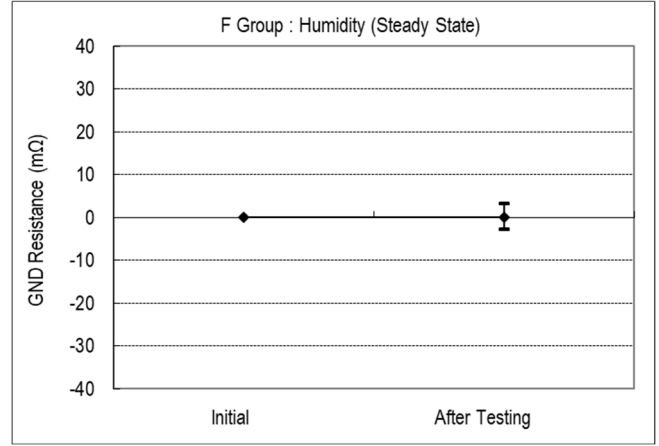
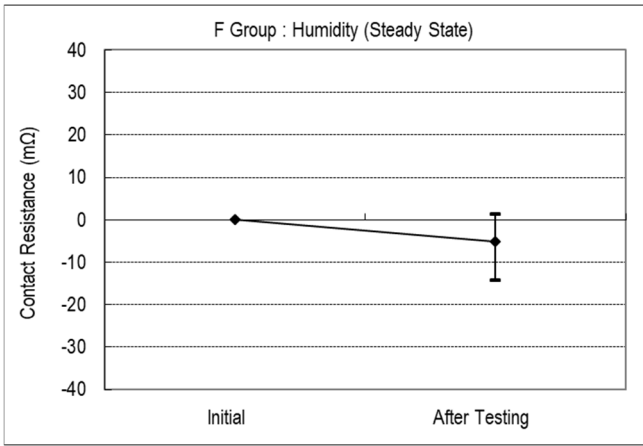
Graph8. A change of Ground resistance (D Group : Thermal shock)



Graph9. A change of contact resistance
(E Group : High Temperature Life)

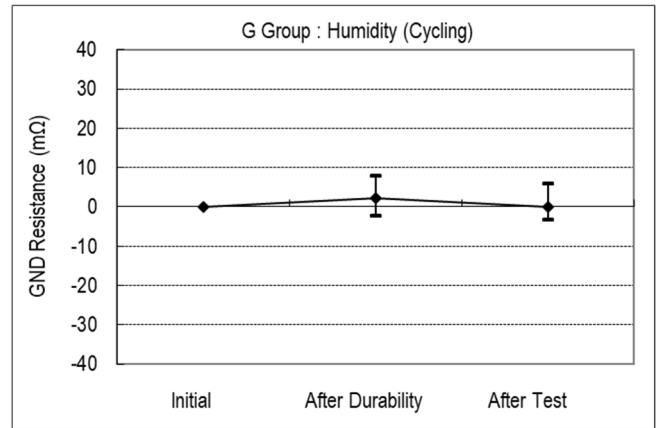
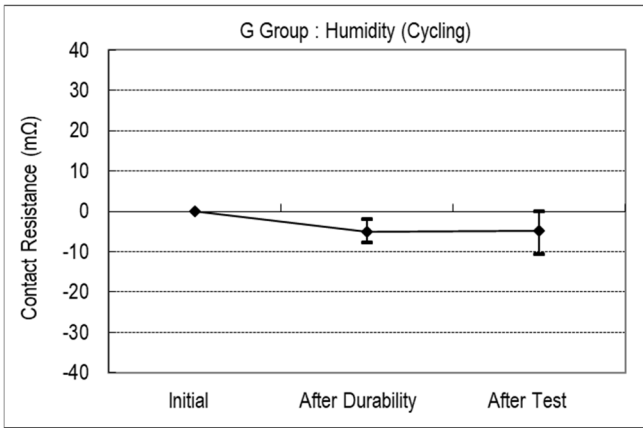


Graph10. A change of Ground resistance
(E Group : High Temperature Life)



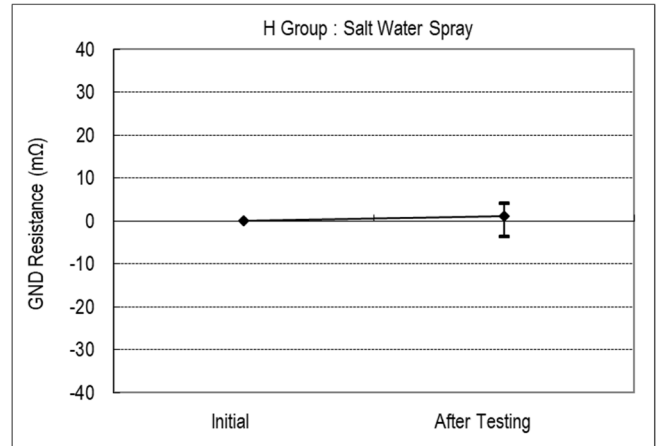
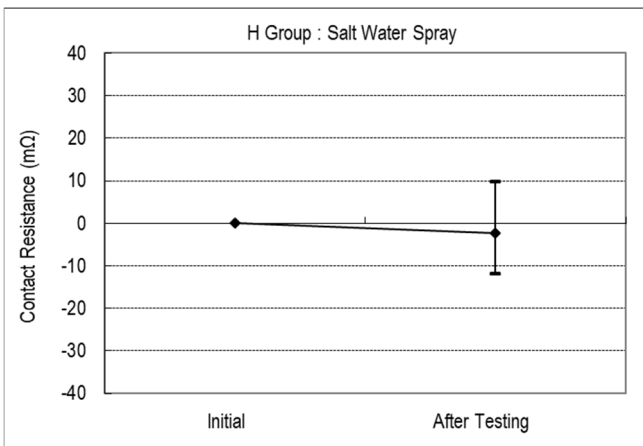
Graph11. A change of contact resistance (F Group : Humidity(Steady state))

Graph12. A change of Ground resistance (F Group : Humidity(Steady state))



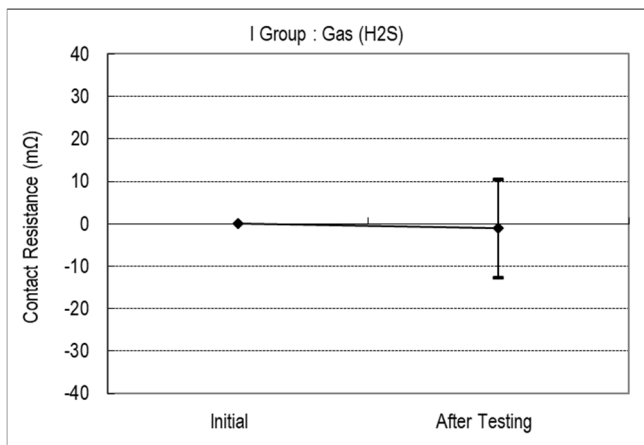
Graph 13. A change of contact resistance (G Group : Humidity(Cycling))

Graph14. A change of Ground resistance (G Group : Humidity(Cycling))

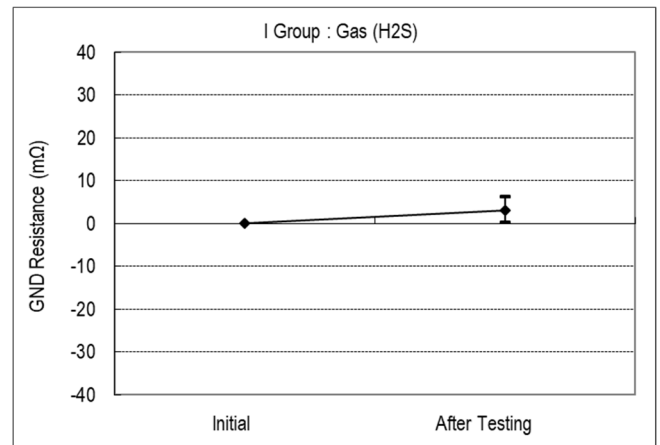


Graph15. A change of contact resistance (H Group : Salt Water Spray)

Graph16. A change of Ground resistance (H Group : Salt Water Spray)



Graph17. A change of contact resistance (I Group : Gas(H₂S))



Graph18. A change of Ground resistance (I Group : Gas(H₂S))