

# CABLINE®-VS II

Part No. Plug: 20846-0\*\*T-01, Receptacle: 20849-0\*\*E-01

## Test Report

Product Specification No. PRS-2398

6	T24055	August 27, 2024	K. Tanabe	M. Nakamura	T. Masunaga
5	T22034	February 4, 2022	M. Nakamura	T. Masunaga	H. Ikari
4	T21129	October 29, 2021	T. Ono	T. Masunaga	H. Ikari
3	T20048	July 23, 2020	T. Ono	T. Masunaga	H. Ikari
Rev.	ECN	Date	Prepared by	Checked by	Approved by

## 1. Purpose

To evaluate the performance of CABLINE-VS II Connector in accordance with PRS-2398.

## 2. Specimen

- (1) CABLINE-VSII PLUG ASS'Y (Part No. 20846-0\*\*T-01)
- (2) CABLINE-VSII RECEPTACLE ASS'Y (Part No. 20849-0\*\*E-01)

## 3. Test Sequence

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

## 4. Result

See Table 2-1 to 2-3, Graph 1 to 18. For the details of the testing conditions and requirements, see PRS-2398.  
The "n" in the tables show the number of measurement points.

## 5. Conclusion

All the specimens met the requirements of PRS-2398.

**Table.1 Test Sequence and Sample Quantity**

No.	Test Item	Testing Groups													
		A	B	C	D	E	F	G	H	J	K	L	M	N	
4.1 Electrical Performance	1	Contact Resistance	2,6			1,3,5	1,3	1,3	1,5	1,5,7	1,3	1,3			
	2	Insulation Resistance							2,6	2,8					
	3	Dielectric Withstanding Voltage							3,7	3,9					
	4	Temperature Rising													1
4.2 Mechanical Performance	1	Mating Force	1,5												
		Un-mating Force	3,7												
	2	Durability	4						4 <small>(10 cycles)</small>						
	3	Contact Retention Force		1,3											
	4	Connector Lock			1										
	5	Cable Retention Force	8												
	6	Vibration				2									
7	Shock				4										
4.3 Environmental Performance	1	Thermal Shock					2								
	2	High Temperature Life		2				2							
	3	Humidity (Steady State)							4						
	4	Humidity (Cycling)								6					
	5	Saltwater Spray									2				
	6	H <sub>2</sub> S Gas										2			
4.4 Others	1	Solderability											1		
	2	Soldering Heat Resistance												1	
Specimen Quantity (pcs.)			5 pcs.	20 pcs.	5 pcs.	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					Judge	
						AVE.	MAX.	MIN.	s	X±3s		
A Group Durability Cable Retention Force	Contact Resistance (mΩ)	Initial	AWG#36 275mΩMAX.	5	150	213.88	218.77	210.55	1.715	219.025	OK	
		After Testing	AWG#36 ΔR=40mΩ MAX.			-0.229	3.11	-3.50	1.140	3.191	OK	
	GND Resistance (mΩ)	Initial	50mΩMAX.	5	5	9.306	9.62	8.71	0.372	10.422	OK	
		After Testing	ΔR=40mΩ MAX.			-0.412	0.18	-0.94	0.486	1.046	OK	
	20P	Mating Force (N)	Initial	9.70N MAX.	5	5	5.216	5.76	4.87	0.348	6.260	OK
			After Testing	9.70N MAX.			3.798	3.93	3.64	0.138	4.212	OK
		Unmating Force (N)	Initial	2.00N MIN.	5	5	3.572	3.76	3.30	0.171	3.059	OK
			After Testing	2.00N MIN.			3.170	3.54	2.85	0.251	2.417	OK
	Cable Retention Force		9.80N MIN.	5	5	129.350	133.24	122.57	4.174	116.828	OK	
	30P	Mating Force (N)	Initial	14.55N MAX.	5	5	6.890	7.00	6.65	0.137	7.301	OK
			After Testing	14.55N MAX.			4.758	4.98	4.43	0.246	5.496	OK
		Unmating Force (N)	Initial	3.00N MIN.	5	5	4.516	4.65	4.39	0.092	4.240	OK
			After Testing	3.00N MIN.			4.006	4.30	3.64	0.258	3.232	OK
	Cable Retention Force		14.70N MIN.	5	5	128.068	134.23	121.18	6.115	109.723	OK	
	40P	Mating Force (N)	Initial	19.40N MAX.	5	5	9.298	9.84	8.64	0.467	10.699	OK
			After Testing	19.40N MAX.			6.524	7.00	6.00	0.391	7.697	OK
Unmating Force (N)		Initial	4.00N MIN.	5	5	6.164	6.63	5.49	0.434	4.862	OK	
		After Testing	4.00N MIN.			5.502	5.91	5.10	0.370	4.392	OK	
Cable Retention Force		19.60N MIN.	5	5	131.188	137.06	125.47	4.342	118.162	OK		
B Group High Temperature Life	(PLUG) Contact Retention Force (N)	Initial	0.6N MIN.	-	20	It does not pull out, even if applies the power of 1.8N to a terminal.					OK	
		After Testing	0.6N MIN.	-	20	It does not pull out, even if applies the power of 1.8N to a terminal.					OK	
	(RECE) Contact Retention Force (N)	Initial	0.2N MIN.	-	20	1.429	1.81	0.96	0.232	0.733	OK	
		After Testing	0.2N MIN.	-	20	1.379	1.61	1.00	0.153	0.920	OK	
C Group Conn. Lock	Initial	The lock does not damage and cancel.	5	5	No Abnormality					OK		

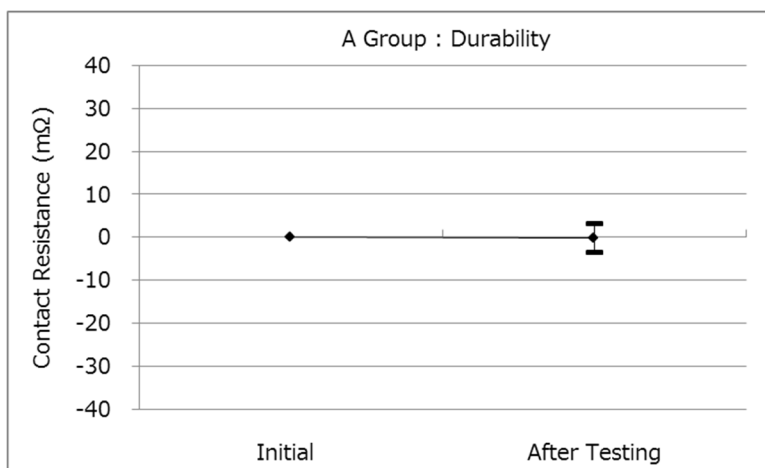
Table.2-2 Test result

Test Item	Contents of Measurement		Specifications	Set	n	Data					Judge
						AVE.	MAX.	MIN.	s	X±3s	
D Group Vibration ↓ Shock	Contact Resistance (mΩ)	Initial	AWG#36 275mΩMAX.	5	150	216.379	220.96	211.34	1.864	221.971	OK
		After Vibration	AWG#36 ΔR=40mΩ MAX.			-0.329	2.82	-2.97	1.143	3.100	OK
		After Shock	AWG#36 ΔR=40mΩ MAX.			-1.043	1.44	-3.90	1.034	2.059	OK
	GND Resistance (mΩ)	Initial	50mΩMAX.	5	5	9.582	10.33	9.06	0.508	11.106	OK
		After Vibration	ΔR=40mΩ MAX.			0.318	0.75	-0.91	0.690	2.388	OK
		After Shock	ΔR=40mΩ MAX.			-0.568	-0.04	-1.78	0.701	1.535	OK
	Electrical discontinuity	During Vibration	1μsec. MAX.	5	5	No Electrical discontinuity					OK
		During Shock				No Electrical discontinuity					OK
	Appearance	After Vibration	No abnormality adversely affecting the performance shall occur.	5	5	No Abnormality					OK
		After Shock				No Abnormality					OK
E Group Thermal Shock	Contact Resistance (mΩ)	Initial	AWG#36 275mΩMAX.	5	200	214.952	217.84	212.13	1.194	218.534	OK
		After Testing	AWG#36 ΔR=40mΩ MAX.			0.760	3.45	-1.81	0.946	3.598	OK
	GND Resistance (mΩ)	Initial	50mΩMAX.	5	5	9.228	9.64	9.06	0.238	9.942	OK
		After Testing	ΔR=40mΩ MAX.			-0.556	-0.23	-0.97	0.280	0.284	OK
F Group High Temperature Life	Contact Resistance (mΩ)	Initial	AWG#36 275mΩMAX.	5	200	215.985	219.32	213.59	1.115	219.330	OK
		After Testing	AWG#36 ΔR=40mΩ MAX.			1.467	5.87	-2.77	1.649	6.414	OK
	GND Resistance (mΩ)	Initial	50mΩMAX.	5	5	9.050	9.57	8.54	0.409	10.277	OK
		After Testing	ΔR=40mΩ MAX.			-0.448	-0.26	-0.64	0.153	0.011	OK
G Group Humidity (Steady State)	Contact Resistance (mΩ)	Initial	AWG#36 275mΩMAX.	5	150	214.664	219.08	211.14	1.672	219.680	OK
		After Testing	AWG#36 ΔR=40mΩ MAX.			0.741	4.30	-3.19	1.422	5.007	OK
	GND Resistance (mΩ)	Initial	50mΩMAX.	5	5	9.840	10.40	9.36	0.434	11.142	OK
		After Testing	ΔR=40mΩ MAX.			-0.020	0.37	-0.52	0.406	1.198	OK
	Insulation Resistance (MΩ)	Initial	1000MΩMIN.	5	75	1.96×10 <sup>4</sup> MΩMIN.					OK
		After Testing	500MΩMIN.			8.47×10 <sup>3</sup> MΩMIN.					OK
	D. W. Voltage	Initial	No abnormality adversely affecting the performance shall occur.	5	75	No Abnormality					OK
		After Testing				No Abnormality					OK

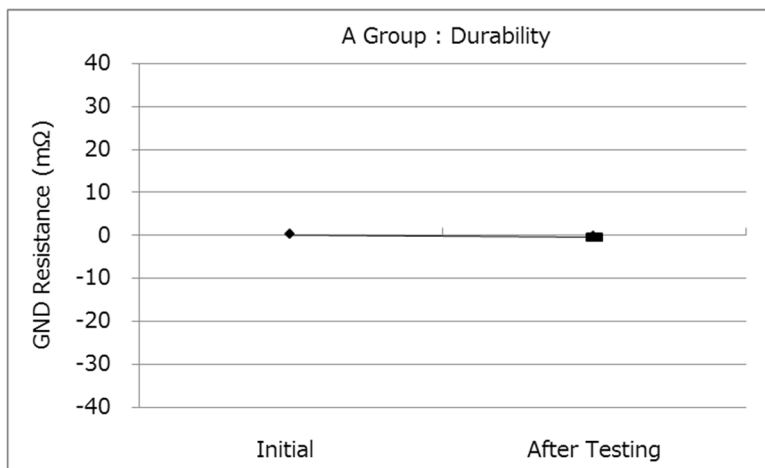
Table.2-3 Test result

Test Item	Contents of Measurement		Specifications	Set	n	Data					Judge
						AVE.	MAX.	MIN.	s	X±3s	
H Group Humidity (Cycling)	Contact Resistance (mΩ)	Initial	AWG#36 275mΩMAX.	5	150	215.987	220.29	211.64	1.506	220.505	OK
		After Durability	AWG#36 ΔR=40mΩ MAX.			-0.368	5.00	-5.60	1.983	5.581	OK
		After Testing	AWG#36 ΔR=40mΩ MAX.			-0.493	3.51	-4.15	1.356	3.575	OK
	GND Resistance (mΩ)	Initial	50mΩMAX.	5	5	9.316	9.94	9.05	0.355	10.381	OK
		After Durability	ΔR=40mΩ MAX.			-0.036	0.31	-0.88	0.480	1.404	OK
		After Testing	ΔR=40mΩ MAX.			0.120	0.31	-0.35	0.272	0.936	OK
	Insulation Resistance (MΩ)	Initial	1000MΩMIN.	5	75	2.74×10 <sup>3</sup> MΩMIN.					OK
		After Testing	500MΩMIN.			1.09×10 <sup>4</sup> MΩMIN.					OK
	D. W. Voltage	Initial	No abnormality adversely affecting the performance shall occur.	5	75	No Abnormality					OK
After Testing		No Abnormality					OK				
J Group Salt Water Spray	Contact Resistance (mΩ)	Initial	AWG#36 275mΩMAX.	5	150	214.888	218.70	211.12	1.445	219.223	OK
		After Testing	AWG#36 ΔR=40mΩ MAX.			0.194	3.14	-3.15	1.320	4.154	OK
	GND Resistance (mΩ)	Initial	50mΩMAX.	5	5	9.506	9.87	9.20	0.285	10.361	OK
		After Testing	ΔR=40mΩ MAX.			0.700	1.22	0.21	0.411	1.933	OK
K Group H <sub>2</sub> S Gas	Contact Resistance (mΩ)	Initial	AWG#36 275mΩMAX.	5	150	214.470	218.19	211.61	1.467	218.871	OK
		After testing	AWG#36 ΔR=40mΩ MAX.			-0.021	2.34	-2.31	1.019	3.036	OK
	GND Resistance (mΩ)	Initial	50mΩMAX.	5	5	9.556	9.78	9.22	0.225	10.231	OK
		After Testing	ΔR=40mΩ MAX.			-0.280	-0.06	-0.42	0.171	0.233	OK
L Group Solderability	Appearance		More than 95% of the dipped surface shall be evenly wet.	10	10	Wet 95% MIN.					OK
M Group Soldering Heat Resistance	Appearance		No abnormality adversely affecting the performance shall occur.	10	10	No Abnormality					OK
N Group Temperature Rising	AWG#40 0.3A/Contact (30P)		ΔT=30°C MAX.	5	5	ΔT=27.2°CMAX.					OK

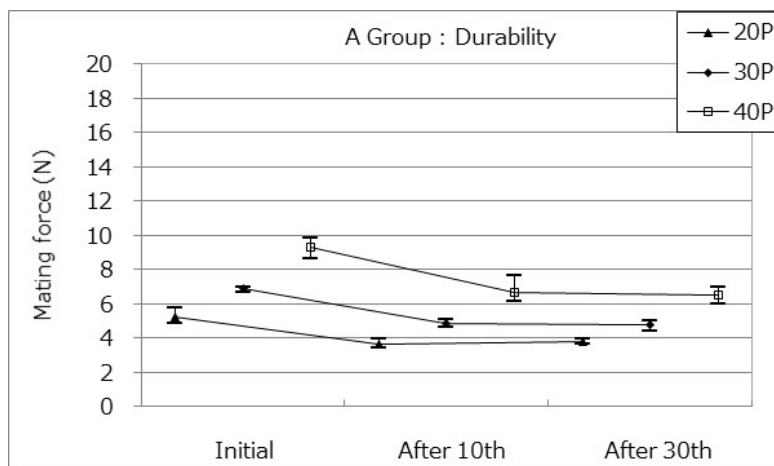
**Graph.1**



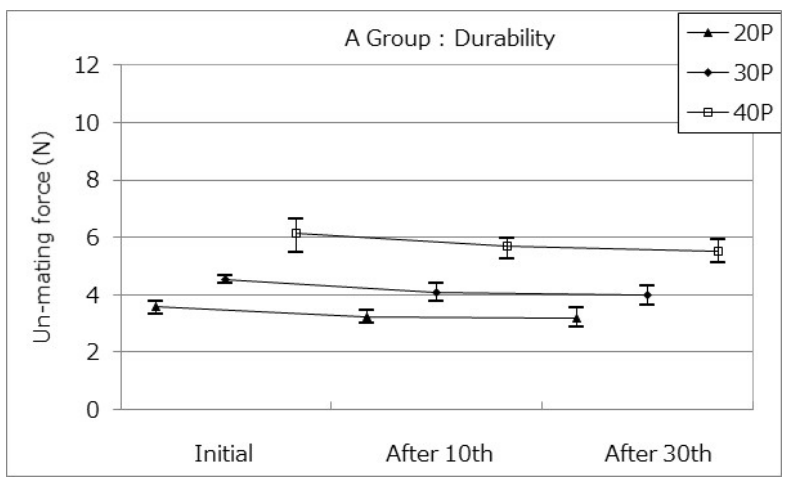
**Graph.2**



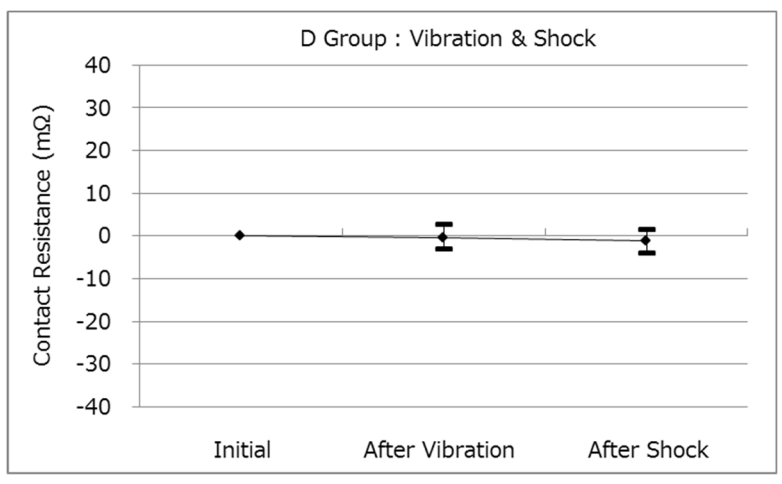
**Graph.3**



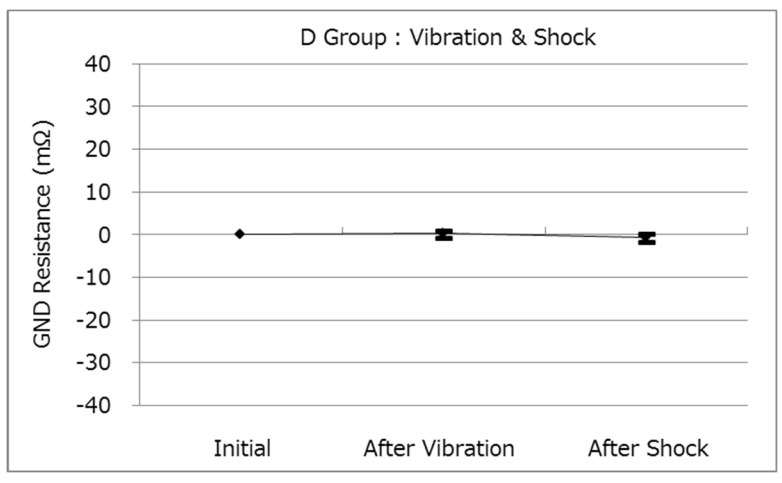
**Graph.4**



**Graph.5**

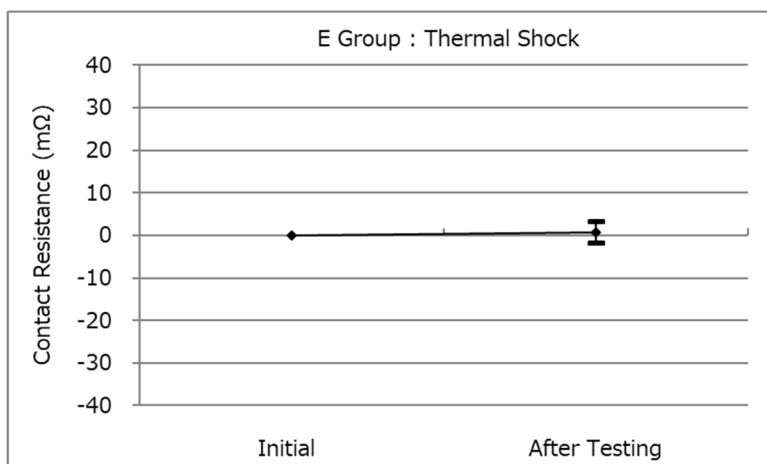


**Graph.6**

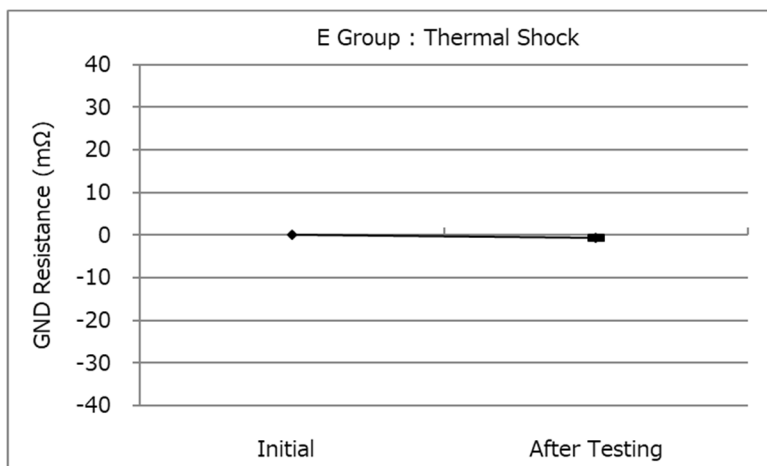




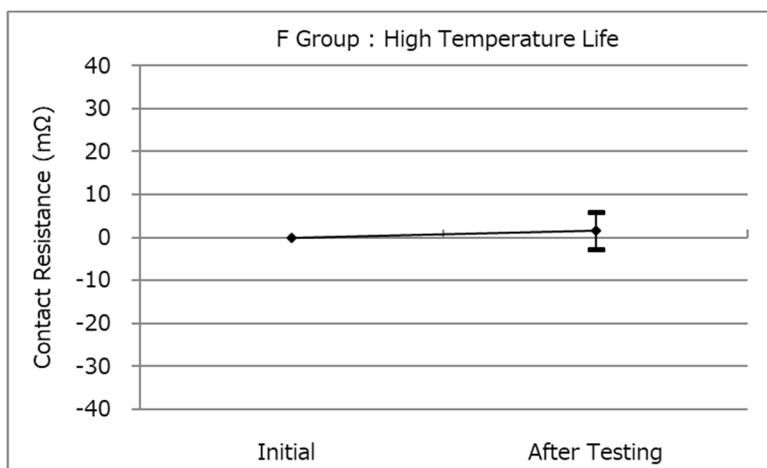
**Graph.7**



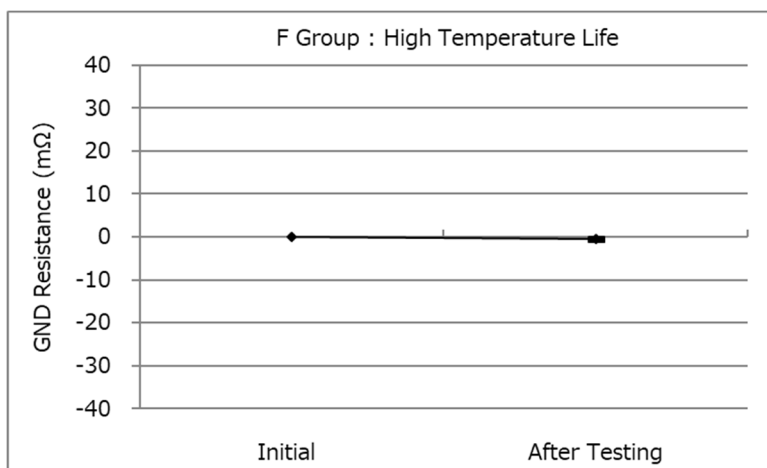
**Graph.8**



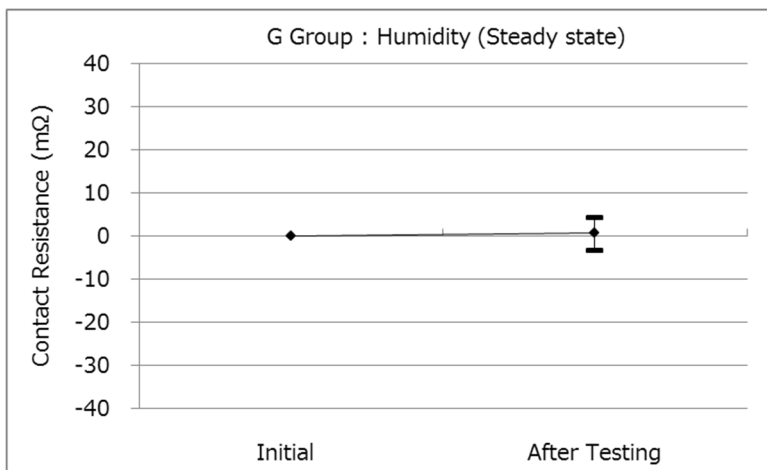
**Graph.9**



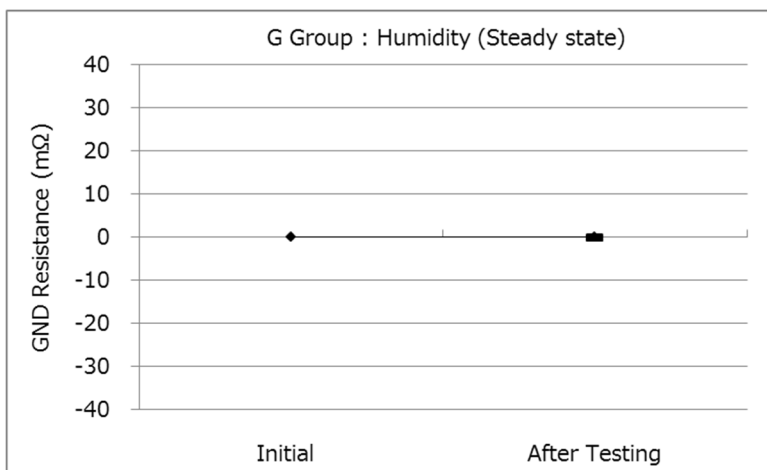
**Graph.10**



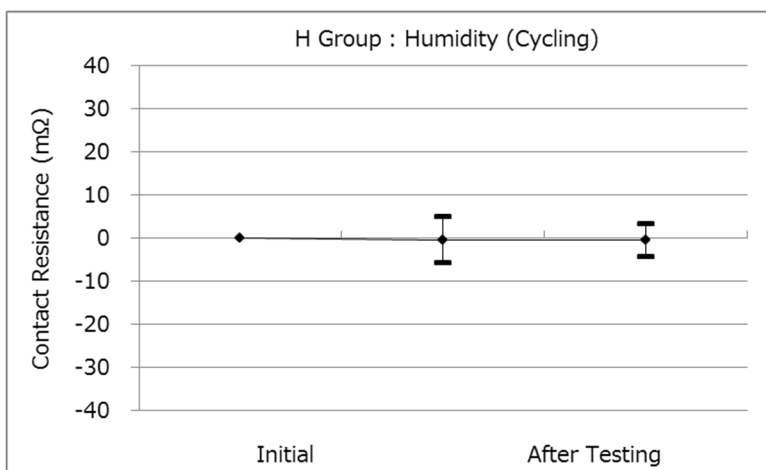
**Graph.11**



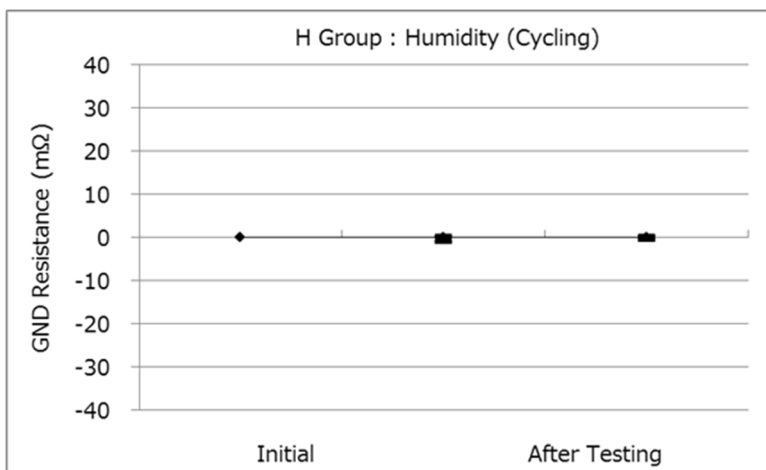
**Graph.12**



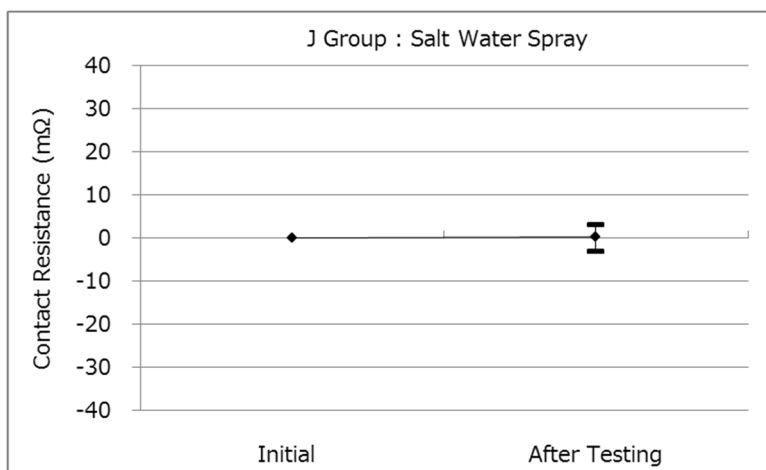
**Graph.13**



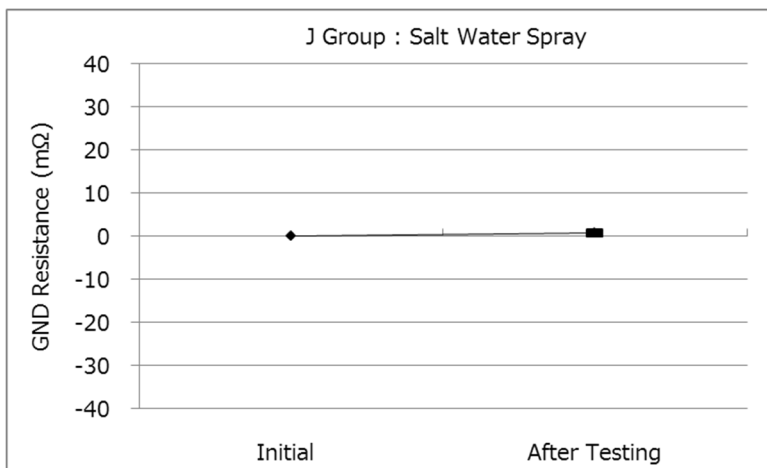
**Graph.14**



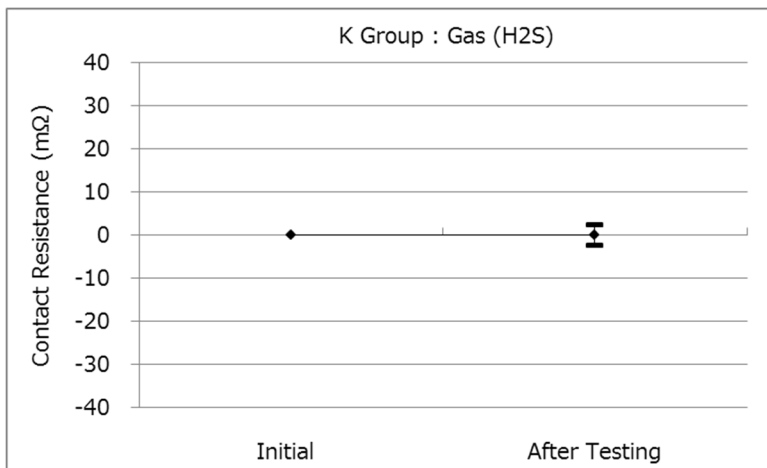
**Graph.15**



**Graph.16**



**Graph.17**



**Graph.18**

