

CABLIN[®]-VSF

Part No. 3049-0**# (SHELL ONLY) , 20645-0**T-01 (SHELL ASS'Y)

Test Report

Product Specification no. PRS-1878

7	T23029	May 31, 2023	T.Onishi	M.Muro	H.Ikari
6	T21177	December 6, 2021	M.Muro	-	H.Ikari
5	T17136	August 24, 2017	Y.Sasa	T.Masunaga	H.Ikari
4	T16163	October 24, 2016	H.Ikari	-	Y.Shimada
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of CABLINE-VSF Connector in accordance PRS-1878.

2. Specimen

2.1. PLUG (CABLINE-VSF) SHELL Only P/N : 3049-0**#
SHELL ASS'Y (with LOCK BAR) P/N : 20645-0**T-01

※FPC : Made by Taiyo Industrial Co, Ltd.

FPC Thickness : $t=0.28^{+0.02/-0.03}$ Actual measurement : 0.276~0.281mm

2.2. RECE. (CABLINE-VS) ... P/N : 20455-0**E-#2

3. Conclusion

All the specimen met the requirements of PRS-1878.

4. Test Sequence

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

5. Result

See Table.2-1 to 2-3 and Graph.1 to 18. For the details of the testing conditions and requirements, see PRS-1878.
The "n" in the tables show the number of measurement points.

Table.1 Test Sequence and Sample Quantity

Test Item	Group								
	A	B	C	D	E	F	G	H	J
Contact resistance		2,6	1,3,5	1,3	1,3	1,5	1,5	1,3	1,3
Insulation resistance						2,6	2,6		
Dielectric withstanding voltage						3,7	3,7		
Temperature rising	1								
Mating force		1,5							
Unmating force		3,7							
Durability		4							
Vibration			2						
Shock			4						
Thermal shock				2					
High temperature life					2				
Humidity (Steady State)						4			
Humidity (Cycling)							4		
Saltwater spray								2	
H ₂ S gas									2
Specimen quantity.	5 pcs.	5 pos.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 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 Temperature Rising	0.3A/Contact * 12.0A/Connector		ΔT=30°C MAX.	5	5	ΔT=14.1°C MAX.					OK	
	0.5A/Contact (up to 20Pin)		ΔT=30°C MAX.	5	5	ΔT=26.4°C MAX.					OK	
B Group Durability	Contact Resistance (mΩ)	Initial	60mΩ MAX.	5	200	12.159	16.19	9.50	1.590	16.929	OK	
		After Testing	ΔR=40mΩ MAX.			-0.787	4.45	-5.12	1.910	4.943	OK	
	GND Resistance (mΩ)	Initial	60mΩ MAX.	5	5	4.613	6.53	3.45	1.202	8.219	OK	
		After Testing	ΔR=40mΩ MAX.			-0.118	1.50	-3.00	1.721	5.045	OK	
	30P	Mating Force (N)	Initial	24.00N MAX.	5	5	6.164	6.39	5.93	0.232	6.860	OK
			After Testing	24.00N MAX.			4.695	5.10	4.27	0.415	5.940	OK
		Unmating Force (N)	Initial	1.10N MIN.	5	5	4.255	4.37	4.07	0.165	3.760	OK
			After Testing	1.10N MIN.			3.665	3.95	3.42	0.269	2.858	OK
	40P	Mating Force (N)	Initial	32.00N MAX.	5	5	8.432	8.59	8.24	0.178	8.966	OK
			After Testing	32.00N MAX.			6.483	6.68	6.36	0.173	7.002	OK
		Unmating Force (N)	Initial	1.40N MIN.	5	5	5.099	5.14	5.04	0.055	4.934	OK
			After Testing	1.40N MIN.			4.161	4.34	4.06	0.157	3.690	OK
C Group Vibration ↓ Shock	Contact Resistance (mΩ)	Initial	60mΩ MAX.	5	200	12.250	16.70	9.20	1.795	17.635	OK	
		After Vibration	ΔR=40mΩ MAX.			0.206	4.54	-4.05	1.543	4.835	OK	
		After Shock	ΔR=40mΩ MAX.			-0.330	4.68	-4.26	1.717	4.821	OK	
	GND Resistance (mΩ)	Initial	60mΩ MAX.	5	5	4.943	6.23	3.92	0.866	7.541	OK	
		After Vibration	ΔR=40mΩ MAX.			0.239	0.92	-0.06	0.384	1.391	OK	
		After Shock	ΔR=40mΩ MAX.			-0.343	2.00	-2.24	1.475	4.082	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	

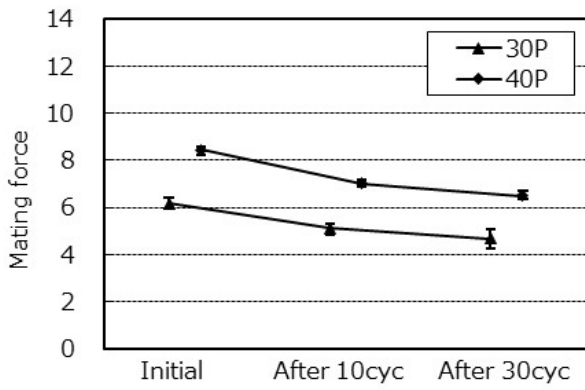
*The Temperature Rising Test is a result when applied ratings current (0.3A/contact) between the neighboring contacts for 40pos.
(With the whole connector 12.0A.)

Table.2-2 Test result

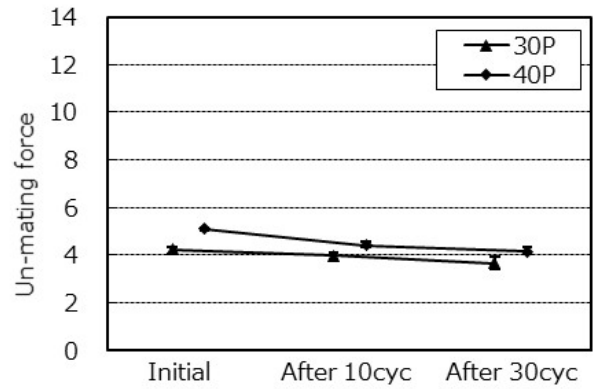
Test Item	Contents of Measurement		Specifications	Set	n	Data					Judge
						AVE.	MAX.	MIN.	s	X±3s	
D Group Thermal Shock	Contact Resistance (mΩ)	Initial	60mΩMAX.	5	200	11.971	16.81	8.91	1.737	17.182	OK
		After Testing	ΔR=40mΩ MAX.			-0.147	4.78	-3.61	1.750	5.103	OK
	GND Resistance (mΩ)	Initial	60mΩMAX.	5	5	4.440	6.35	3.29	1.024	7.512	OK
		After Testing	ΔR=40mΩ MAX.			0.004	2.24	-1.09	1.176	3.532	OK
E Group High Temperature Life	Contact Resistance (mΩ)	Initial	60mΩMAX.	5	200	12.112	16.61	9.39	1.626	16.990	OK
		After Testing	ΔR=40mΩ MAX.			0.711	5.33	-4.49	1.748	5.955	OK
	GND Resistance (mΩ)	Initial	60mΩMAX.	5	5	4.436	6.04	3.69	0.828	6.920	OK
		After Testing	ΔR=40mΩ MAX.			0.688	2.31	-0.68	1.093	3.967	OK
F Group Humidity (Steady State)	Contact Resistance (mΩ)	Initial	60mΩMAX.	5	200	12.103	16.71	8.95	2.026	18.181	OK
		After Testing	ΔR=40mΩ MAX.			0.249	5.01	-3.87	1.849	5.796	OK
	GND Resistance (mΩ)	Initial	60mΩMAX.	5	5	4.323	6.93	3.54	1.311	8.256	OK
		After Testing	ΔR=40mΩ MAX.			-0.096	1.53	-2.76	1.468	4.308	OK
	Insulation Resistance (MΩ)	Initial	1000MΩMIN.	5	100	1.2×10 ⁵ MΩMIN.					OK
		After Testing	500MΩMIN.			2.6×10 ⁴ MΩMIN.					OK
	Dielectric withstanding voltage	Initial	No abnormalities such as creeping discharge, flashover, insulator breakdown occur.	5	100	No Abnormality					OK
		After Testing				No Abnormality					OK

Table.2-3 Test result

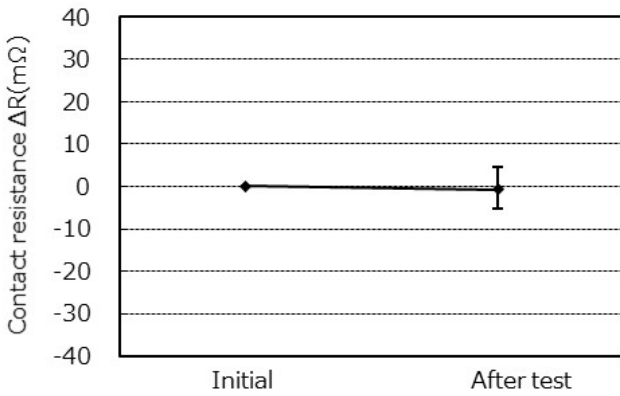
Test Item	Contents of Measurement	Specifications		Set	n	Data					Judge
						AVE.	MAX.	MIN.	s	X±3s	
G Group Humidity (Cycling)	Contact Resistance (mΩ)	Initial	60mΩMAX.	5	200	11.794	15.51	9.07	1.494	16.276	OK
		After Testing	ΔR=40mΩ MAX.			0.204	4.43	-3.77	1.794	5.586	OK
	GND Resistance (mΩ)	Initial	60mΩMAX.	5	5	4.386	5.19	3.84	0.500	5.886	OK
		After Testing	ΔR=40mΩ MAX.			0.019	2.19	-1.58	1.295	3.904	OK
	Insulation Resistance (MΩ)	Initial	1000MΩMIN.	5	100	1.1×10 ⁵ MΩMIN.					OK
		After Testing	500MΩMIN.			1.2×10 ⁴ MΩMIN.					OK
	Dielectric withstanding voltage	Initial	No abnormalities such as creeping discharge, flashover, insulator breakdown occur.	5	100	No Abnormality					OK
		After Testing				No Abnormality					OK
H Group Salt Water Spray	Contact Resistance (mΩ)	Initial	60mΩMAX.	5	200	12.609	16.31	9.02	1.715	17.754	OK
		After Testing	ΔR=40mΩ MAX.			0.140	4.17	-3.80	1.594	4.922	OK
	GND Resistance (mΩ)	Initial	60mΩMAX.	5	5	4.746	6.02	4.09	0.752	7.002	OK
		After Testing	ΔR=40mΩ MAX.			0.420	2.08	-1.16	1.110	3.750	OK
	Appearance	After Testing	No abnormality adversely affecting the performance shall occur.	5	5	No Abnormality					OK
J Group Gas(H ₂ S)	Contact Resistance (mΩ)	Initial	60mΩMAX.	5	200	12.503	16.91	9.12	1.623	17.372	OK
		After Testing	ΔR=40mΩ MAX.			0.342	5.82	-4.13	1.895	6.027	OK
	GND Resistance (mΩ)	Initial	60mΩMAX.	5	5	4.463	6.23	3.32	0.989	7.430	OK
		After Testing	ΔR=40mΩ MAX.			0.666	1.79	-1.22	1.087	3.927	OK
	Appearance	After Testing	No abnormality adversely affecting the performance shall occur.	5	5	No Abnormality					OK



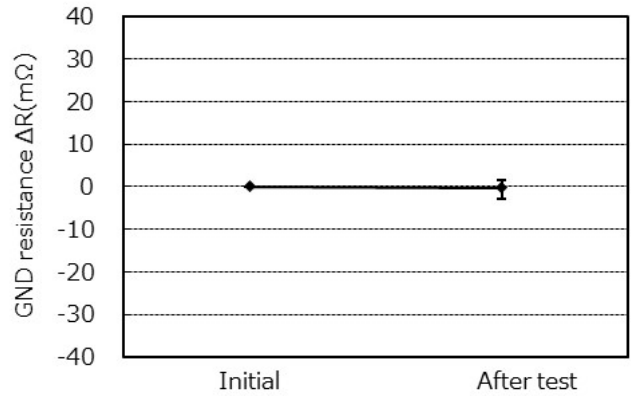
Graph.1 A change of mating force
B Group: Durability



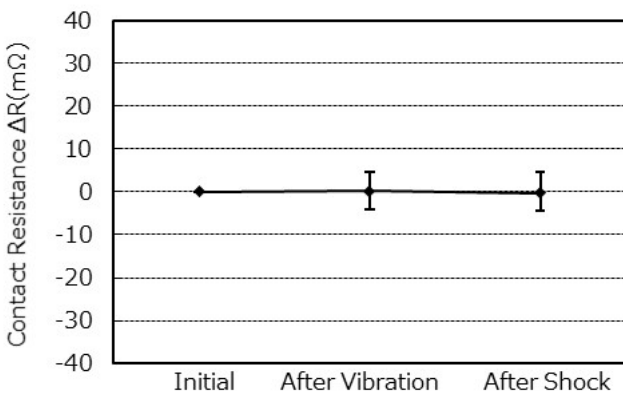
Graph.2 A change of un mating force
B Group: Durability



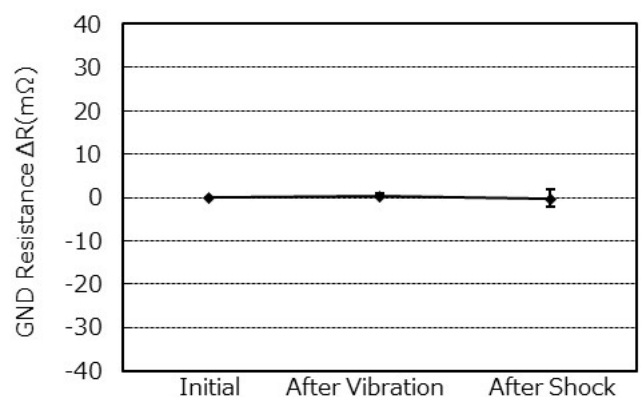
Graph.3 A change of contact resistance
B Group: Durability



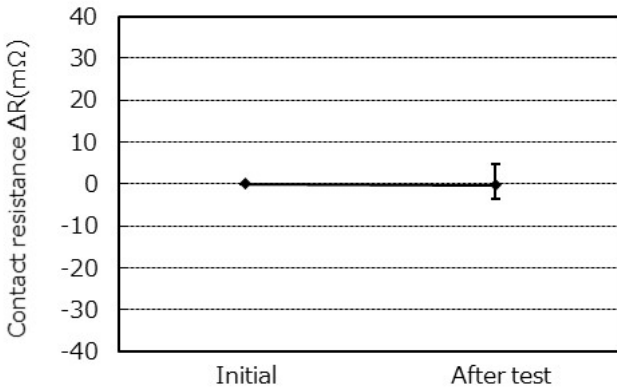
Graph.4 A change of GND resistance
B Group: Durability



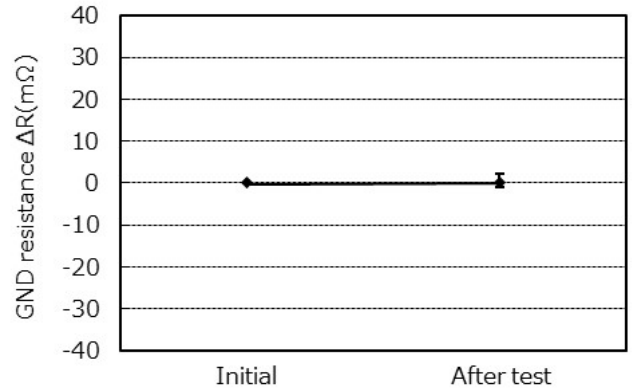
Graph.5 A change of contact resistance
C Group: Vibration/Shock



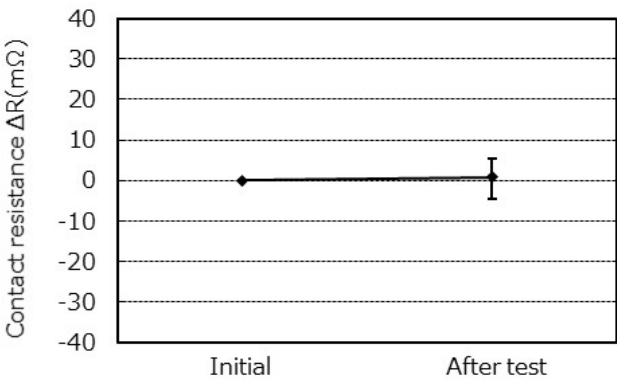
Graph.6 A change of GND resistance
C Group: Vibration/Shock



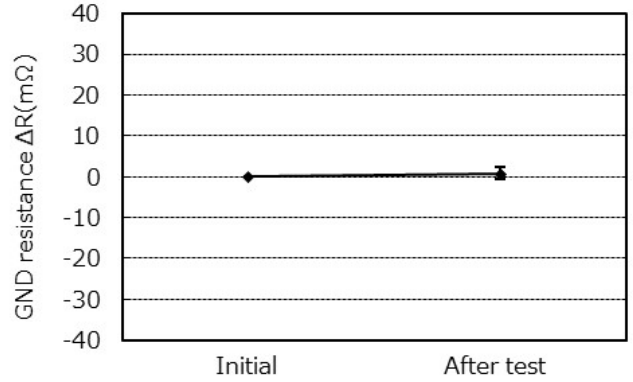
Graph.7 A change of contact resistance
D Group: Thermal shock



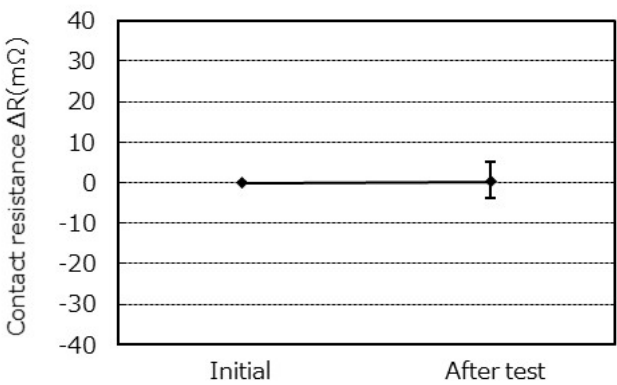
Graph.8 A change of GND resistance
D Group: Thermal shock



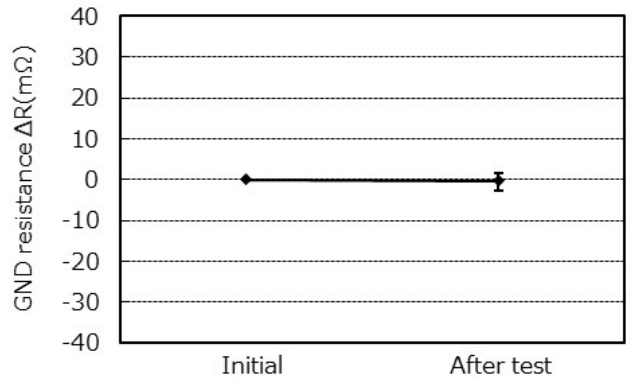
Graph.9 A change of contact resistance
E Group: High temp. life



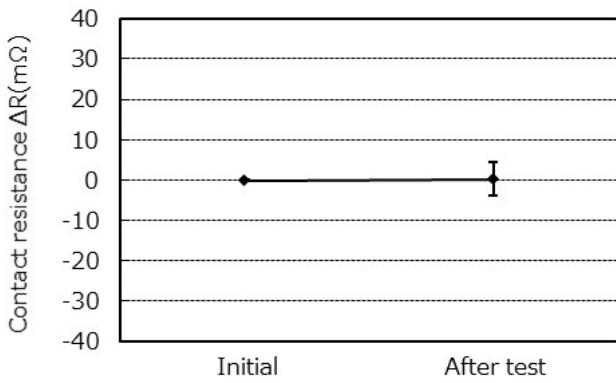
Graph.10 A change of GND resistance
E Group: High temp. life



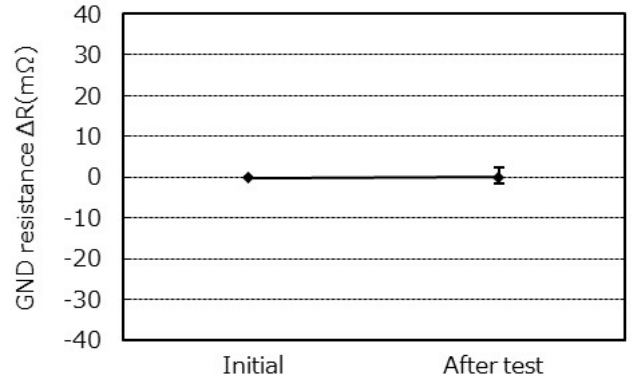
Graph.11 A change of contact resistance
F Group: Humidity (Steady state)



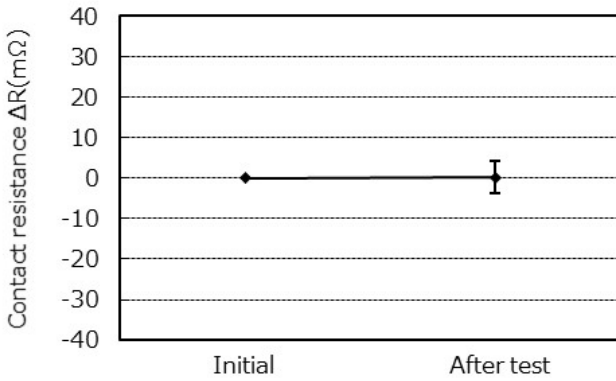
Graph.12 A change of GND resistance
F Group: Humidity (Steady state)



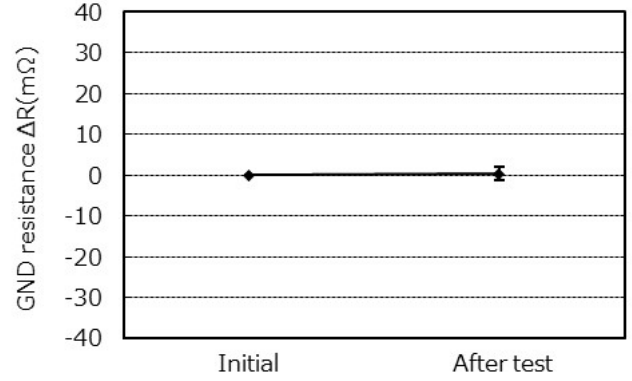
Graph.13 A change of contact resistance
G Group: Humidity (Cycling)



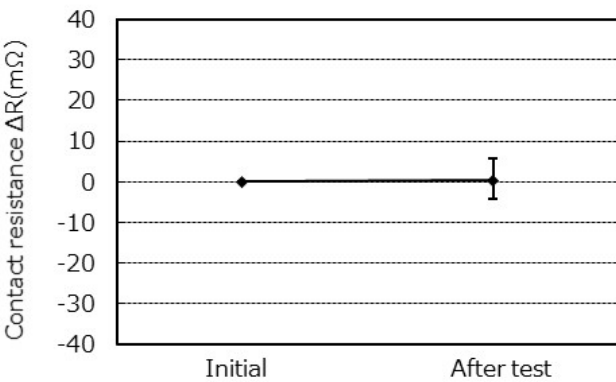
Graph.14 A change of GND resistance
G Group: Humidity (Cycling)



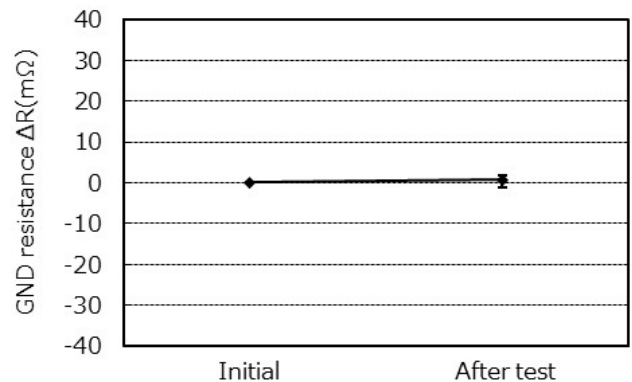
Graph.15 A change of contact resistance
H Group: Salt spray



Graph.16 A change of GND resistance
H Group: Salt spray



Graph.17 A change of contact resistance
J Group: Gas (H₂S)



Graph.18 A change of contact resistance
J Group: Gas (H₂S)