

CABLINE®-VSF

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

Test Report

Product Specification no. PRS-1878

3	T23030	May 31, 2023	T.Onishi	M.Muro	H.Ikari
2	T21178	December 6, 2021	M.Muro	-	H.Ikari
1	T18119	November 1, 2018	Y.Sasa	T.Masunaga	H.Ikari
0	T17096	June 19, 2017	M.Kawasaki	T.Masunaga	H.Ikari
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-#9#

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	12.036	14.86	9.45	1.396	16.224	OK	
		After Testing	ΔR=40mΩ MAX.			-0.720	4.01	-4.18	1.750	4.530	OK	
	GND Resistance (mΩ)	Initial	60mΩ MAX.	5	5	4.450	5.27	3.68	0.660	6.430	OK	
		After Testing	ΔR=40mΩ MAX.			-0.414	0.80	-1.75	0.995	2.571	OK	
	30P	Mating Force (N)	Initial	24.00N MAX.	5	5	7.797	8.41	7.42	0.536	9.405	OK
			After Testing	24.00N MAX.			6.257	6.61	5.89	0.360	7.337	OK
		Unmating Force (N)	Initial	1.10N MIN.	5	5	4.656	4.89	4.45	0.222	3.990	OK
			After Testing	1.10N MIN.			4.137	4.55	3.63	0.467	2.736	OK
	40P	Mating Force (N)	Initial	32.00N MAX.	5	5	9.707	10.24	9.43	0.462	11.093	OK
			After Testing	32.00N MAX.			6.723	7.34	5.98	0.689	8.790	OK
		Unmating Force (N)	Initial	1.40N MIN.	5	5	5.637	5.77	5.45	0.167	5.136	OK
			After Testing	1.40N MIN.			4.607	4.95	3.98	0.544	2.975	OK
C Group Vibration ↓ Shock	Contact Resistance (mΩ)	Initial	60mΩ MAX.	5	200	12.160	15.09	9.51	1.668	17.164	OK	
		After Vibration	ΔR=40mΩ MAX.			0.270	4.05	-3.16	1.439	4.587	OK	
		After Shock	ΔR=40mΩ MAX.			-0.295	3.36	-3.82	1.603	4.514	OK	
	GND Resistance (mΩ)	Initial	60mΩ MAX.	5	5	4.693	5.76	3.64	0.921	7.456	OK	
		After Vibration	ΔR=40mΩ MAX.			0.102	1.34	-1.23	0.867	2.703	OK	
		After Shock	ΔR=40mΩ MAX.			-0.283	1.70	-1.42	1.090	2.987	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	

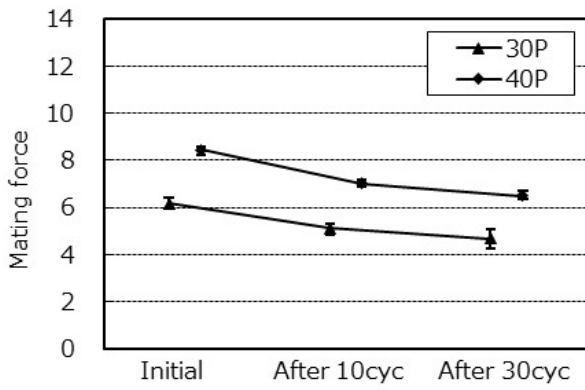
*The Temperature Rising Test is a result when applied ratings current (0.3A/contact) between the neighboring contacts for 40pos.
(With the whole connector 12.0A.)

Table.2-2 Test result

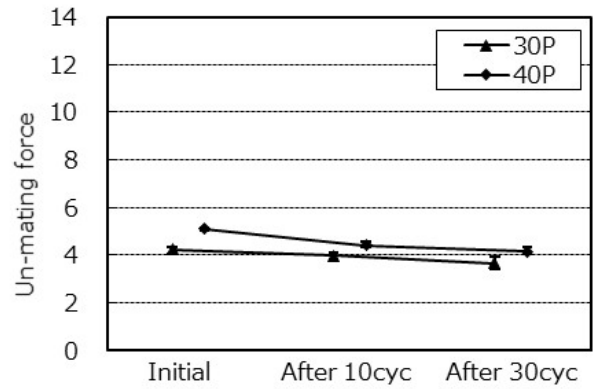
Test Item	Contents of Measurement		Specifications	Set	n	Data					Judge
						AVE.	MAX.	MIN.	s	X±3s	
D Group Thermal Shock	Contact Resistance (mΩ)	Initial	60mΩMAX.	5	200	11.876	14.80	9.34	1.451	16.229	OK
		After Testing	ΔR=40mΩ MAX.			-0.109	3.34	-3.61	1.621	4.754	OK
	GND Resistance (mΩ)	Initial	60mΩMAX.	5	5	4.337	5.21	3.45	0.594	6.119	OK
		After Testing	ΔR=40mΩ MAX.			-0.332	0.78	-1.73	0.919	2.425	OK
E Group High Temperature Life	Contact Resistance (mΩ)	Initial	60mΩMAX.	5	200	11.977	14.86	9.13	1.410	16.207	OK
		After Testing	ΔR=40mΩ MAX.			0.722	3.67	-2.29	1.460	5.102	OK
	GND Resistance (mΩ)	Initial	60mΩMAX.	5	5	4.305	5.34	3.57	0.695	6.390	OK
		After Testing	ΔR=40mΩ MAX.			0.547	1.20	-0.10	0.536	2.155	OK
F Group Humidity (Steady State)	Contact Resistance (mΩ)	Initial	60mΩMAX.	5	200	12.005	15.16	9.02	1.847	17.546	OK
		After Testing	ΔR=40mΩ MAX.			0.288	4.15	-3.31	1.650	5.238	OK
	GND Resistance (mΩ)	Initial	60mΩMAX.	5	5	4.062	5.43	3.45	0.800	6.462	OK
		After Testing	ΔR=40mΩ MAX.			-0.175	1.17	-1.09	0.878	2.809	OK
	Insulation Resistance (MΩ)	Initial	1000MΩMIN.	5	100	1.1×10 ⁵ MΩMIN.					OK
		After Testing	500MΩMIN.			2.5×10 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

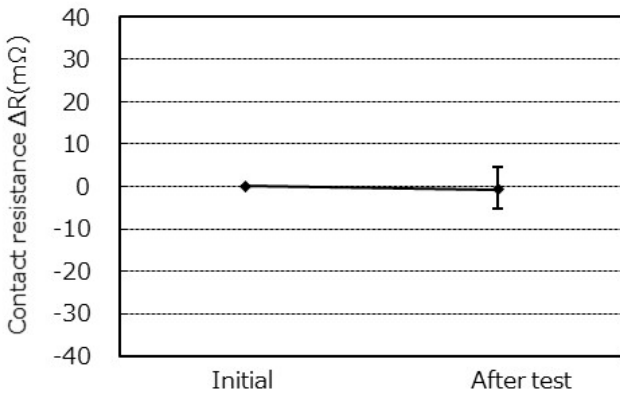
Test Item	Contents of Measurement	Specifications		Set	n	Data					Judge
						AVE.	MAX.	MIN.	s	X±3s	
G Group Humidity (Cycling)	Contact Resistance (mΩ)	Initial	60mΩMAX.	5	200	11.705	14.46	9.24	1.307	15.626	OK
		After Testing	ΔR=40mΩ MAX.			0.206	4.18	-3.34	1.536	4.814	OK
	GND Resistance (mΩ)	Initial	60mΩMAX.	5	5	4.285	4.89	3.91	0.420	5.545	OK
		After Testing	ΔR=40mΩ MAX.			0.138	1.32	-1.42	0.957	3.009	OK
	Insulation Resistance (MΩ)	Initial	1000MΩMIN.	5	100	1.0×10 ⁵ MΩMIN.					OK
		After Testing	500MΩMIN.			1.0×10 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	12.462	14.96	9.27	1.452	16.818	OK
		After Testing	ΔR=40mΩ MAX.			0.183	3.69	-2.12	1.385	4.338	OK
	GND Resistance (mΩ)	Initial	60mΩMAX.	5	5	4.582	5.67	3.47	0.744	6.814	OK
		After Testing	ΔR=40mΩ MAX.			0.277	1.11	-0.73	0.674	2.299	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	12.399	14.75	9.50	1.410	16.629	OK
		After Testing	ΔR=40mΩ MAX.			0.296	4.45	-4.01	1.665	5.291	OK
	GND Resistance (mΩ)	Initial	60mΩMAX.	5	5	4.237	5.51	3.43	0.824	6.709	OK
		After Testing	ΔR=40mΩ MAX.			0.527	1.05	-0.28	0.623	2.396	OK
	Appearance	After Testing	No abnormality adversely affecting the performance shall occur.	5	5	No Abnormality					OK



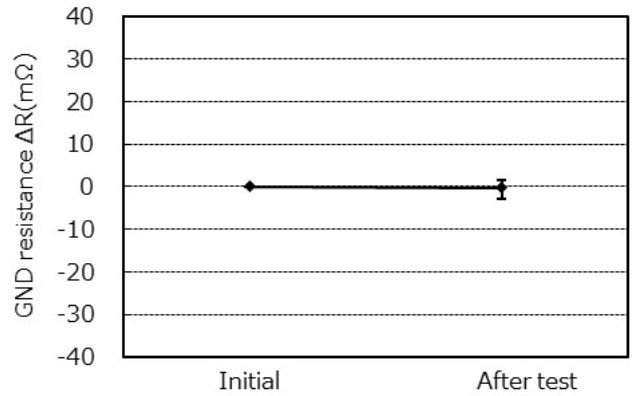
Graph.1 A change of mating force
B Group: Durability



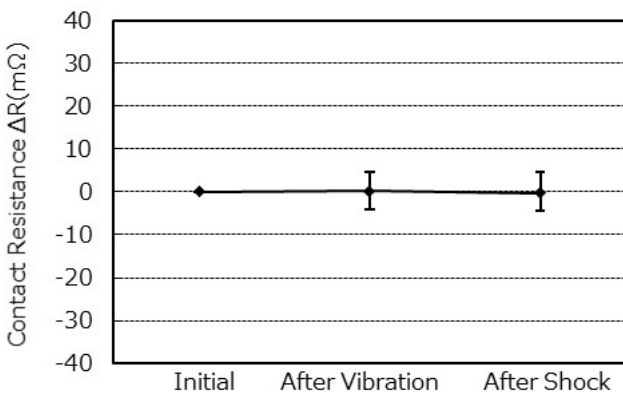
Graph.2 A change of un mating force
B Group: Durability



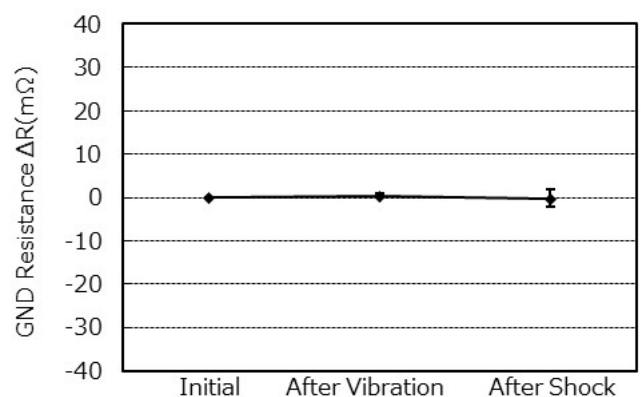
Graph.3 A change of contact resistance
B Group: Durability



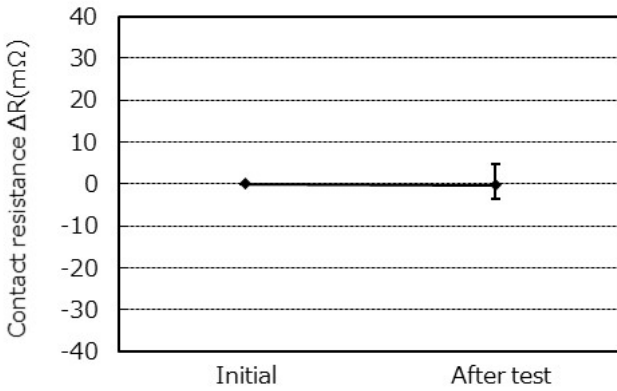
Graph.4 A change of GND resistance
B Group: Durability



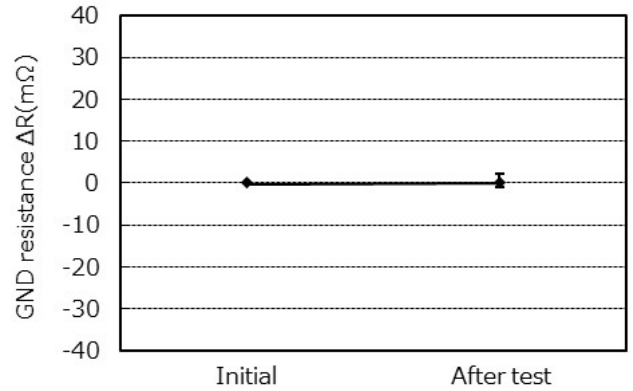
Graph.5 A change of contact resistance
C Group: Vibration/Shock



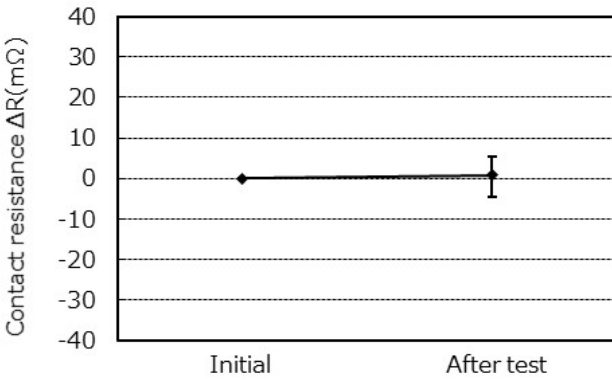
Graph.6 A change of GND resistance
C Group: Vibration/Shock



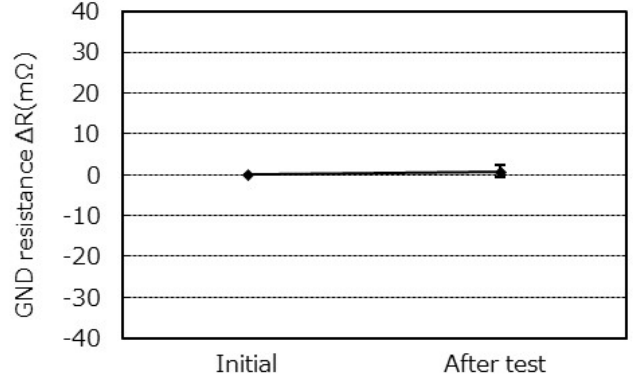
Graph.7 A change of contact resistance
D Group: Thermal shock



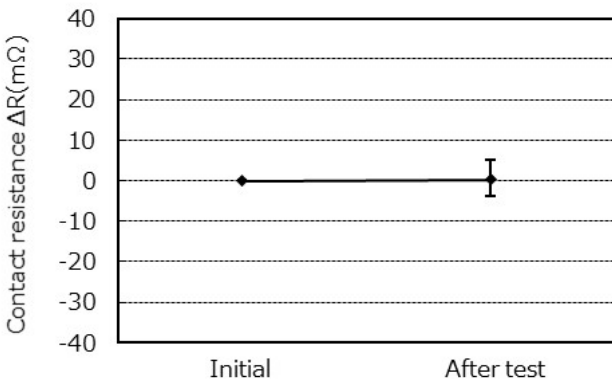
Graph.8 A change of GND resistance
D Group: Thermal shock



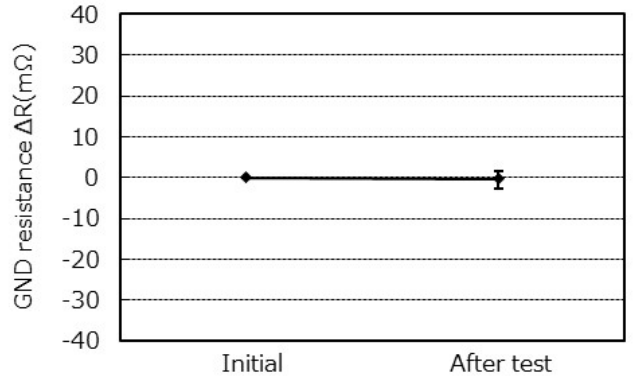
Graph.9 A change of contact resistance
E Group: High temp. life



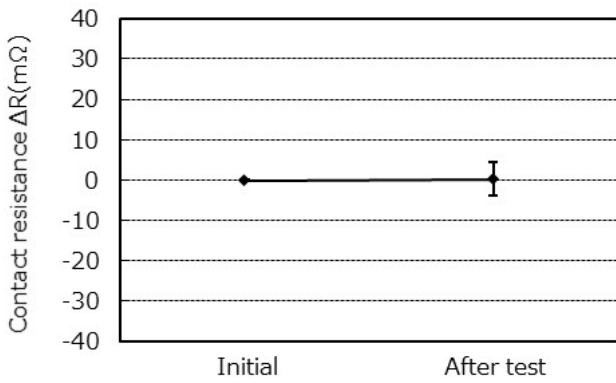
Graph.10 A change of GND resistance
E Group: High temp. life



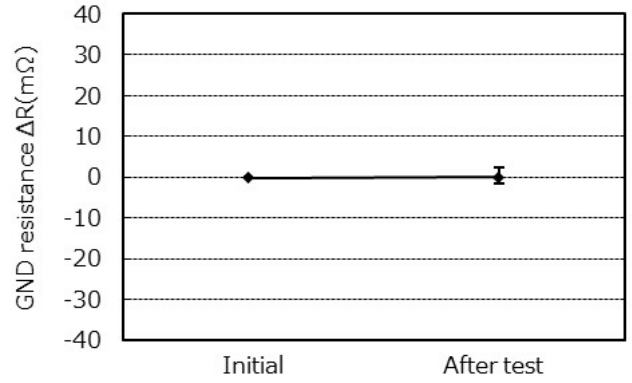
Graph.11 A change of contact resistance
F Group: Humidity (Steady state)



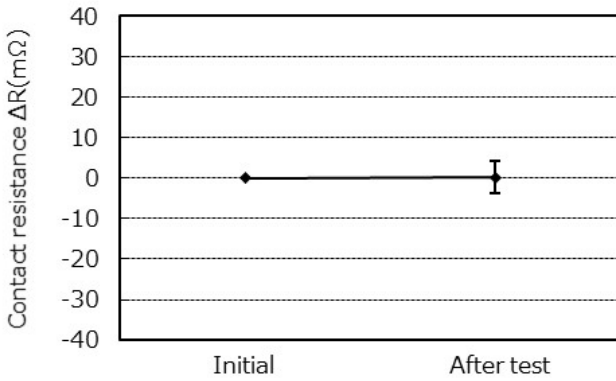
Graph.12 A change of GND resistance
F Group: Humidity (Steady state)



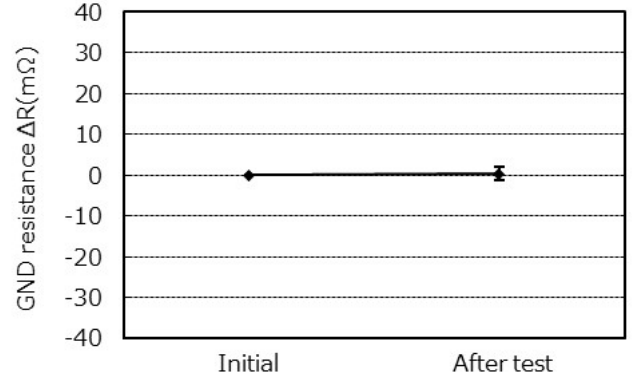
Graph.13 A change of contact resistance
G Group: Humidity (Cycling)



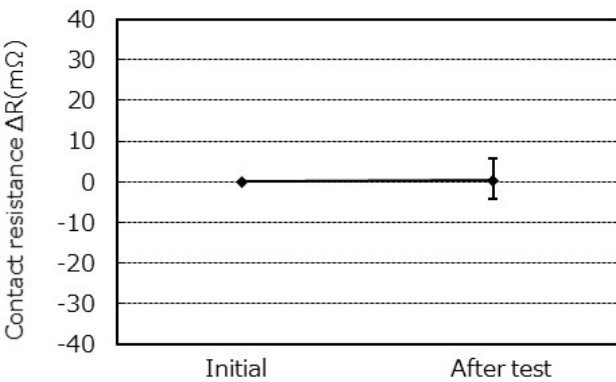
Graph.14 A change of GND resistance
G Group: Humidity (Cycling)



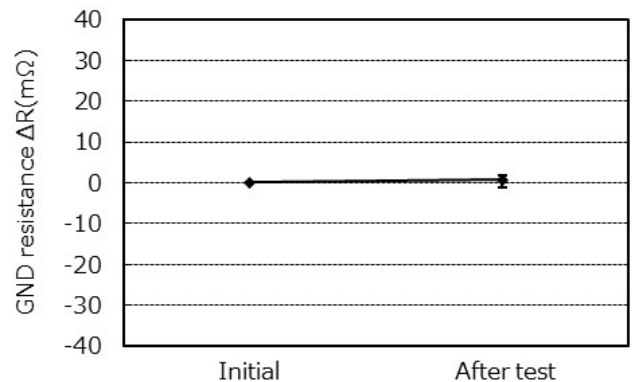
Graph.15 A change of contact resistance
H Group: Salt spray



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)