

CABLIN[®]-CX II

Part No. 20977-040T-01, 20978-040T-01, 20976-040E-01

Test Report

Product Specification no. PRS-2403

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Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of CABLINE-CX II Connector in accordance with PRS-2403.

2. Specimen

- (1) CABLINE-CX II WITH COVER CABLE ASS'Y (Part No.20977-040T-01, Cable AWG#44)
CABLINE-CX II WITHOUT COVER CABLE ASS'Y (Part No.20978-040T-01, Cable AWG#44)
- (2) CABLINE-CX II RECEPTACLE ASS'Y (Part No. 20976-040E-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-2403.

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

5. Conclusion

All the specimens met the requirements of PRS-2403.

Table 1 Test Sequence and Sample Quantity

Test Item	Group												
	A	B	C	D	E	F	G	H	J	K	L	M	N
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					
D. W. Voltage					3,7		3,7	3,9					
Temperature Rising													1
Mating Force	1,5												
Un-mating Force	3,7												
Durability	4							4 (10cycles)					
Contact Retention Force		1,3											
Connector Lock			1										
Cable Retention Force	8												
Vibration				2									
Shock				4									
Thermal Shock					4								
High Temperature Life		2				2							
Humidity (Steady State)							4						
Humidity (Cycling)								6					
Salt Water Spray									2				
H2S Gas										2			
Solder ability											1		
Soldering Heat Resistance												1	
Sample Quantity	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 sequence in which tests are performed.

Table 2-1 Test result

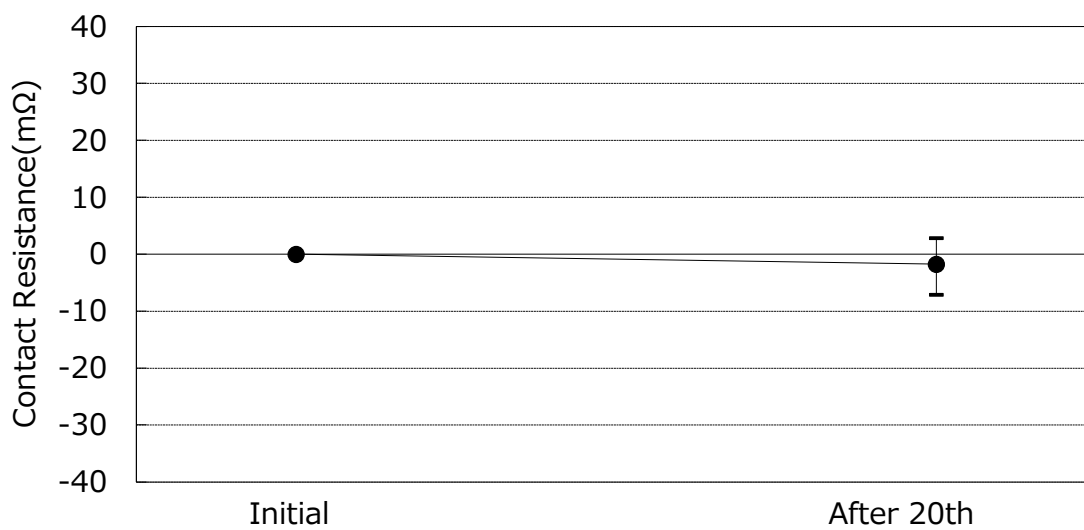
Test Item	Measurements		Spec.	Set	n	DATA					Judge.	
						AVE.	MAX.	MIN.	s	X±3s		
A Group Durability Cable retention force	Contact Resistance (mΩ)	Initial	AWG #44 1,080mΩ MAX.	5	200	928.258	975.79	872.72	28.635	1014.163	OK	
		After 20th Cycle	AWG #44 ΔR=40mΩMAX.			-1.744	2.86	-7.09	1.822	3.722	OK	
	GND Resistance (mΩ)	Initial	50mΩ MAX.	5	10	21.320	22.82	20.27	0.813	23.759	OK	
		After 20th Cycle	ΔR=40mΩMAX.			-0.198	1.00	-0.84	0.568	1.506	OK	
	40P	Mating Force (N)	Initial	30.0N MAX.	5	5	12.390	13.41	11.13	0.907	15.111	OK
			After 20th Cycle	30.0N MAX.			7.984	9.22	6.73	1.158	11.458	OK
		Un-mating Force (N)	Initial	4.0N MIN.	5	5	13.324	14.53	12.90	0.692	11.248	OK
			After 20th Cycle	4.0N MIN.			7.496	8.58	6.46	0.769	5.189	OK
	Cable retention force		19.60N MIN.	5	5	32.750	35.06	31.35	1.563	28.061	OK	
	B Group Contact Retention Force	PLUG	Initial	0.50N MIN.	—	20	It does not pull out, even if applies the power of 1.5 N to a terminal.					OK
After high-temperature testing			0.50N MIN.	—	20	It does not pull out, even if applies the power of 1.5 N to a terminal.					OK	
RECE		Initial	0.20N MIN.	—	20	0.528	0.60	0.46	0.038	0.414	OK	
		After high-temperature testing	0.20N MIN.	—	20	0.423	0.51	0.35	0.041	0.300	OK	
C Group Connector Lock	Initial		The lock does not damage and cancel.	5	5	No abnormality					OK	
D Group Vibration & Shock	Contact Resistance (mΩ)	Initial	AWG #44 1,080mΩ MAX.	5	200	925.731	975.81	872.11	25.687	1002.792	OK	
		After Vibration	AWG #44 ΔR=40mΩMAX.			-1.122	7.18	-11.88	3.950	10.728	OK	
		After Shock				3.740	12.10	-2.84	3.138	13.154	OK	
	GND Resistance (mΩ)	Initial	50mΩ MAX.	5	10	22.169	23.68	20.93	0.830	24.659	OK	
		After Vibration	ΔR=40mΩMAX.			-0.471	0.74	-3.12	1.088	2.793	OK	
		After Shock				0.339	2.88	-2.28	1.239	4.056	OK	
	Electrical Discontinuity	During Vibration	1μsec. MAX.	5	5	No discontinuity					OK	
		During Shock				No discontinuity					OK	
	Appearance	After Vibration	No abnormality adversely affecting the performance shall occur.	5	5	No discontinuity					OK	
		After Shock				No discontinuity					OK	

Table 2-2 Test result

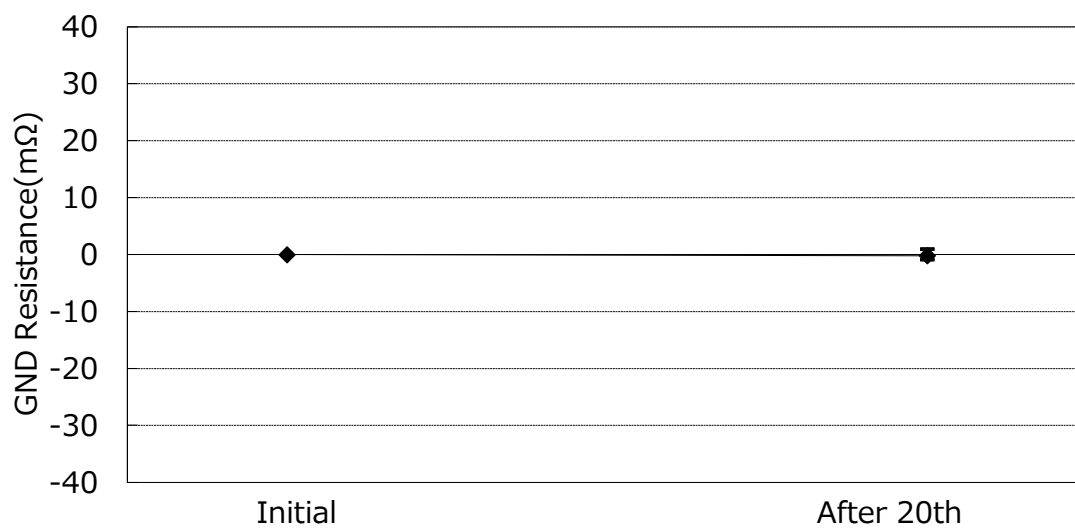
Test Item	Measurements		Spec.	Set	n	DATA					Judge.
						AVE.	MAX.	MIN.	s	X±3s	
E Group Thermal Shock	Contact Resistance (mΩ)	Initial	AWG #44 1,080mΩ MAX.	5	200	916.019	966.41	875.92	25.172	991.535	OK
		After Testing	AWG #44 ΔR=40mΩMAX.			2.829	7.03	-1.60	1.795	8.214	OK
	GND Resistance (mΩ)	Initial	50mΩ MAX.	5	10	21.764	23.31	20.42	0.946	24.602	OK
		After Testing	ΔR=40mΩMAX.			0.422	3.17	-1.98	1.624	5.294	OK
F Group High Temp. Life	Contact Resistance (mΩ)	Initial	AWG #44 1,080mΩ MAX.	5	200	924.674	978.72	866.58	26.608	1004.498	OK
		After Testing	AWG #44 ΔR=40mΩMAX.			1.068	3.94	-2.21	1.338	5.082	OK
	GND Resistance (mΩ)	Initial	50mΩ MAX.	5	10	21.435	23.57	19.65	1.228	25.119	OK
		After Testing	ΔR=40mΩMAX.			-0.356	2.29	-2.15	1.516	4.192	OK
G Group High Humidity Life (Steady State)	Contact Resistance (mΩ)	Initial	AWG #44 1,080mΩ MAX.	5	200	934.674	988.72	876.58	26.608	1014.498	OK
		After Testing	AWG #44 ΔR=40mΩMAX.			-2.943	2.89	-9.66	2.276	3.885	OK
	GND Resistance (mΩ)	Initial	50mΩ MAX.	5	10	21.320	22.82	20.27	0.813	23.759	OK
		After Testing	ΔR=40mΩMAX.			-0.198	1.00	-0.84	0.568	1.506	OK
	Insulation Resistance (MΩ)	Initial	1000MΩ MIN.	5	100	2.31×10 ⁴ MΩ MIN.					OK
		After Testing	500MΩ MIN.			8.45×10 ³ MΩ MIN.					OK
D.W.Voltage	Initial	No creeping discharge, flashover, or insulator breakdown shall occur.	5	100	No abnormality					OK	
	After Testing				No abnormality					OK	
H Group High Humidity Life (Cycling)	Contact Resistance (mΩ)	Initial	AWG #44 1,080mΩ MAX.	5	200	929.570	980.63	873.46	26.738	1009.784	OK
		After Durability	AWG #44 ΔR=40mΩMAX.			-2.059	-0.74	-3.39	0.483	-0.610	OK
		After Testing	AWG #44 ΔR=40mΩMAX.			-4.993	0.11	-10.26	1.952	0.863	OK
	GND Resistance (mΩ)	Initial	50mΩ MAX.	10	200	21.041	22.49	19.04	0.960	23.921	OK
		After Durability	AWG #44 ΔR=40mΩMAX.			0.535	2.59	-1.92	1.284	4.387	OK
		After Testing	ΔR=40mΩMAX.			0.102	1.76	-1.80	1.324	4.074	OK
	Insulation Resistance (MΩ)	Initial	1000MΩ MIN.	5	100	3.80×10 ⁵ MΩ MIN.					OK
		After Testing	500MΩ MIN.			1.01×10 ⁴ MΩ MIN.					OK
	D.W.Voltage	Initial	No creeping discharge, flashover, or insulator breakdown shall occur.	5	100	No abnormality					OK
		After Testing				No abnormality					OK

Table 2-3 Test result

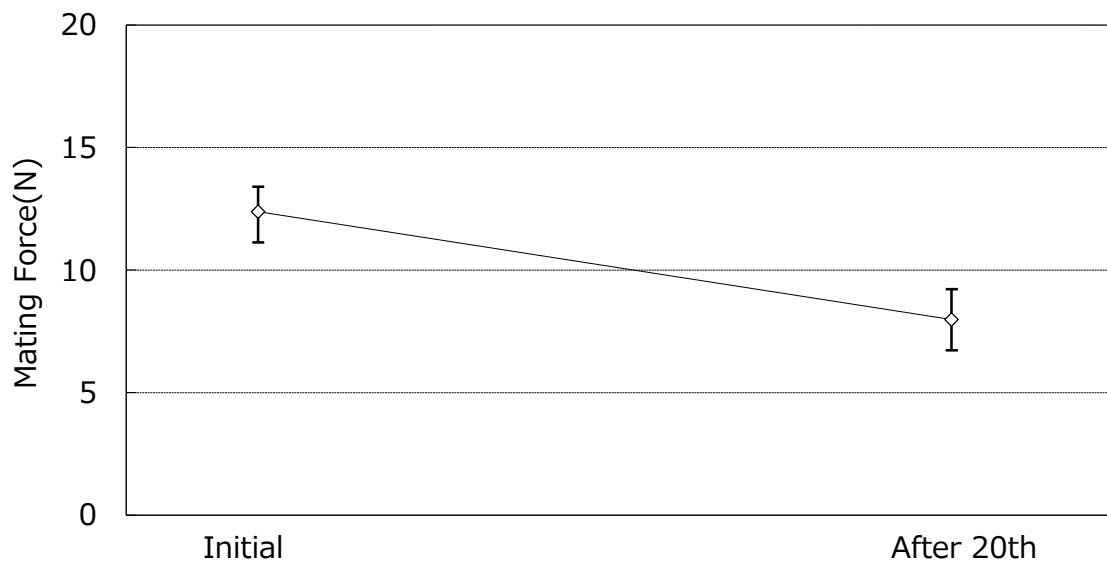
Test Item	Measurements		Spec.	Set	n	DATA					Judge
						AVE.	MAX.	MIN.	s	X±3s	
J Group Salt Water Spray	Contact Resistance (mΩ)	Initial	AWG #44 1,080mΩ MAX.	5	200	928.713	979.99	871.54	30.356	1019.781	OK
		After Testing	AWG #44 ΔR=40mΩMAX.			-0.091	7.53	-7.64	3.128	9.293	OK
	GND Resistance (mΩ)	Initial	50mΩ MAX.	5	10	22.846	24.74	21.29	1.043	25.975	OK
		After Testing	ΔR=40mΩMAX.			-0.341	1.09	-3.21	1.643	4.588	OK
K Group GAS (H2S)	Contact Resistance (mΩ)	Initial	AWG #44 1,080mΩ MAX.	5	200	935.289	979.76	874.65	26.289	1014.156	OK
		After Testing	AWG #44 ΔR=40mΩMAX.			-1.717	9.84	-10.59	4.945	13.118	OK
	GND Resistance (mΩ)	Initial	50mΩ MAX.	5	10	20.807	21.91	19.34	1.140	24.227	OK
		After Testing	ΔR=40mΩMAX.			0.080	2.06	-3.03	1.474	4.502	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 deformation nor defect adversely affecting the performance occur.	10	10	No abnormality					OK
N Group Temperature Rise	AWG #44 0.15A/Pin (Total 6.0 A)		ΔT=30°C MAX.	5	5	ΔT= 12.1°C MAX.					OK



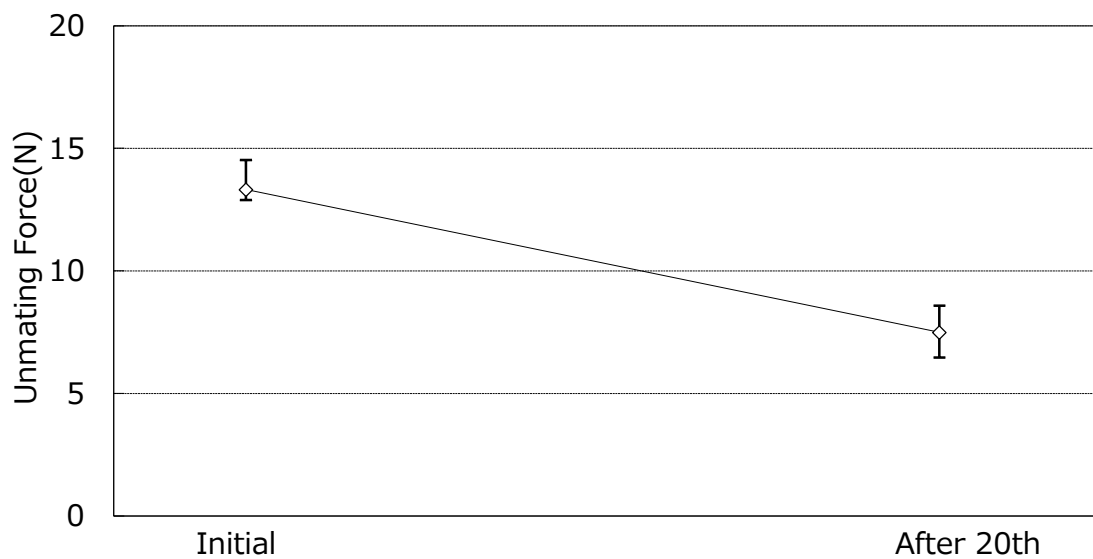
Graph1. A change of contact resistance (A Group:Durability)



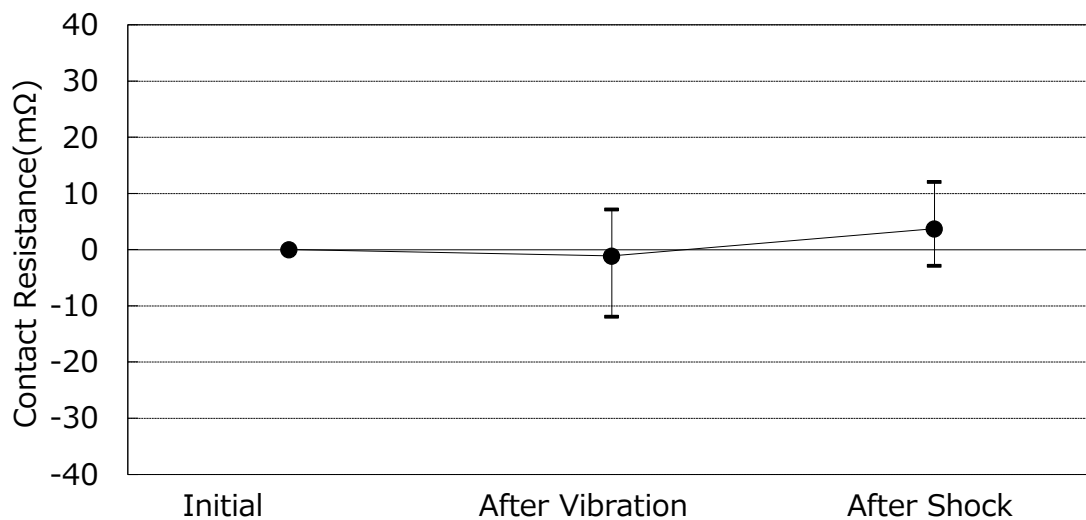
Graph2. A change of GND resistance (A Group:Durability)



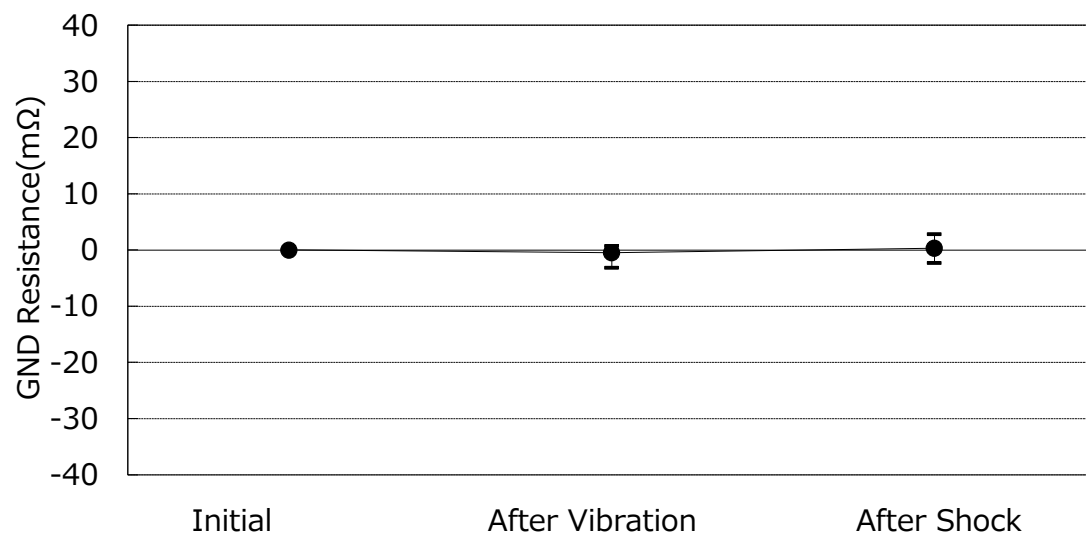
Graph3. A change of mating force (A Group:Durability)



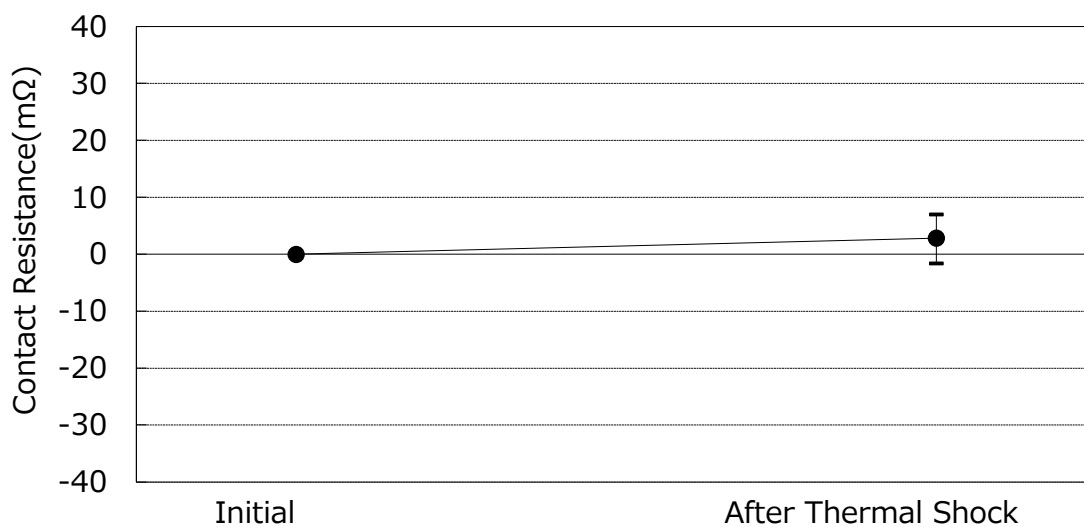
Graph4. A change of unmating force (A Group:Durability)



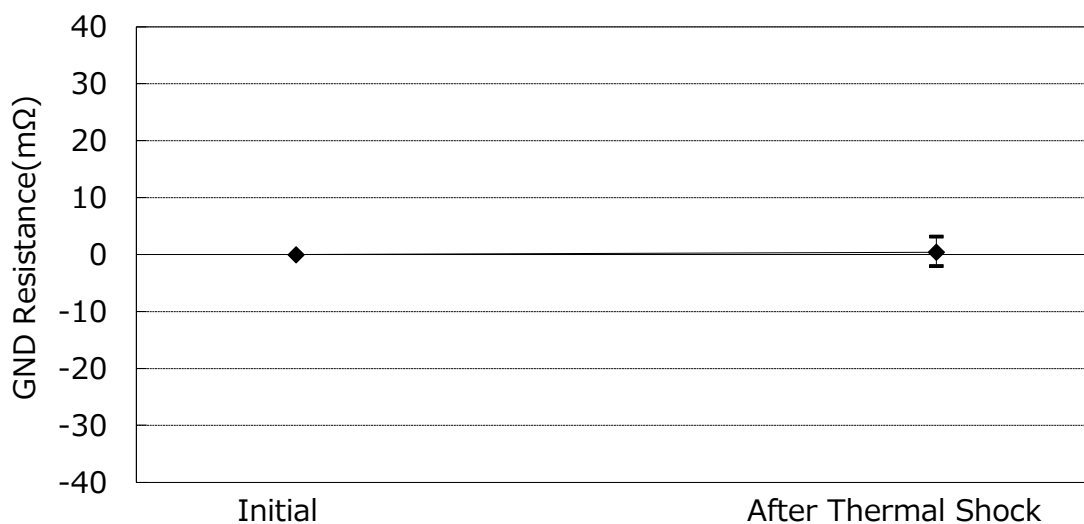
Graph5. A change of contact resistance (D Group:Vibration & Shock)



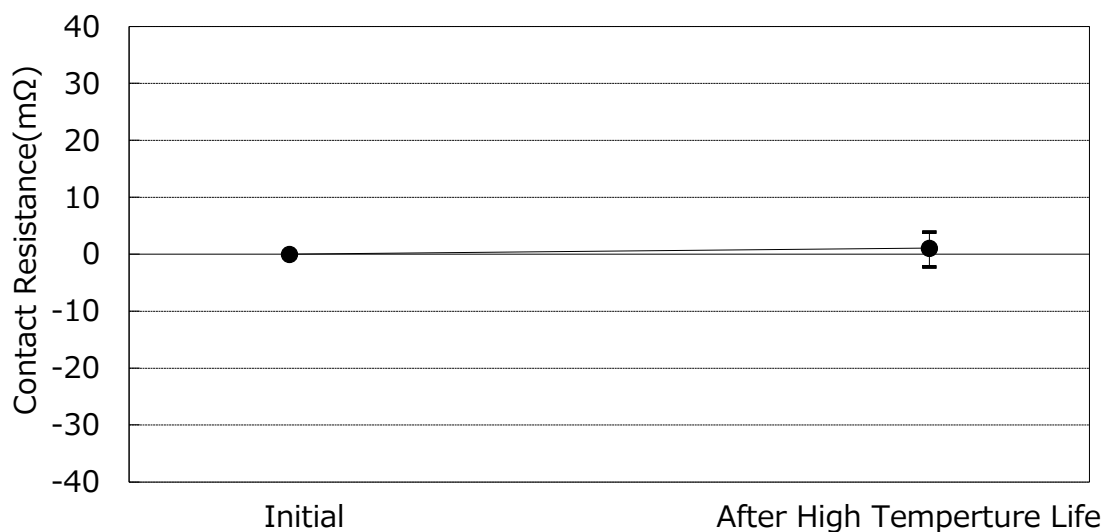
Graph6. A change of GND resistance (D Group:Vibration & Shock)



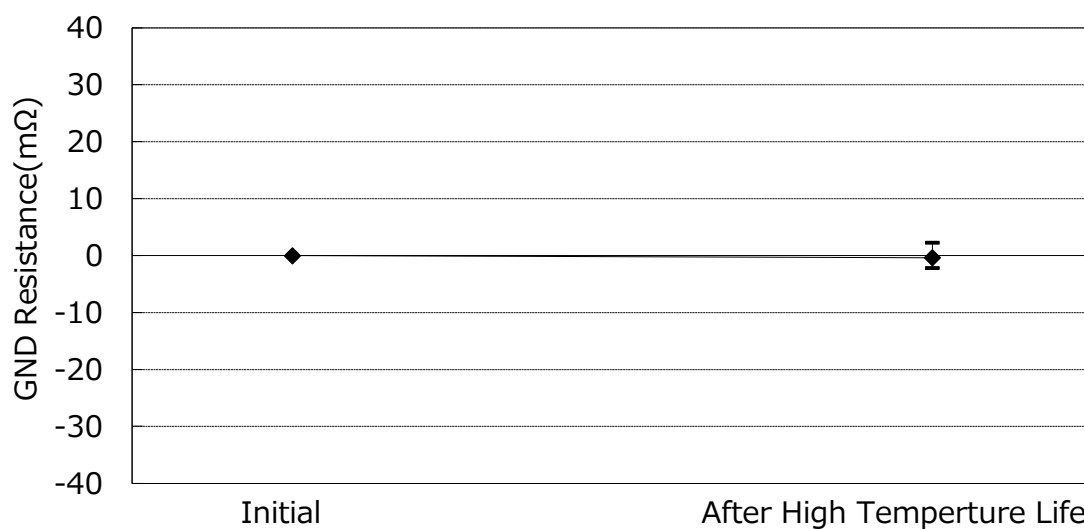
Graph7. A change of contact resistance (E Group:Thermal Shock)



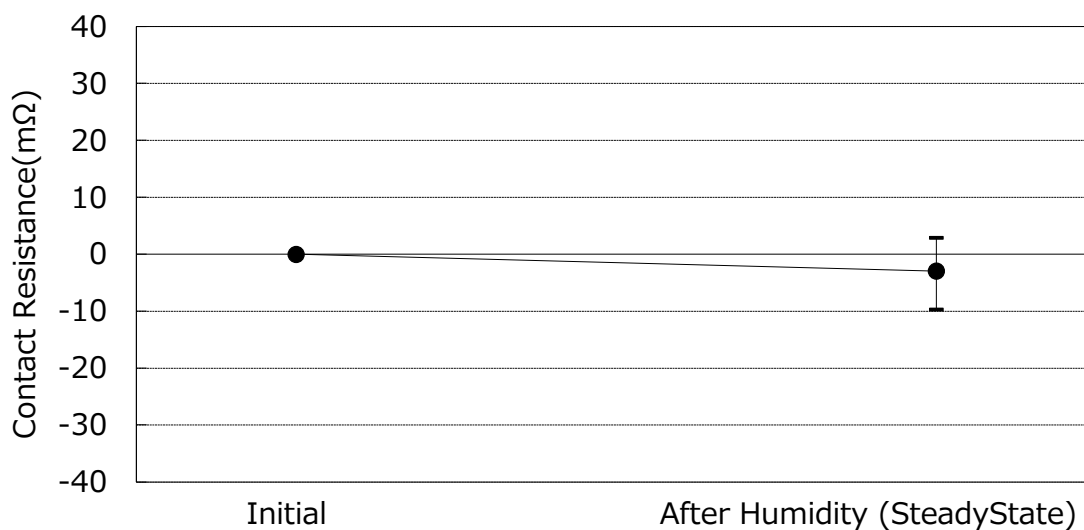
Graph8. A change of GND resistance (E Group:Thermal Shock)



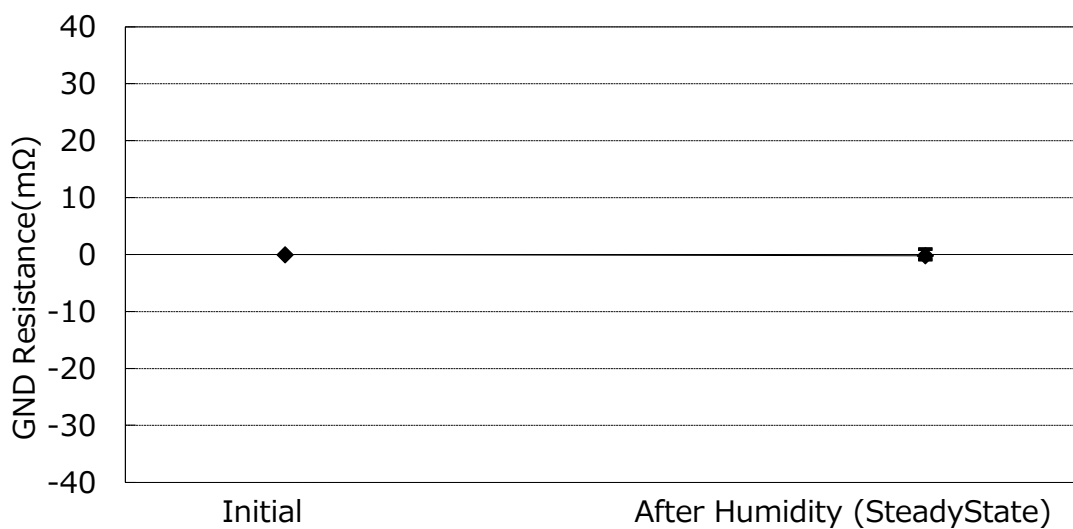
Graph9. A change of contact resistance (F Group:High Temperture Life)



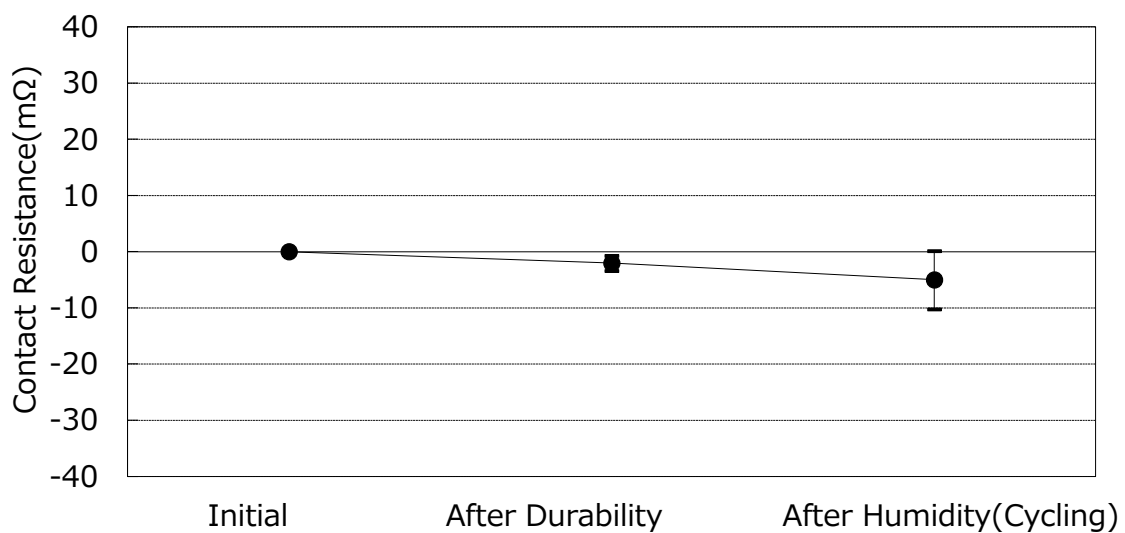
Graph10. A change of GND resistance (F Group:High Temperture Life)



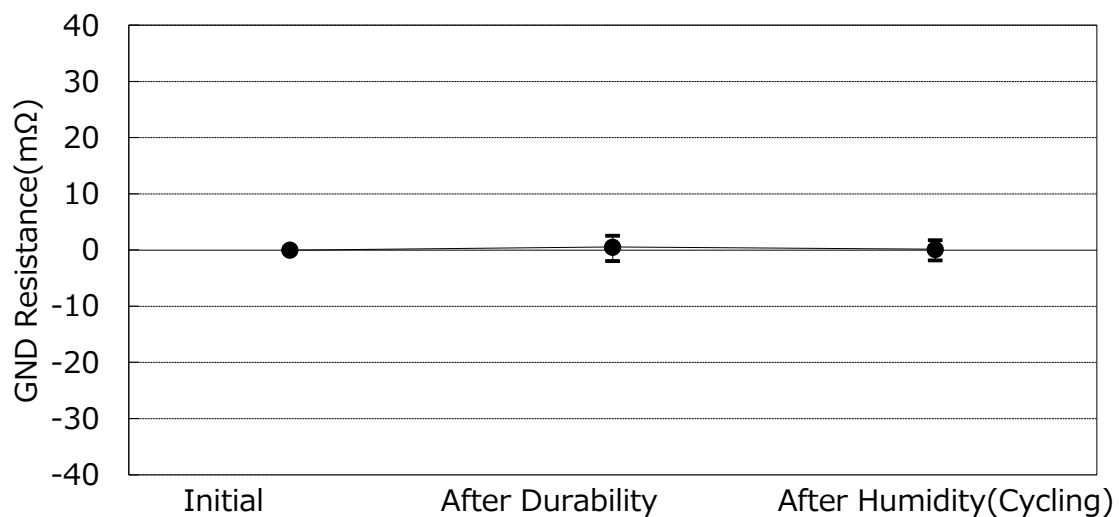
Graph11. A change of contact resistance
(G Group:Humidity (SteadyState))



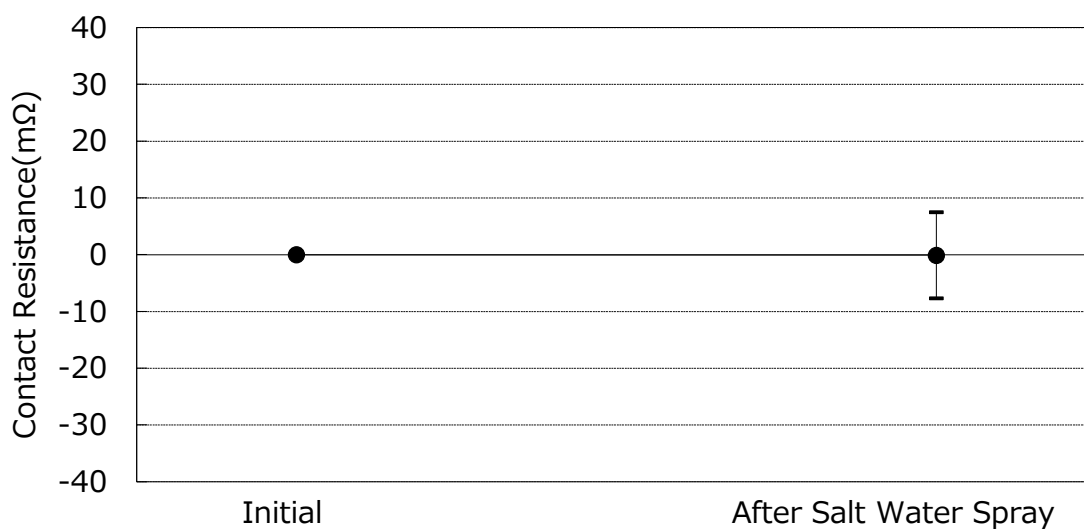
Graph12. A change of GND resistance
(G Group:Humidity (SteadyState))



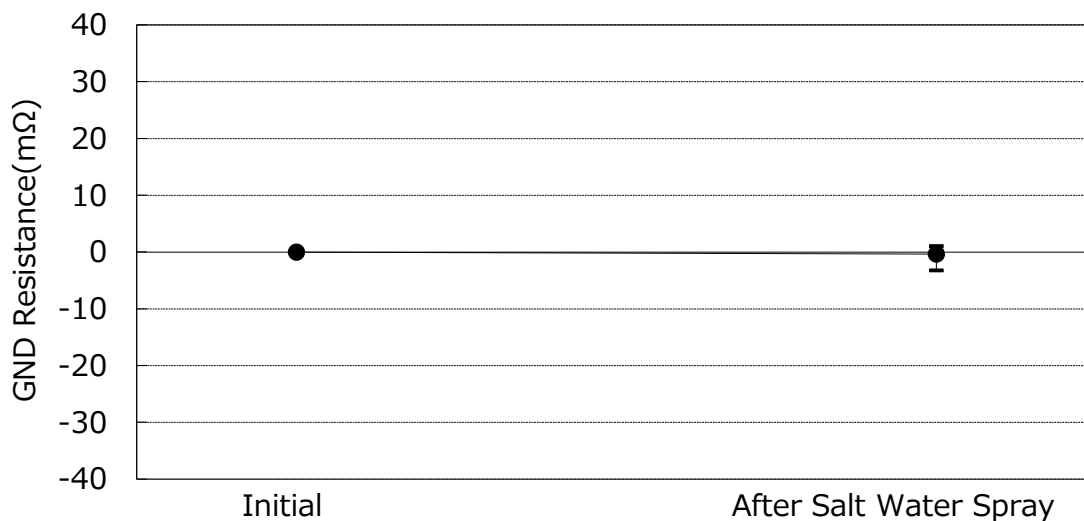
Graph13. A change of contact resistance
(H Group:Humidity(Cycling))



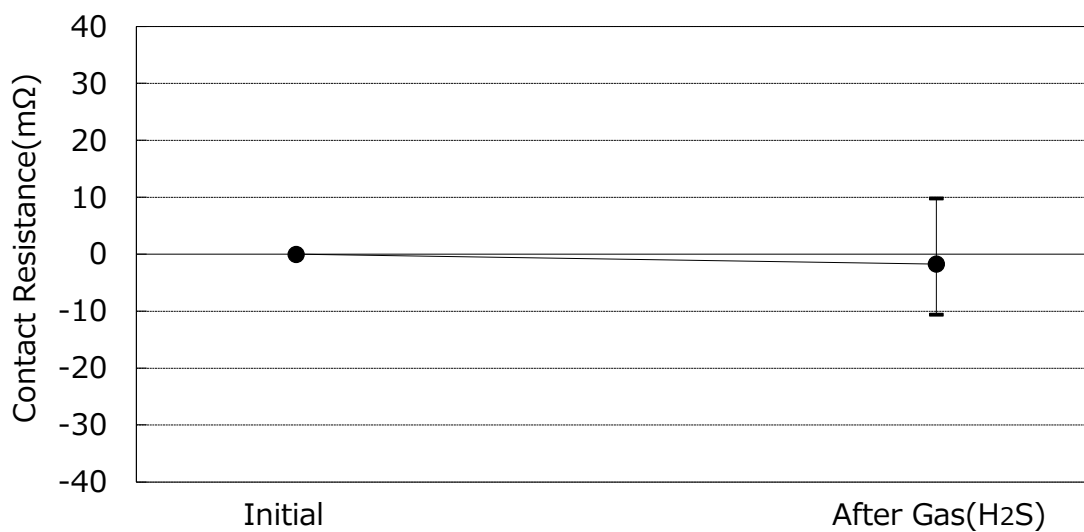
Graph14. A change of GND resistance
(H Group:Humidity(Cycling))



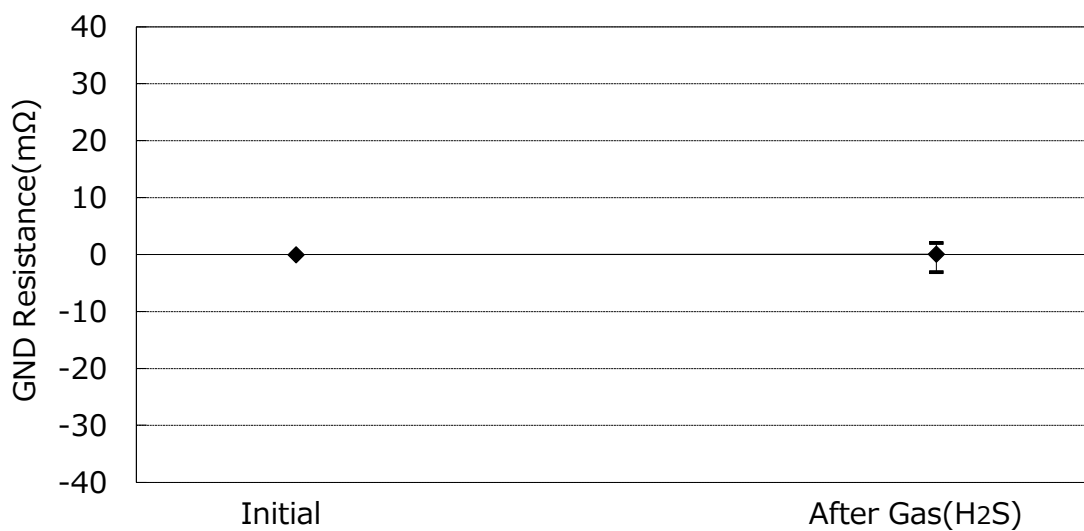
Graph15. A change of contact resistance
(J Group:Salt Water Spray)



Graph16. A change of GND resistance
(J Group:Salt Water Spray)



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



Graph18. A change of GND resistance
(K Group:H2S Gas)