CABLINE®-CBL

Part No. 20472-#**T-10R, Receptacle: 20474-0**E-12R

Test Report

Product Specification no. PRS-1421

0	T23009	2023/02/27	R. Morita	M. Nakamura	T. Masunaga
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of CABLINE-CBL Connector in accordance with PRS-1421.

2. Specimen

(1) CABLINE-CBL PLUG CABLE ASS'Y （Part No. 20472-#**T-10R）
- CABLINE-CBL PLUG HOUSING ASS'Y （Part No. 20473-0**T-10R）
- CABLINE-CBL PLUG SHELL A （Part No. 2618-0**1）
- CABLINE-CBL PLUG LATCH BAR （Part No. 2619-#**0）

(2) CABLINE-CBL RECEPTACLE ASS'Y （Part No. 20474-0**E-12R）

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-1421.
The “n” in the tables show the number of measurement points.

5. Conclusion

All the specimens met the requirements of PRS-1421.

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	1,3	1,3	1,5	1,5,7	1,3	1,3			
Insulation resistance							2,6	2,8					
Dielectric withstanding voltage							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											
Conn. Lock			1										
Cable retention force	8												
Vibration				2									
Shock				4									
Thermal shock					2								
High temperature life		2				2							
Humidity (Steady State)							4						
Humidity (Cycling)								6					
Saltwater spray									2				
H_2S 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.	5 pcs.	10 pcs.	10 pcs.	5 pcs.

※Numbers indicate test sequence in which tests are performed.

Table. 2-1 Test result

Test Item	Contents of Measurement		Specifications	Sample q'ty	n	Data					
						AVE.	MAX.	MIN.	s	X±3s	Judge
A Group Durability ↓ Cable Retention Force	Contact Resistance (mΩ)	Initial	AWG#42 700 mΩMAX	5	200	673.824	682.21	663.99	3.958	685.698	Pass
		After Testing	AWG#42 ΔR=40 mΩMAX.			0.052	4.65	-4.15	1.953	5.911	Pass
	Ground Resistance (mΩ)	Initial	50 mΩMAX.	5	10	15.548	15.80	15.31	0.176	16.076	Pass
		After Testing	ΔR=40 mΩMAX.			-0.102	0.37	-0.57	0.361	0.981	Pass
	30P Mating Force (N)	Initial	10.0 N MAX.	5	5	5.718	5.91	5.51	0.151	6.171	Pass
		After Testing	10.0 N MAX.			4.534	4.75	4.28	0.183	5.083	Pass
	30P Un-mating Force (N)	Initial	3.0 N MIN.	5	5	5.216	5.32	5.08	0.120	4.856	Pass
		After Testing	3.0 N MIN.			4.066	4.17	4.00	0.070	3.856	Pass
	30P Cable Retention Force(N)		14.7 N MIN.	5	5	70.550	72.54	66.31	2.522	62.984	Pass
	40P Mating Force (N)	Initial	12.0 N MAX.	5	5	7.582	7.82	7.31	0.186	8.140	Pass
		After Testing	12.0 N MAX.			5.052	5.25	4.90	0.141	5.475	Pass
	40P Un-mating Force (N)	Initial	4.0 N MIN.	5	5	6.474	6.74	6.28	0.172	5.958	Pass
		After Testing	4.0 N MIN.			4.628	4.92	4.51	0.166	4.130	Pass
	40P Cable Retention Force(N)		19.6 N MIN.	5	5	75.462	80.24	70.32	4.093	63.183	Pass
B Group High Temperature Life	RECE Contact Retention Force (N)	Initial	0.2 N MIN.	—	20	0.702	0.80	0.61	0.053	0.543	Pass
		After Testing	0.2 N MIN.	—	20	0.660	0.75	0.57	0.055	0.495	Pass

Table. 2-2 Test result

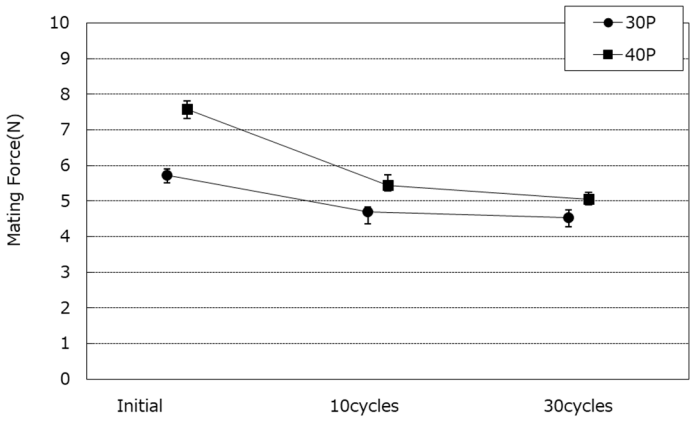
Test Item	Contents of Measurement		Specifications	Sample q'ty	n	Data					
						AVE.	MAX.	MIN.	s	X±3s	Judge
C Group Conn. Lock	Initial		The lock does not damage and cancel.	5	5	No Abnormality					Pass
D Group Vibration ↓ Shock	Contact Resistance (mΩ)	Initial	AWG#42 700 mΩMAX.	5	200	673.877	680.76	665.87	3.642	684.803	Pass
		After Vibration	AWG#42 ΔR=40 mΩMAX.			1.013	4.72	-3.20	1.696	6.101	Pass
		After Shock	AWG#42 ΔR=40 mΩMAX.			0.290	7.93	-7.99	4.239	13.007	Pass
	Ground Resistance (mΩ)	Initial	50 mΩMAX.	5	10	15.732	15.93	15.61	0.140	16.152	Pass
		After Vibration	ΔR=40 mΩMAX.			-0.432	0.04	-1.20	0.553	1.227	Pass
		After Shock	ΔR=40 mΩMAX.			-0.138	0.27	-0.36	0.258	0.636	Pass
	Electrical discontinuity	During Vibration	1 μsec. MAX.	5	5	No Electrical discontinuity					Pass
		During Shock				No Electrical discontinuity					Pass
	Appearance	After Vibration	No abnormality adversely affecting the performance shall occur.	5	5	No Abnormality					Pass
		After Shock				No Abnormality					Pass
E Group Thermal Shock	Contact Resistance (mΩ)	Initial	AWG#42 700 mΩMAX.	5	200	669.526	678.78	660.55	3.812	680.962	Pass
		After Testing	AWG#42 ΔR=40 mΩMAX.			1.092	5.58	-3.91	2.604	8.904	Pass
	Ground Resistance (mΩ)	Initial	50 mΩMAX.	5	10	15.404	15.78	14.92	0.331	16.397	Pass
		After Testing	ΔR=40 mΩMAX.			-0.156	0.15	-0.76	0.355	0.909	Pass

Table. 2-3 Test result

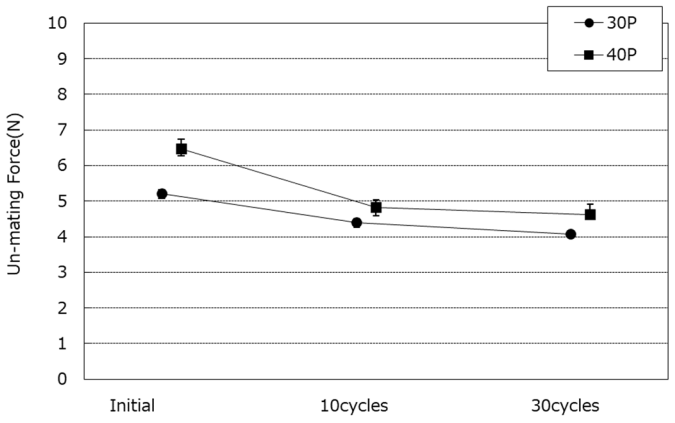
Test Item	Contents of Measurement		Specifications	Sample q'ty	n	Data					
						AVE.	MAX.	MIN.	s	X±3s	judge
F Group High Temperature Life	Contact Resistance (mΩ)	Initial	AWG#42 700 mΩMAX.	5	200	670.211	679.72	661.66	4.019	682.268	Pass
		After Testing	AWG#42 ΔR=40 mΩMAX.			1.476	6.91	-2.85	2.435	8.781	
	Ground Resistance (mΩ)	Initial	50 mΩMAX.	5	10	15.176	15.83	14.63	0.492	16.652	Pass
		After Testing	ΔR=40 mΩMAX.			0.010	0.30	-0.44	0.320	0.970	
G Group Humidity (Steady State)	Contact Resistance (mΩ)	Initial	AWG#42 700 mΩMAX.	5	200	675.198	684.07	667.23	3.216	684.846	Pass
		After Testing	AWG#42 ΔR=40 mΩMAX.			-0.575	3.73	-5.83	2.304	6.337	Pass
	Ground Resistance (mΩ)	Initial	50 mΩMAX.	5	10	15.160	15.83	14.65	0.441	16.483	Pass
		After Testing	ΔR=40 mΩMAX.			-0.040	0.56	-0.67	0.491	1.433	Pass
	Insulation Resistance (MΩ)	Initial	1,000 MΩMIN.	5	100	1.26×10^5 MΩMIN.					Pass
		After Testing	500 MΩMIN.			1.01×10^5 MΩMIN.					Pass
	D. W. Voltage	Initial	No abnormalities such as creeping discharge, flashover, insulator breakdown occur.	5	100	No Abnormality					Pass
		After Testing				No Abnormality					Pass
H Group Humidity (Cycling)	Contact Resistance (mΩ)	Initial	AWG#42 700 mΩMAX.	5	200	670.494	678.50	665.18	2.712	678.630	Pass
		After Testing	AWG#42 ΔR=40 mΩMAX.			1.063	4.74	-3.21	1.718	6.217	Pass
	Ground Resistance (mΩ)	Initial	50 mΩMAX.	5	10	15.324	15.70	15.01	0.281	16.167	Pass
		After Testing	ΔR=40 mΩMAX.			0.324	1.23	-0.23	0.581	2.067	Pass
	Insulation Resistance (MΩ)	Initial	1,000 MΩMIN.	5	100	1.20×10^5 MΩMIN.					Pass
		After Testing	500 MΩMIN.			1.04×10^5 MΩMIN.					Pass
	D. W. Voltage	Initial	No abnormalities such as creeping discharge, flashover, insulator breakdown occur.	5	100	No Abnormality					Pass
		After Testing				No Abnormality					Pass

Table. 2-4 Test result

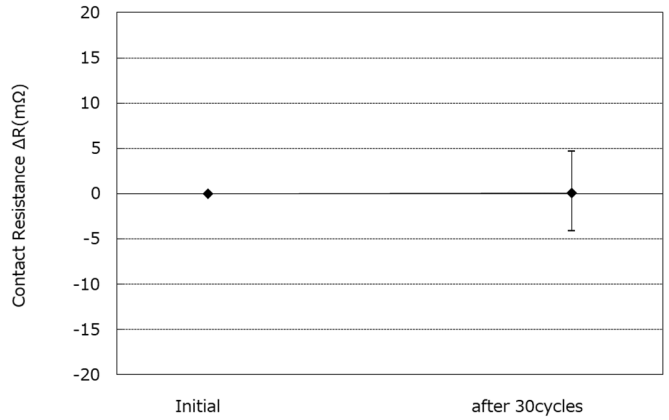
Test Item	Contents of Measurement		Specifications	Sample q'ty	n	Data					
						AVE.	MAX.	MIN.	s	X±3s	Judge
J Group Salt Water Spray	Contact Resistance (mΩ)	Initial	AWG#42 700 mΩMAX.	5	200	674.906	679.51	670.28	1.925	680.681	Pass
		After Testing	AWG#42 ΔR=40 mΩMAX.			3.266	8.00	-0.09	1.976	9.194	Pass
	Ground Resistance (mΩ)	Initial	50 mΩMAX.	5	10	15.086	15.85	14.44	0.675	17.111	Pass
		After Testing	ΔR=40 mΩMAX.			0.314	1.54	-0.50	0.787	2.675	Pass
K Group Gas (H_2S)	Contact Resistance (mΩ)	Initial	AWG#42 700 mΩMAX.	5	200	674.999	679.41	670.44	1.852	680.555	Pass
		After testing	AWG#42 ΔR=40 mΩMAX.			1.143	6.00	-3.93	2.389	8.310	Pass
	Ground Resistance (mΩ)	Initial	50 mΩMAX.	5	10	15.394	15.79	15.15	0.281	16.237	Pass
		After Testing	ΔR=40 mΩMAX.			-0.516	0.55	-1.06	0.635	1.389	Pass
L Group Solder ability	Appearance		More than 95 % of the dipped surface shall be evenly wet.	10	10	95 % and over was wet.					Pass
M Group Soldering Heat Resistance	Appearance		No abnormality adversely affecting the performance shall occur.	10	10	No Abnormality					Pass
N Group Temperature Rising	AWG#42: 0.24 A(40 P)		ΔT=30 ℃MAX.	5	5	ΔT= 27.7 MAX.					Pass



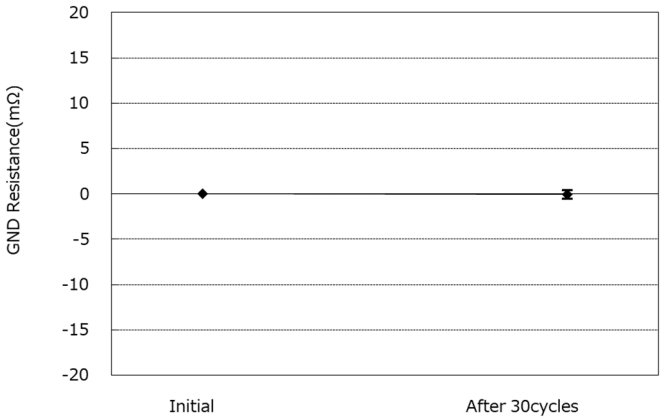
Graph 1. Mating force (A Group: Durability)



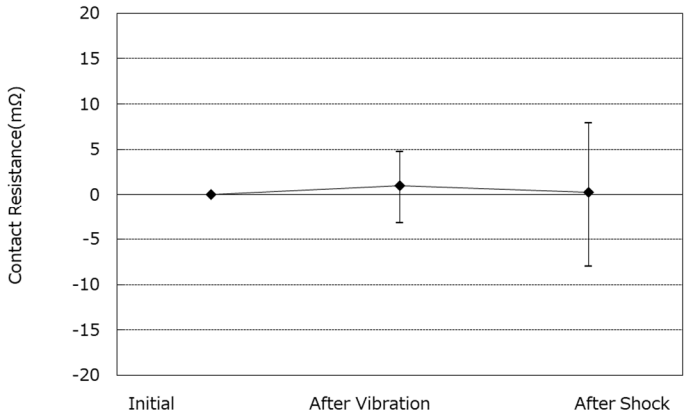
Graph 2. Un-mating force (A Group: Durability)



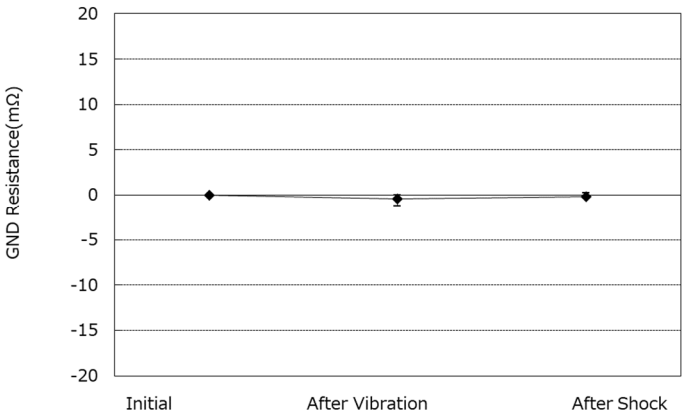
Graph 3. Contact resistance (A Group: Durability)



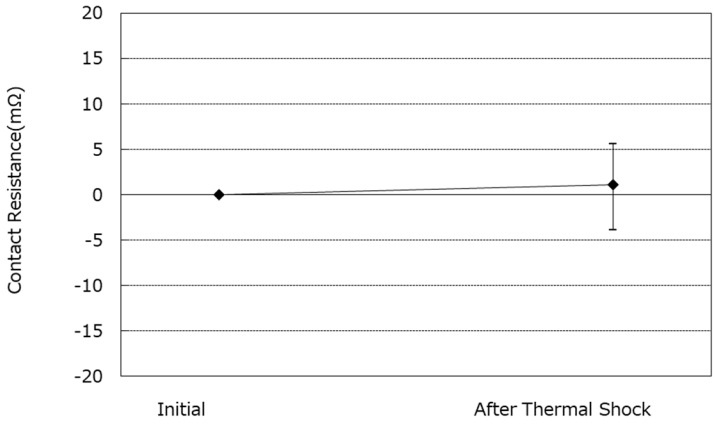
Graph 4. Ground resistance (A Group: Durability)



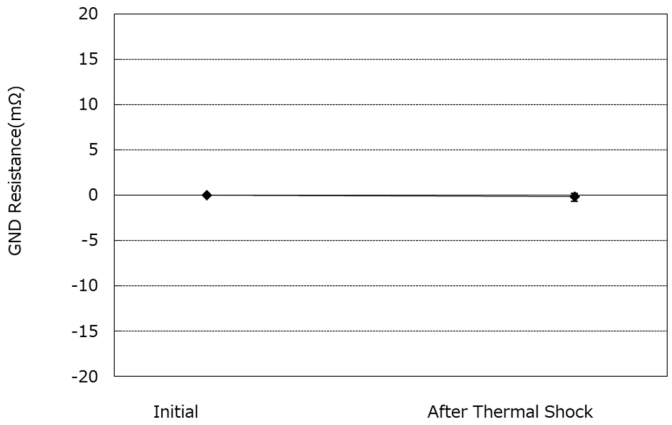
Graph 5. Contact resistance (D Group: Vibration/Shock)



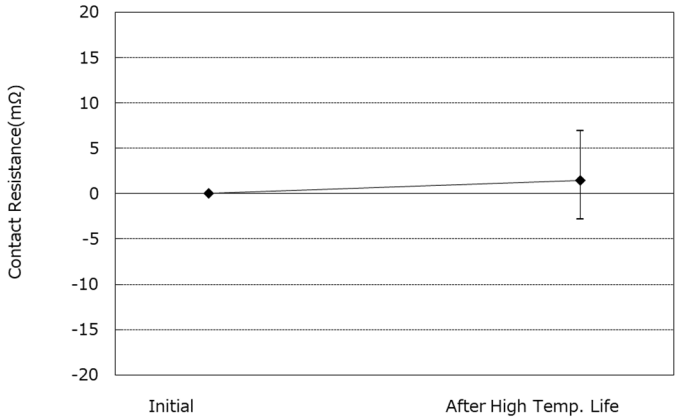
Graph 6. Ground resistance (D Group: Vibration/Shock)



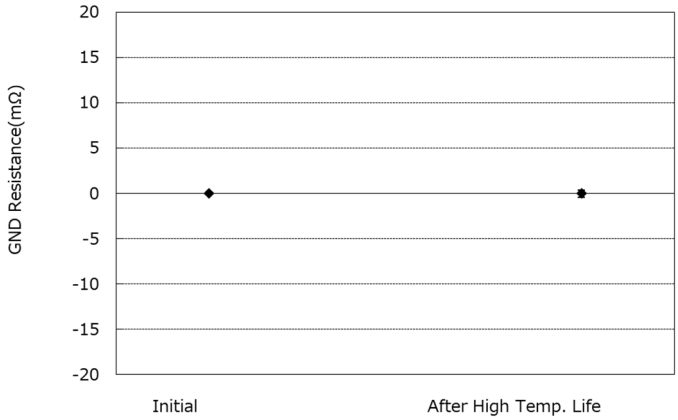
Graph 7. Contact resistance (E Group: Thermal shock)



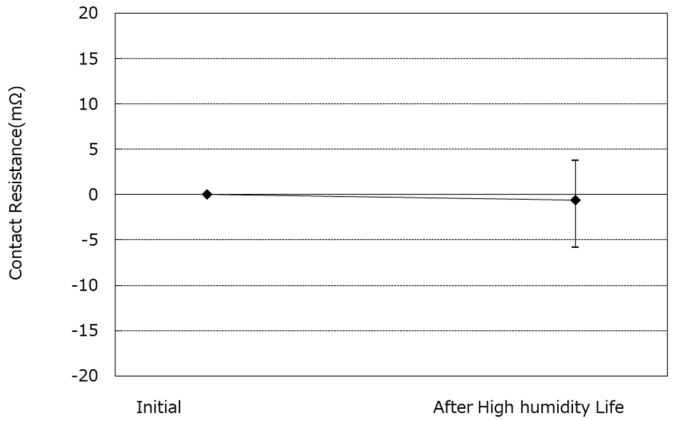
Graph 8. Ground resistance (E Group: Thermal shock)



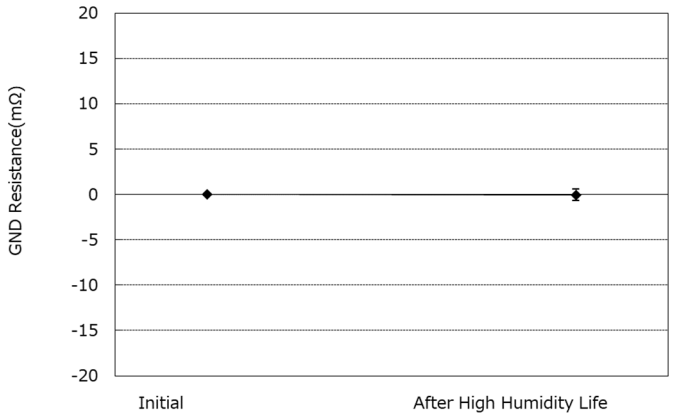
Graph 9. Contact resistance (F Group: High temperature life)



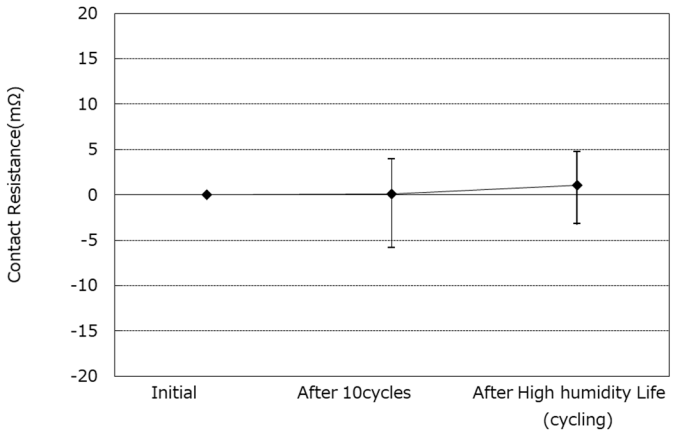
Graph 10. Ground resistance (F Group: High temperature life)



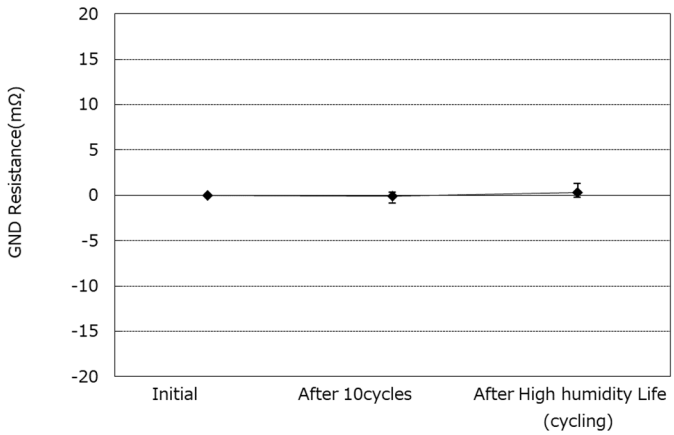
Graph 11. Contact resistance(G Group: Humidity (Steady state))



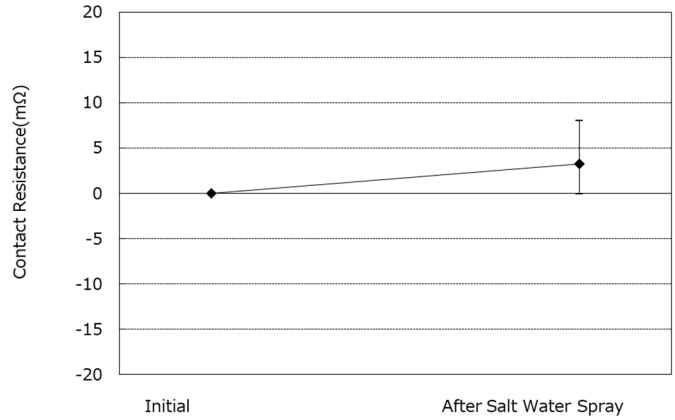
Graph 12. Ground resistance (G Group: Humidity (Steady state))



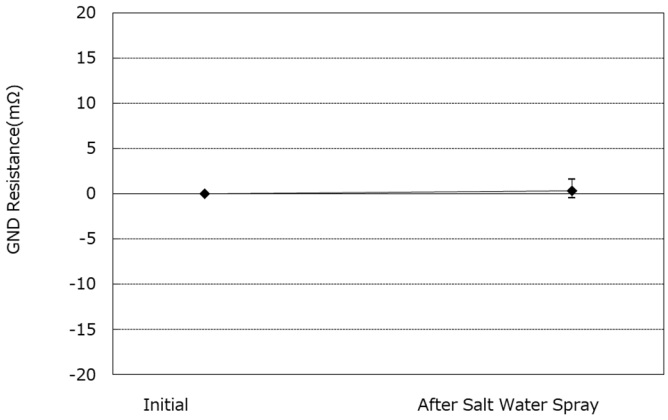
Graph 13. Contact resistance Graph(H Group: Humidity(Cycling))



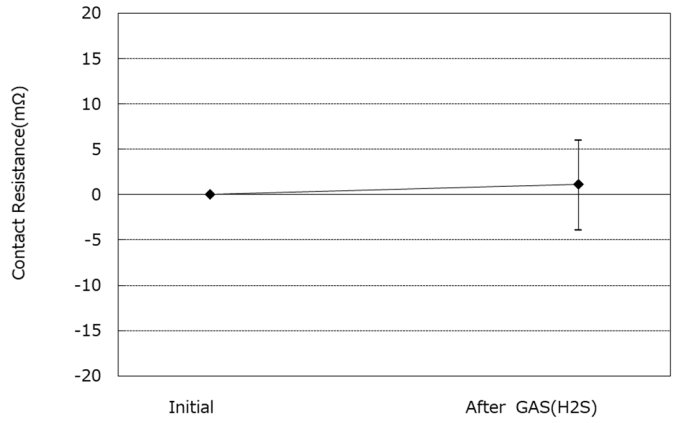
14. Ground resistance(H Group: Humidity(Cycling))



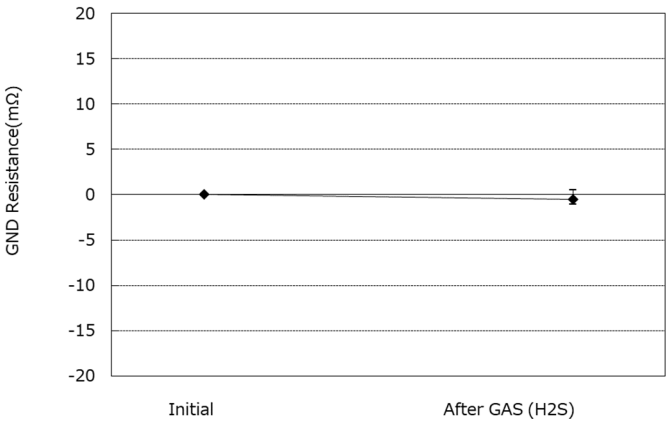
Graph 15. Contact resistance(J Group: Salt water spray)



Graph 16. Ground resistance (J Group: Salt water spray)



Graph 17. Contact resistance (K Group: Gas(H_2S))



Graph 18. Ground resistance (K Group: Gas(H_2S))