

CABLIN[®]-VSF

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

Test Report

Product Specification no. PRS-1878

5	T17136	August 24, 2017	Y.Sasa	T.Masunaga	H.Ikari
4	T16163	October 24, 2016	H.Ikari	-	Y.Shimada
3	T15095	July 7, 2015	H.Ikari	Y.Shimada	E.Kawabe
2	T14149	November 7, 2014	H.Aoki	J.Tateishi	E.Kawabe
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. 目的 Purpose

CABLINE-VSF コネクタの製品性能を製品規格（PRS-1878）に基づき下記評価を行う。

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

2. 試料 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 : 太洋工業株式会社 (Made by Taiyo Industrial Co.Ltd.)

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

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

3. 結論 Conclusion

全ての試料が、製品規格（PRS-1878）の必要条件を満足しております。

All the specimen met the requirements of PRS-1878.

4. 試験順序 Test Sequence

表 1 参照。See Table-1.

5. 結果 Result

表 2-1~2-3、グラフ 1~18 参照。

試験条件の詳細は、製品規格（PRS-1878）を参照。

表内の Set 数はサンプル数を意味し、n 数は測定データ数を意味する。

See Table.2-1~2-3 and Graph.1~18.

For the details of the testing conditions and requirements, see PRS-1878.

The Set number in a table means the number of samples,

and n means the number of measurement data.

表 1. 試験順序 (Table.1 Test Sequence)

試験項目 Test Item	グループ / Group								
	A	B	C	D	E	F	G	H	J
接触抵抗 C/T Resistance		2,6	1,3,5	1,3	1,3	1,5	1,5	1,3	1,3
絶縁抵抗 Insulation Resistance						2,6	2,6		
耐電圧 D. W. Voltage						3,7	3,7		
温度上昇 Temp. Life	1								
挿入力 Mating Force		1,5							
抜去力 Un mating Force		3,7							
耐久性 Durability		4							
振動 Vibration			2						
衝撃 Shock			4						
熱衝撃 Thermal Shock				2					
高温寿命 High Temp. Life					2				
湿度 (定常状態) Humidity (Steady State)						4			
湿度 (サイクリング) Humidity (Cycling)							4		
塩水噴霧 Salt Spray								2	
ガス (H ₂ S) Gas (H ₂ S)									2

※グループ表中の番号は、試験順序を示す。

The number of group is test sequence.

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表 2-1. 試験結果 (Table.2-1 Test result)

試験項目 Test Item	測定内容 Contents of Measurement		規格 Specifications	Set	n	データ/Data					判定 Judge	
						AVE.	MAX.	MIN.	s	X±3s		
A Group 温度上昇 Temperature Rising	0.3A/Contact 12.0A/Connector		$\Delta T=30^{\circ}\text{C MAX.}$	5	5	$\Delta T=14.1^{\circ}\text{C MAX.}$					OK	
B Group 耐久性 Durability	接触抵抗 Contact Resistance (m Ω)	初期 Initial	60m Ω MAX.	5	200	12.159	16.19	9.50	1.590	16.929	OK	
		30 回挿抜後 After Testing	$\Delta R=40\text{m}\Omega$ MAX.			-0.787	4.45	-5.12	1.910	4.943	OK	
	GND 抵抗 GND Resistance (m Ω)	初期 Initial	60m Ω MAX.	5	5	4.613	6.53	3.45	1.202	8.219	OK	
		30 回挿抜後 After Testing	$\Delta R=40\text{m}\Omega$ MAX.			-0.118	1.50	-3.00	1.721	5.045	OK	
	30P	挿入力 Mating Force (N)	初期 Initial	24.00N MAX.	5	5	6.164	6.39	5.93	0.232	6.860	OK
			30 回挿抜後 After Testing	24.00N MAX.			4.695	5.10	4.27	0.415	5.940	OK
		抜去力 Unmating Force (N)	初期 Initial	1.10N MIN.	5	5	4.255	4.37	4.07	0.165	3.760	OK
			30 回挿抜後 After Testing	1.10N MIN.			3.665	3.95	3.42	0.269	2.858	OK
	40P	挿入力 Mating Force (N)	初期 Initial	32.00N MAX.	5	5	8.432	8.59	8.24	0.178	8.966	OK
			30 回挿抜後 After Testing	32.00N MAX.			6.483	6.68	6.36	0.173	7.002	OK
		抜去力 Unmating Force (N)	初期 Initial	1.40N MIN.	5	5	5.099	5.14	5.04	0.055	4.934	OK
			30 回挿抜後 After Testing	1.40N MIN.			4.161	4.34	4.06	0.157	3.690	OK
C Group 振動 Vibration ↓ 衝撃 Shock	接触抵抗 Contact Resistance (m Ω)	初期 Initial	60m Ω MAX.	5	200	12.250	16.70	9.20	1.795	17.635	OK	
		振動後 After Vibration	$\Delta R=40\text{m}\Omega$ MAX.			0.206	4.54	-4.05	1.543	4.835	OK	
		衝撃後 After Shock	$\Delta R=40\text{m}\Omega$ MAX.			-0.330	4.68	-4.26	1.717	4.821	OK	
	GND 抵抗 GND Resistance (m Ω)	初期 Initial	60m Ω MAX.	5	5	4.943	6.23	3.92	0.866	7.541	OK	
		振動後 After Vibration	$\Delta R=40\text{m}\Omega$ MAX.			0.239	0.92	-0.06	0.384	1.391	OK	
		衝撃後 After Shock	$\Delta R=40\text{m}\Omega$ MAX.			-0.343	2.00	-2.24	1.475	4.082	OK	
	電氣的瞬断 Electrical discontinuity	振動試験中 During Vibration	$1\mu\text{sec. MAX.}$	5	5	瞬断無し No Electrical discontinuity					OK	
		衝撃試験中 During Shock				瞬断無し No Electrical discontinuity					OK	
	外観 Appearance	振動後 After Vibration	異常無き事 Abnormality shall not occur.	5	5	異常無し No Abnormality					OK	
		衝撃後 After Shock				異常無し No Abnormality					OK	

*温度上昇試験については、定格電流の 0.3A/Contact を隣接する 40 芯分 (コネクタ全体で 12.0A) 流した時の結果です。

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.

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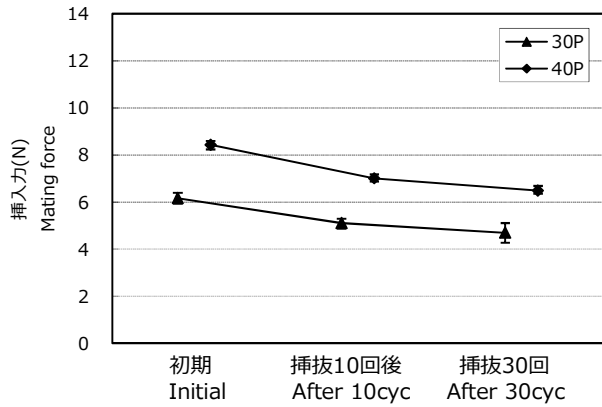
表 2-2. 試験結果(Table.2-2 Test result)

試験項目 Test Item	測定内容 Contents of Measurement		規格 Specifications	Set	N	データ/Data					判定 Judge
						AVE.	MAX.	MIN.	s	X±3s	
D Group 熱衝撃 Thermal Shock	接触抵抗 Contact Resistance (mΩ)	初期 Initial	60mΩMAX.	5	200	11.971	16.81	8.91	1.737	17.182	OK
		試験後 After Testing	ΔR=40mΩ MAX.			-0.147	4.78	-3.61	1.750	5.103	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	60mΩMAX.	5	5	4.440	6.35	3.29	1.024	7.512	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.004	2.24	-1.09	1.176	3.532	OK
E Group 高温寿命 High Temperature Life	接触抵抗 Contact Resistance (mΩ)	初期 Initial	60mΩMAX.	5	200	12.112	16.61	9.39	1.626	16.990	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.711	5.33	-4.49	1.748	5.955	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	60mΩMAX.	5	5	4.436	6.04	3.69	0.828	6.920	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.688	2.31	-0.68	1.093	3.967	OK
F Group 湿度 (定常状態) Humidity (Steady State)	接触抵抗 Contact Resistance (mΩ)	初期 Initial	60mΩMAX.	5	200	12.103	16.71	8.95	2.026	18.181	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.249	5.01	-3.87	1.849	5.796	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	60mΩMAX.	5	5	4.323	6.93	3.54	1.311	8.256	OK
		試験後 After Testing	ΔR=40mΩ MAX.			-0.096	1.53	-2.76	1.468	4.308	OK
	絶縁抵抗 Insulation Resistance (MΩ)	初期 Initial	1000MΩMIN.	5	100	1.2×10 ⁵ MΩMIN.					OK
		試験後 After Testing	500MΩMIN.			2.6×10 ⁴ MΩMIN.					OK
	耐電圧 D. W. Voltage	初期 Initial	異常無き事 Abnormality shall not occur.	5	100	異常無し No Abnormality					OK
		試験後 After Testing				異常無し No Abnormality					OK

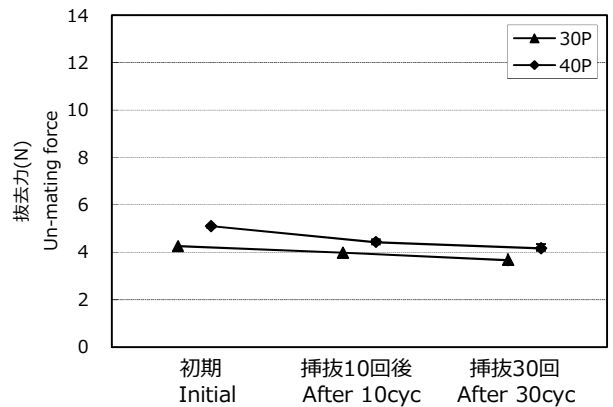
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表 2-3. 試験結果(Table.2-3 Test result)

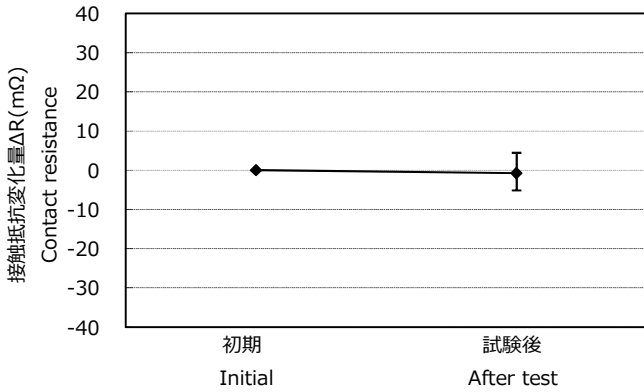
試験項目 Test Item	測定内容 Contents of Measurement	規格 Specifications		Set	N	データ/Data					判定 Judge
						AVE.	MAX.	MIN.	s	X±3s	
G Group 湿度 (サイクリング) Humidity (Cycling)	接触抵抗 Contact Resistance (mΩ)	初期 Initial	60mΩMAX.	5	200	11.794	15.51	9.07	1.494	16.276	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.204	4.43	-3.77	1.794	5.586	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	60mΩMAX.	5	5	4.386	5.19	3.84	0.500	5.886	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.019	2.19	-1.58	1.295	3.904	OK
	絶縁抵抗 Insulation Resistance (MΩ)	初期 Initial	1000MΩMIN.	5	100	1.1×10 ⁵ MΩMIN.					OK
		試験後 After Testing	500MΩMIN.			1.2×10 ⁴ MΩMIN.					OK
	耐電圧 D. W. Voltage	初期 Initial	異常無き事 Abnormality shall not occur.	5	100	異常無し No Abnormality					OK
		試験後 After Testing				異常無し No Abnormality					OK
H Group 塩水噴霧 Salt Water Spray	接触抵抗 Contact Resistance (mΩ)	初期 Initial	60mΩMAX.	5	200	12.609	16.31	9.02	1.715	17.754	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.140	4.17	-3.80	1.594	4.922	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	60mΩMAX.	5	5	4.746	6.02	4.09	0.752	7.002	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.420	2.08	-1.16	1.110	3.750	OK
J Group ガス(H ₂ S) Gas(H ₂ S)	接触抵抗 Contact Resistance (mΩ)	初期 Initial	60mΩMAX.	5	200	12.503	16.91	9.12	1.623	17.372	OK
		試験後 After testing	ΔR=40mΩ MAX.			0.342	5.82	-4.13	1.895	6.027	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	60mΩMAX.	5	5	4.463	6.23	3.32	0.989	7.430	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.666	1.79	-1.22	1.087	3.927	OK



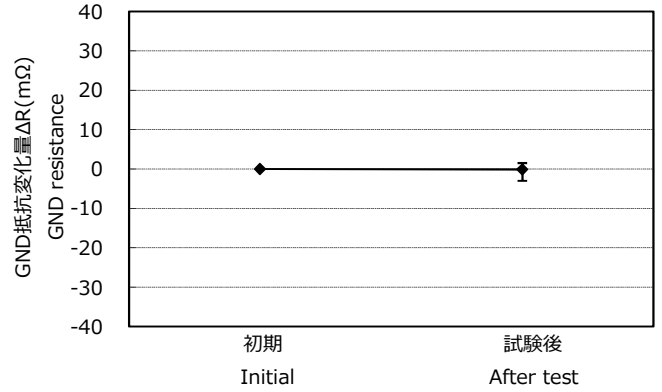
Graph1. 挿入力の変化 (B Group : 耐久性)
A change of mating force (B Group:Durability)



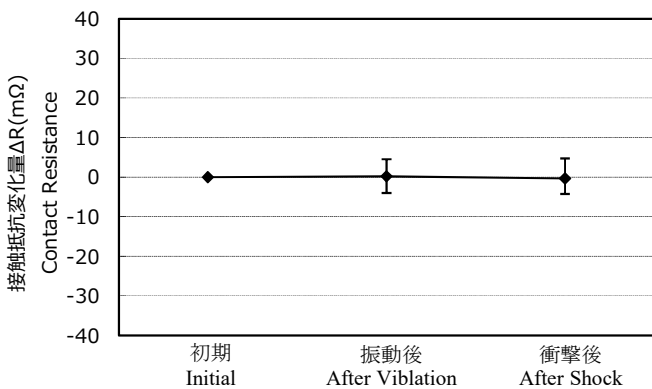
Graph 2. 抜去力の変化 (B Group : 耐久性)
A change of un mating force (B Group:Durability)



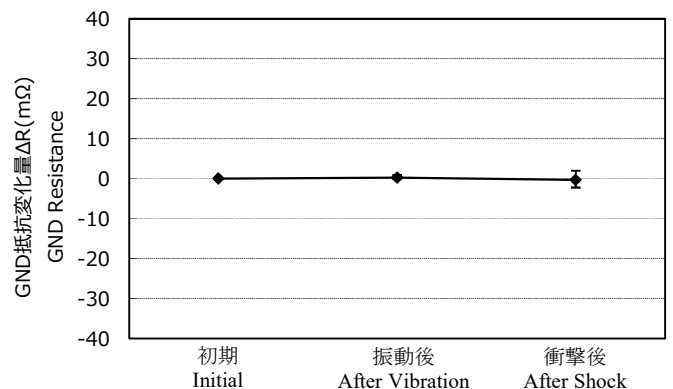
Graph3. 接触抵抗値の変化 (B Group : 耐久性)
A change of contact resistance (B Group:Durability)



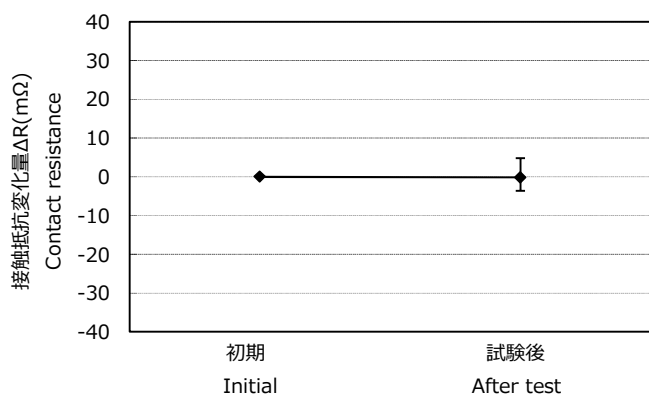
Graph4. GND 抵抗値の変化 (B Group : 耐久性)
A change of GND resistance (B Group:Durability)



Graph5. 接触抵抗値の変化 (C Group : 振動・衝撃)
A change of contact resistance(C Group:Vibration/Shock)

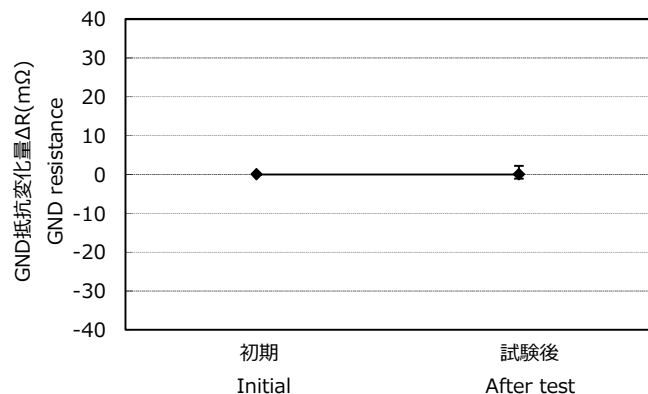


Graph6. GND 抵抗値の変化 (C Group : 振動・衝撃)
A change of GND resistance(C Group:Vibration/Shock)



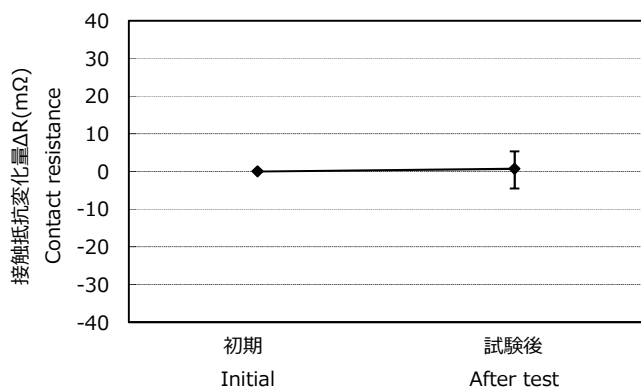
Graph7. 接触抵抗値の変化 (D Group : 熱衝撃)

A change of contact resistance (D Group:Thermal shock)



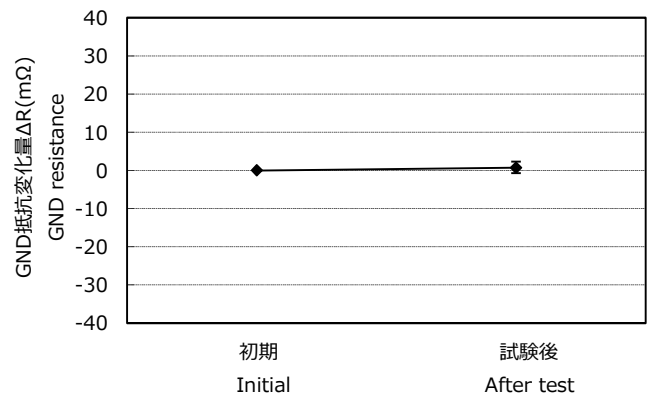
Graph8. GND 抵抗値の変化 (D Group : 熱衝撃)

A change of GND resistance (D Group:Thermal shock)



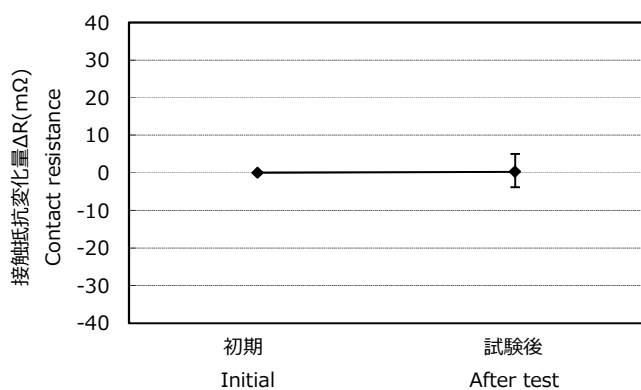
Graph9. 接触抵抗値の変化 (E Group : 高温寿命)

A change of contact resistance (E Group:High temp.life)



Graph10. GND 抵抗値の変化 (E Group : 高温寿命)

A change of GND resistance (E Group:High temp.life)

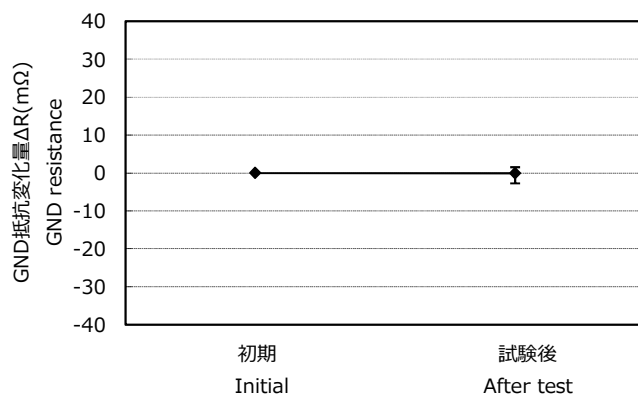


Graph11. 抵抗値の変化

(F Group : 湿度(定常状態))

A change of contact resistance

(F Group: Humidity(Steady state))

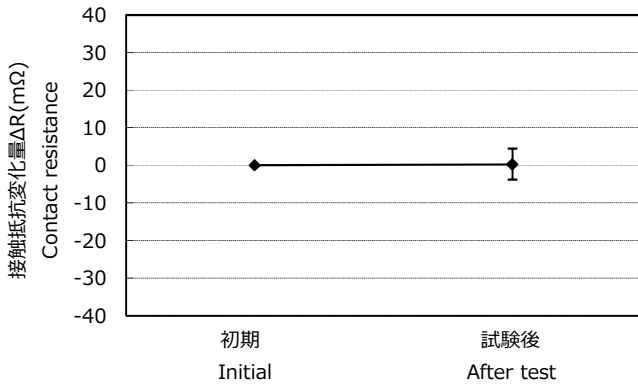


Graph12. GND 抵抗値の変化

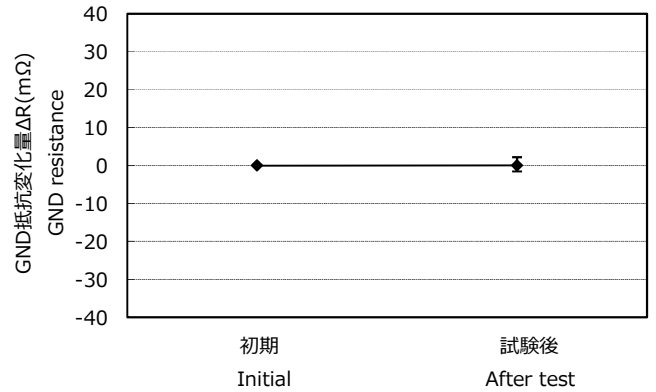
(F Group : 湿度(定常状態))

A change of GND resistance

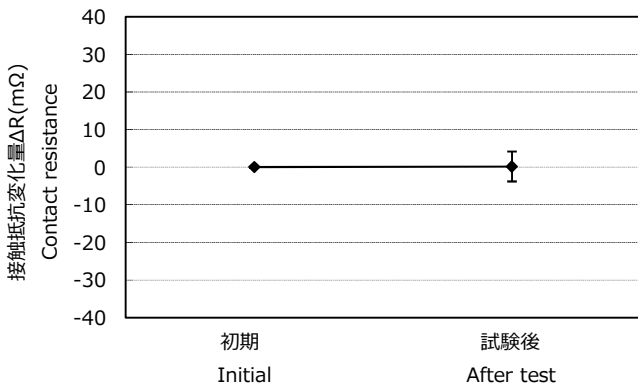
(F Group: Humidity(Steady state))



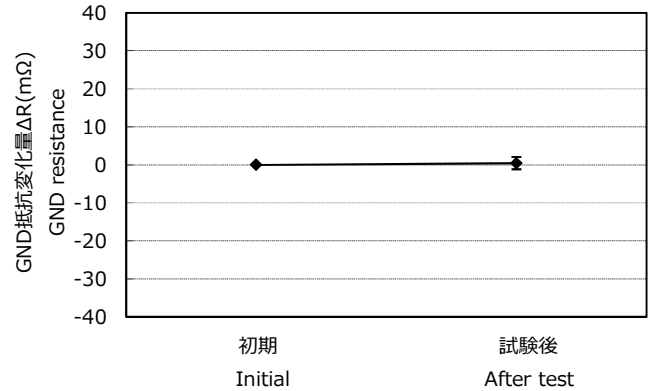
Graph 13. 接触抵抗値の変化 (G Group : 湿度(サイクリング))
A change of contact resistance (G Group:Humidity(Cycling))



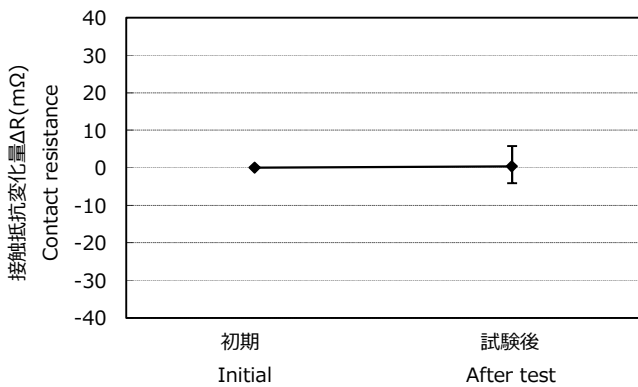
Graph14. GND 抵抗値の変化 (G Group : サイクリング)
A change of GND resistance (G Group:Humidity(Cycling))



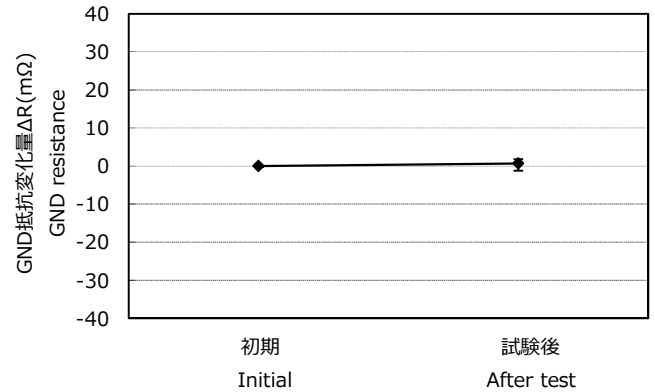
Graph15. 接触抵抗値の変化 (H Group : 塩水噴霧)
A change of contact resistance (H Group:Salt spray)



Graph16. GND 抵抗値の変化 (H Group : 塩水噴霧)
A change of GND resistance (H Group:Salt spray)



Graph17. 接触抵抗値の変化 (J Group : ガス(H₂S))
A change of contact resistance (J Group:Gas(H₂S))



Graph18. GND 抵抗値の変化 (JGroup : ガス(H₂S))
A change of contact resistance (J Group:Gas(H₂S))