

CABLIN[®]-VS Connector

Part No. Plug: 20453-3**T-### Receptacle: 20455-***E-#9#

Test Report

Product Specification no. PRS-1427

5	T18074	July 2, 2018	A.Koyanagi	T.Masunaga	H.Ikari
4	T18063	June 11, 2018	H.Aoki	T.Masunaga	H.Ikari
3	T17137	August 29, 2017	A.Koyanagi	T.Masunaga	H.Ikari
2	T17077	May 1, 2017	Y.Sasa	T.Masunaga	H.Ikari
Rev.	ECN	Date	Prepared by	Checked by	Approved by

CABLINE-VS Connector Test Report

1. Purpose

CABLINE-VS Connector コネクタの性能を PRS-1427 に基づいて評価する。

To evaluate the performance of CABLINE-VS Connector in accordance with PRS-1427.

2. Specimen

(1) CABLINE-VS PLUG for CABLE ASS'Y (Part No. 20453-3**T-###)

(2) CABLINE-VS RECEPTACLE ASS'Y (Part No. 20455-***E-#9#)

3. Test Sequence

全ての評価は表 1 の試験順序に従って行った。

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

4. Result

表 2-1~2-5、グラフ 1~18 参照。試験条件の詳細は PRS-1427 参照。n 数は測定データを意味する。

See Table 2-1 to 2-5, Graph 1 to 18. For the details of the testing conditions and requirements, see PRS-1427.

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

5. Conclusion

全ての資料が製品規格 (PRS-1427) の必要条件を満足した。

All the specimens met the requirements of PRS-1427.

Table 1 試験順序と試料数 / Test Sequence and Sample Quantity

試験項目 Test Item	グループ / Group											
	A	B	C	D	E	F	G	H	I	J	K	L
接触抵抗 Contact Resistance	2,6		1,3,5	1,3	1,3	1,5	1,5,7	1,3	1,3			
絶縁抵抗 Insulation Resistance						2,6	2,8					
耐電圧 D. W. Voltage						3,7	3,9					
温度上昇 Temperature rising												1
挿入力 Mating Force	1,5											
抜去力 Un-mating Force	3,7											
耐久性 Durability	4						4 (10 cycles)					
端子保持力 Contact Retention Force		1,3										
ケーブル保持力 Cable Retention Force	8											
耐振動性 Vibration			2									
耐衝撃性 Shock			4									
熱衝撃 Thermal Shock				4								
高温寿命 High Temperature Life		2			2							
湿度 (定常状態) Humidity (Steady State)						4						
湿度 (サイクリング) Humidity (Cycling)							6					
塩水噴射 Salt Water Spray								2				
硫化水素ガス H2S Gas									2			
半田付け性 Solder ability										1		
半田耐熱性 Soldering Heat Resistance											1	
試料数 Specimen Quantity.	5 pcs.	20 pos.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	10 pcs.	10 pcs.	5 pcs.

※グループ表中の番号は、試験順序を示す。 / Numbers indicate sequence in which tests are performed.

CABLIN-VS Connector Test Report

Table 2-1 試験結果/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 Judgment
						AVE.	MAX.	MIN	s	X±3s	
A Group 耐久性 ↓ ケーブル 保持力(N) Cable Retention Force	接触抵抗 C/T Resistance(mΩ)	初期 Initial	AWG#40 600mΩ MAX.	5	150	498.931	511.23	473.77	8.807	525.352	OK
		30回挿抜後 After Testing	AWG#40 ΔR=40mΩ MAX.			-3.951	0.29	-7.96	1.676	1.077	OK
	GND抵抗 GND Resistance(mΩ)	初期 Initial	50mΩMAX.	5	5	15.795	16.29	15.34	0.337	16.806	OK
		30回挿抜後 After Testing	ΔR=40mΩ MAX.			-0.688	0.13	-1.46	0.483	0.761	OK
	20P挿入力 Mating Force(N)	初期 Initial	9.45N MAX.	5	5	6.517	7.29	5.84	0.519	8.074	OK
		30回挿抜後 After Testing	9.45N MAX.	5	5	4.489	4.71	4.27	0.175	5.014	OK
	20P抜去力 Un mating Force(N)	初期 Initial	2.0N MIN.	5	5	4.756	4.86	4.64	0.115	4.411	OK
		30回挿抜後 After Testing	2.0N MIN.	5	5	4.038	4.29	3.86	0.225	3.363	OK
	20Pケーブル保持力 Cable Retention Force(N)		9.80N MIN.	5	5	83.944	86.39	78.46	3.225	74.269	OK
	30P挿入力 Mating Force(N)	初期 Initial	12.15N MAX.	5	5	7.922	8.09	7.75	0.129	8.309	OK
		30回挿抜後 After Testing	12.15N MAX.			5.592	5.68	5.43	0.095	5.877	OK
	30P抜去力 Un mating Force(N)	初期 Initial	3.0N MIN.	5	5	6.460	6.61	6.30	0.114	6.118	OK
		30回挿抜後 After Testing	3.0N MIN.			5.284	5.44	5.15	0.109	4.957	OK
	30Pケーブル保持力 Cable Retention Force(N)		14.7N MIN.	5	5	83.590	88.20	79.91	3.514	73.048	OK
	40P挿入力 Mating Force(N)	初期 Initial	16.2N MAX.	5	5	10.828	11.66	10.03	0.577	12.559	OK
		30回挿抜後 After Testing	16.2N MAX.			7.811	8.29	7.32	0.343	8.840	OK
	40P抜去力 Un mating Force(N)	初期 Initial	4.0N MIN.	5	5	9.008	9.79	8.30	0.530	7.418	OK
		30回挿抜後 After Testing	4.0N MIN.			7.916	8.20	7.61	0.187	7.355	OK
	40Pケーブル保持力 Cable Retention Force(N)		19.6N MIN.	5	5	85.636	90.53	80.69	3.668	74.632	OK
	50P挿入力 Mating Force(N)	初期 Initial	20.25N MAX.	5	5	13.404	13.62	13.19	0.167	13.905	OK
30回挿抜後 After Testing		20.25N MAX.	5	5	9.034	9.36	8.67	0.356	10.102	OK	
50P抜去力 Un mating Force(N)	初期 Initial	5.0N MIN.	5	5	11.481	11.77	11.22	0.275	10.656	OK	
	30回挿抜後 After Testing	5.0N MIN.	5	5	9.400	9.71	9.12	0.296	8.512	OK	
50Pケーブル保持力 Cable Retention Force(N)		24.50N MIN.	5	5	102.394	106.92	98.05	3.968	90.490	OK	

CABLIN-VS Connector Test Report

Table 2-2 試験結果/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 Judgment
						AVE.	MAX.	MIN.	s	X±3s	
B Group 高温寿命 High Temp. Life	端子保持力 (PLUG) C/T Retention Force (N)	初期 Initial	0.6N MIN.	—	30	1.8N の力を加えても、端子の抜け無し It does not pull out, even if applies the power of 1.8N to a terminal.					OK
		試験後 After Testing	0.6N MIN.	—	30	1.8N の力を加えても、端子の抜け無し It does not pull out, even if applies the power of 1.8N to a terminal.					OK
	端子保持力 (RECE) C/T Retention Force (N)	初期 Initial	0.2N MIN.	—	30	0.763	0.89	0.65	0.066	0.565	OK
		試験後 After Testing	0.2N MIN.	—	30	0.756	0.86	0.64	0.064	0.564	OK
C Group 振動 ↓ 衝撃 Shock	接触抵抗 C/T Resistance (mΩ)	初期 Initial	AWG#40 600mΩ MAX.	5	150	496.782	507.39	474.43	7.978	520.716	OK
		振動後 After Vibration	AWG#40 ΔR=40mΩ MAX.			-2.325	1.59	-6.71	1.515	2.220	OK
		衝撃後 After Shock	AWG#40 ΔR=40mΩ MAX.			-2.464	0.44	-5.89	1.473	1.955	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	50mΩ MAX.	5	5	16.047	16.49	15.62	0.322	17.013	OK
		振動後 After Vibration	ΔR=40mΩ MAX.			-0.719	0.70	-1.81	0.720	1.441	OK
		衝撃後 After Shock	ΔR=40mΩ MAX.			-0.977	0.20	-2.24	0.821	1.486	OK
	電氣的瞬断 Electrical discontinuity	振動試験中 During Vibration	1μsec. 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

CABLIN-VS Connector Test Report

Table 2-3 試験結果/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 Judgment
						AVE.	MAX.	MIN.	s	X±3s	
D Group 熱衝撃 Thermal Shock	接触抵抗 C/T Resistance (mΩ)	初期 Initial	AWG#40 600mΩ MAX.	5	150	498.894	515.32	471.78	9.969	528.801	OK
		試験後 After Testing	AWG#40 ΔR=40mΩ MAX.			-2.841	3.08	-7.97	2.289	4.026	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	50mΩ MAX.	5	5	15.483	15.90	14.71	0.432	16.779	OK
		試験後 After Testing	ΔR=40mΩ MAX.			-0.777	0.01	-1.30	0.463	0.612	OK
E Group 高温寿命 High Temp. Life	接触抵抗 C/T Resistance (mΩ)	初期 Initial	AWG#40 600mΩ MAX	5	150	500.635	509.96	478.03	7.998	524.629	OK
		試験後 After Testing	AWG#40 ΔR=40mΩ MAX.			3.852	11.51	-2.25	3.507	14.373	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	50mΩ MAX.	5	5	16.237	17.96	14.81	0.945	19.072	OK
		試験後 After Testing	ΔR=40mΩ MAX.			-0.648	0.16	-1.75	0.560	1.032	OK
F Group 湿度 (定常状態) Humidity (Steady State)	接触抵抗 C/T Resistance (mΩ)	初期 Initial	AWG#40 600mΩ MAX	5	150	499.083	510.11	472.20	9.478	527.517	OK
		試験後 After Testing	AWG#40 ΔR=40mΩ MAX.			-1.897	3.65	-7.72	2.693	6.182	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	50mΩ MAX.	5	5	16.416	17.33	15.58	0.577	18.147	OK
		試験後 After Testing	ΔR=40mΩ MAX.			-0.521	0.03	-1.46	0.545	1.114	OK
	絶縁抵抗 Insulation Resistance (MΩ)	初期 Initial	1000MΩ MIN.	5	75	2.2×10 ⁵ MΩMIN.					OK
		試験後 After Testing	500MΩ MIN.			1.4×10 ⁵ MΩMIN.					OK
	耐電圧 D. W. Voltage	初期 Initial	異常なきこと Abnormality shall not occur.	5	75	異常無し No Abnormality					OK
		試験後 After Testing				異常無し No Abnormality					OK

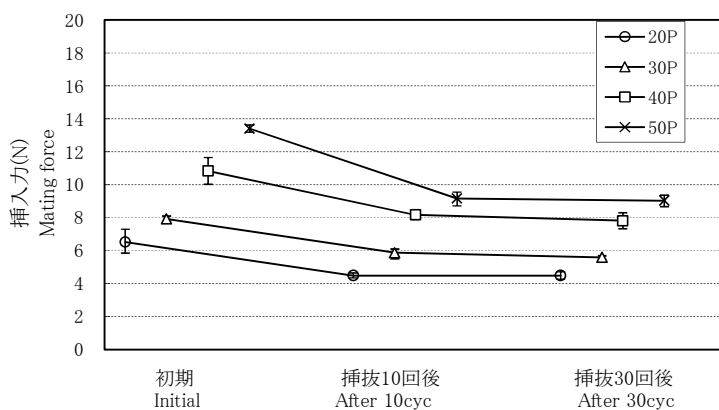
CABLIN-VS Connector Test Report

Table 2-4 試験結果/Test result

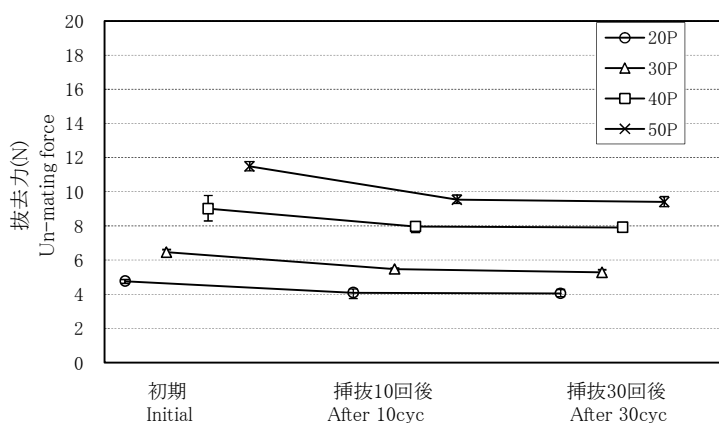
試験項目 Test Item	測定内容 Contents of Measurement		規格 Specifications	Set	N	データ Data					判定 Judgment
						AVE.	MAX.	MIN.	s	X±3s	
G Group 湿度 (サイクリン グ) Humidity (Cycling)	接触抵抗 C/T Resistance	初期 Initial	AWG#40 600mΩ MAX.	5	150	496.909	509.48	472.29	9.221	524.572	OK
		試験後 After Testing	AWG#40 ΔR=40mΩ MAX.			0.120	6.95	-5.17	2.441	7.443	OK
	GND 抵抗 GND Resistance (mΩ)	初期	50mΩ MAX.	5	5	15.863	17.41	14.37	0.869	18.47	OK
		試験後 After Testing	ΔR=40mΩ MAX.			-0.387	1.89	-3.18	1.348	3.657	OK
	絶縁抵抗 Insulation Resistance (MΩ)	初期 Initial	1000MΩ MIN.	5	75	1.6×10 ⁵ MΩMIN.					OK
		試験後 After Testing	500MΩ MIN.			1.1×10 ⁵ MΩMIN.					OK
	耐電圧 D. W. Voltage	初期 Initial	異常なきこと Abnormality shall not occur.	5	75	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 Spray)	接触抵抗 C/T Resistance (mΩ)	初期 Initial	AWG#40 600mΩ MAX.	5	150	497.63	507.43	473.18	8.797	524.021	OK
		試験後 After Testing	AWG#40 ΔR=40mΩ MAX.			1.285	6.96	-4.62	2.368	8.389	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	50mΩ MAX.	5	5	15.891	17.76	14.76	0.852	18.447	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.829	2.45	-0.50	1.076	4.057	OK
I Group ガス(H ₂ S) Gas(H ₂ S)	接触抵抗 C/T Resistance (mΩ)	初期 Initial	AWG#40 600mΩ MAX.	5	150	498.022	508.92	473.26	10.028	528.106	OK
		試験後 After testing	AWG#40 ΔR=40mΩ MAX.			-0.423	6.66	-5.77	2.325	6.552	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	50mΩ MAX.	5	5	17.178	18.19	15.86	0.872	19.794	OK
		試験後 After Testing	ΔR=40mΩ MAX.			-1.133	-0.13	-2.08	0.826	1.345	OK

Table 2-5 試験結果/Test result

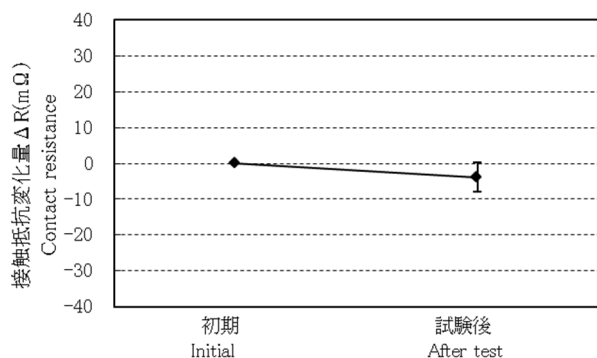
試験項目 Test Item	測定内容 Contents of Measurement	規格 Specifications	Set	N	データ Data					判定 Judgment
					AVE	MAX	MIN	s	X±3s	
J Group 半田付け性 Solder ability	外観 Appearance	95%以上濡れる事 More than 95% of the dipped surface shall be evenly wet.	10	10	95%以上濡れる Wet 95% MIN.					OK
K Group 半田耐熱性 Soldering Heat Resistance	外観 Appearance	異常なきこと Abnormality shall not occur.	10	10	異常無し No Abnormality					OK
L Group 温度上昇 Temp. Rising	AWG#40 0.3A(30P)	$\Delta T=30^{\circ}\text{C}\text{MAX.}$	5	5	$\Delta T=27.8^{\circ}\text{C}\text{MAX.}$					OK



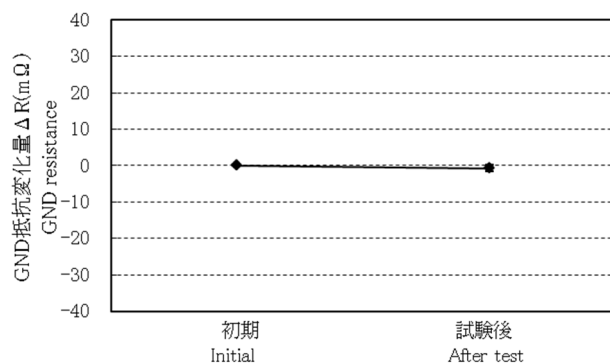
Graph 1 挿入力の変化 (A Group : 耐久性) /A change of mating force (A Group : Durability)



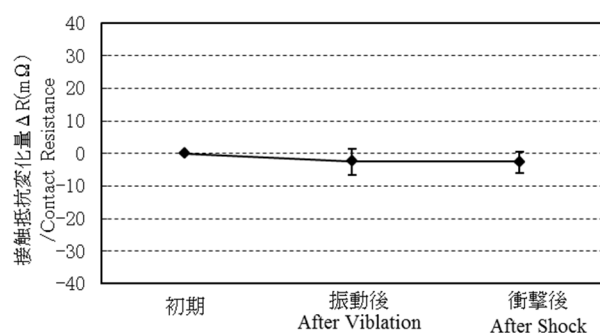
Graph 2 抜去力の変化 (A Group : 耐久性) /A change of un mating force (A Group : Durability)



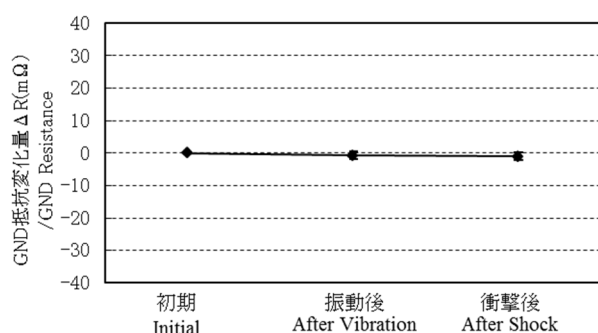
Graph 3 接触抵抗値の変化 (A Group : 耐久性)
A change of contact resistance (A Group : Durability)



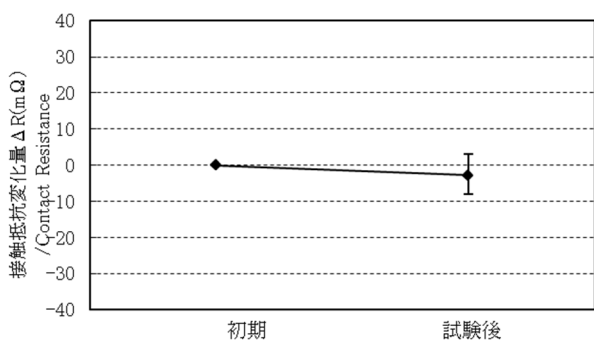
Graph 4 GND 抵抗値の変化 (A Group : 耐久性)
A change of GND resistance (A Group : Durability)



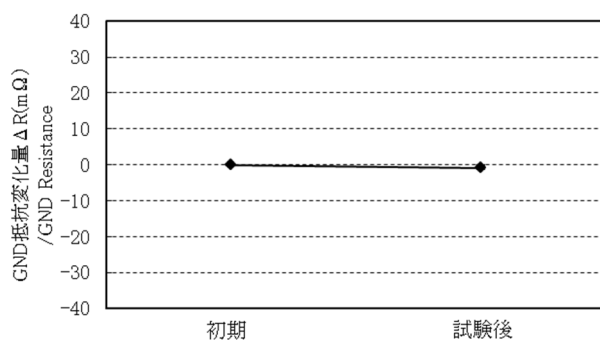
Graph 5 接触抵抗値の変化 (C Group : 振動・衝撃)
A change of contact resistance (C Group : Vibration/Shock)



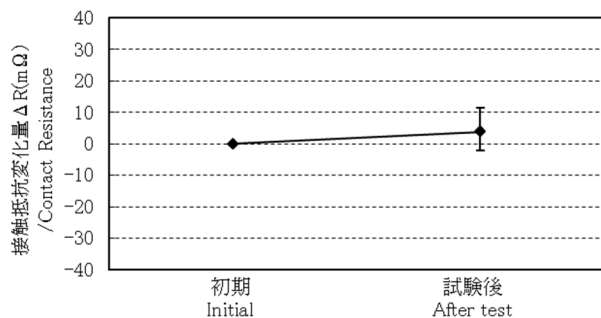
Graph 6 GND 抵抗値の変化 (C Group : 振動・衝撃)
A change of GND resistance (C Group : Vibration/Shock)



Graph 7 接触抵抗値の変化 (D Group : 熱衝撃)
A change of contact resistance (D Group : Thermal shock)

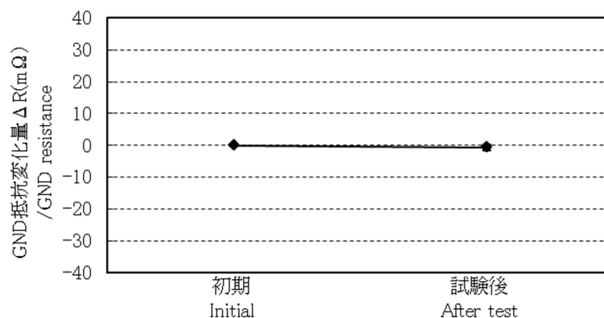


Graph 8 GND 抵抗値の変化 (D Group : 熱衝撃)
A change of GND resistance (D Group : Thermal shock)



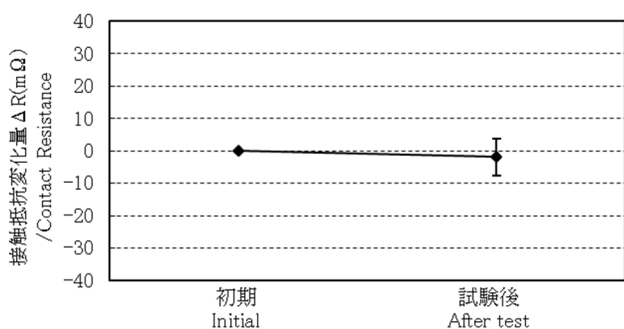
Graph 9 接触抵抗値の変化 (E Group : 高温寿命)

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



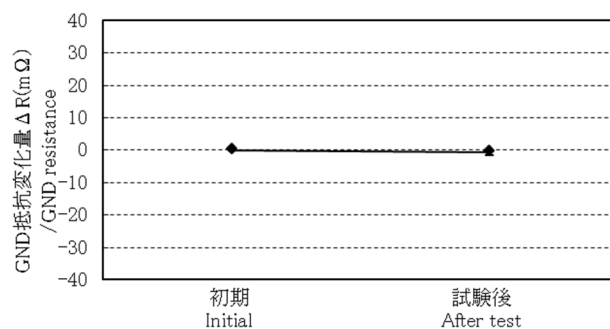
Graph 10 GND 抵抗値の変化 (E Group : 高温寿命)

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



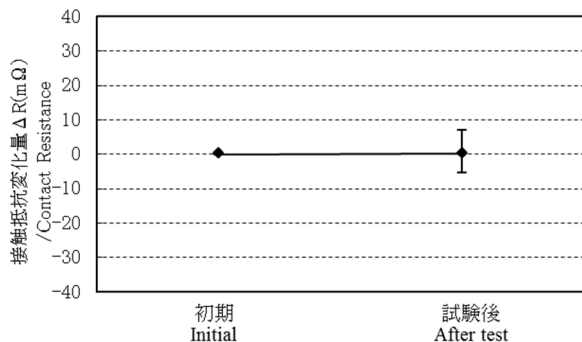
Graph 11 抵抗値の変化 (F Group : 湿度(定常状態))

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



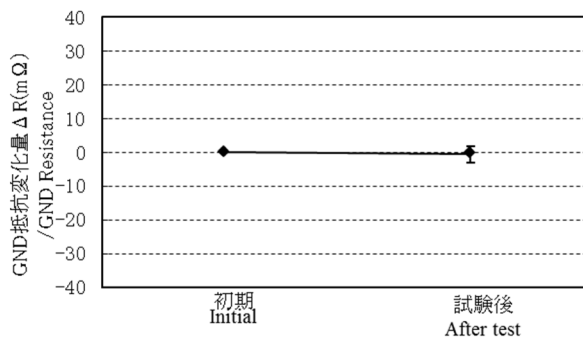
Graph 12 GND 抵抗値の変化 (F Group : 湿度(定常状態))

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))

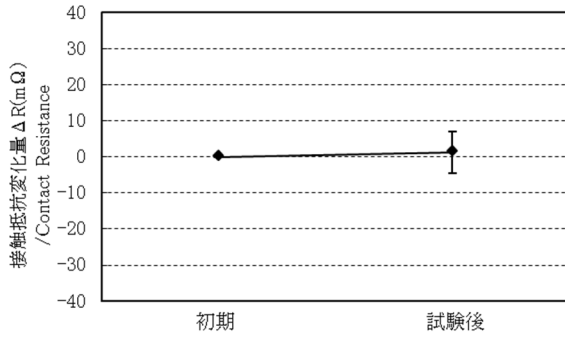
A change of contact resistance (G Group : Humidity(Cycling))



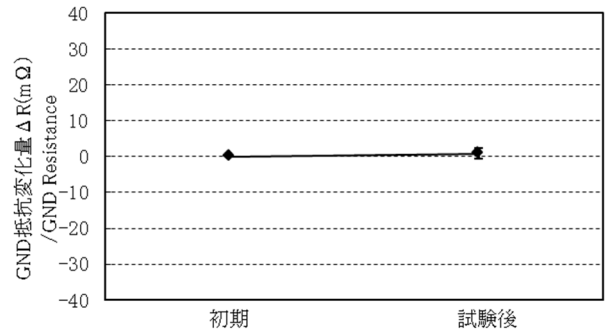
Graph 14 GND 抵抗値の変化 (G Group : サイクリング)

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

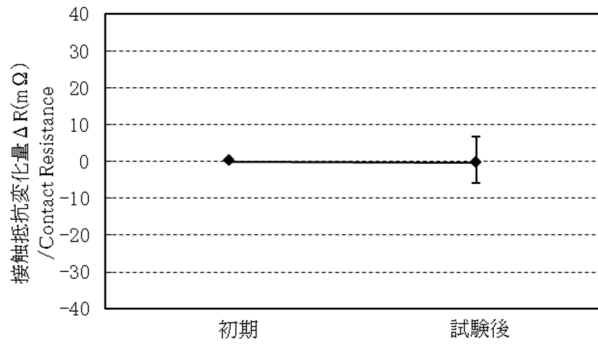
CABLIN-VS Connector Test Report



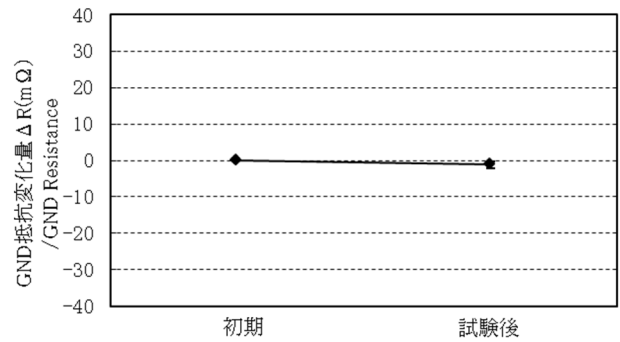
Graph 15 接触抵抗値の変化 (H Group : 塩水噴霧)
A change of contact resistance (H Group : Salt spray)



Graph 16 GND抵抗値の変化 (H Group : 塩水噴霧)
A change of GND resistance (H Group : Salt spray)



Graph 17 接触抵抗値の変化 (I Group : ガス(H₂S))
A change of contact resistance (I Group : Gas(H₂S))



Graph 18 GND抵抗値の変化 (I Group : ガス(H₂S))
A change of contact resistance (I Group : Gas(H₂S))