CABLINE®-CA IIF PLUS

Part No. Plug: 20901-060T-01, Receptacle: 20790-060E-02

Test Report

Product Specification no. PRS-2893

0	T24060	September 12, 2024	T.Onishi	M.Muro	T.Masunaga
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of CABLINE-CA IIF PLUS Connector in accordance with PRS-2893.

2. Specimen

(1) CABLINE-CA IIF PLUS PLUG ASSEMBLY (Part No. 20901-060T-01)
(2) CABLINE-CA II PLUS RECEPTACLE ASSEMBLY (Part No. 20790-060E-02)

3. Test Sequence

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

4. Result

See Table 2-1 to 2-2, Graph 1 to 18. For the details of the testing conditions and requirements, see PRS-2893.
The “n” in the tables show the number of measurement points.

5. Conclusion

All the specimens met the requirements of PRS-2893.

Table 1. Test Sequence and Sample Quantity

No.		Test Item	Testing Groups									
			A	B	C	D	E	F	G	H	J	K
4.1 Electrical Performance	1	Contact resistance		2,6		1,3,5	1,3	1,3	1,5	1,5	1,3	1,3
	2	Insulation resistance							2,6	2,6		
	3	Dielectric withstanding voltage							3,7	3,7		
	4	Temperature rising	1									
4.2 Mechanical Performance	1	Mating force		1,5								
		Unmating force		3,7								
	2	Durability		4								
	3	Connector lock			1							
	4	Vibration				2						
	5	Shock				4						
4.3 Environmental Performance	1	Thermal shock					2					
	2	High temperature life						2				
	3	Humidity (Steady State)							4			
	4	Humidity (Cycling)								4		
	5	Saltwater spray									2	
	6	H_2S gas										2
Specimen quantity			5 pcs	5 pcs	5 pcs	5 pcs	5 pcs	5 pcs	5 pcs	5 pcs	5 pcs	5 pcs

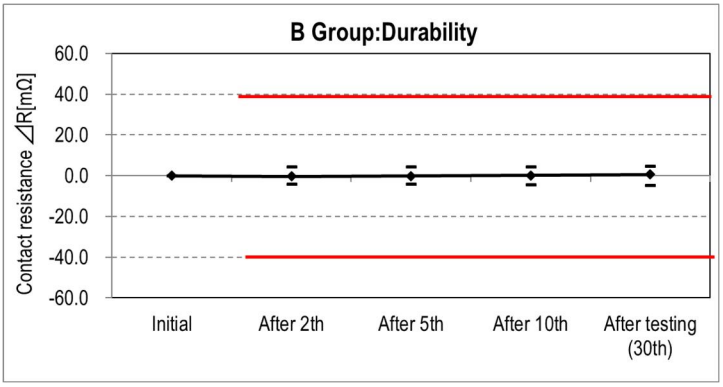
※Numbers indicate test sequences

Table2-1. Test Result

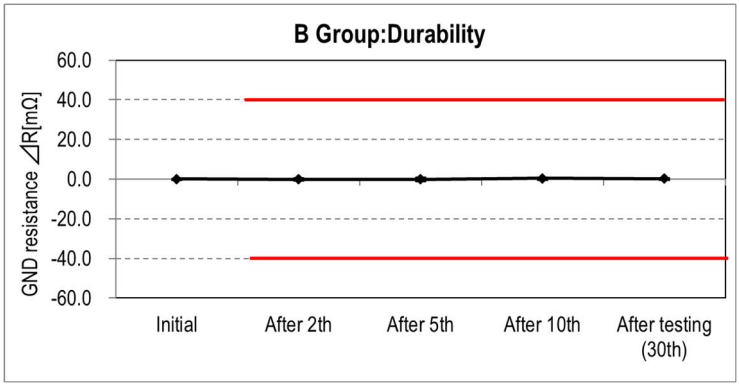
Test item	Contents of measurement		Specifications	Set	n	Data					Judge.
						AVG.	MAX.	MIN.	s	AVG.±3s	
A Group Temperature rising	0.3A/Contact 18.0A/Connector		⊿T=30℃ MAX.	5	5	⊿T=22.1℃ MAX.					Pass
B Group Durability	Contact resistance (mΩ)	Initial	60mΩ MAX.	5	300	30.074	36.63	24.70	2.296	36.962	Pass
		After test	ΔR=40mΩ MAX.			0.674	4.70	-4.51	2.032	6.770	Pass
	GND resistance (mΩ)	Initial	60mΩ MAX.	5	5	7.396	7.67	7.16	0.212	8.032	Pass
		After test	ΔR=40mΩ MAX.			0.240	0.34	0.09	0.132	0.636	Pass
	Mating (N)	Initial	27.00N MAX.	5	5	11.628	11.95	11.32	0.270	12.438	Pass
		After test				7.570	8.53	6.83	0.649	9.517	Pass
	Unmating (N)	Initial	2.88N MIN.	5	5	5.420	5.53	5.32	0.089	5.153	Pass
		After test				6.214	6.41	6.10	0.138	5.800	Pass
C Group Connector Lock	Appearance	After Testing	It shall not occur the damage and unlock.	5	5	No damage and unlock					Pass
D Group Vibration ↓ Shock	Contact resistance (mΩ)	Initial	60mΩ MAX.	5	300	29.642	40.01	20.41	3.829	41.129	Pass
		After vibration	ΔR=40mΩ MAX.			1.773	8.06	-3.67	2.192	8.349	Pass
		After vibration/shock	ΔR=40mΩ MAX.			1.866	8.51	-4.51	2.708	9.990	Pass
	GND resistance (mΩ)	Initial	60mΩ MAX.	5	5	7.348	7.68	7.06	0.234	8.050	Pass
		After vibration	ΔR=40mΩ MAX.			-0.042	0.17	-0.45	0.256	0.726	Pass
		After vibration/shock	ΔR=40mΩ MAX.			-0.098	0.12	-0.55	0.276	0.730	Pass
	Electrical discontinuity	During vibration	No electrical discontinuity greater than 1μs shall occur.	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 vibration/shock				No Abnormality					Pass
E Group Thermal shock	Contact resistance (mΩ)	Initial	60mΩ MAX.	5	300	30.184	35.56	22.58	2.543	37.813	Pass
		After test	ΔR=40mΩ MAX.			1.164	9.05	-5.41	2.816	9.612	Pass
	GND resistance (mΩ)	Initial	60mΩ MAX.	5	5	7.234	7.43	7.09	0.147	7.675	Pass
		After test	ΔR=40mΩ MAX.			0.298	0.42	0.13	0.108	0.622	Pass
	Appearance	After test	No abnormality adversely affecting the performance shall occur.	5	5	No Abnormality					Pass
F Group High temperature life	Contact resistance (mΩ)	Initial	60mΩ MAX.	5	300	29.266	36.29	22.13	2.570	36.976	Pass
		After test	ΔR=40mΩ MAX.			1.121	9.37	-9.19	4.161	13.604	Pass
	GND resistance (mΩ)	Initial	60mΩ MAX.	5	5	7.008	7.19	6.71	0.187	7.569	Pass
		After test	ΔR=40mΩ MAX.			0.420	0.58	0.34	0.093	0.699	Pass
	Appearance	After test	No abnormality adversely affecting the performance shall occur.	5	5	No Abnormality					Pass

Table2-2. Test Result

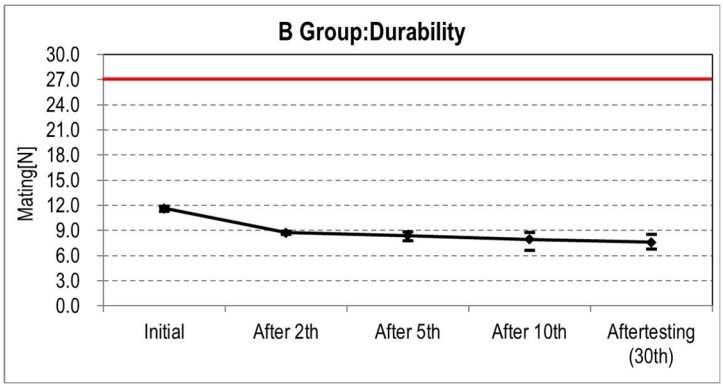
Test item	Contents of measurement		Specifications	Set	n	Data AVG.	Data MAX.	Data MIN.	Data s	Data AVG.±3s	Judge.
G Group Humidity (steady state)	Contact resistance (mΩ)	Initial	60mΩ MAX.	5	300	30.522	39.71	23.64	3.187	40.083	Pass
		After test	ΔR=40mΩ MAX.			-0.745	8.06	-5.78	2.966	8.153	Pass
	GND resistance (mΩ)	Initial	60mΩ MAX.	5	5	7.240	7.39	7.12	0.110	7.570	Pass
		After test	ΔR=40mΩ MAX.			-0.058	0.14	-0.33	0.184	0.494	Pass
	Insulation resistance (MΩ)	Initial	1000MΩ MIN.	5	5	7.96×10^{4}MΩ MIN.					Pass
		After test	500MΩ MIN.			3.27×10^{3}MΩ MIN.					Pass
	Dielectric withstanding voltage	Initial	No abnormalities such as creeping discharge, flashover, insulator breakdown occur.	5	5	No Abnormality					Pass
		After test				No Abnormality					Pass
	Appearance	After test	No abnormality adversely affecting the performance shall occur.	5	5	No Abnormality					Pass
H Group Humidity (cycling)	Contact resistance (mΩ)	Initial	60mΩ MAX.	5	300	28.666	37.56	20.22	2.986	37.624	Pass
		After test	ΔR=40mΩ MAX.			1.420	7.71	-7.16	2.939	10.237	Pass
	GND resistance (mΩ)	Initial	60mΩ MAX.	5	5	6.922	7.07	6.76	0.137	7.333	Pass
		After test	ΔR=40mΩ MAX.			0.490	0.63	0.30	0.146	0.928	Pass
	Insulation resistance (MΩ)	Initial	1000MΩ MIN.	5	5	5.46×10^{4}MΩ MIN.					Pass
		After test	500MΩ MIN.			1.31×10^{3}MΩ MIN.					Pass
	Dielectric withstanding voltage	Initial	No abnormalities such as creeping discharge, flashover, insulator breakdown occur.	5	5	No Abnormality					Pass
		After test				No Abnormality					Pass
	Appearance	After test	No abnormality adversely affecting the performance shall occur.	5	5	No Abnormality					Pass
J Group Salt water spray	Contact resistance (mΩ)	Initial	60mΩ MAX.	5	300	30.452	39.81	23.42	3.157	39.923	Pass
		After test	ΔR=40mΩ MAX.			0.644	9.81	-8.80	3.257	10.415	Pass
	GND resistance (mΩ)	Initial	60mΩ MAX.	5	5	7.304	7.42	7.15	0.117	7.655	Pass
		After test	ΔR=40mΩ MAX.			1.000	1.63	0.74	0.364	2.092	Pass
	Appearance	After test	No abnormality adversely affecting the performance shall occur.	5	5	No Abnormality					Pass
K Group H_2S gas	Contact resistance (mΩ)	Initial	60mΩ MAX.	5	300	29.972	40.07	19.66	3.717	41.123	Pass
		After test	ΔR=40mΩ MAX.			2.009	9.92	-8.85	3.855	13.574	Pass
	GND resistance (mΩ)	Initial	60mΩ MAX.	5	5	7.126	7.25	6.98	0.114	7.468	Pass
		After test	ΔR=40mΩ MAX.			0.157	0.50	-0.47	0.370	1.267	Pass
	Appearance	After test	No abnormality adversely affecting the performance shall occur.	5	5	No Abnormality					Pass



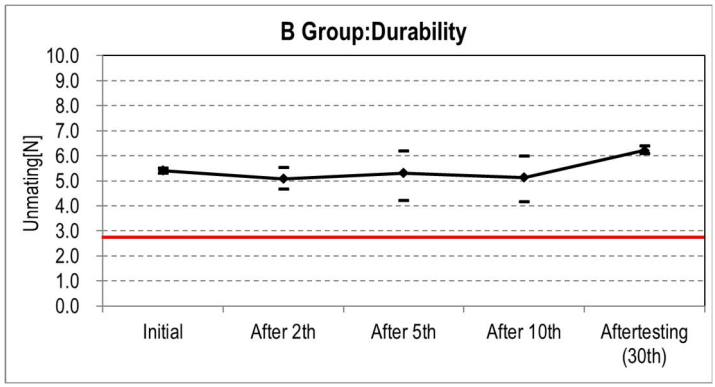
Graph1. A change of contact resistance
(B Group: Durability)



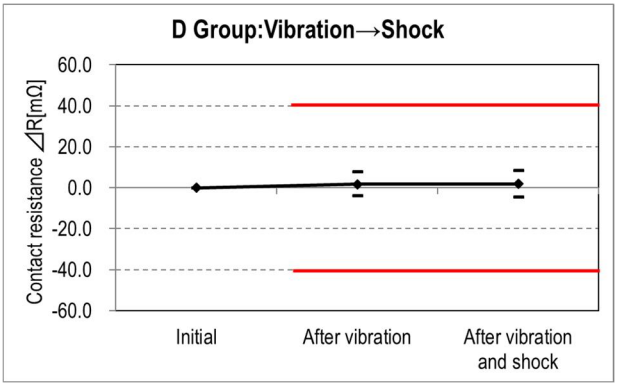
Graph2. A change of GND resistance
(B Group: Durability)



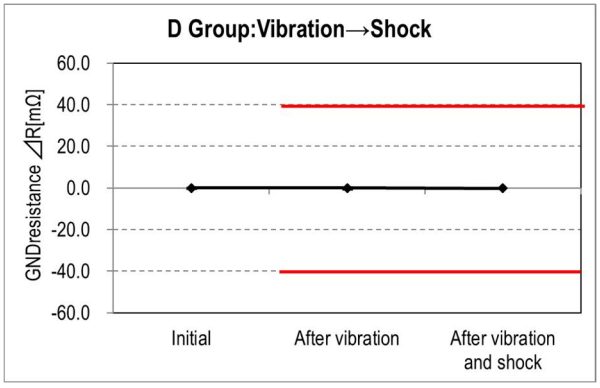
Graph3. A change of mating force
(B Group: Durability)



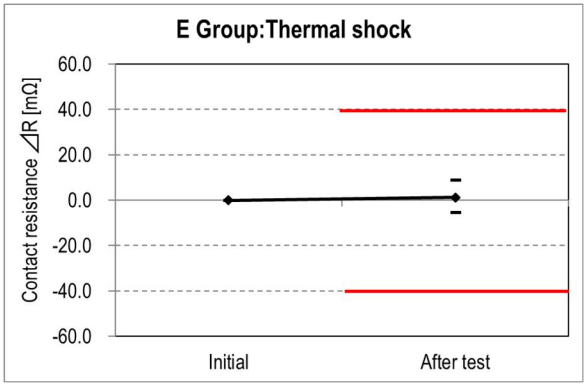
Graph4. A change of Unmating force
(B Group: Durability)



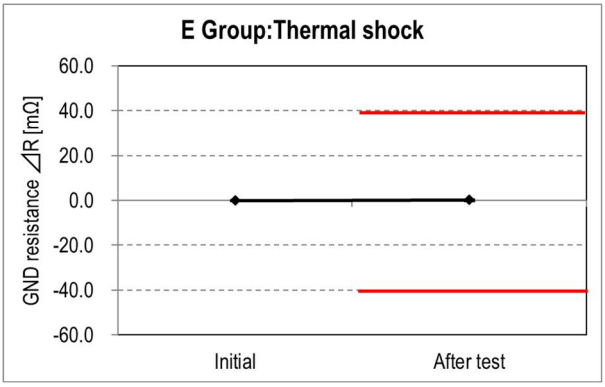
Graph5. A change of contact resistance
(D Group: Vibration・Shock)



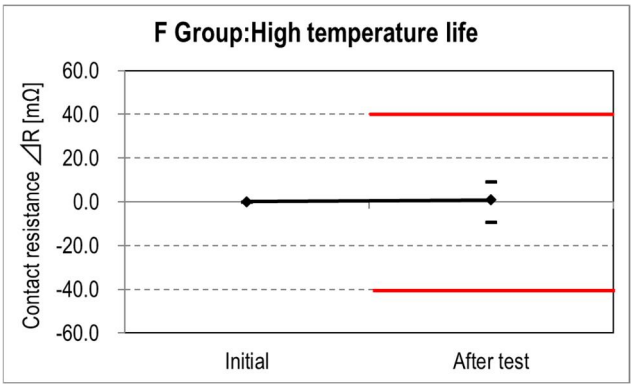
Graph6. A change of GND resistance
(D Group: Vibration・Shock)



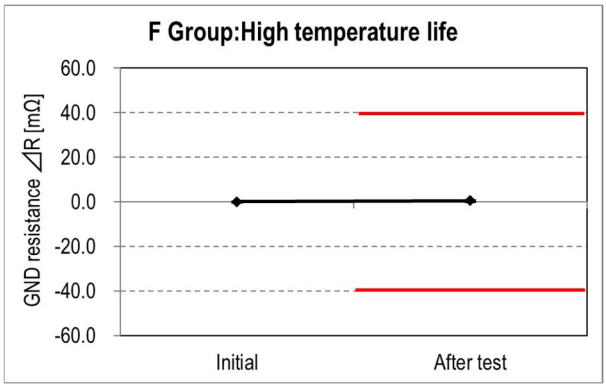
Graph7. A change of contact resistance
(E Group: Thermal shock)



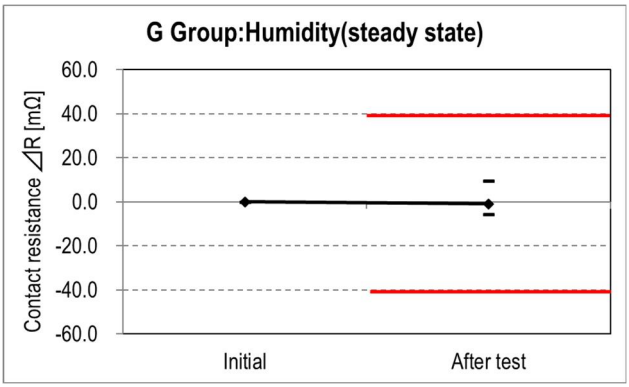
Graph8. A change of GND resistance
(E Group: Thermal shock)



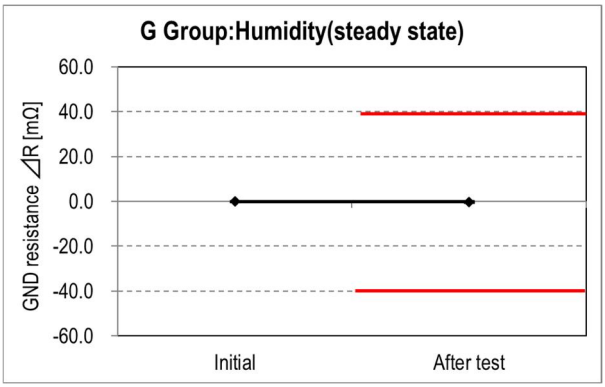
Graph9. A change of contact resistance
(F Group: High temperature life)



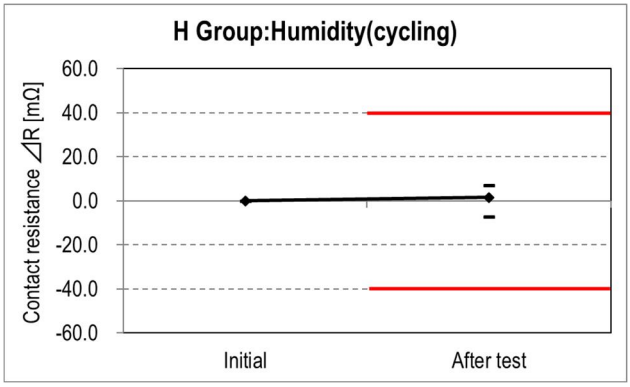
Graph10. A change of GND resistance
(F Group: High temperature life)



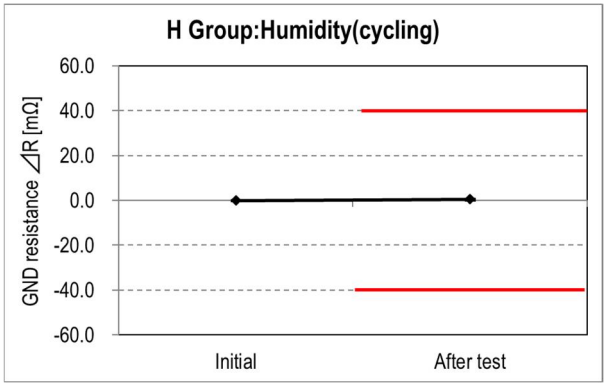
Graph11. A change of contact resistance
(G Group: Humidity (steady state))



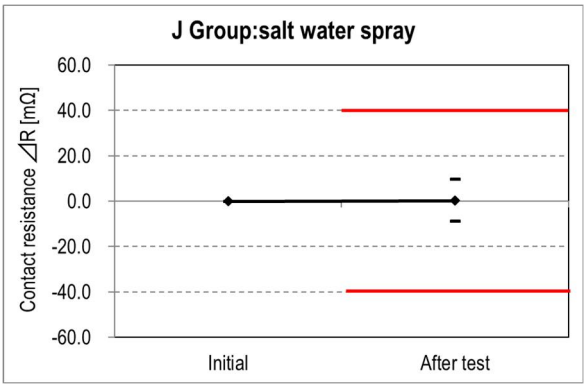
Graph12. A change of GND resistance
(G Group: Humidity (steady state))



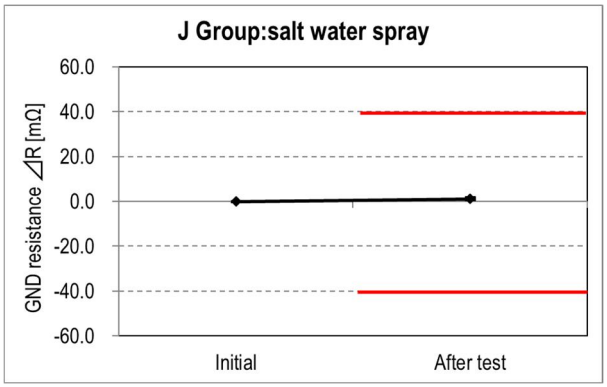
Graph13. A change of contact resistance
(H Group: Humidity (cycling))



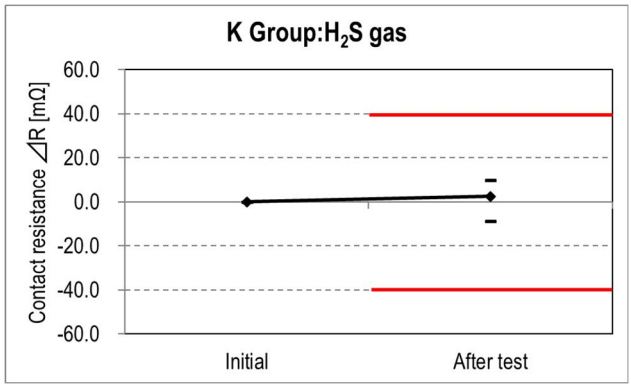
Graph14. A change of GND resistance
(H Group: Humidity (cycling))



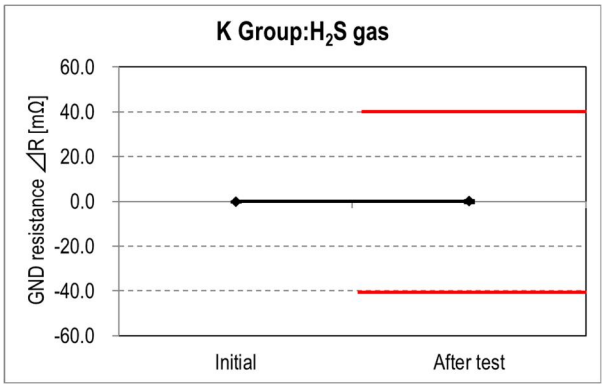
Graph15. A change of contact resistance
(J Group: Salt water spray)



Graph16. A change of GND resistance
(J Group: Salt water spray)



Graph17. A change of contact resistance
(K Group: H_2S gas)



Graph18. A change of GND resistance
(K Group: H_2S gas)