

EVAFLEX® 5-HD

Part No. 20952-024E-02

Test Report

Product Specification no. PRS-2645

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Rev.	ECN	Date	Prepared by	Checked by	Approved by

EVAFLEX 5-HD Test Report

1. Purpose

EVAFLEX5-HD コネクタの性能を PRS-2645 に基づいて評価する。

To evaluate the performance of EVAFLEX 5-HD Connector in accordance with PRS-2645.

2. Specimen

(1) Connector : EVAFLEX 5-HD (P/N : 20952-024E-02)

(2) FFC : 東京特殊電線(株)製 FFC (Made by Totoku Electric Co., Ltd.)

Thickness Lead : $t=0.33\pm 0.03$ (Actual measurement : 0.348~0.352mm)

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

評価結果に関しては表 2-1~2-2、グラフ 1~11 参照。

試験条件の詳細は PRS-2645 参照。n 数は測定データを意味する。

See Table 2-1 to 2-2, Graph 1 to 11. For the details of the testing conditions and requirements, see PRS-2645.

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

5. Conclusion

全ての資料が製品規格 (PRS-2645) の必要条件を満足した。

All the specimens met the requirements of PRS-2645.

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	J	K	L	M	N	P
接触抵抗 Contact 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 Temperature rising														1
挿入力 Mating Force	1,5													
抜去力 Un-mating Force	3,7													
耐久性 Durability	4													
FFC 保持力 FFC Retention Force		1												
端子保持力 CONTACT Retention Force			1											
SHELL 保持力 SHELL Retention Force				1										
振動 Vibration					2									
衝撃 Shock					4									
熱衝撃 Thermal Shock						2								
高温寿命 High Temperature 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 Water Spray										2				
ガス (H2S) 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.	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.

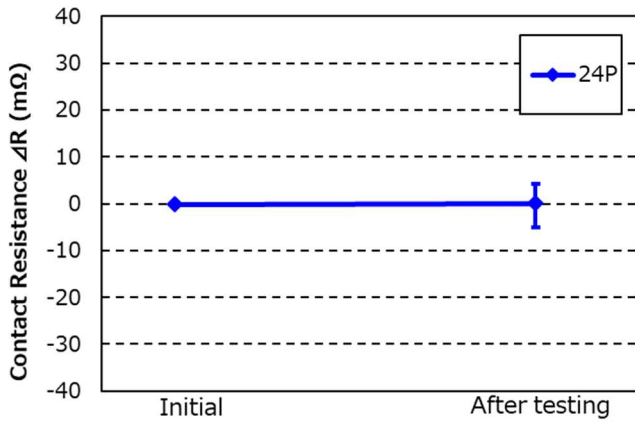
※グループ表中の番号は、試験順序を示す。 / Numbers indicate test sequences

Table 2-1 試験結果 / Test Result

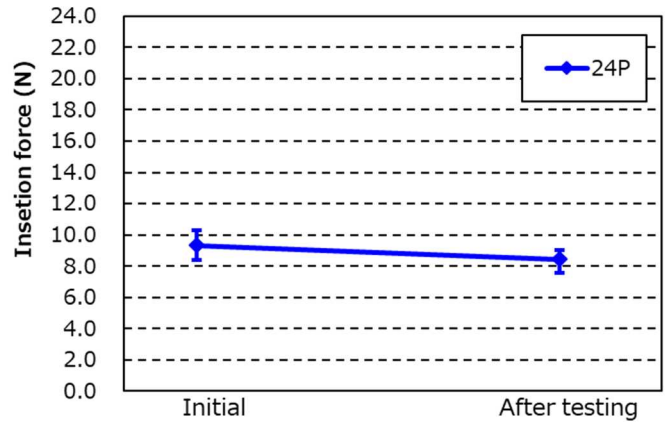
試験項目 Test Item	測定内容 Measurements			規格 Spec.	Set	n	データ Data					判定 Judge
							AVG.(X)	MAX.	MIN.	s	X±3s	
A Group 耐久性 Durability	24P	接触抵抗 Contact resistance (mΩ)	初期 Initial	60mΩ MAX.	5	120	5.754	8.42	3.03	1.078	8.988	OK
			30回挿抜後 I/W 30cycles	ΔR=40mΩ MAX.	5	120	0.046	4.14	-5.05	1.632	6.574	OK
		挿入力 Mating force (N)	初期 Initial	14.0N MAX.	5	-	9.313	10.29	8.37	0.777	11.644	OK
			30回挿抜後 I/W 30cycles		5	-	8.448	9.05	7.55	0.562	10.134	OK
		抜去力 Un-mating force (N)	初期 Initial	2.30N MIN.	5	-	6.507	6.90	5.94	0.400	5.307	OK
			30回挿抜後 I/W 30cycles		5	-	6.823	7.86	6.34	0.658	4.849	OK
B Group FFC 保持力 FFC retention force	24P	FFC保持力 FFC retention force (N)	初期 Initial	8.50N MIN.	5	-	19.501	19.65	19.32	0.141	19.078	OK
		外観 Appearance	異常無き事 No abnormality		5	-	異常無し No abnormality					OK
C Group 端子保持力 CONTACT retention force (N)				0.30N MIN.	-	20	0.957	1.13	0.82	0.077	0.726	OK
D Group SHELL保持力 SHELL retention force (N)				1.50N MIN.	-	5	3.146	3.29	2.93	0.145	2.711	OK
E Group 耐振動性 Vibration ↓ 耐衝撃性 Shock	24P	接触抵抗 Contact resistance (mΩ)	初期 Initial	60mΩ MAX.	5	120	6.716	10.98	3.08	1.484	11.168	OK
			振動後 After vibration	ΔR=40mΩ MAX.	5	120	0.097	5.34	-5.43	2.101	8.501	OK
			衝撃後 After shock		5	120	-0.039	6.38	-5.66	2.195	8.741	OK
		瞬断 Discontinuity	振動中 During vibration	1μs MAX.	5	-	瞬断無し No discontinuity					OK
			衝撃中 During shock	1μs MAX.	5	-	瞬断無し No discontinuity					OK
		外観 Appearance (N)	振動後 After vibration	異常無き事 No abnormality	5	-	異常無し No abnormality					OK
衝撃後 After shock	異常無き事 No abnormality		5	-	異常無し No abnormality					OK		
F Group 熱衝撃 Thermal shock	24P	接触抵抗 Contact resistance (mΩ)	初期 Initial	60mΩ MAX.	5	120	6.247	10.85	3.27	1.635	11.152	OK
			試験後 After testing	ΔR=40mΩ MAX.	5	120	-0.416	2.03	-3.00	0.954	3.400	OK
		外観 Appearance	異常無き事 No abnormality		5	-	異常無し No abnormality					OK
G Group 高温寿命 High temperature life	24P	接触抵抗 Contact resistance (mΩ)	初期 Initial	60mΩ MAX.	5	120	5.373	9.36	2.30	1.398	9.567	OK
			試験後 After testing	ΔR=40mΩ MAX.	5	120	-0.407	1.50	-2.78	0.826	2.897	OK
		外観 Appearance	異常無き事 No abnormality		5	-	異常無し No abnormality					OK

Table 2-2 試験結果 / Test Result

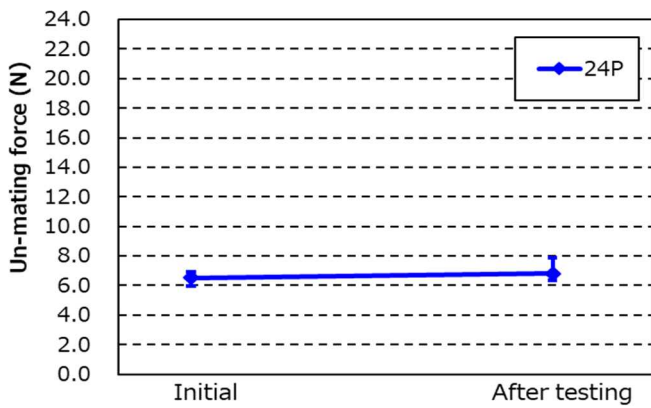
試験項目 Test Item	測定内容 Measurements		規格 Spec.	Set	n	データ Data					判定 Judge	
						AVG.(X)	MAX.	MIN.	s	X±3s		
H Group 湿度(定常) Humidity (Steady state)	24P	接触抵抗 Contact resistance (mΩ)	初期 Initial	60mΩ MAX.	5	120	6.162	9.99	2.58	1.569	10.869	OK
			試験後 After testing	ΔR=40mΩ MAX.	5	120	-0.161	2.38	-2.94	0.922	3.527	OK
	24P	絶縁抵抗(Contact間) Insulation resistance (Contact-Contact)	初期 Initial	100MΩ MIN.	5	115	1.26×10 ⁶ MΩ					OK
			試験後 After testing	100MΩ MIN.	5	115	1.00×10 ⁵ MΩ					OK
	24P	耐電圧(Contact間) Dielectric strength (Contact-Contact)	初期 Initial	異常無き事 No abnormality	5	115	異常無し No abnormality					OK
			試験後 After testing	異常無き事 No abnormality	5	115	異常無し No abnormality					OK
24P		外観 Appearance	異常無き事 No abnormality	5	-	異常無し No abnormality					OK	
J Group 湿度(サイクリング) Humidity (Steady state)	24P	接触抵抗 Contact resistance (mΩ)	初期 Initial	60mΩ MAX.	5	120	6.597	10.61	4.19	1.368	10.701	OK
			試験後 After testing	ΔR=40mΩ MAX.	5	120	-0.569	1.66	-2.75	0.845	2.811	OK
	24P	絶縁抵抗(Contact間) Insulation resistance (Contact-Contact)	初期 Initial	100MΩ MIN.	5	115	1.36×10 ⁶ MΩ					OK
			試験後 After testing	100MΩ MIN.	5	115	1.13×10 ⁵ MΩ					OK
	24P	耐電圧(Contact間) Dielectric strength (Contact-Contact)	初期 Initial	異常無き事 No abnormality	5	115	異常無し No abnormality					OK
			試験後 After testing	異常無き事 No abnormality	5	115	異常無し No abnormality					OK
24P		外観 Appearance	異常無き事 No abnormality	5	-	異常無し No abnormality					OK	
K Group 塩水噴霧 Salt water spray	24P	接触抵抗 Contact resistance (mΩ)	初期 Initial	60mΩ MAX.	5	120	6.140	9.55	4.07	1.389	10.307	OK
			試験後 After testing	ΔR=40mΩ MAX.	5	120	-0.453	1.65	-2.70	0.810	2.787	OK
	24P		外観 Appearance	異常無き事 No abnormality	5	-	異常無し No abnormality					OK
L Group 硫化水素ガス H ₂ S gas	24P	接触抵抗 Contact resistance (mΩ)	初期 Initial	-	5	120	6.062	8.64	3.32	1.331	10.055	OK
			試験後 After testing	ΔR=40mΩ MAX.	5	120	0.580	4.85	-6.48	2.752	11.588	OK
	24P		外観 Appearance	異常無き事 No abnormality	5	-	異常無し No abnormality					OK
M Group 半田付け性	外観 Appearance		異常無き事 No abnormality	10	-	異常無し No abnormality					OK	
N Group 半田耐熱性	外観 Appearance		異常無き事 No abnormality	10	-	異常無し No abnormality					OK	
P Group 温度上昇 Temperature rise	24P	0.30A/pin	ΔT=30K(°C) MAX.	5	-	7.70 °C MAX.					OK	



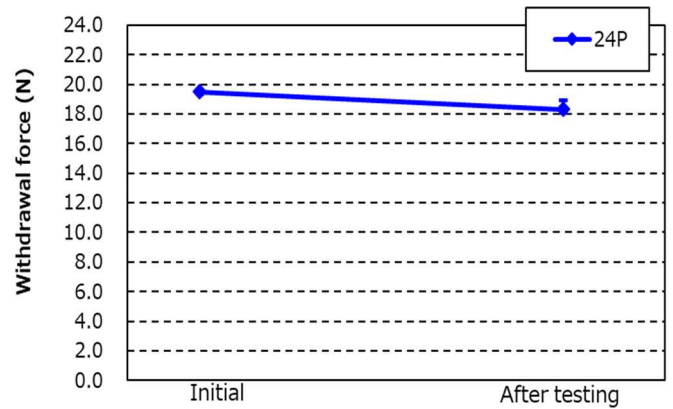
Graph1. A change of contact resistance
(A Group : Durability)



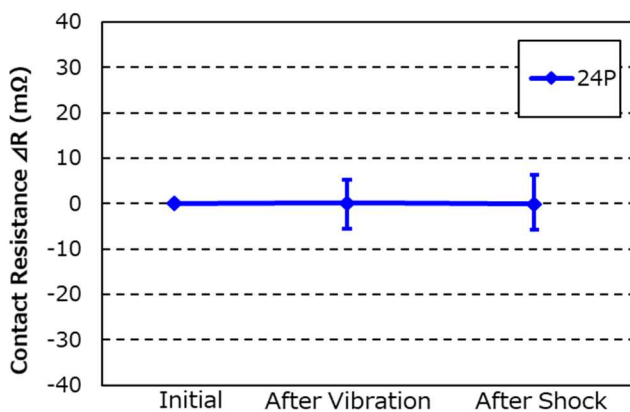
Graph2. A change Mating force
(A Group : Durability)



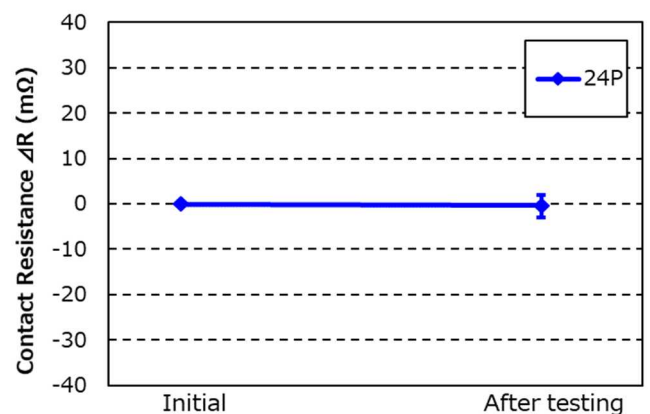
Graph3. A change of Un-mating force
(A Group : Durability)



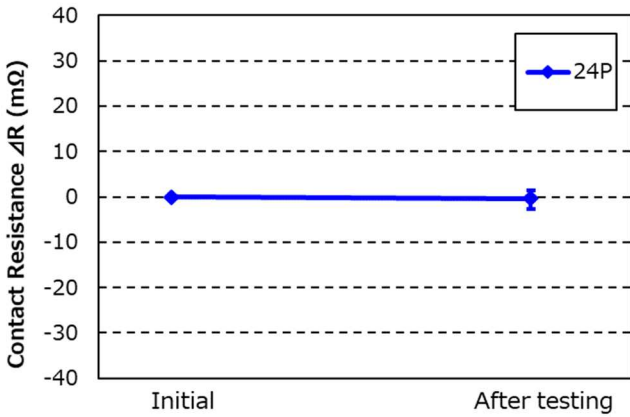
Graph4. A change of FFC retention force
(B Group : FFC retention force)



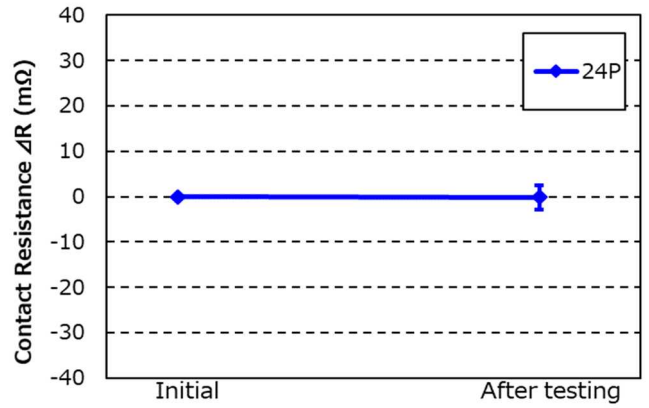
Graph5. A change of contact resistance
(E Group : Vibration and Shock)



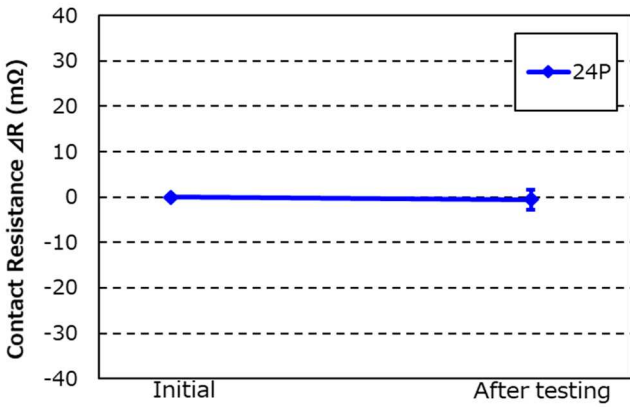
Graph6. A change of contact resistance
(F Group : Thermal Shock)



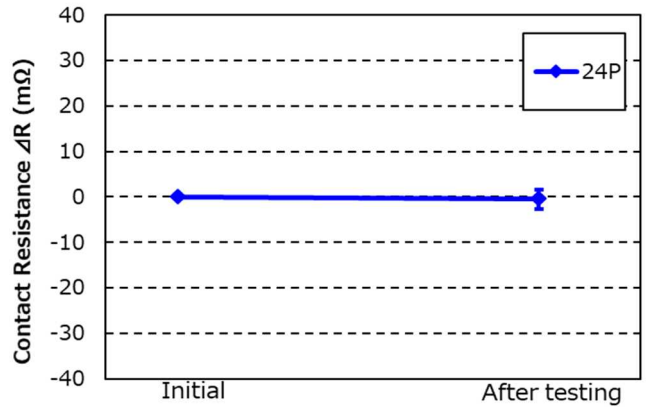
**Graph7. A change of contact resistance
(G Group : High Temperature Life)**



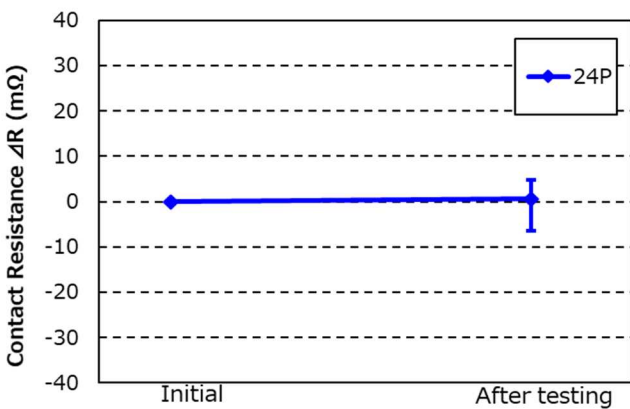
**Graph8. A change of contact resistance
(H Group : Humidity < Steady State >)**



**Graph9. A change of contact resistance
(J Group : Humidity < Cycling >)**



**Graph10. A change of contact resistance
(K Group : Salt water spray)**



**Graph11. A change of contact resistance
(L Group : H₂S Gas)**