

MHF[®] 4L Connector (AWG#34φ0.83 Cable)

Part No. PLUG: 20565-001R-83 RECEPTACLE: 20449-001E-**

Test Report

Product Specification no. PRS-2062

1	T21104	October 27, 2021	K. Ikeshita		M. Takemoto
0	T15054	May 7, 2015	S.Suzuki	T.Tagawa	T.Takano
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of MHF 4L Connector in accordance with PRS-2062.

2. Specimen

- (1) MHF 4L Plug Connector (Part No. 20565-001R-83)
Cable: AWG#34 coaxial cable (jacket diameter 0.83mm)
- (2) MHF4 Receptacle Connector (Part No. 20449-001E-**)

3. Test Sequence

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

4. Result

See Table 2, Graph 1 to 10. For the details of the testing conditions and requirements, see PRS-2062.
The "n" in the tables show the number of measurement points.

5. Conclusion

All the specimens met the requirements of PRS-2062.

Table.1 Test Sequence and Sample Quantity

Test Item	Group													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
Contact resistance					1,3	1,3	1,3	1,5	1,3	1,5	1,3	1,3		
Insulation resistance								2,6		2,6				
Dielectric withstanding voltage	1							3,7		3,7				
VSWR		1												
Mating force / Unmating force			1											
Crimp strength				1										
Durability					2									
Vibration						2								
Shock							2							
Thermal shock								4						
High temperature life									2					
Humidity (Steady State)										4				
Saltwater spray											2			
H ₂ S gas												2		
Solder ability													1	
Soldering heat resistance														1
Specimen quantity.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.	10 pcs.

※Numbers indicate test sequences.

Table 2-1

	Test items	Measurements	Spec.	n	Unit	AVE.	MAX.	MIN.	S	Judge		
A	Dielectric withstanding voltage	Initial	Spec : No creeping discharge,flashover,nor insulator breakdown shall occur.							-----		
		20565-001R-83(φ0.83)	-----	10	-----	Results : No abnormality			OK			
B	VSWR Plug	20565-001R-83 (φ0.83)	0.1~3GHz	1.3 MAX.	10	-----	1.104	1.12	1.09	0.008	OK	
			3~6GHz	1.45 MAX.	10	-----	1.224	1.26	1.20	0.016	OK	
	VSWR Receptacle		0.1~3GHz	1.3 MAX.	10	-----	1.149	1.15	1.14	0.005	OK	
			3~6GHz	1.4 MAX.	10	-----	1.131	1.15	1.11	0.022	OK	
C	Mating force	20565-001R-83 (φ0.83)	Initial	30 MAX.	10	N	17.65	18.4	16.7	0.76	OK	
			30 cycles		10	N	9.38	9.9	8.9	0.37	OK	
	Un mating force	20565-001R-83 (φ0.83)	Initial	20 MAX. 5 MIN.	10	N	13.12	14.5	11.9	1.19	OK	
			30 cycles	20 MAX. 3 MIN.	10	N	9.57	11.3	8.4	1.16	OK	
D	Cable retention force	20565-001R-83(φ0.83)	8 MIN.	10	N	13.73	14.6	13.3	0.43	OK		
E	Durability	20565-001R-83 (φ0.83)	Contact resistance of inner contact									
			Initial	20 MAX.	10	mΩ	8.86	10.7	7.1	1.28	OK	
			After testing	-----	10	mΩ	8.41	9.8	7.5	0.80	-----	
			ΔR	20 MAX.	10	mΩ	-0.45	2.0	-2.6	1.61	OK	
			Contact resistance of ground contact									
			Initial	20 MAX.	10	mΩ	6.29	7.1	5.3	0.61	OK	
			After testing	-----	10	mΩ	6.30	6.8	5.8	0.33	-----	
			ΔR	20 MAX.	10	mΩ	0.01	1.0	-0.8	0.58	OK	
			Appearance								Spec:No abnormality adversely affecting the performance shall occur.	
			Initial	No abnormality	10	-----	No abnormality			OK		
After testing	No abnormality	10	-----	No abnormality			OK					
F	Vibration	20565-001R-83 (φ0.83)	Contact resistance of inner contact									
			Initial	20 MAX.	10	mΩ	5.97	7.1	5.2	0.65	OK	
			After testing	-----	10	mΩ	6.85	9.7	5.2	1.21	-----	
			ΔR	20 MAX.	10	mΩ	0.88	2.8	-0.1	0.96	OK	
			Contact resistance of ground contact									
			Initial	20 MAX.	10	mΩ	5.63	6.6	4.8	0.53	OK	
			After testing	-----	10	mΩ	5.00	6.0	4.2	0.70	-----	
			ΔR	20 MAX.	10	mΩ	-0.63	0.5	-1.4	0.59	OK	
			Electrical discontinuity								Spec. : No electrical discontinuity grater than 1μsec. shall occur.	-----
							10	-----	Results : No discontinuity			OK
			Appearance								Spec:No abnormality adversely affecting the performance shall occur.	
			Initial	No abnormality	10	-----	No abnormality			OK		
			After testing	No abnormality	10	-----	No abnormality			OK		

Table 2-2

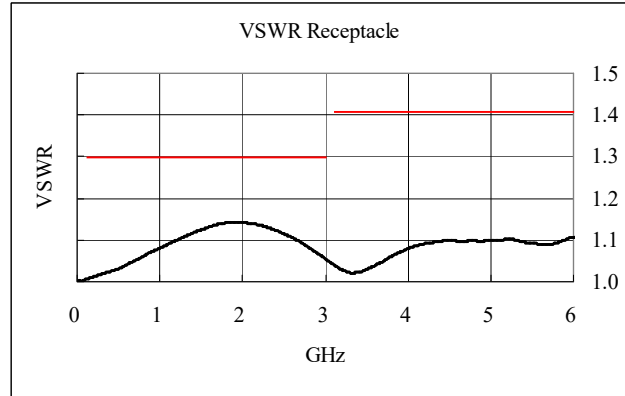
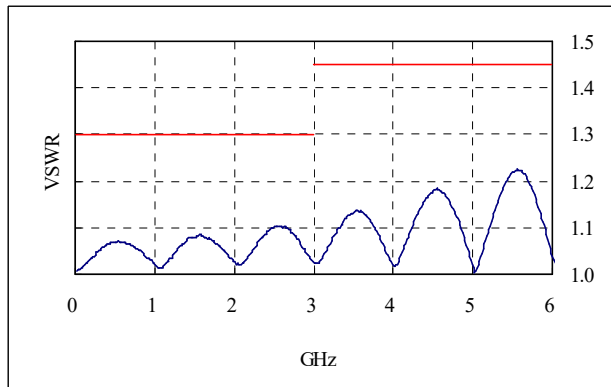
	Test items	Measurements	Spec.	n	Unit	AVE.	MAX.	MIN.	S	Judge		
G	Shock											
	20565-001R-83 (φ0.83)	Contact resistance of inner contact										
		Initial	20 MAX.		10	mΩ	6.85	9.7	5.2	1.21	OK	
		After testing	-----		10	mΩ	6.96	9.3	5.2	1.25	-----	
		ΔR	20 MAX.		10	mΩ	0.11	1.2	-1.0	0.84	OK	
		Contact resistance of ground contact										
		Initial	20 MAX.		10	mΩ	5.00	6.0	4.2	0.70	OK	
		After testing	-----		10	mΩ	5.09	6.2	4.5	0.52	-----	
		ΔR	20 MAX.		10	mΩ	0.09	0.9	-1.1	0.74	OK	
		Electrical discontinuity		Spec. : No electrical discontinuity greater than 1μsec. shall occur.								-----
				10	-----	Results : No discontinuity				OK		
	Appearance		Spec:No abnormality adversely affecting the performance shall occur.									
	Initial		No abnormality		10	-----	No abnormality				OK	
	After testing		No abnormality		10	-----	No abnormality				OK	
H	Thermal shock											
	20565-001R-83 (φ0.83)	Contact resistance of inner contact										
		Initial	20 MAX.		10	mΩ	6.34	9.0	5.2	1.15	OK	
		After testing	-----		10	mΩ	6.98	8.6	4.8	1.30	-----	
		ΔR	20 MAX.		10	mΩ	0.64	2.7	-0.8	1.16	OK	
		Contact resistance of ground contact										
		Initial	20 MAX.		10	mΩ	5.63	6.6	4.8	0.53	OK	
		After testing	-----		10	mΩ	5.00	6.0	4.2	0.70	-----	
		ΔR	20 MAX.		10	mΩ	-0.63	0.5	-1.4	0.59	OK	
		Insulation resistance		Initial	500 MIN.		10	MΩ	10,000 (minimum vale)			
			After testing	100 MIN.		10	MΩ	10,000 (minimum vale)				OK
	Dielectric withstanding voltage		Initial	No abnormality		10	-----	No abnormality				OK
			After testing	No abnormality		10	-----	No abnormality				OK
	Appearance		Spec:No abnormality adversely affecting the performance shall occur.									
Initial		No abnormality		10	-----	No abnormality				OK		
After testing		No abnormality		10	-----	No abnormality				OK		
J	High temperature life											
	20565-001R-83 (φ0.83)	Contact resistance of inner contact										
		Initial	20 MAX.		10	mΩ	6.02	7.4	5.2	0.76	OK	
		After testing	-----		10	mΩ	7.01	8.7	6.1	0.92	-----	
		ΔR	20 MAX.		10	mΩ	0.99	1.9	0.3	0.57	OK	
		Contact resistance of ground contact										
		Initial	20 MAX.		10	mΩ	5.75	7.0	5.1	0.60	OK	
		After testing	-----		10	mΩ	6.61	7.3	6.1	0.40	-----	
		ΔR	20 MAX.		10	mΩ	0.86	1.9	-0.2	0.67	OK	
		Appearance		Spec:No abnormality adversely affecting the performance shall occur.								
Initial		No abnormality		10	-----	No abnormality				OK		
After testing		No abnormality		10	-----	No abnormality				OK		

Table 2-3

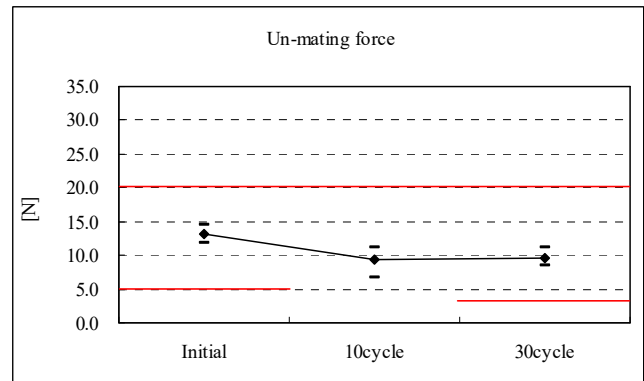
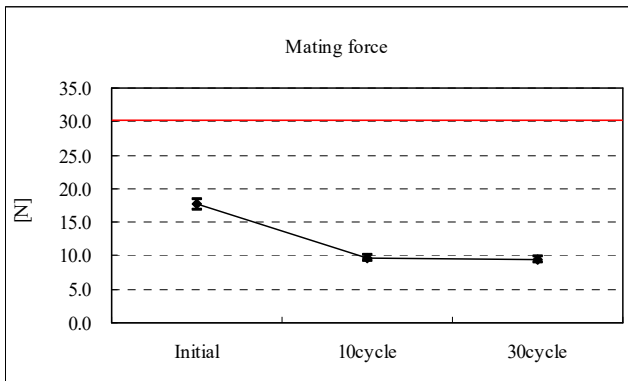
	Test items	Measurements	Spec.	n	Unit	AVE.	MAX.	MIN.	S	Judge	
K	Humidity(Steady State)										
	20565-001R-83 (φ0.83)	Contact resistance of inner contact									
		Initial	20 MAX.		10	mΩ	6.04	7.0	5.1	0.68	OK
		After testing	-----		10	mΩ	6.06	7.7	5.0	0.87	-----
		ΔR	20 MAX.		10	mΩ	0.02	1.6	-1.7	1.22	OK
		Contact resistance of ground contact									
		Initial	20 MAX.		10	mΩ	5.94	6.5	5.4	0.35	OK
		After testing	-----		10	mΩ	6.30	7.4	5.4	0.71	-----
		ΔR	20 MAX.		10	mΩ	0.36	1.1	-0.8	0.70	OK
		Insulation resistance									
		Initial	500 MIN.		10	MΩ	10,000 (minimum vale)				OK
		After testing	100 MIN.		10	MΩ	10,000 (minimum vale)				OK
	Dielectric withstanding voltage	Initial	No abnormality		10	-----	No abnormality				OK
		After testing	No abnormality		10	-----	No abnormality				OK
	Appearance	Spec:No abnormality adversely affecting the performance shall occur.									
Initial		No abnormality		10	-----	No abnormality				OK	
After testing		No abnormality		10	-----	No abnormality				OK	
L	Salt water spray										
	20565-001R-83 (φ0.83)	Contact resistance of inner contact									
		Initial	20 MAX.		10	mΩ	7.41	8.4	6.5	0.59	OK
		After testing	-----		10	mΩ	6.08	7.2	5.2	0.58	-----
		ΔR	20 MAX.		10	mΩ	-1.33	0.4	-2.7	0.84	OK
		Contact resistance of ground contact									
		Initial	20 MAX.		10	mΩ	5.89	6.6	5.3	0.44	OK
	After testing	-----		10	mΩ	6.14	6.8	5.3	0.51	-----	
	ΔR	20 MAX.		10	mΩ	0.24	1.5	-0.3	0.59	OK	
	Appearance	Spec:No abnormality adversely affecting the performance shall occur.									
Initial		No abnormality		10	-----	No abnormality				OK	
After testing		No abnormality		10	-----	No abnormality				OK	
M	H ₂ S Gas										
	20565-001R-83 (φ0.83)	Contact resistance of inner contact									
		Initial	20 MAX.		10	mΩ	6.68	7.9	5.4	0.93	OK
		After testing	-----		10	mΩ	6.31	7.5	5.1	0.84	-----
		ΔR	20 MAX.		10	mΩ	-0.37	0.7	-1.3	0.77	OK
		Contact resistance of ground contact									
		Initial	20 MAX.		10	mΩ	5.72	6.3	5.1	0.43	OK
	After testing	-----		10	mΩ	6.57	7.3	6.1	0.42	-----	
	ΔR	20 MAX.		10	mΩ	0.84	1.6	-0.1	0.49	OK	
	Appearance	Spec:No abnormality adversely affecting the performance shall occur.									
Initial		No abnormality		10	-----	No abnormality				OK	
After testing		No abnormality		10	-----	No abnormality				OK	

Table 2-4

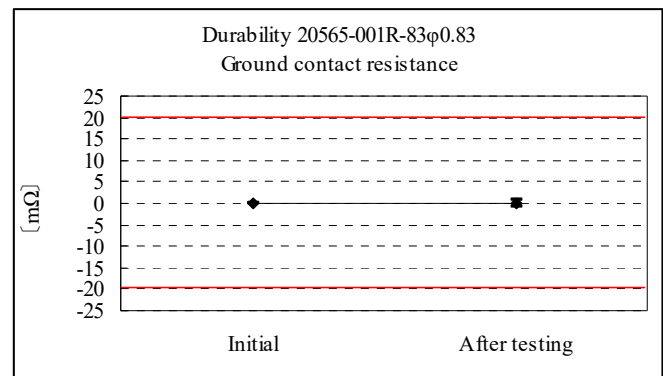
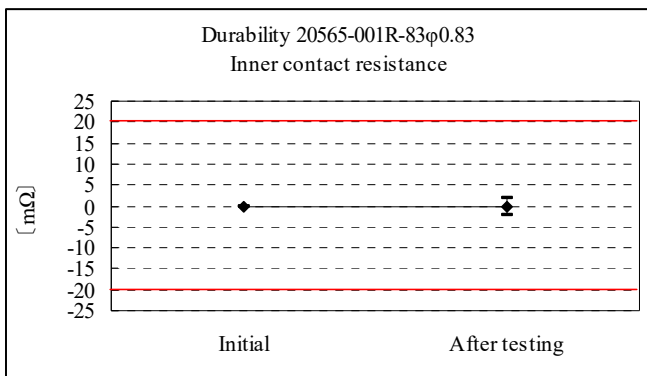
	Test items	Measurements	Spec.	n	Unit	AVE.	MAX.	MIN.	S	Judge
N	Solderability		Spec.:More than 95% of the dipped surface becomes wet and the pinhole that should not gather at one point is less than 5%.	10						OK
P	Reflow soldering heat resistance		Spec.:Abnormality adversely affecting the performance should not occur.	10						OK



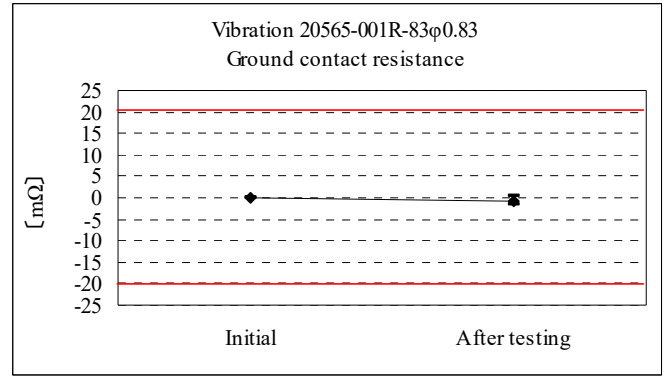
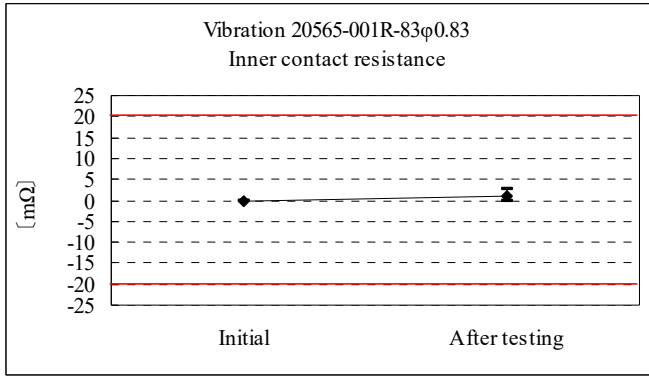
Graph 1 VSWR



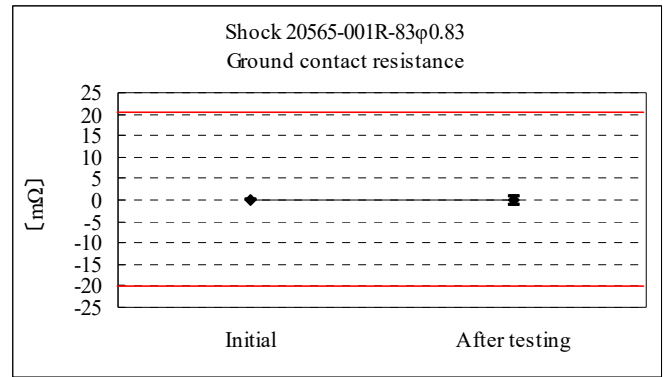
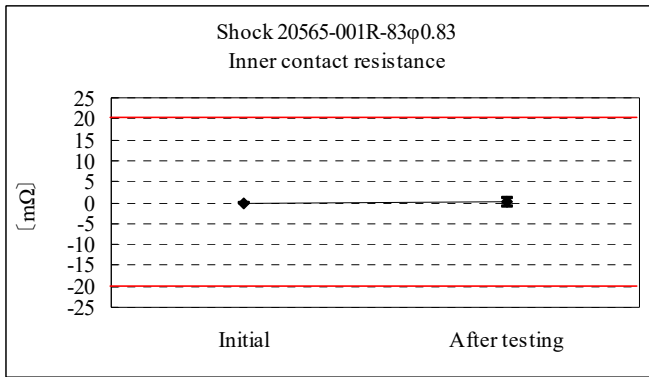
Graph 2 Mating force and Unmating force



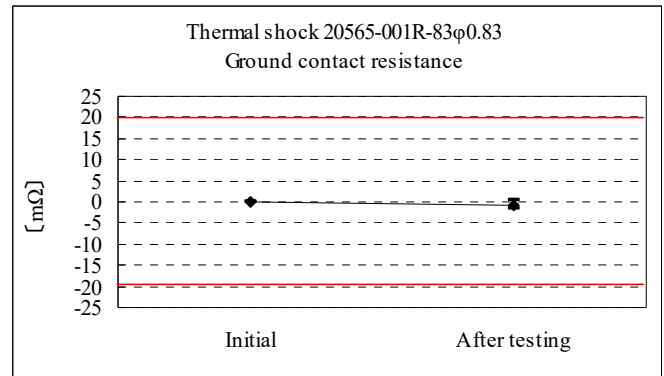
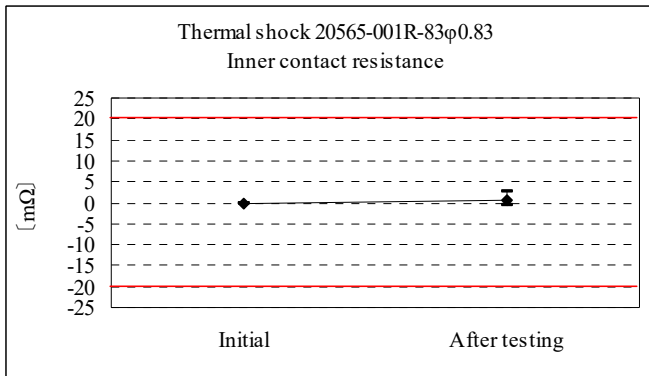
Graph 3 Durability



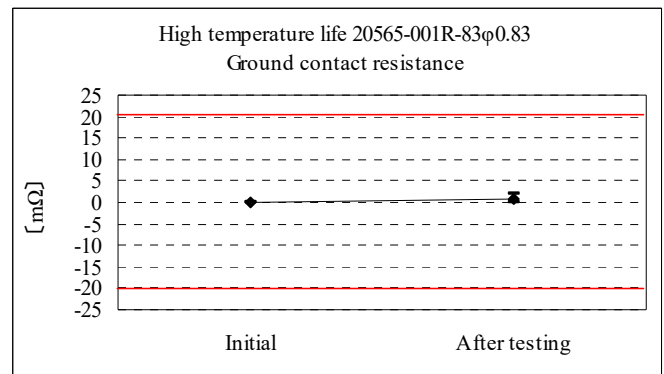
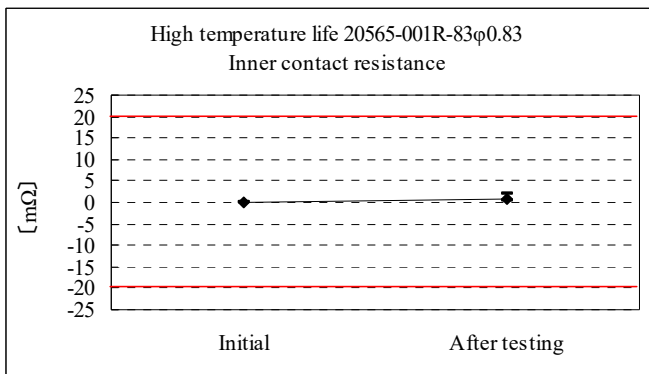
Graph 4 Vibration



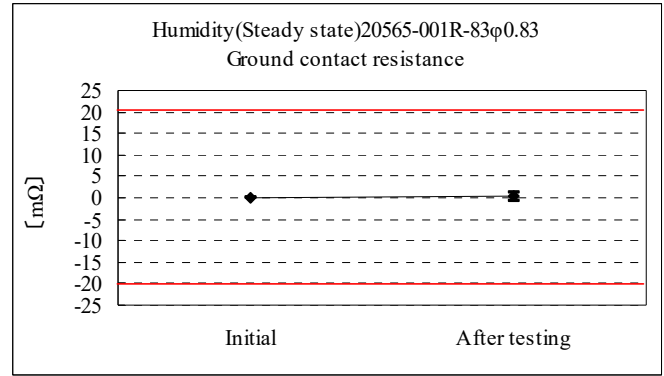
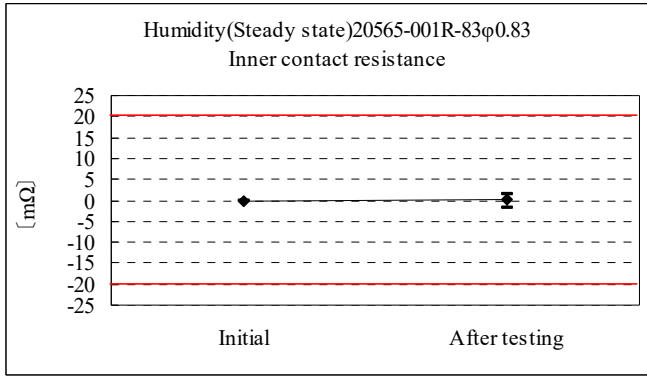
Graph 5 Shock



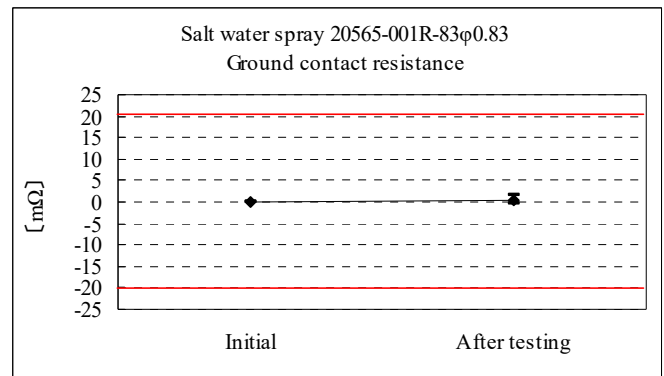
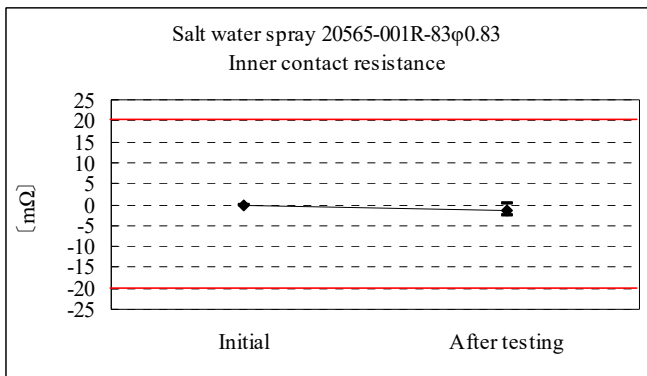
Graph 6 Thermal shock



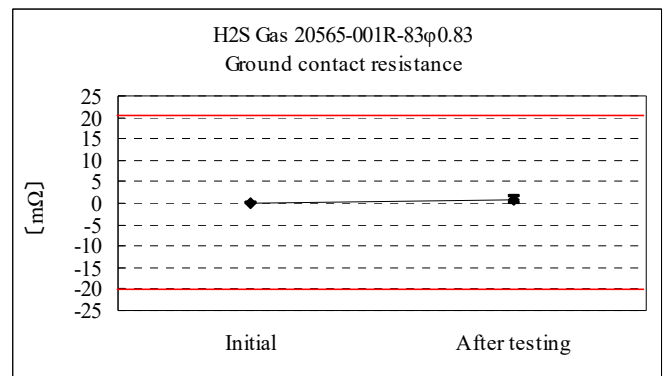
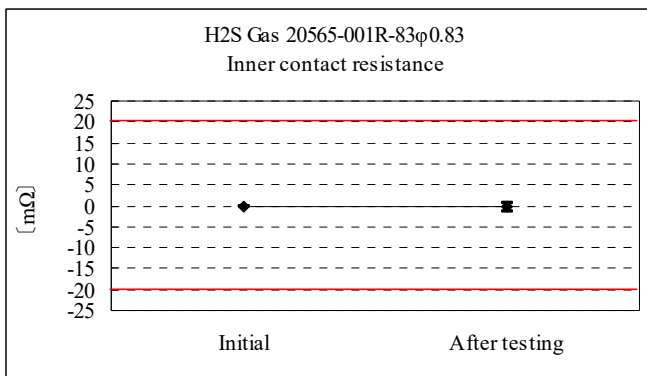
Graph 7 High temperature life



Graph 8 Humidity(Steady state)



Graph 9 Salt water spray



Graph 10 H₂S Gas