MHF® 4L Connector with Lock

Part No. Plug: 20632-001R-37, Receptacle: 20579-001E-**,

Locking Function: 3615-000*

Test Report

Product Specification no. PRS-2556

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Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of MHF 4L LK Connector in accordance with PRS-2556.

2. Specimen

(1) MHF 4L Plug Connector (Part No. 20632-001R-37)
Cable: AWG#30 coaxial cable (jacket diameter 1.37mm)
(2) MHF 4L Receptacle Connector (Part No. 20579-001E-**)
Locking Function (Part No. 3615-000*)

3. Test Sequence

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

4. Result

See Table 2, Graph 1 to 19. For the details of the testing conditions and requirements, see PRS-2556.
The “n” in the tables show the number of measurement points.

5. Conclusion

All the specimens met the requirements of PRS-2556.

Table 1 Test Sequence and Sample Quantity

Test Item	Group														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
Contact Resistance					1 3		1 3	1 3	1 5	1 5	1 3	1 3	1 3		
Insulation Resistance									2 6	2 6					
D. W. Voltage	1								3 7	3 7					
VSWR		1													
Mating Force			1												
Forcedly Unmating Force				1											
Durability					2										
Cable Retention Force						1									
Vibration							2								
Shock								2							
Humidity(Steady State)									4						
Thermal Shock										4					
High Temperature Life											2				
H2S Gas												2			
Salt Water Spray													2		
Solder ability														1	
Soldering Heat Resistance															1
Specimen Quantity.	10 pcs.	10 pos.	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.							----------
				----------	10	----------	Results : No abnormality				Pass
B	VSWR PLUG	0.1~3GHz		1.30 MAX.	10	----------	1.087	1.10	1.08	0.006	Pass
		3~6GHz		1.40 MAX.	10	----------	1.188	1.22	1.17	0.014	Pass
		6~9GHz		1.50 MAX.	10	----------	1.192	1.23	1.16	0.019	Pass
		9~12GHz		1.60 MAX.	10	----------	1.186	1.27	1.14	0.040	Pass
	VSWR Receptacle	0.1~3GHz		1.30 MAX.	5	----------	1.050	1.06	1.04	0.005	Pass
		3~6GHz		1.40 MAX.	5	----------	1.119	1.12	1.12	0.002	Pass
		6~9GHz		1.50 MAX.	5	----------	1.301	1.32	1.28	0.013	Pass
		9~12GHz		1.65 MAX.	5	----------	1.469	1.52	1.43	0.032	Pass
C	Mating force	Initial		30 MAX.	10	N	20.25	22.5	18.0	1.45	Pass
		30 cycles			10	N	9.77	10.3	9.2	0.40	Pass
D	Forcedly unmating force		Initial	18 MIN.	10	N	25.44	27.6	23.9	1.62	Pass
E	Durability										
		Contact resistance of inner contact									
			Initial	20 MAX.	10	mΩ	6.30	7.3	5.3	0.58	Pass
			After testing	----------	10	mΩ	6.61	7.3	5.7	0.64	----------
			⊿R	20 MAX.	10	mΩ	0.31	1.5	-0.4	0.58	Pass
		Contact resistance of ground contact									
			Initial	20 MAX.	10	mΩ	5.56	6.8	5.1	0.56	Pass
			After testing	----------	10	mΩ	6.53	8.2	5.9	0.67	----------
			⊿R	20 MAX.	10	mΩ	0.97	1.7	0.1	0.51	Pass
		Appearance	Spec:No abnormality adversely affecting the performance shall occur.								
			Initial	No abnormality	10	----------	No abnormality				Pass
			After testing	No abnormality	10	----------	No abnormality				Pass
F	Cable retention force			15 MIN.	10	N	22.63	23.8	21.6	0.672	Pass
G	Vibration										
		Contact resistance of inner contact									
			Initial	20 MAX.	10	mΩ	5.95	7.0	5.4	0.52	Pass
			After testing	----------	10	mΩ	6.71	7.4	6.2	0.47	----------
			⊿R	20 MAX.	10	mΩ	0.76	2.0	0.0	0.59	Pass
		Contact resistance of ground contact									
			Initial	20 MAX.	10	mΩ	6.05	6.7	5.4	0.42	Pass
			After testing	----------	10	mΩ	6.94	8.1	5.9	0.73	----------
			⊿R	20 MAX.	10	mΩ	0.89	2.0	-0.6	0.87	Pass
		Electrical discontinuity		Spec. : No electrical discontinuity grater than 1μsec. shall occur.							----------
				----------	10	----------	Results : No discontinity				Pass
		Appearance	Spec:No abnormality adversely affecting the performance shall occur.								
			Initial	No abnormality	10	----------	No abnormality				Pass
			After testing	No abnormality	10	----------	No abnormality				Pass

Table 2-2

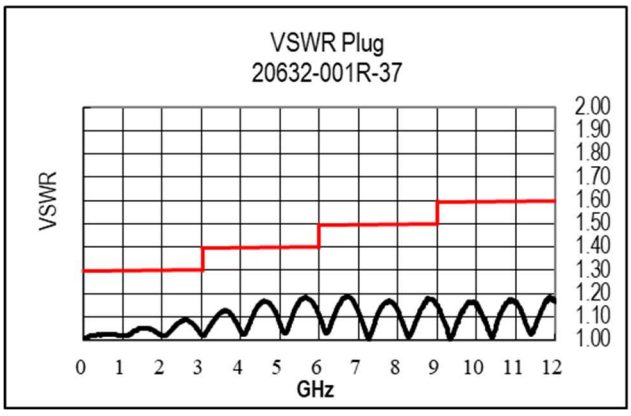
	Test items	Measurements		Spec.	n	Unit	AVE.	MAX.	MIN.	S	Judge
H	Shock										
		Contact resistance of inner contact									
			Initial	20 MAX.	10	mΩ	6.71	7.4	6.2	0.47	Pass
			After testing	----------	10	mΩ	7.19	7.8	6.4	0.43	----------
			⊿R	20 MAX.	10	mΩ	0.48	1.6	-0.9	0.79	Pass
		Contact resistance of ground contact									
			Initial	20 MAX.	10	mΩ	6.94	8.1	5.9	0.73	Pass
			After testing	----------	10	mΩ	7.32	8.4	6.2	0.70	----------
			⊿R	20 MAX.	10	mΩ	0.38	1.5	-0.3	0.55	Pass
		Electrical discontinuity		Spec. : No electrical discontinuity grater than 1μsec. shall occur.							----------
				----------	10	----------	Results : No discontinity				Pass
		Appearance	Spec:No abnormality adversely affecting the performance shall occur.								
			Initial	No abnormality	10	----------	No abnormality				Pass
			After testing	No abnormality	10	----------	No abnormality				Pass
J	Humidity(Steady State)										
		Contact resistance of inner contact									
			Initial	20 MAX.	10	mΩ	6.65	7.0	5.9	0.40	Pass
			After testing	----------	10	mΩ	7.03	8.2	6.1	0.74	----------
			⊿R	20 MAX.	10	mΩ	0.38	1.8	-0.9	0.90	Pass
		Contact resistance of ground contact									
			Initial	20 MAX.	10	mΩ	5.94	6.7	5.2	0.51	Pass
			After testing	----------	10	mΩ	6.91	8.1	6.2	0.59	----------
			⊿R	20 MAX.	10	mΩ	0.97	2.2	-0.4	0.86	Pass
		Insulation resistance									
			Initial	500 MIN.	10	MΩ	10,000 (minimum value)				Pass
			After testing	100 MIN.	10	MΩ	10,000 (minimum value)				Pass
		Dielectric withstanding voltage	Initial	No abnormality	10	----------	No abnormality				Pass
			After testing	No abnormality	10	----------	No abnormality				Pass
		Appearance	Spec:No abnormality adversely affecting the performance shall occur.								
			Initial	No abnormality	10	----------	No abnormality				Pass
			After testing	No abnormality	10	----------	No abnormality				Pass

Table 2-3

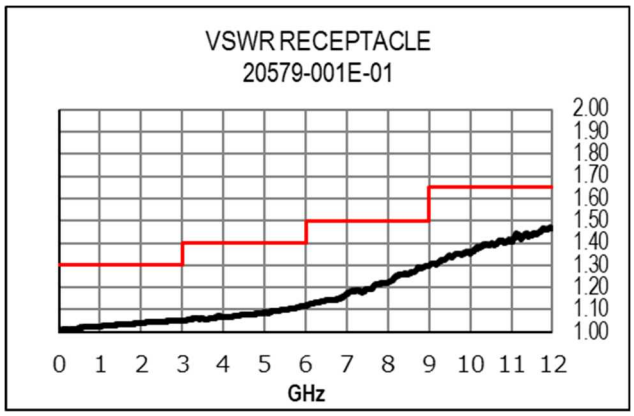
	Test items	Measurements		Spec.	n	Unit	AVE.	MAX.	MIN.	S	Judge
K	Thermal shock										
		Contact resistance of inner contact									
			Initial	20 MAX.	10	mΩ	6.23	6.9	5.5	0.42	Pass
			After testing	----------	10	mΩ	6.90	7.6	6.3	0.41	----------
			⊿R	20 MAX.	10	mΩ	0.68	1.4	-0.4	0.51	Pass
		Contact resistance of ground contact									
			Initial	20 MAX.	10	mΩ	5.69	6.6	5.1	0.65	Pass
			After testing	----------	10	mΩ	6.90	8.0	6.0	0.62	----------
			⊿R	20 MAX.	10	mΩ	1.21	2.3	-0.5	0.86	Pass
		Insulation resistance	Initial	500 MIN.	10	MΩ	10,000 (minimum value)				Pass
			After testing	100 MIN.	10	MΩ	10,000 (minimum value)				Pass
		Dielectric withstanding voltage	Initial	No abnormality	10	----------	No abnormality				Pass
			After testing	No abnormality	10	----------	No abnormality				Pass
		Appearance	Spec:No abnormality adversely affecting the performance shall occur.								
			Initial	No abnormality	10	----------	No abnormality				Pass
			After testing	No abnormality	10	----------	No abnormality				Pass
L	High temperature life										
		Contact resistance of inner contact									
			Initial	20 MAX.	10	mΩ	6.31	7.3	5.4	0.74	Pass
			After testing	----------	10	mΩ	7.00	7.6	6.1	0.44	----------
			⊿R	20 MAX.	10	mΩ	0.69	2.0	-0.3	0.78	Pass
		Contact resistance of ground contact									
			Initial	20 MAX.	10	mΩ	6.17	6.8	5.4	0.43	Pass
			After testing	----------	10	mΩ	6.77	7.6	6.1	0.52	----------
			⊿R	20 MAX.	10	mΩ	0.60	2.2	-0.3	0.68	Pass
		Appearance	Spec:No abnormality adversely affecting the performance shall occur.								
			Initial	No abnormality	10	----------	No abnormality				Pass
			After testing	No abnormality	10	----------	No abnormality				Pass

Table 2-4

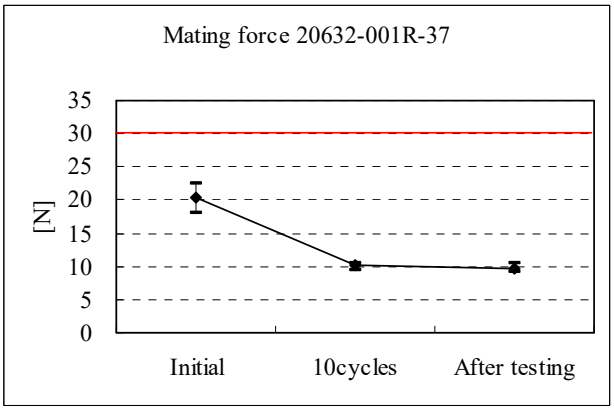
	Test items	Measurements		Spec.	n	Unit	AVE.	MAX.	MIN.	S	Judge
M	H2S Gas										
		Contact resistance of inner contact									
			Initial	20 MAX.	10	mΩ	6.68	7.3	6.1	0.40	Pass
			After testing	----------	10	mΩ	6.74	7.9	6.1	0.60	----------
			⊿R	20 MAX.	10	mΩ	0.05	1.2	-1.2	0.78	Pass
		Contact resistance of ground contact									
			Initial	20 MAX.	10	mΩ	6.30	6.7	5.7	0.36	Pass
			After testing	----------	10	mΩ	7.28	8.1	6.4	0.54	----------
			⊿R	20 MAX.	10	mΩ	0.98	1.7	0.0	0.58	Pass
		Appearance	Spec:No abnormality adversely affecting the performance shall occur.								
			Initial	No abnormality	10	----------	No abnormality				Pass
			After testing	No abnormality	10	----------	No abnormality				Pass
N	Salt water spray										
		Contact resistance of inner contact									
			Initial	20 MAX.	10	mΩ	6.47	7.3	5.5	0.68	Pass
			After testing	----------	10	mΩ	7.17	8.3	6.5	0.56	----------
			⊿R	20 MAX.	10	mΩ	0.71	1.5	-0.4	0.60	Pass
		Contact resistance of ground contact									
			Initial	20 MAX.	10	mΩ	6.04	6.8	5.4	0.51	Pass
			After testing	----------	10	mΩ	6.73	7.9	5.9	0.62	----------
			⊿R	20 MAX.	10	mΩ	0.70	1.9	-0.5	0.75	Pass
		Appearance	Spec:No abnormality adversely affecting the performance shall occur.								
			Initial	No abnormality	10	----------	No abnormality				Pass
			After testing	No abnormality	10	----------	No abnormality				Pass
P	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	----------	No abnormality				Pass
Q	Soldering heat resistance			Spec.:Abnormality adversely affecting the performance should not occur.							
				----------	10	----------	No abnormality				Pass



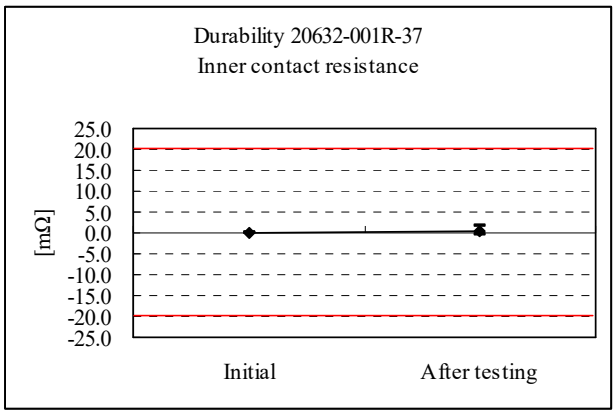
Graph.1 VSWR ~PLUG~



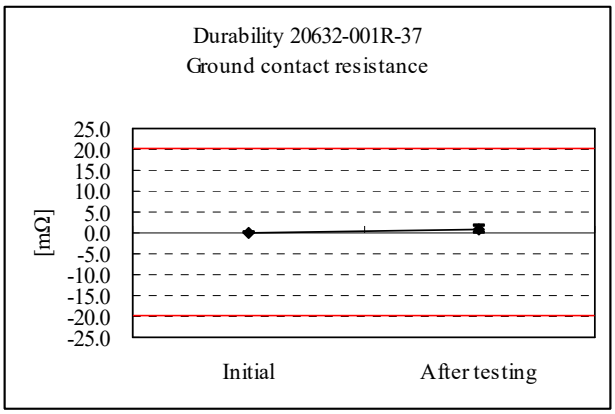
Graph.2 VSWR ~Receptacle~



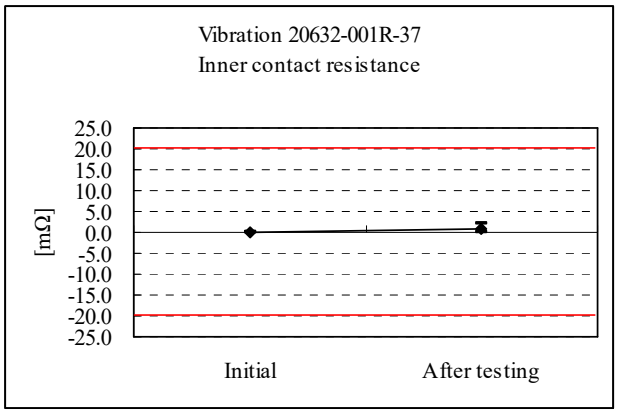
Graph.3 Mating force



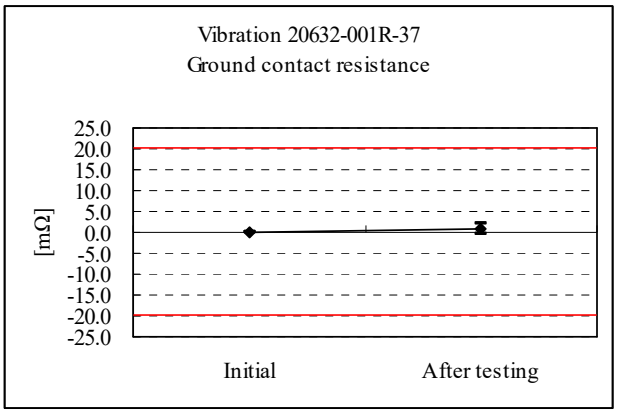
Graph.4 Durability ~Inner contact resistance~



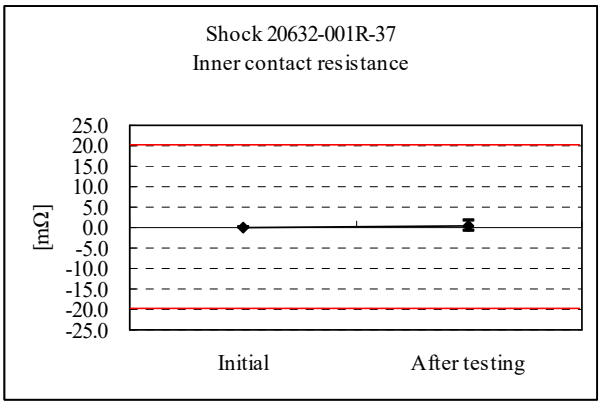
Graph.5 Durability ~Ground contact resistance~



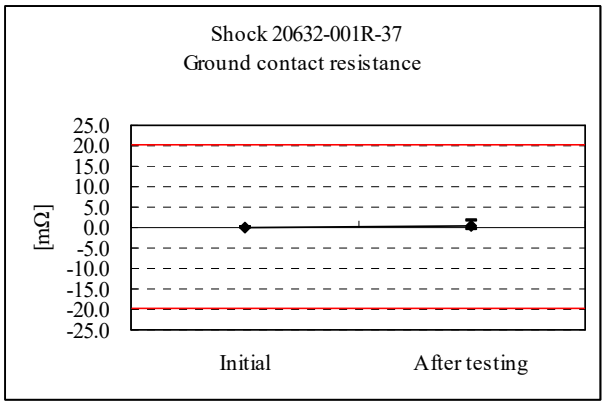
Graph.6 Vibration ~Inner contact resistance~



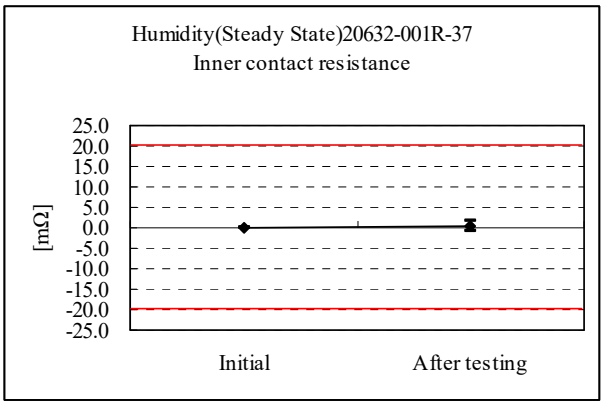
Graph.7 Vibration ~Ground contact resistance~



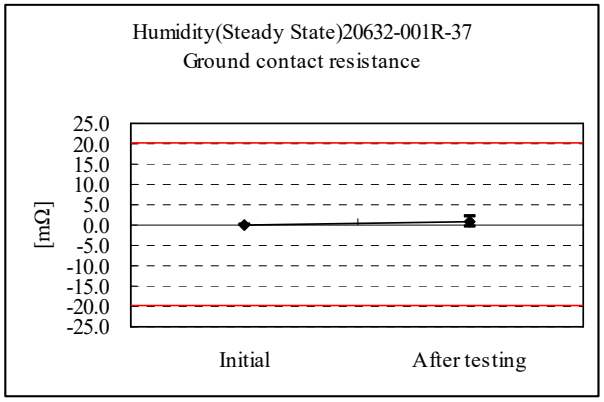
Graph.8 Shock ~Inner contact resistance~



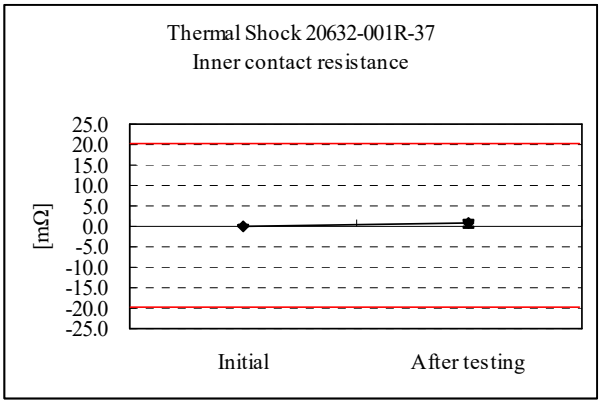
Graph.9 Shock ~Ground contact resistance~



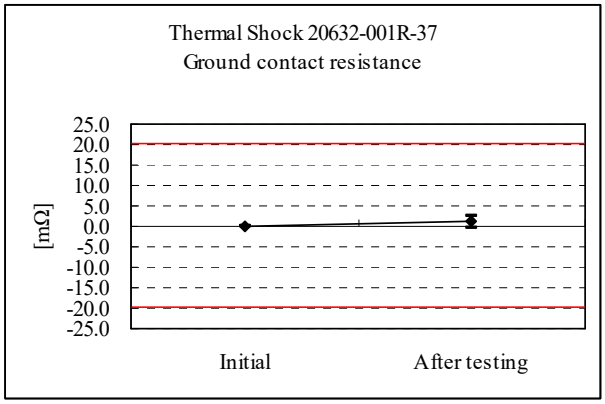
Graph.10 Humidity ~Inner contact resistance~



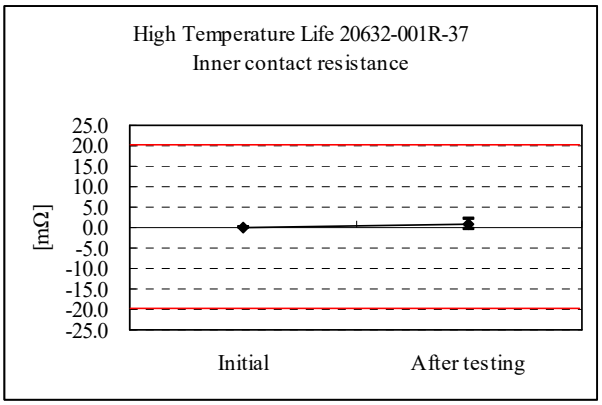
Graph.11 Humidity ~Ground contact resistance~



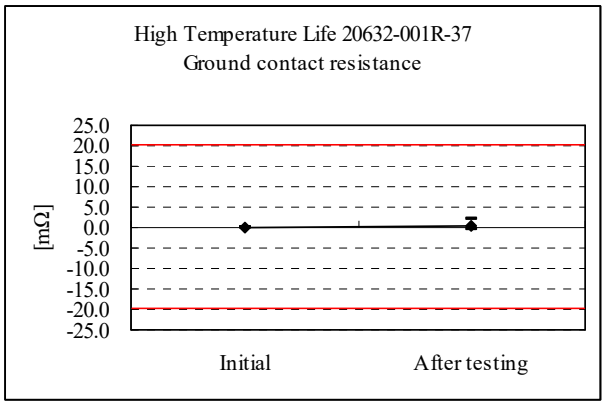
Graph.12 Thermal shock ~Inner contact resistance~



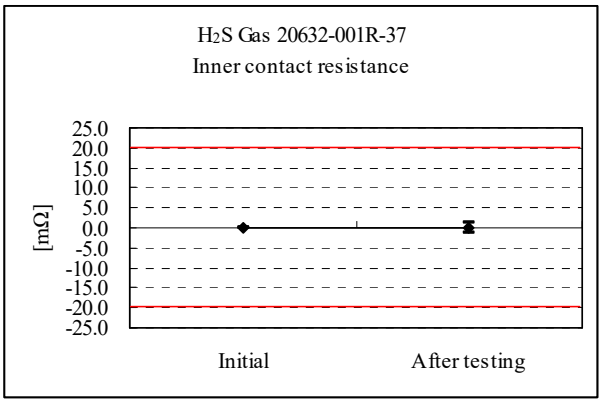
Graph.13 Thermal shock ~Ground contact resistance~



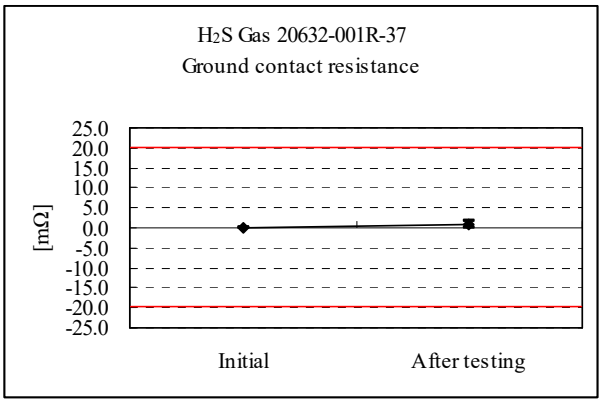
Graph.14 High temperature life ~Inner contact resistance~



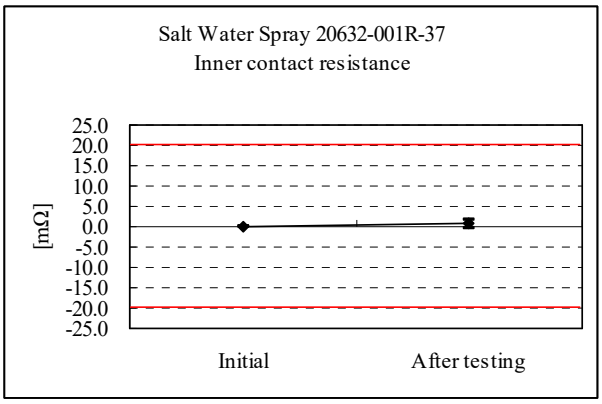
Graph.15 High temperature life ~Ground contact resistance~



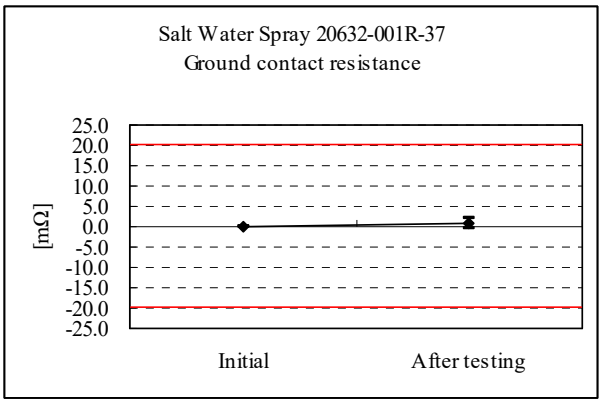
Graph.16 Salt water spray ~Inner contact resistance~



Graph.17 Salt water spray ~Ground contact resistance~



Graph.18 Salt water spray ~Inner contact resistance~



Graph.19 Salt water spray ~Ground contact resistance~