

MHF® I Connector with Lock

Part No. Plug: 20278-112R-18, Lock: 3376-000*

Test Report

Product Specification no. PRS-2396

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0	T24080	December 9, 2024	T. Hayakawa	T. Takuno	K. Yufu
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of MHF I Connector with LockConnector in accordance with PRS-2396.

2. Specimen

- (1) MHF I PLUG ASS'Y (Part No. 20278-112R-18)
- (2) LOCK (Part No. 3376-000*)
- (3) MHF I RECEPTACLE ASS'Y (Part No. 20279-001E-0*)

3. Test Sequence

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

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See Table 2, Graph 1 to 10. For the details of the testing conditions and requirements, see PRS-2396.

5. Conclusion

All the specimens met the requirements of PRS-2396.

5-1 Test Sequence and Sample Quantity

Table.1 Test Sequence and Sample Quantity

Test Item Group															
iest item	A	В	С	D	Е	F	G	Group H	J	K	L	М	N	Р	Q
Contact resistance		D	O	D	<u> </u>	1,3	1,3	1,3	1,3	1,4	1,4	1,3	1,3	'	Q
Insulation resistance										2,5	2,5				
Dielectric Withstanding Voltage	1														
VSWR		1													
Un-mating force <unlock state=""></unlock>			1												
Un-mating force <lock state=""></lock>				1											
Crimp strength					1										
Durability						2									
Contact resistance with force on the cable							2								
Vibration								2							
Shock									2						
Thermal shock										3					
Humidity(Steady state)											3				
Salt water spray												2			
High temperature life													2		
Solder ability														1	
Soldering heat Resistance															1
Sample Quantity	10	5	10	10	10	10	10	10	10	10	10	10	10	10	10

XNumbers indicate test sequences in which tests are performed.

Table.2 Test Result

Group	Test items		Specification Specification	Number of	Unit	AVE.	MAX.	MIN.	S	Judgemen			
Oroup		Measurements	- Specification	samples	Offic	AVL.	IVIAA.						
Α	Dielectric w	vithstanding voltage											
		Initial	Spec: No creeping discharg	je, flashover, no i	nsulator	breakdow	n shall occ	cur.					
			-	10	-	No abno	rmality			Pass			
В	VSWR												
	Plug												
		0.1 ∼ 3.0GHz	1.3 MAX.	5	-	1.172	1.19	1.15	0.011	Pass			
		3.0 ∼ 6.0GHz	1.5 MAX.	5	-	1.368	1.40	1.34	0.017	Pass			
		6.0∼9.0GHz	1.9 MAX.	5	-	1.428	1.46	1.36	0.025	Pass			
	Recept	acle				1	<u>I</u>		1	1			
		0.1~3.0GHz	1.3 MAX.	5	-	1.085	1.09	1.08	0.006	Pass			
		3.0∼6.0GHz	1.4 MAX.	5	-	1.233	1.27	1.18	0.033	Pass			
		6.0 ∼ 9.0GHz	1.8 MAX.	5	-	1.515	1.60	1.41	0.068	Pass			
С	Unmating force												
	Total fo	rce <unlock state=""></unlock>											
		Initial	5 MIN.	10	N	16.11	17.4	14.8	0.77	Pass			
		30 cycles	3 MIN.	10	N	11.04	11.9	10.2	0.56	Pass			
	Inner co	ontact											
		Initial	0.15 MIN.	10	N	0.369	0.39	0.35	0.014	Pass			
		30 cycles	0.10 MIN.	10	N	0.230	0.25	0.22	0.011	Pass			
D	I In moting	force <lock state=""></lock>											
D	On-maing	Initial	20 MIN.	10	N	36.89	38.0	35.9	0.88	Pass			
		ii ii dai	20 111111	10		00.00	00.0	00.0	0.00	1 400			
Е	Crimp stre	ngth											
		-	15N MIN.	10	N	24.92	27.4	22.9	1.31	Pass			
	•	•	•			•		•	•	•			
F	Durability												
	Contac	t resistance of main co	ntact										
		Initial	20 MAX.	10	m۸	8.52	9.0	8.3	0.22	Pass			
		After testing	25 MAX.	iv	mΩ	9.12	9.4	8.5	0.28	Pass			
	Contac	t resistance of ground	contact					•	•	-			
		Initial	10 MAX.	10	m O	4.87	5.5	4.2	0.40	Pass			
		After testing	15 MAX.	10	mΩ	5.74	8.0	3.2	1.65	Pass			

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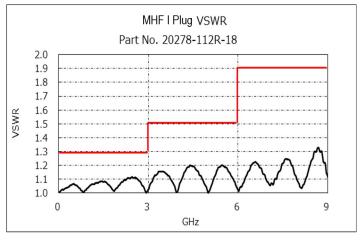
Group	Test items		Specification	Number of	Unit	AVE.	MAX.	MIN.	S	Judgement		
	0 1 1 .	Measurements	<u>'</u>	samples								
G		Contact resistance with force on the cable										
	Contact	resistance of main conta		1 1			0.0		0.00			
		Initial	20 MAX.	10	mΩ	8.49	9.3	6.0	0.96	Pass		
		After testing	25 MAX.			8.85	9.8	6.6	0.89	Pass		
	Contact	resistance of ground cor	ntact									
		Initial	10 MAX.	10	mΩ	5.05	5.7	4.5	0.47	Pass		
		After testing	15 MAX.	10	11122	5.37	6.3	4.2	0.80	Pass		
	Electrica	al discontinuity										
		Spec: No creeping discharge, flashover, no insulator breakdown shall occur.										
		After testing - 10 - No abnormality										
	Appeara	ance	•							•		
		Initial	No abnormality adversely affecting	10		No abno	rmality			Pass		
		After testing	the performance shall occur.	10	-	No abno	rmality			Pass		
		•										
Н	Vibration											
	Contact	resistance of main conta	nct									
		Initial	20 MAX.	40	0	8.83	10.1	7.8	0.74	Pass		
		After testing	25 MAX.	10	mΩ	8.50	9.4	7.7	0.50	Pass		
	Contact	resistance of ground cor	ntact	1		<u> </u>				1		
		Initial	10 MAX.	10		5.18	6.3	4.4	0.63	Pass		
		After testing	15 MAX.	10	mΩ	5.20	6.0	4.5	0.45	Pass		
	Electrica	al discontinuity		11		- L				1		
			charge, flashover, no insulator bre	akdown shall	occur.							
		After testing	-	10	-	No abno	rmality			Pass		
	Appeara					1				1		
	FF	Initial	No abnormality adversely affecting			No abno	rmality			Pass		
		After testing	the performance shall occur.	10	-	No abno				Pass		
] 5	· ·	<u> </u>								
J	Shock											
	Contact	resistance of main conta	act									
		Initial	20 MAX.			8.83	10.1	7.8	0.74	Pass		
		After testing	25 MAX.	10	mΩ	8.79	9.3	8.0	0.47	Pass		
	Contact	resistance of ground cor				1 35				1		
	00.110.01	Initial	10 MAX.			5.18	6.3	4.4	0.63	Pass		
		After testing	15 MAX.	10	mΩ	5.22	5.9	4.3	0.56	Pass		
	Electrica	al discontinuity	1			1			3.00	1		
	Lioouioc	,	charge, flashover, no insulator bre	akdown shall	occur							
			inaige, ilasilovei, ilo liisulaloi bie	10		No abno	rm alit :			Pass		
	Annas	After testing	-	10	-	וויט מטווס	mailly			rass		
	Appeara		No obnormality advarsaly offer the			No obse	rm alit :			Dest		
		Initial	No abnormality adversely affecting	10	-	No abno				Pass		
		After testing	the performance shall occur.			No abno	Pass					

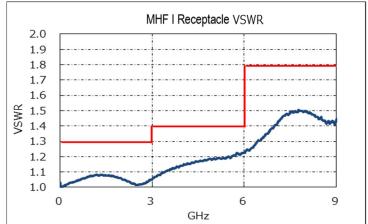
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Crous	Test items		Specification	Number of	Unit	AVE.	MAX.	MINI	S	ludgomont	
Group		Measurements	Specification	samples	UIII	AVE.	WAX.	MIN.	٥	Judgement	
K	Thermal shock										
	Contact	resistance of main contac	ct								
		Initial	20 MAX.	10	mΩ	8.88	9.2	8.6	0.15	Pass	
		After testing	25 MAX.	10	11122	8.92	10.2	8.4	0.53	Pass	
	Contact	resistance of ground conf	act								
		Initial	10 MAX.	10	mΩ	4.65	5.7	3.9	0.62	Pass	
		After testing	15 MAX.	10	11122	4.67	5.9	4.1	0.69	Pass	
	Insulation residence										
		Initial	500MΩ MIN.	10	МΩ	10,000M	ΩMIN.			Pass	
		After testing	100MΩ MIN.	10	IVILL	10,000M	ΩMIN.			Pass	
	Appeara	ance									
		Initial	No abnormality adversely affecting	40		No abno	rmality			Pass	
		After testing	the performance shall occur.	10	-	No abno	Pass				
						II.	<u> </u>				
L	Humidity(St	eady State)									
	Contact	resistance of main contac	t								
		Initial	20 MAX.	40	0	8.79	9.6	8.2	0.36	Pass	
		After testing	25 MAX.	10	mΩ	8.83	9.3	8.3	0.30	Pass	
	Contact	resistance of ground conf	act						<u> </u>	1	
		Initial	10 MAX.	40	_	4.79	5.7	4.3	0.41	Pass	
		After testing	15 MAX.	10	mΩ	4.47	5.5	4.0	0.42	Pass	
	Insulatio	n residence				I					
		Initial	500MΩ MIN.	40		10,000M	ΩMIN.			Pass	
		After testing	100MΩ MIN.	10	MΩ	10,000M	ΩMIN.			Pass	
	Appeara		1			1					
		Initial	No abnormality adversely affecting	10		No abno	rmality			Pass	
		After testing	the performance shall occur.	10	-	No abno	rmality			Pass	
						-				-	
М	Salt water s	pray									
	Contact	resistance of main contac	ot								
		Initial	20 MAX.	10	mΩ	8.52	9.2	8.1	0.34	Pass	
		After testing	25 MAX.	10	11177	8.20	8.6	7.9	0.26	Pass	
	Contact	resistance of ground cont	act						• •		
		Initial	10 MAX.	10	mΩ	4.55	6.0	3.8	0.68	Pass	
		After testing	15 MAX.	10	11177	4.57	5.6	3.6	0.68	Pass	
	Appeara	Appearance									
		Initial	No abnormality adversely affecting	10		No abno	•			Pass	
		After testing	the performance shall occur.	10	-	No abno	Pass				

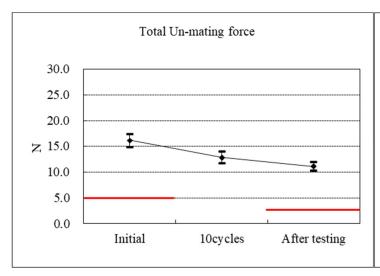
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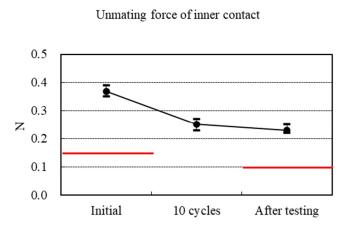
Group	Test items		Specification	Number of	Unit	AVE.	MAX.	MIN.	S	Judgement		
Group		Measurements	Specification	samples	Offic	AVE.	IVIAA.	IVIIIN.	0	Judgemen		
N	High Temperature Life											
	Contact resistance of main contact											
	l Ir	nitial	20 MAX.	10	mΩ	8.86	9.4	8.5	0.29	Pass		
		After testing	25 MAX.] 10	11122	9.61	10.5	9.2	0.40	Pass		
	Contact resistance of ground contact											
	l Ir	nitial	10 MAX.	10	mΩ	4.56	5.1	3.8	0.45	Pass		
		After testing	15 MAX.] 10	11112	5.14	5.8	4.5	0.43	Pass		
	Appearan	ice	•	•			•	•		_		
	l Ir	nitial	No abnormality adversely affecting	10		No abno	rmality	Pass				
		After testing	the performance shall occur.	10	-	No abno	rmality	Pass				
			•			•						
Р	Solder ability											
	[9	Spec: More than 95%	% of the dipped surface shall be eve	nly wet.								
		After testing	-	10	-	No abno	rmality			Pass		
Q	Reflow soldering heat resistance											
	Appearance											
	[5	Spec: No abnormalit	y adversely affecting the performan	ice shall occu	r.							
		After testing	-	10	_	No abno	rmality			Pass		



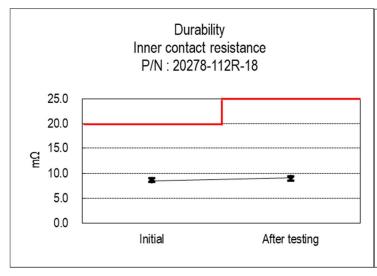


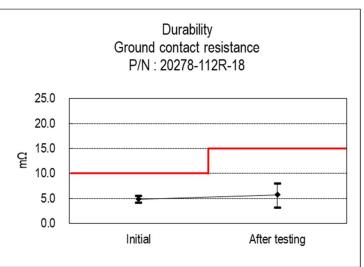
(Graph 1) VSWR



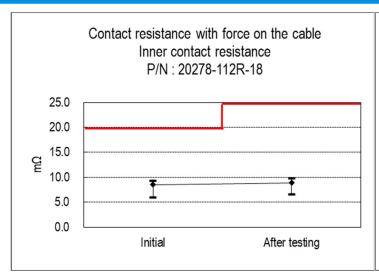


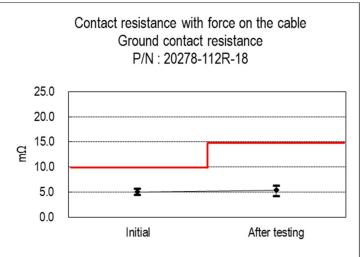
(Graph 2) Unmating force



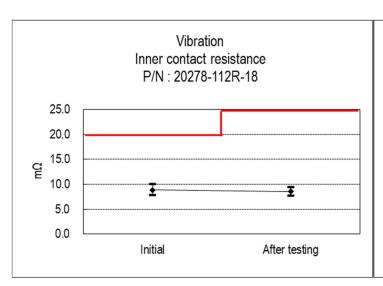


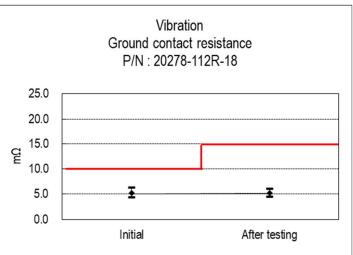
(Graph 3) Durability



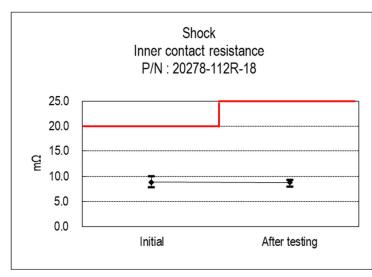


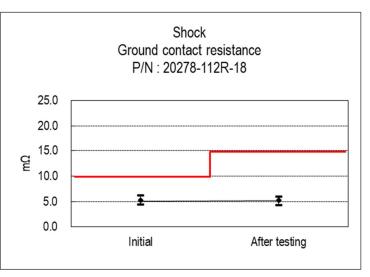
(Graph 4) Contact resistance with force on the cable



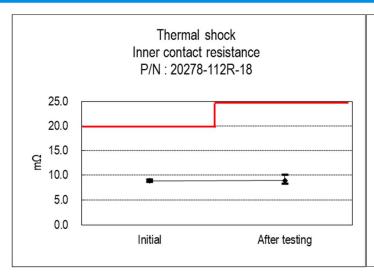


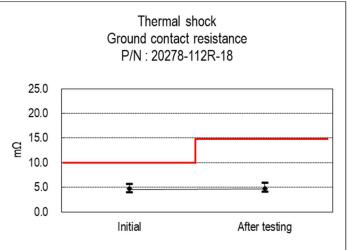
(Graph 5) Vibration



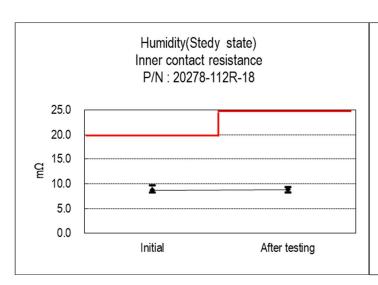


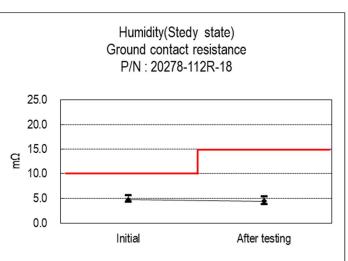
(Graph 6) Shock



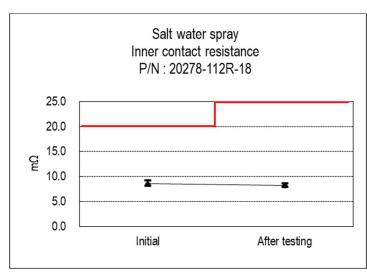


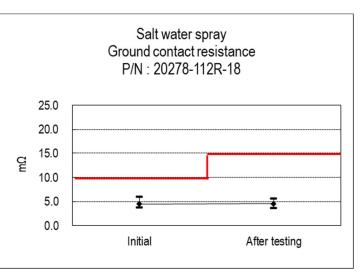
Graph 7) Thermal Shock



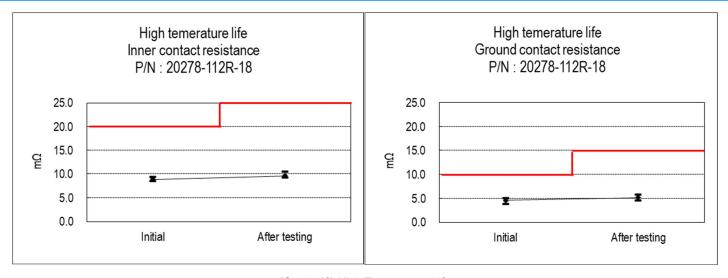


(Graph 8) Humidity (Steady State)





(Graph 9) Salt Water Spray



(Graph 10) High Temperature Life