

MHF[®]-SW23

Part No. 20549-001E-**

Test Report

Product Specification no. PRS-1672

5	T20033	April 16, 2020	Y. Imaji	K. Yufu	Y. Hashimoto
4	T18048	May 2, 2018	M.Nomoto	K.Yufu	K.Yotsutani
3	T17022	January 31, 2017	Y.Imaji	Y.Hashimoto	K.Yotsutani
2	T16057	April 12, 2016	M.Nomoto	Y.Hashimoto	K.Yotsutani
Rev.	ECN	Date	Prepared by	Checked by	Approved by

MHF-SW23 Test Report

1. 目的 / Purpose

MHF-SW23 の性能を PRS-1672 に基づいて評価する。

To evaluate the performance of MHF-SW23 in accordance with PRS-1672.

2. 試料 / Specimen

(1) MHF-SW23 (Part No. 20549-001E-**)

(2) MHF-SW23 SMA ADAPTER CABLE (Part No. 90582-0400)

3. 試験順序 / Test Sequence

全ての評価は Table 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. 試験結果 / Test Result

表 2～5、グラフ 1～9 参照。試験条件の詳細は PRS-1672 参照。n 数は測定データを意味する。

See Table 2 to 5, Graph 1 to 9. For the details of the testing conditions and requirements, see PRS-1672.

The “n” in the tables show the number of measurement points.

5. 結論 / Conclusion

全ての試料が製品規格（PRS-1672）の必要条件を満足した。

All the specimens met the requirements of PRS-1672.

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
接触抵抗 Contact Resistance			1,3	1,3,5	1,3	1,3	1,3	1,3		
絶縁抵抗 Insulation Resistance	1				4	4	4	4		
耐電圧 D.W Voltage	2									
電圧定在波比 VSWR		1								
挿入損失 Insertion Loss		2								
逆方向挿入損失 Isolation		3								
耐久性 Durability			2							
耐振動性 Vibration				2						
耐衝撃性 Shock				4						
湿度 (定常状態) Humidity (Steady State)					2					
熱衝撃 Thermal Shock						2				
耐熱性 Dry Heat							2			
耐寒性 Cold								2		
塩水噴霧 Salt Water Spray									1	
半田耐熱性 Resistance to Soldering Heat										1
試料数 (pcs) Specimen Quantity (pcs)	5	5	5	5	5	5	5	5	5	5

※グループ表中の番号は、試験順序を示す。 / Numbers indicate sequence in which tests are performed.

MHF-SW23 Test Report

Table 2-1 試験結果/Test result

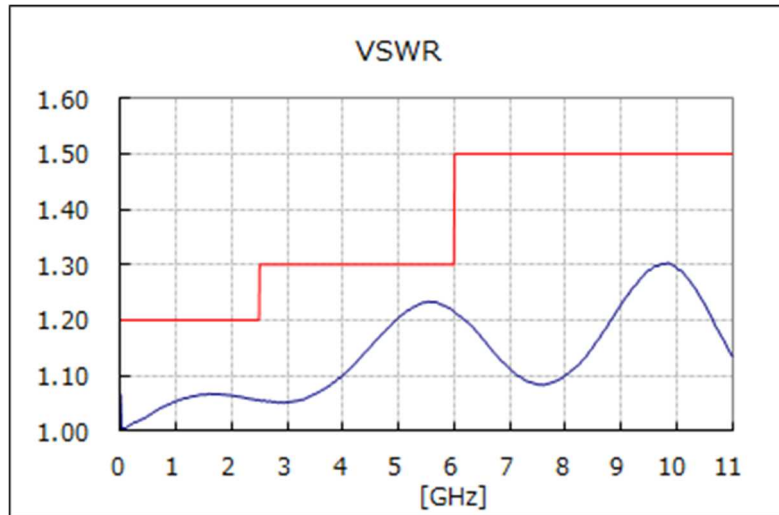
Group	試験項目/Test items	規格	試料数	単位	平均	最大	最小	判定
	測定項目/Measurements	Spec.	n	Unit	AVE.	MAX.	MIN.	Judge
A	絶縁抵抗/Insulation resistance							
	Initial	1000MΩ MIN.	5	MΩ	2.36x10 ⁴ MIN.			Pass
	耐電圧/Dielectric withstanding voltage							
	Initial	No abnormality	10	-	異常なし/No abnormality			Pass
B	(On State) 電圧定在波比/VSWR							
	300K-2.5GHz	1.2 MAX.	5	-	1.083	1.11	1.07	Pass
	2.5-6.0GHz	1.3 MAX.		-	1.251	1.27	1.23	Pass
	6.0-11.0GHz	1.5 MAX.		-	1.285	1.30	1.28	Pass
	(On State) 挿入損失/Insertion Loss							
	300K-2.5GHz	0.15 MAX.	5	dB	0.072	0.08	0.06	Pass
	2.5-6.0GHz	0.20 MAX.			0.154	0.17	0.14	Pass
	6.0-11.0GHz	0.40 MAX.			0.181	0.20	0.16	Pass
	(Off State) 逆方向挿入損失/Isolation							
	300K-3.0GHz	20 MIN.	5	dB	36.58	36.6	36.5	Pass
3.0-6.0GHz	15 MIN.	22.58			22.7	22.5	Pass	
6.0-11.0GHz	12 MIN.	17.86			18.2	17.4	Pass	
C	耐久性/Durability							
	<R1> (On state) 接触抵抗/Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	18.93	20.0	18.4	Pass
	After 100 cycles				20.41	22.3	19.0	Pass
	<R2> (Off state) 接触抵抗/Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	12.65	13.6	11.7	Pass
	After 100 cycles				12.16	13.1	11.0	Pass
	<R3> (Off state) 接触抵抗/Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	10.58	10.7	10.3	Pass
	After 100 cycles				10.79	10.9	10.7	Pass
D	振動/Vibration → 衝撃/Shock							
	<R1> (On state) 接触抵抗/Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	18.70	19.9	16.9	Pass
	After Vibration				20.51	21.5	18.8	Pass
	After Shock				20.28	21.9	19.8	Pass
	<R2> (Off state) 接触抵抗/Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	12.13	13.0	11.7	Pass
	After Vibration				13.30	13.9	12.5	Pass
	After Shock				12.26	14.3	11.1	Pass
	<R3> (Off state) 接触抵抗/Contact resistance							
	Initial	100mΩ MAX.	5	mΩ	11.61	11.8	11.4	Pass
	After Vibration				11.58	12.0	11.1	Pass
	After Shock				11.96	12.6	10.8	Pass
瞬断/Discontinuity								
During Vibration	1μs MAX.	5	-	瞬断無し/No discontinuity			Pass	
During Shock				瞬断無し/No discontinuity			Pass	

Table 2-2 試験結果/Test result

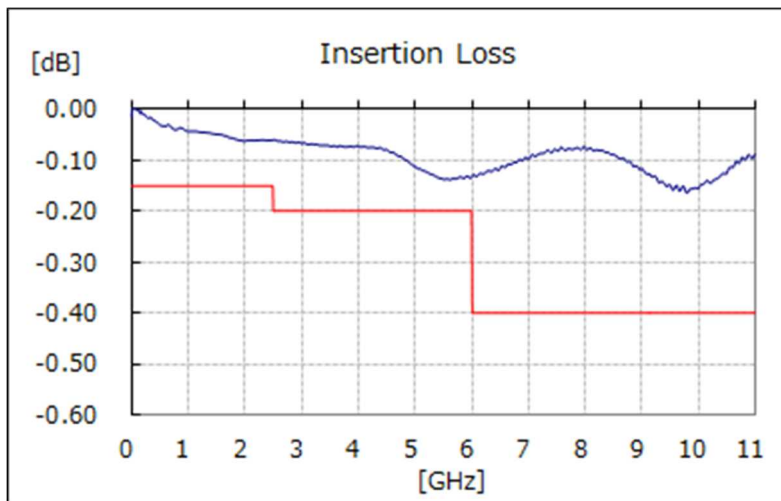
Group	試験項目/Test items	規格	試料数	単位	平均	最大	最小	判定	
	測定項目/Measurements	Spec.	n	Unit	AVE.	MAX.	MIN.	Judge	
E	湿度 (定常状態) / Humidity(Steady State)								
	<R1> (On state) 接触抵抗/Contact resistance								
		Initial	100mΩ MAX.	5	mΩ	17.16	17.9	16.5	Pass
		After testing				19.78	20.5	19.0	Pass
	<R2> (Off state) 接触抵抗/Contact resistance								
		Initial	100mΩ MAX.	5	mΩ	12.96	14.2	11.7	Pass
		After testing				13.16	14.9	11.8	Pass
	<R3> (Off state) 接触抵抗/Contact resistance								
		Initial	100mΩ MAX.	5	mΩ	12.04	12.9	11.5	Pass
		After testing				12.32	13.3	11.8	Pass
	絶縁抵抗/Insulation resistance								
		After testing	10MΩ MIN.	5	MΩ	8.83x10 ² MIN.		Pass	
外観/Appearance									
	After testing	No abnormality	5	-	異常なし/No abnormality		Pass		
F	熱衝撃/Thermal Shock								
	<R1> (On state) 接触抵抗/Contact resistance								
		Initial	100mΩ MAX.	5	mΩ	19.80	20.6	18.7	Pass
		After testing				18.79	21.0	17.4	Pass
	<R2> (Off state) 接触抵抗/Contact resistance								
		Initial	100mΩ MAX.	5	mΩ	13.70	14.9	11.7	Pass
		After testing				13.51	14.7	12.3	Pass
	<R3> (Off state) 接触抵抗/Contact resistance								
		Initial	100mΩ MAX.	5	mΩ	11.23	11.6	10.7	Pass
		After testing				11.76	12.9	11.0	Pass
	絶縁抵抗/Insulation resistance								
		After testing	10MΩ MIN.	5	MΩ	1.1x10 ⁵ MIN.		Pass	
外観/Appearance									
	After testing	No abnormality	5	-	異常なし/No abnormality		Pass		

Table 2-3 試験結果/Test result

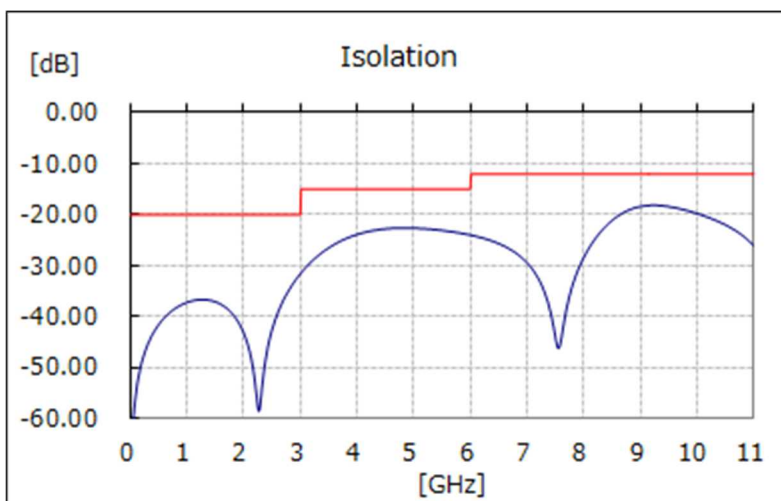
Group	試験項目/Test items	規格 Spec.	試料数 n	単位 Unit	平均 AVE.	最大 MAX.	最小 MIN.	判定 Judge	
	測定項目/Measurements								
G	耐熱性/Dry Heat								
	<R1> (On state) 接触抵抗/Contact resistance								
		Initial	100mΩ MAX.	5	mΩ	19.36	23.1	17.7	Pass
		After testing				20.61	22.0	19.5	Pass
	<R2> (Off state) 接触抵抗/Contact resistance								
		Initial	100mΩ MAX.	5	mΩ	12.43	13.6	11.8	Pass
		After testing				13.12	14.1	13.0	Pass
	<R3> (Off state) 接触抵抗/Contact resistance								
		Initial	100mΩ MAX.	5	mΩ	10.30	11.3	9.5	Pass
		After testing				11.28	11.7	10.3	Pass
	絶縁抵抗/Insulation resistance								
		After testing	10MΩ MIN.	5	MΩ	8.67x10 ⁴ MIN.		Pass	
外観/Appearance									
	After testing	No abnormality	5	-	異常なし/No abnormality		Pass		
H	耐寒性/Cold								
	<R1> (On state) 接触抵抗/Contact resistance								
		Initial	100mΩ MAX.	5	mΩ	20.49	21.8	19.4	Pass
		After testing				20.51	21.2	19.5	Pass
	<R2> (Off state) 接触抵抗/Contact resistance								
		Initial	100mΩ MAX.	5	mΩ	12.87	13.6	11.8	Pass
		After testing				13.58	13.5	11.0	Pass
	<R3> (Off state) 接触抵抗/Contact resistance								
		Initial	100mΩ MAX.	5	mΩ	10.40	11.4	9.5	Pass
		After testing				11.01	12.5	10.3	Pass
	絶縁抵抗/Insulation resistance								
		After testing	10MΩ MIN.	5	MΩ	6.94x10 ⁵ MIN.		Pass	
外観/Appearance									
	After testing	No abnormality	5	-	異常なし/No abnormality		Pass		
J	塩水噴霧/Salt water spray								
		Appearance	-	5	-	異常なし/No abnormality		Pass	
K	半田耐熱性/Resistance to soldering heat								
		Appearance	-	10	-	異常なし/No abnormality		Pass	



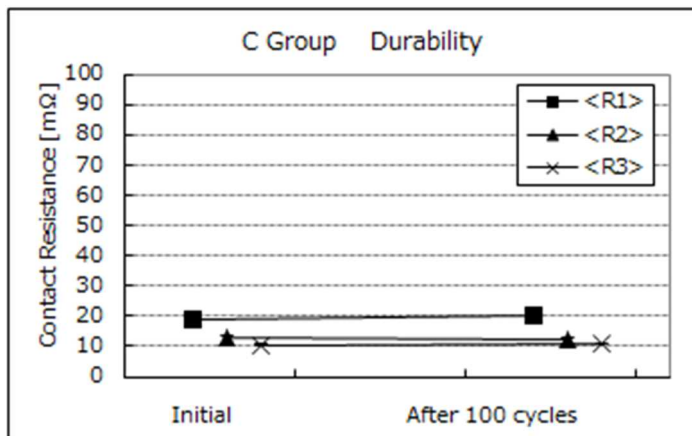
Graph 1 B Group 電圧定在波比/VSWR (On state)



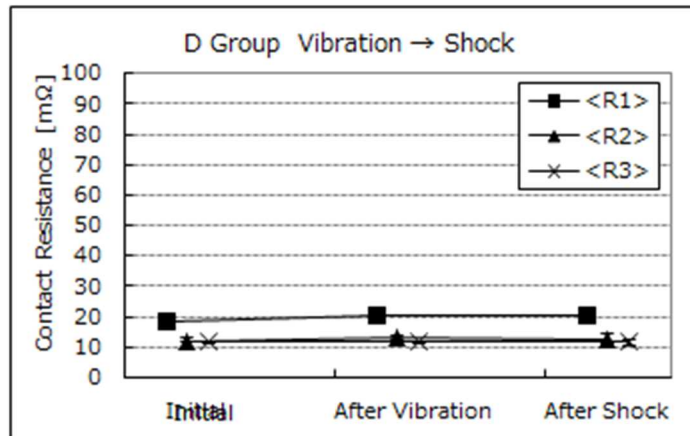
Graph 2 B Group 挿入損失/Insertion Loss (On state)



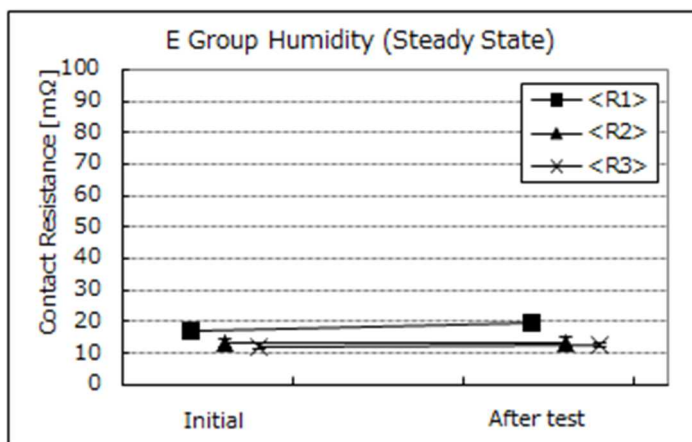
Graph 3 B Group 逆挿入損失/Isolation (Off state)



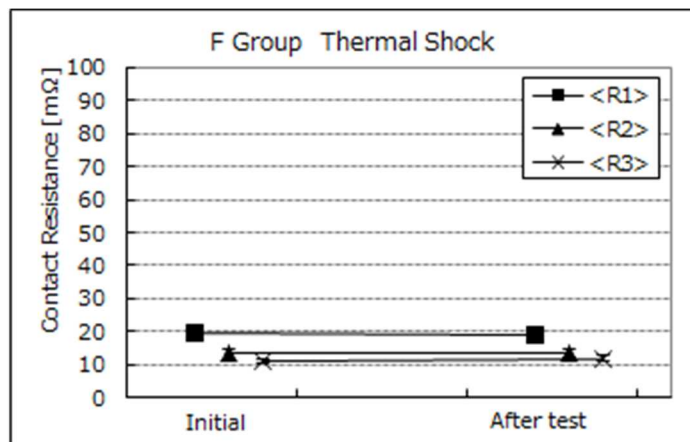
Graph 4 耐久性 / Durability



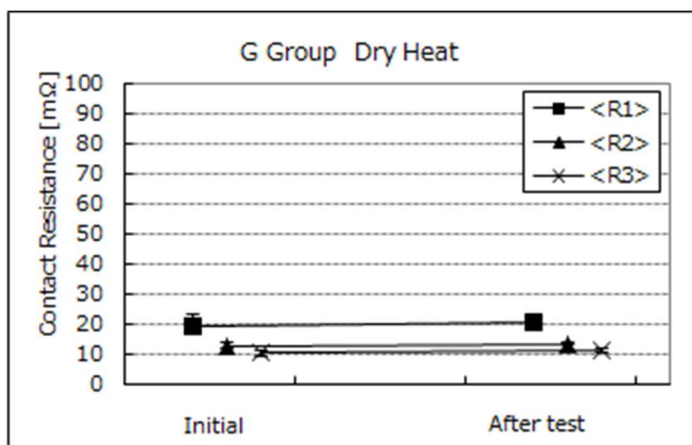
Graph 5 耐振動性→耐衝撃性 / Vibration → Shock



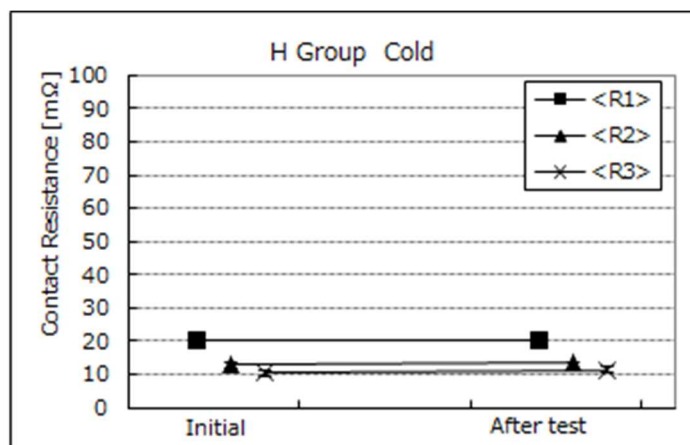
Graph 6 湿度 (定常状態) / Humidity



Graph 7 熱衝撃 / Thermal shock



Graph 8 高温試験 / Dry Heat



Graph 9 低温試験 / Cold