



UMCC RF CONNECTOR

1. INTRODUCTION

1.1 Purpose

This is a product qualification test. The purpose of this test is to evaluate the performance of UMCC RF Connector. Testing was performed on below products to determine it compliance with the requirements of product design objective 108-112005 Rev A.

1.2 Scope

This test report covers the electrical and mechanical performance of UMCC RF Connector 1909763-1.

1.3 Conclusion

All results meet the requirement according to Tyco Electronics Design Objectives 108-112005.

1.4 Product Part Number

1909763-1 MINI. RF HEADER

1.5 Test plan and results:

Test Item (测试项目)	Group (测试分组)									
	A	B	C	D	E	F	G	H	I	J
Examination of product (外观检测)	1	1,15	1	1,9	1,9	1,10	1,9	1,9	1,9	1
Contact Resistance (接触电阻)		2,12		2,6	2,6	2,7	2,6	2,6	2,6	
Insulation Resistance (绝缘电阻)		3,13		3,7	3,7	3,8	3,7	3,7	3,7	
Dielectric Withstanding Voltage (耐电压)		4,14		4,8	4,8	4,9	4,8	4,8	4,8	
V.S.W.R (电压驻波比)	2									
mating Force (插入力)		5,10								
Un-mating Force (拔出力)		6,11								
Center conductor Un-mating Force (中心针拔出力)		7,9								
Board adhesion test (焊接保持力)			2							
Durability (机械寿命)		8								
Vibration (振动)				5						
Shock (冲击)					5					
High Temperature Life (高温测试)						5				
Cold resistance (耐寒测试)						6				
Humidity (湿度试验)							5			
Thermal Shock (冷热冲击)								5		
Salt Spray (盐雾测试)									5	
solder-ability (可焊试验)										2
每组样品数量 Sample Qty of each group	5pcs	5pcs	5pcs	5pcs	5pcs	5pcs	5pcs	5pcs	5pcs	5pcs
试验结果 Test Result	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

2. Test content

A 组 Group A 室温 Room Temp. : 26°C 室内湿度 Room R. H. : 60%RH

项目 Items	判定标准 Criteria Spec.	试验结果 Test result							
		1#	2#	3#	4#	5#	max.	min.	aver.
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化: There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	/	/	/
电压驻波比 V. S. W. R	1.00GHz 1.2max	1.107	1.112	1.111	1.112	1.106	1.112	1.106	1.110
	2.00GHz 1.2max	1.147	1.149	1.154	1.155	1.143	1.155	1.143	1.150
	3.00GHz 1.2max	1.040	1.039	1.058	1.059	1.039	1.059	1.039	1.047
	4.00GHz 1.3max	1.048	1.038	1.031	1.031	1.050	1.050	1.031	1.040
	5.00GHz 1.3max	1.125	1.107	1.122	1.121	1.121	1.125	1.107	1.119
	6.00GHz 1.3max	1.152	1.149	1.131	1.132	1.143	1.152	1.131	1.141
	0-6GHz 1.3max	1.174	1.169	1.160	1.162	1.165	1.174	1.160	1.166
A 组判定 Criteria for group A	在以上标准范围内 In the spec.	OK	OK	OK	OK	OK	OK	OK	OK

备注 Remark:



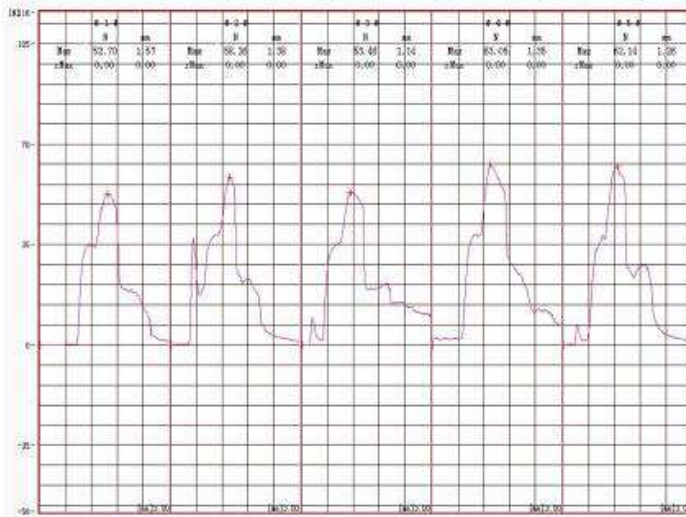
B 组 Group B 室温 Room Temp.: 26°C 室内湿度 Room R. H.: 60%RH

项目 Items	判定标准 Criteria Spec.	试验结果 Test result							
		6#	7#	8#	9#	10#	max.	min.	aver.
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化; There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	/	/	
接触电阻 Contact Resistance	Inner contact res. 20 mΩ max	9.34	6.22	7.86	8.35	9.02	9.34	6.22	8.16
	Outer contact res. 10 mΩ max	4.47	4.34	4.86	4.59	5.02	5.02	4.34	4.66
绝缘电阻 Insulation Resistance	500 MΩ min	OK	OK	OK	OK	OK	/	/	/
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	/	/	/
插入力 Mating Force	Insertion Force: 40N max.	13.28	12.35	12.35	12.42	12.22	13.28	12.22	12.524
拔出力 Unmating force	5N min	14.06	13.59	13.50	13.35	13.43	14.06	13.35	13.59
中心针拔出力 Center conductor Un-mating Force	0.15N min	1.05	1.65	1.69	0.86	1.42	1.69	0.86	1.33
机械寿命 Mechanical Durability: 将待测样品固定于测试板上, 以25mm/s的速度插拔 30次; Fixture the samples to the test board, then mating & Un-mating 30 times at speed 25mm/s;									
插入力 Mating Force	Insertion Force: 40N max.	11.52	11.57	11.52	11.50	11.56	11.57	11.50	11.534
拔出力 Unmating force	3N min	16.27	16.45	16.53	16.52	16.73	16.73	16.27	16.50
中心针拔出力 Center conductor Un-mating Force	0.1N min	1.62	1.76	1.56	1.26	1.68	1.76	1.26	1.58
接触电阻 Contact Resistance	Inner contact res. 25 mΩ max	9.26	9.53	9.23	8.53	9.78	9.78	8.53	9.27
	Outer contact res. 15 mΩ max	4.86	4.56	5.23	5.46	6.53	6.53	4.56	5.33
绝缘电阻 Insulation Resistance	100 MΩ min	OK	OK	OK	OK	OK	/	/	/
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	/	/	/
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化; There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	/	/	/
B 组判定 Criteria for group B	在以上标准范围内 In the spec.	OK	OK	OK	OK	OK	OK	OK	OK

C 组 Group C 室温 Room Temp.: 26°C 室内湿度 Room R.H.: 60%RH

项目 Items	判定标准 Criteria Spec.	试验结果 Test result							
		11#	12#	13#	14#	15#	max.	min.	aver.
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化: There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	/	/	/
Board adhesion test(焊接保持力) Product can't drop from PCB when the strength less than 20N. 在力量小于或等于20N时, 产品未脱落:									
Board adhesion test (焊接保持力)	20N min	52.7	58.26	53.46	63.05	62.14	63.05	52.70	57.92
C组判定 Criteria for group C	在以上标准范围内 In the spec.	OK	OK	OK	OK	OK	OK	OK	OK

备注 Remark:



D 组 Group D 室温 Room Temp.: 26°C 室内湿度 Room R.H.: 60%RH

项目 Items	判定标准 Criteria Spec.	试验结果 Test result							
		11#	12#	13#	14#	15#	max.	min.	aver.
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化; There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	/	/	/
接触电阻 Contact Resistance	Inner contact res. 20 mΩ max	10.02	9.25	9.53	9.86	9.89	10.02	9.25	9.71
	Outer contact res. 10 mΩ max	4.55	4.32	4.56	4.83	4.62	4.83	4.32	4.58
绝缘电阻 Insulation Resistance	500 MΩ min	OK	OK	OK	OK	OK	/	/	/
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	/	/	/

振动 Vibration

频率 Frequency: 10-100-10Hz;

半振幅 Half amplitude: 1.5mm (P-P);

 最大加速度 Peak value of acceleration: (6g) 59m/s²;

方向和时间 Direction & durability :5 times at each of X, Y, Z axis, 10-100-10Hz/15min

试验过程中电不连续时间不超过1us, 1次。

No discontinuities more than 1 μs, 1 times at the testing process

接触电阻 Contact Resistance	Inner contact res. 25 mΩ max	9.22	8.58	9.86	9.43	10.52	10.52	8.58	9.52
	Outer contact res. 15 mΩ max	6.45	6.26	6.72	6.08	6.95	6.95	6.08	6.49
绝缘电阻 Insulation Resistance	100 MΩ min	OK	OK	OK	OK	OK	/	/	/
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	/	/	/
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化; There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	/	/	/
D组判定 Criteria for group D	在以上标准范围内 In the spec.	OK	OK	OK	OK	OK	OK	OK	OK

备注 Remark:

在振动测试过程中没有发现电不连续现象。

There is no discovery of discontinuities at the testing process.

E 组 Group E 室温Room Temp.: 26°C 室内湿度Room R. H.: 60%RH

项目 Items	判定标准 Criteria Spec.	试验结果 Test result							
		16#	17#	18#	19#	20#	max.	min.	aver.
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化; There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	/	/	/
接触电阻 Contact Resistance	Inner contact res. 20 mΩ max	8.12	8.44	8.56	8.34	8.62	8.62	8.12	8.42
	Outer contact res. 10 mΩ max	4.86	4.56	4.53	4.76	5.24	5.24	4.53	4.79
绝缘电阻 Insulation Resistance	500 MΩ min	OK	OK	OK	OK	OK	/	/	/
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	/	/	/
机械冲击Mechanical Shock 振幅峰值Peak value of acceleration: 735m/s ² , 持续时间 Durability: 11ms 波型Wave type: Half sinusoidal 方向和循环次数: X、Y、Z三个轴向六个面各3次, 总共18次; Shock direction & times :Each 3 times at six surfaces of X、Y、Z axis, total 18 times, 试验过程中电不连续时间不超过1μs, 1次。 No discontinuities more than 1μs, 1times at the testing.									
接触电阻 Contact Resistance	Inner contact res. 25 mΩ max	9.12	9.54	9.86	9.48	9.27	9.86	9.12	9.45
	Outer contact res. 15 mΩ max	5.01	6.86	7.58	5.26	6.35	7.58	5.01	6.21
绝缘电阻 Insulation Resistance	100 MΩ min	OK	OK	OK	OK	OK	/	/	/
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	/	/	/
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化; There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	/	/	/
E组判定 Criteria for group E	在以上标准范围内 In the spec.	OK	OK	OK	OK	OK	OK	OK	OK

备注 Remark:

在冲击试验过程中没有发现电不连续现象。
There is no discovery of discontinuities at the testing process.

F 组 Group F 室温Room Temp. : 26°C 室内湿度Room R.H. : 60%RH

项目 Items	判定标准 Criteria Spec.	试验结果 Test result							
		26#	27#	28#	29#	30#	max.	min.	aver.
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化; There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	/	/	/
接触电阻 Contact Resistance	Inner contact res. 20 mΩ max	10.00	9.12	9.43	9.26	9.18	10.00	9.12	9.40
	Outer contact res. 10 mΩ max	4.22	4.36	4.86	5.15	5.37	5.37	4.22	4.79
绝缘电阻 Insulation Resistance	500 MΩ min	OK	OK	OK	OK	OK	/	/	/
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	/	/	/
High Temperature Life (高温测试) Apply the following environment to the mating connector Temperature : 90 ± 2°C Duration : 96 hours 按下列条件对已配合的连接进行测试。 温度: 90+/-2°C 持续时间: 96小时。					Cold resistance (耐寒测试) Apply the following environment to the mating connector Temperature : -40 ± 2°C Duration : 96 hours 按下列条件对已配合的连接进行测试。 温度: -40+/-2°C 持续时间: 96小时。				
接触电阻 Contact Resistance	Inner contact res. 25 mΩ max	10.01	9.22	9.76	9.89	9.98	10.01	9.22	9.77
	Outer contact res. 15 mΩ max	7.69	7.26	6.43	6.12	6.86	7.69	6.12	6.87
绝缘电阻 Insulation Resistance	100 MΩ min	OK	OK	OK	OK	OK	/	/	/
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	/	/	/
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化; There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	/	/	/
F 组判定 Criteria for group F	在以上标准范围内 In the spec.	OK	OK	OK	OK	OK	OK	OK	OK

G 组 Group G 室温 Room Temp.: 26°C 室内湿度 Room R.H.: 60%RH

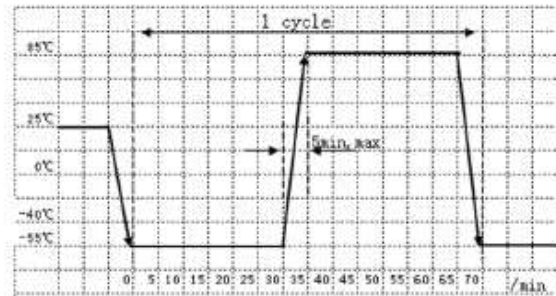
项目 Items	判定标准 Criteria Spec.	试验结果 Test result							
		21#	22#	23#	24#	25#	max.	min.	aver.
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化; There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	/	/	/
接触电阻 Contact Resistance	Inner contact res. 20 mΩ max	10.01	9.12	9.62	8.56	8.99	10.01	8.56	9.26
	Outer contact res. 10 mΩ max	4.33	4.25	4.35	4.15	4.76	4.76	4.15	4.37
绝缘电阻 Insulation Resistance	500 MΩ min	OK	OK	OK	OK	OK	/	/	/
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	/	/	/
湿度试验 Humidity test: 根据 MIL-STD-202 试验条件, 对已配合的连接器施加下列条件测试。 Apply the following environment to the mating connector in accordance with MIL-STD-202 Temperature : 40 ± 2°C Humidity : 90~95%R.H Duration: 96 hours 备注: 所有测试应在试验完成后静置于室温条件下1~2小时内完成; Remark: Measurements should be done within 1~2hours at the room conditions.									
接触电阻 Contact Resistance	Inner contact res. 25 mΩ max	9.56	9.55	9.35	10.34	10.15	10.34	9.35	9.79
	Outer contact res. 15 mΩ max	4.82	4.95	4.86	5.16	5.63	5.63	4.82	5.08
绝缘电阻 Insulation Resistance	100 MΩ min	OK	OK	OK	OK	OK	/	/	/
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	/	/	/
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化; There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	/	/	/
G组判定 Criteria for group G	在以上标准范围内 In the spec.	OK	OK	OK	OK	OK	OK	OK	OK

H 组 Group H 室温 Room Temp. : 26°C 室内湿度 Room R.H. : 60%RH

项目 Items	判定标准 Criteria Spec.	试验结果 Test result							
		26#	27#	28#	29#	30#	max.	min.	aver.
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化; There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	/	/	/
接触电阻 Contact Resistance	Inner contact res. 20 mΩ max	9.22	9.15	9.36	9.46	9.76	9.76	9.15	9.39
	Outer contact res. 10 mΩ max	4.12	3.98	4.95	4.86	5.02	5.02	3.98	4.59
绝缘电阻 Insulation Resistance	500 MΩ min	OK	OK	OK	OK	OK	/	/	/
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	/	/	/

冷热冲击 Thermal Shock

根据 IEC 512-11-4(11d) 方法, 对已配合的连接器施加下列条件测试。
Apply the following environment to the mating connector in accordance with IEC 512-11-4(11d)
Temperature : -55~90°C
Transition time : 5min MAX
Cycles: 5 Cycles



备注: 所有测试应在试验完成后静置于室温条件下1~2小时内完成;
Remark: Measurements should be done within 1~2hours at the room conditions.

接触电阻 Contact Resistance	Inner contact res. 25 mΩ max	9.24	8.44	9.95	9.86	10.05	10.05	8.44	9.51
	Outer contact res. 15 mΩ max	4.05	4.22	4.62	5.32	5.76	5.76	4.05	4.79
绝缘电阻 Insulation Resistance	100 MΩ min	OK	OK	OK	OK	OK	/	/	/
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	/	/	/
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化; There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	/	/	/
H 组判定 Criteria for group H	在以上标准范围内 In the spec.	OK	OK	OK	OK	OK	OK	OK	OK

I 组 Group I 室温 Room Temp. : 26℃ 室内湿度 Room R.H. : 60%RH

项目 Items	判定标准 Criteria Spec.	试验结果 Test result							
		36#	37#	38#	39#	40#	max.	min.	aver.
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化; There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	/	/	/
接触电阻 Contact Resistance	Inner contact res. 20 mΩ max	9.56	8.48	8.56	8.26	9.32	9.56	8.26	8.84
	Outer contact res. 10 mΩ max	4.12	5.03	5.16	4.62	4.86	5.16	4.12	4.76
绝缘电阻 Insulation	500 MΩ min	OK	OK	OK	OK	OK	/	/	/
耐压 Withstanding	200V AC, 1min	OK	OK	OK	OK	OK	/	/	/
盐雾测试 Salt Spray test 对已插合的连接器施加以下试验条件: Apply the following condition to the mated connectors: 试验箱温度 chamber temperature: 35±2℃ 盐水浓度 Salt water density: 5±1% 沉降速率 Spray speed: 1~2ml/h/80cm ² 时间 Duration: 48 hours 注意: 试验后应在不高于38℃的清水中清洗, 然后置于室温环境下恢复1~2小时后进行检测。 Notes: after the salt spray test, the samples should be washed in the clean water (temperature should no more than 38℃), and then place in the room temperature for recovery 1~2 hours, final inspection.									
接触电阻 Contact Resistance	Inner contact res. 25 mΩ max	14.97	15.92	15.96	16.34	14.79	16.34	14.79	15.60
	Outer contact res. 15 mΩ max	10.22	9.94	10.46	10.35	10.26	10.46	9.94	10.25
绝缘电阻 Insulation Resistance	100 MΩ min	OK	OK	OK	OK	OK	/	/	/
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	/	/	/
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化; There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	/	/	/
I 组判定 Criteria for group I	在以上标准范围内 In the spec.	OK	OK	OK	OK	OK	OK	OK	OK

J 组 Group J 室温Room Temp. : 26℃ 室内湿度Room R.H. : 60%RH

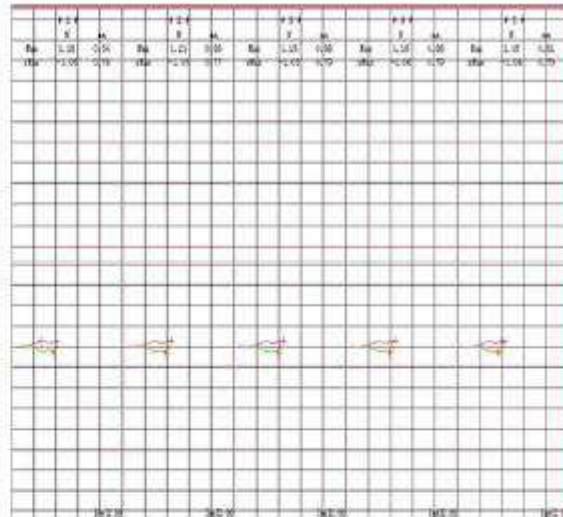
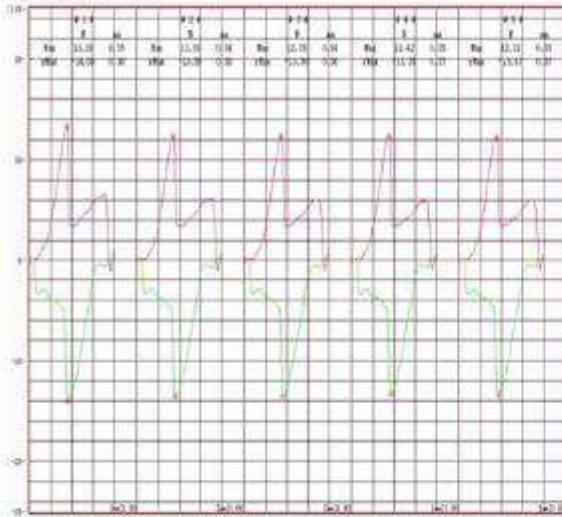
项目 Items	判定标准 Criteria Spec.	试验结果 Test result							
		41#	42#	43#	44#	45#	max.	min.	aver.
外观检查 Visual examination	应该无毛边、裂纹、破损、氧化、沾污; There should be no crack, damage, or oxidation.	OK	OK	OK	OK	OK	/	/	/
可焊性 Solderability 按下列条件对已配合的连接器进行测试。 Apply the following environment to the mating connector 温度Temperature : 260±2℃ 持续时间Duration : 3~5 second 观测: 10倍放大镜 Test sample should be observed by the magnification of 10times after the test.									
J 组判定 Criteria for group J	在以上标准范围内 In the spec.	OK	OK	OK	OK	OK	OK	OK	OK

备注 Remark:

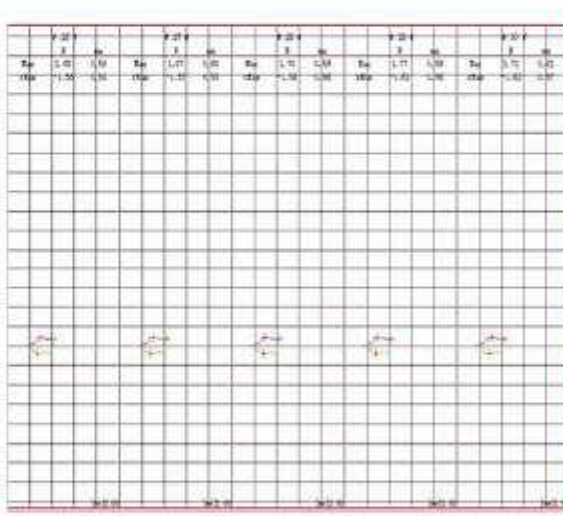
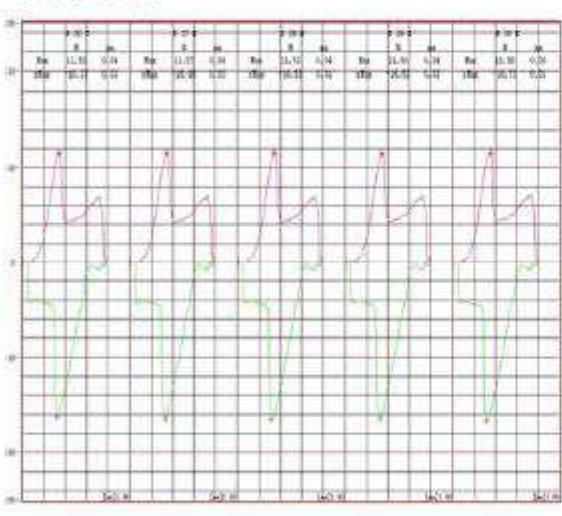


Appendix

寿命前五次



寿命后五次



盐雾图OK

