

4.3-10 Series RF Coaxial Connectors and Cable Assembly

1. INTRODUCTION

1.1 Purpose

Testing was performed on the TE Connectivity (TE) 4.3-10 Series Radio Frequency Coaxial Cable Assembly and Connectors to determine their conformance to the requirements of Product Specification 108-115175 Revision A.

1.2 Scope

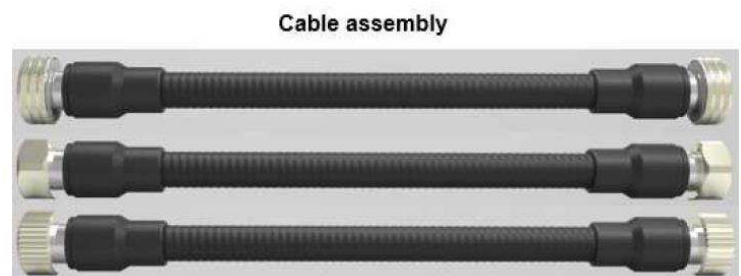
This report covers the electrical, mechanical, and environmental performance of the 4.3-10 Series Radio Frequency Coaxial Cable Assembly and Connectors.

1.3 Conclusion

All the 4.3-10 Series Radio Frequency Coaxial Cable Assembly and Connectors part number listed in paragraph 1.5, conformed to the electrical, mechanical, and environmental performance requirements of Product Specification 108-115175 Revision A.

1.4 Product Description

The TE Connectivity 4.3-10 interface connectors and Radio Frequency Coaxial Cable Assembly products are designed with innovative features, optimized performance, and full compatibility with the industry standard IEC 61169-54. The 4.3-10 connector interface series include: screw, hand screw, quick lock install method.



1.5 Test Specimens
Table 1 – Test Specimens

Specimens list of 4.3-10 assembly and connector for testing				
Test Group	Sample			
	Part Number	Description	Qty	Note
1	2081967-1	4.3/10 STR plug for 1/2" SF Cable, solder	2p each	
	2081968-1	4.3/10 STR plug for 1/2" Cable, solder		
	2081969-1	4.3/10 RA plug for 1/2" SF Cable, solder		
	2081970-1	4.3/10 STR plug for 1/2" SF Cable, clamp		
	2081971-1	4.3/10 STR plug for 1/2" Cable, clamp		
	2081972-1	4.3/10 STR plug for 7/8" Cable, clamp		
	2081973-1	4.3/10 STR jack for RG141 Cable, solder		
	2081974-1	4.3/10 STR jack for 380 Cable, solder		
	2081975-1	4.3/10 Cable Assembly (STR M to STR M, 1/2"SF, 1m)		
	2081976-1	4.3/10 Cable Assembly (STR M to RA M, 1/2"SF, 1m)		
	2081977-1	4.3/10 STR jack receptacle, 4 holes flange		
2	2081967-1	4.3/10 STR plug for 1/2" SF Cable, solder	2p each	
	2081972-1	4.3/10 STR plug for 7/8" Cable, clamp		
	2081973-1	4.3/10 STR jack for RG141 Cable, solder		
	2081974-1	4.3/10 STR jack for 380 Cable, solder		
3	2081967-1	4.3/10 STR plug for 1/2" SF Cable, solder	2p	
4	2081967-1	4.3/10 STR plug for 1/2" SF Cable, solder	2p	
5	2081967-1	4.3/10 STR plug for 1/2" SF Cable, solder	2p	

1.6 Test Sequence
Table 2 - Test Sequences

Test or Examination	Test Group				
	1	2	3	4	5
	Test Sequence (b)				
Visual Inspection	1	1,6,11,16,21,26	1,6	1,6	1,6,12,18
Mechanical Compatibility	2				
Return Loss/VSWR	7				
Insertion Loss	8				
Contact Resistance	3	2,7,12,17,22,27	2,7	2	2,7,13,19
Insulation Resistance	4	3,8,13,18,23,28	3,8	3,7	3,8,14,20
Withstanding Voltage	5	4,9,14,19,24,29	4,9	4,8	4,9,15,21
Intermodulation Level	9				
Center Contact Captivation Force	6				
Engagement and Separation force			10	9	
Gauge Retention force			11		
Cable rotation		5			
Cable pulling		10			
Cable Torsion		15			
Cable Bending		20			
Tensile Strength of Coupling Mechanism		25			
Mechanical Endurance			5		

High temperature endurance					5
Sealing (Water Proof)			12		10,16
Salt Spray				5	
Change of Temperature					11
Damp heat					17

NOTE

- (a) See paragraph 1.5
- (b) Numbers indicate sequence in which tests were performed

1.7 Environmental Conditions

Unless otherwise stated, the following environmental conditions prevailed during testing:

Temperature: 15°C to 35°C
 Relative Humidity 20% to 80%

2. Test Result

2.1 Group 1

Step	Test Item	Requirement	Test Result	Judgment
1	Visual Inspection	No physical damage occurred	No abnormalities	Pass
2	Mechanical Compatibility	be compatibility with the gauges	Compatible	Pass
3	Contact Resistance	Center contact: $\leq 1.0 \text{ m}\Omega$	2081967-1: 0.15 mΩ 2081968-1: 0.2 mΩ 2081969-1: 0.18 mΩ 2081970-1: 0.38 mΩ 2081971-1: 0.13 mΩ 2081972-1: 0.07 mΩ 2081973-1: 0.33 mΩ 2081974-1: 0.32 mΩ 2081977-1: 0.43 mΩ	Pass
		Outer contact: $\leq 1.0 \text{ m}\Omega$	2081967-1: 0.1 mΩ 2081968-1: 0.12 mΩ 2081969-1: 0.07 mΩ 2081970-1: 0.06 mΩ 2081971-1: 0.08 mΩ 2081972-1: 0.06 mΩ 2081973-1: 0.15 mΩ 2081974-1: 0.14 mΩ 2081977-1: 0.1 mΩ	Pass
4	Insulation Resistance	$\geq 5000\text{M}\Omega$	Meet requirement	Pass
5	Withstanding Voltage	$\geq 2500 \text{ V rms (AC), 1min}$ For 2081973-1/2081974-1: $\geq 1500 \text{ V rms (AC), 1min}$	No flashover, no breakdown	Pass
6	Center Contact Captivation Force	30N; $\leq 0.25\text{mm}$ displacement in axial direction	2081969-1; 2081970-1; 2081971-1; 2081972-1; 2081977-1: Meet requirement	Pass

7	VSWR	<p>2081967-1/2081968-1/ 2081971-1/2081973-1/ 2081974-1/2081975-1: ≤1.15@DC-3GHz, ≤1.20@3-6GHz</p> <p>2081970-1: ≤1.15@DC-3GHz, ≤1.25@3-6GHz</p> <p>2081972-1: ≤1.15@DC-3GHz</p> <p>2081969-1/2081976-1/ 2081977-1: ≤1.15@DC-3GHz, ≤1.35@3-6GHz</p>	<p>2081967-1: 1.08@DC-3GHz, 1.16@3-6GHz 2081968-1: 1.10@DC-3GHz, 1.18@3-6GHz 2081969-1: 1.04@DC-3GHz, 1.30@3-6GHz 2081969-1: 1.04@DC-3GHz, 1.30@3-6GHz 2081970-1: 1.09@DC-3GHz, 1.17@3-6GHz 2081971-1: 1.08@DC-3GHz, 1.12@3-6GHz 2081972-1: 1.11@DC-3GHz, 2081973-1: 1.09@DC-3GHz, 1.14@3-6GHz 2081974-1: 1.06@DC-3GHz, 1.15@3-6GHz 2081975-1: 1.08@DC-3GHz, 1.16@3-6GHz 2081976-1: 1.05@DC-3GHz, 1.26@3-6GHz 2081977-1: 1.07@DC-3GHz, 1.27@3-6GHz</p>	Pass
8	IL	<p>2081967-1/2081968-1/ 2081969-1: ≤0.05√ F@DC-6GHz</p> <p>For 2081975-1/2081976-1: ≤0.39@DC-3GHz, ≤0.59@3-6GHz</p> <p>For 2081977-1: ≤0.08@DC-3GHz, ≤0.22@3-6GHz</p>	<p>2081967-1: 0.03dB 2081968-1: 0.04dB 2081969-1: 0.07dB 2081970-1: 0.05dB 2081971-1: 0.09dB 2081972-1: 0.03dB 2081973-1: 0.06dB 2081974-1: 0.05dB 2081975-1: 0.21/0.35 dB 2081976-1: 0.20/0.35 dB 2081977-1: 0.03/0.18 dB</p>	Pass
9	PIM3	<p>≤-160dBc @2x20W and 900MHz, 1800MHz, 2100MHz</p> <p>For 2081977-1: ≤-163dBc @2x20W and 900MHz, 1800MHz, 2100MHz</p>	<p>2081967-1: -167/-165/-167dBc 2081968-1: -167/-167/-167dBc 2081969-1: -162/-164/-162dBc 2081970-1: -163/-162/-169dBc 2081971-1: -163/-163/-168dBc 2081972-1: -169/-165/-166dBc 2081973-1: -169/-169/-171dBc 2081974-1: -165/-167/-166dBc 2081975-1: -167/-165/-167dBc 2081976-1: -170/-163/-167dBc 2081977-1: -173/-165/-169dBc</p>	Pass

2.2 Group 2

Step	Test Item	Requirement	Test Result	Judgment
1,6	Visual Inspection	No physical damage occurred	No abnormalities	Pass
2,7,12,17,22,27	Contact Resistance	Center contact: $\leq 1.0 \text{ m}\Omega$	Meet requirement	Pass
		Outer contact: $\leq 1.0 \text{ m}\Omega$	Meet requirement	Pass
3,8,13,18,23,28	Insulation Resistance	$\geq 5000 \text{ M}\Omega$	Meet requirement	Pass
4,9,14,19,24,29	Withstanding Voltage	$\geq 2500 \text{ V rms (AC), 1min}$ For 2081973-1/2081974-1: $\geq 1500 \text{ V rms (AC), 1min}$	No flashover, no breakdown	Pass
5	Cable rotation	After the test, the cable and connector and junction between them shall not show any sign of deterioration. For 7/8" cable: NA	After test can meet requirements	Pass
10	Cable pulling	Neither the dielectric nor the sheath shall have moved in relation to the cable outlet of the connectors. 1/2" SF cable: 500N 7/8" cable: 1000N RG141, 380 cable: 150N Duration: 60s	After test can meet requirements	Pass
15	Cable Torsion	Cable shall neither slip nor rotate in relation to the connectors. 1/2" SF, 7/8" cable: 5Nm, RG141, 380 cable: 0.06Nm Duration: 60s	After test can meet requirements	Pass
20	Cable Bending	No visible deterioration of the connector to cable junction. 1/2" SF cable: Single: 17mm, Repeated: 55mm RG141 cable: Single: 8mm, Repeated: 40mm 380 cable: Single: 25mm For 7/8" cable: NA	After test can meet requirements	Pass
25	Tensile Strength of Coupling Mechanism	450N min	Meet requirement	Pass

2.3 Group 3

Step	Test Item	Requirement	Test Result	Judgment
1,6	Visual Inspection	No physical damage occurred	No abnormalities	Pass
2,7	Contact Resistance	Center contact: $\leq 1.0 \text{ m}\Omega$	Meet requirement	Pass
		Outer contact: $\leq 1.0 \text{ m}\Omega$	Meet requirement	Pass
3,8	Insulation Resistance	$\geq 5000 \text{ M}\Omega$	Meet requirement	Pass
4,9	Withstanding Voltage	$\geq 2500 \text{ V rms (AC), 1min}$	No flashover, no breakdown	Pass
5	Mechanical Endurance	After 100 cycles, can meet requirements	Meet requirements	Pass
10	Engagement and Separation force	Axial force: Engagement: $\leq 100 \text{ N}$ Separation: $\leq 80 \text{ N}$ For Screw Type, Torque: 5Nm min	Meet requirement	Pass
11	Gauge Retention force	Center contact: 1.5N min. Outer contact: 4N min.	Meet requirement	Pass
12	Sealing	For interface only (mated) IPX8 (1m, 24 hour)	No water inside	Pass

2.4 Group 4

Step	Test Item	Requirement	Test Result	Judgment
1,6	Visual Inspection	No physical damage occurred	No abnormalities	Pass
2	Contact Resistance	Center contact: $\leq 1.0 \text{ m}\Omega$	Meet requirement	Pass
		Outer contact: $\leq 1.0 \text{ m}\Omega$	Meet requirement	Pass
3,7	Insulation Resistance	$\geq 5000 \text{ M}\Omega$	Meet requirement	Pass
4,8	Withstanding Voltage	$\geq 2500 \text{ V rms (AC), 1min}$	No flashover, no breakdown	Pass
5	Salt Spray	5% spray for 48 hours, 5% spray for 96/720hours (optional)	After test can meet requirements	Pass
9	Engagement and Separation force	Axial force: Engagement: $\leq 100 \text{ N}$ Separation: $\leq 80 \text{ N}$ For Screw Type, Torque: 5Nm min	After test can meet requirements	Pass

2.5 Group 5

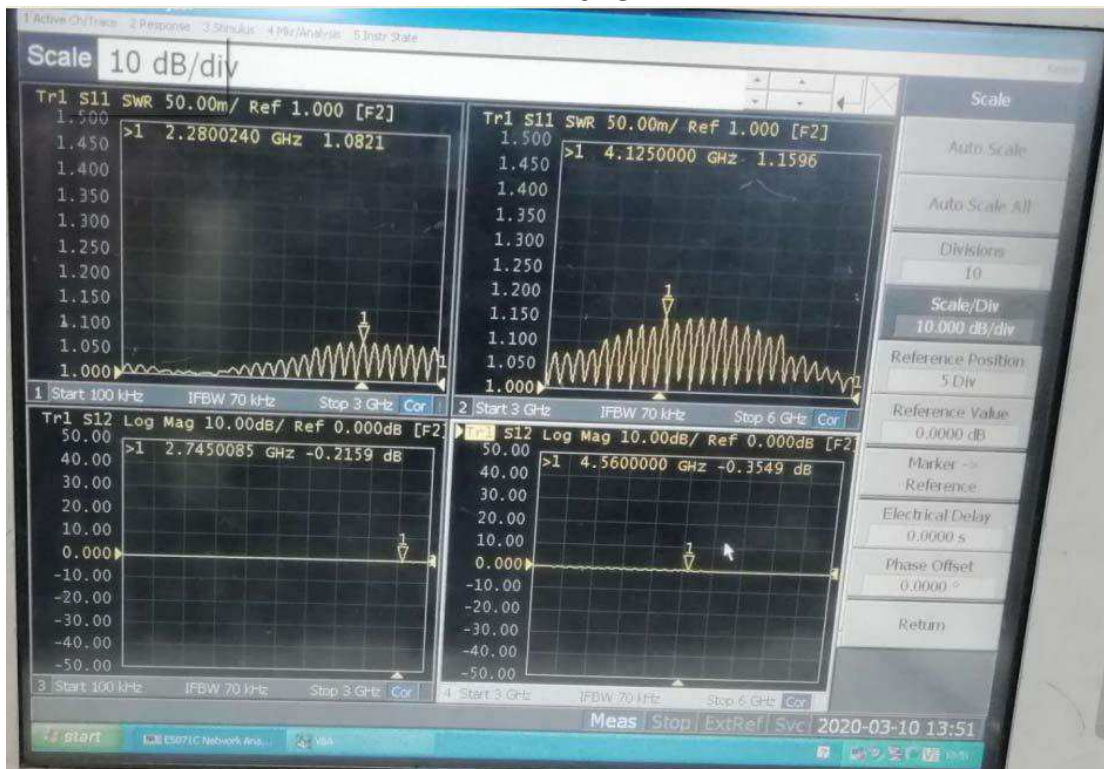
Step	Test Item	Requirement	Test Result	Judgment
1,6,12,18	Visual Inspection	No physical damage occurred	No abnormalities	Pass
2,7,13,19	Contact Resistance	Center contact: $\leq 1.0 \text{ m}\Omega$	Meet requirement	Pass
		Outer contact: $\leq 1.0 \text{ m}\Omega$	Meet requirement	Pass
3,8,14,20	Insulation Resistance	$\geq 5000 \text{ M}\Omega$	Meet requirement	Pass

4,9,15,21	Withstanding Voltage	≥2500 V rms (AC), 1min	No flashover, no breakdown	Pass
5	High temperature endurance	250h at 85°C	After test can meet requirements	Pass
10,16	Sealing (Water Proof)	For interface only (mated) IPX8 (1m, 24 hour)	No water inside	Pass
11	Change of Temperature	-40°C to +85°C, 5 cycles	After test can meet requirements	Pass
17	Damp heat	21days/40°C/93%RH	After test can meet requirements	Pass

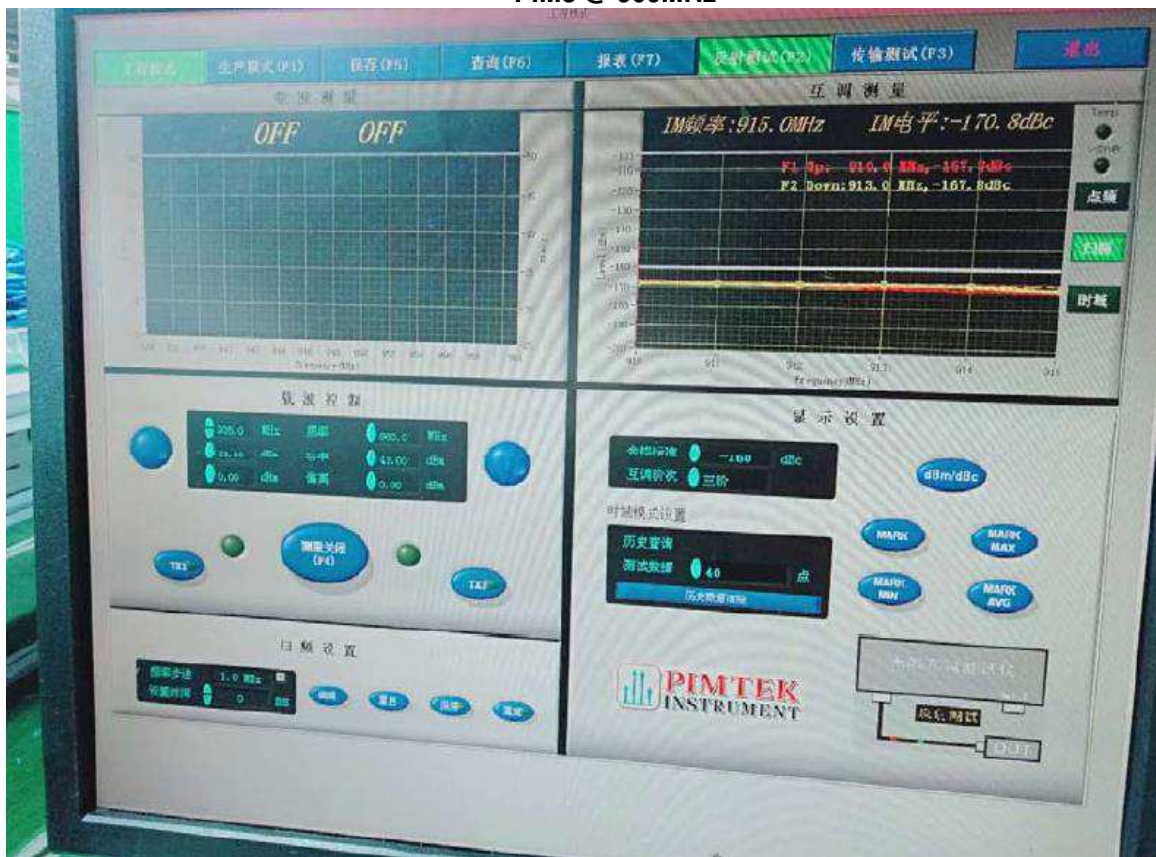
Appendix

1. 2081967-1

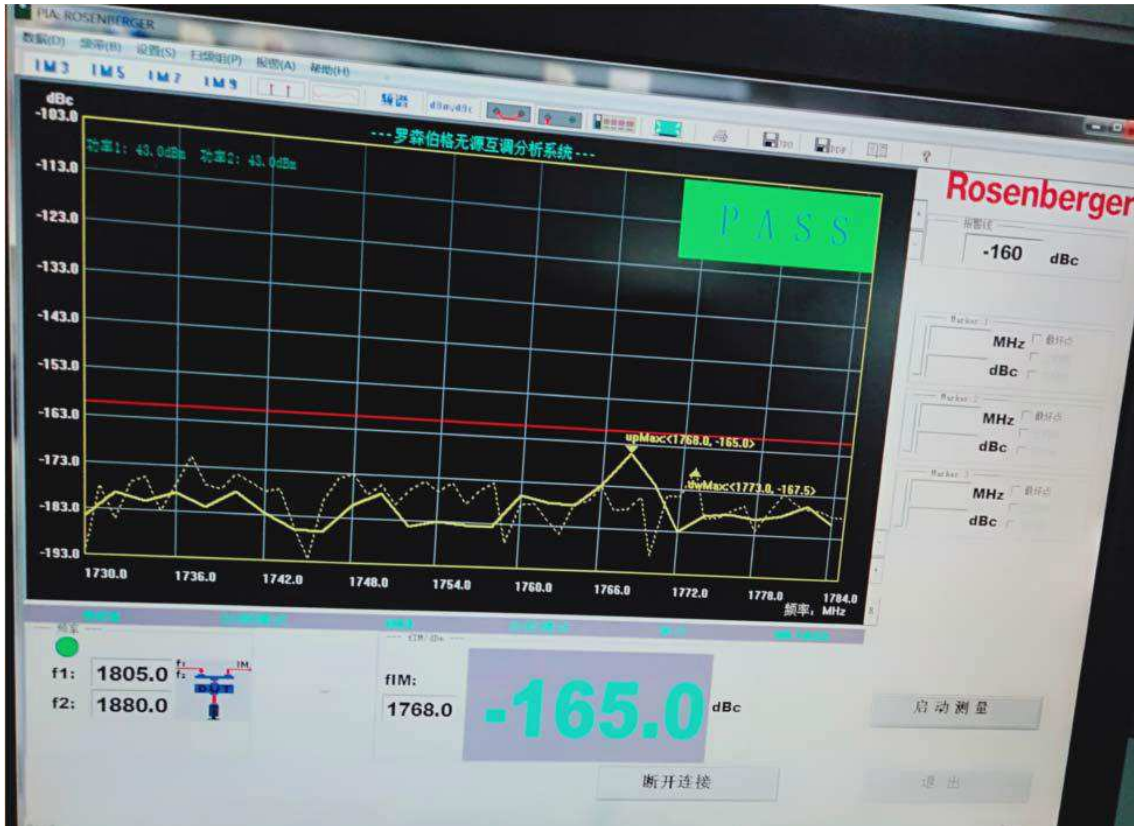
IL&VSWR



PIM3 @ 900MHz



PIM3 @ 1800MHz

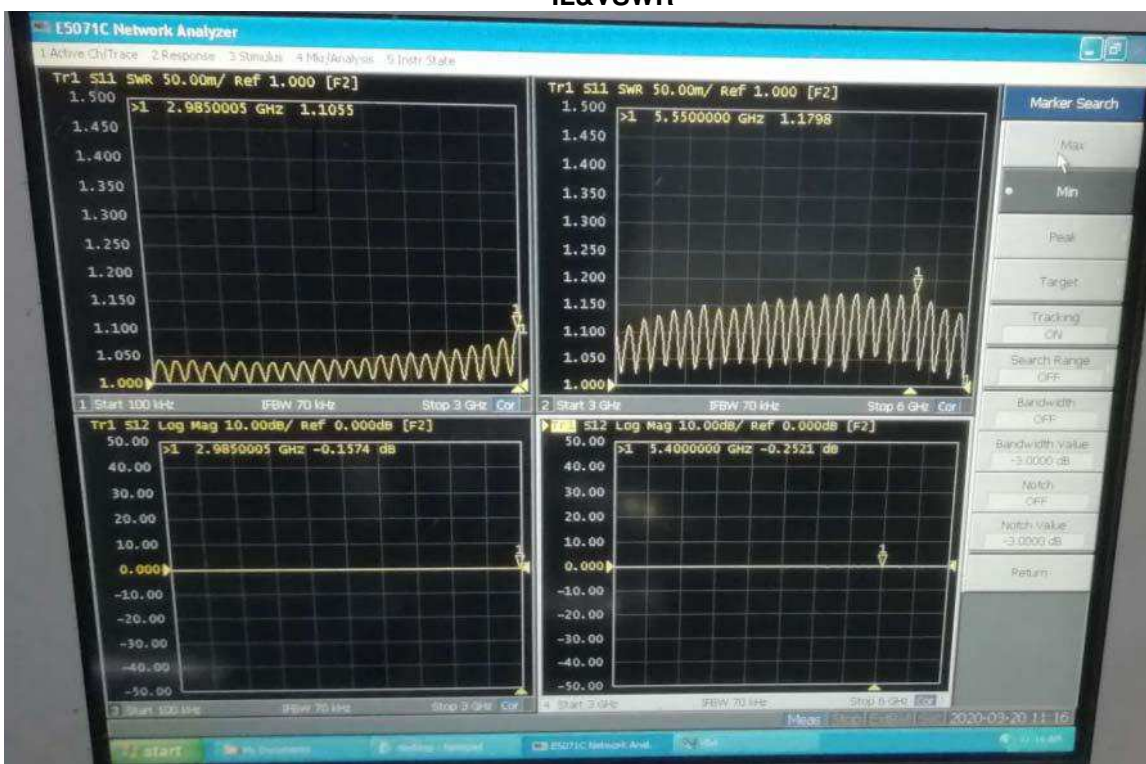


PIM3 @ 2100MHz

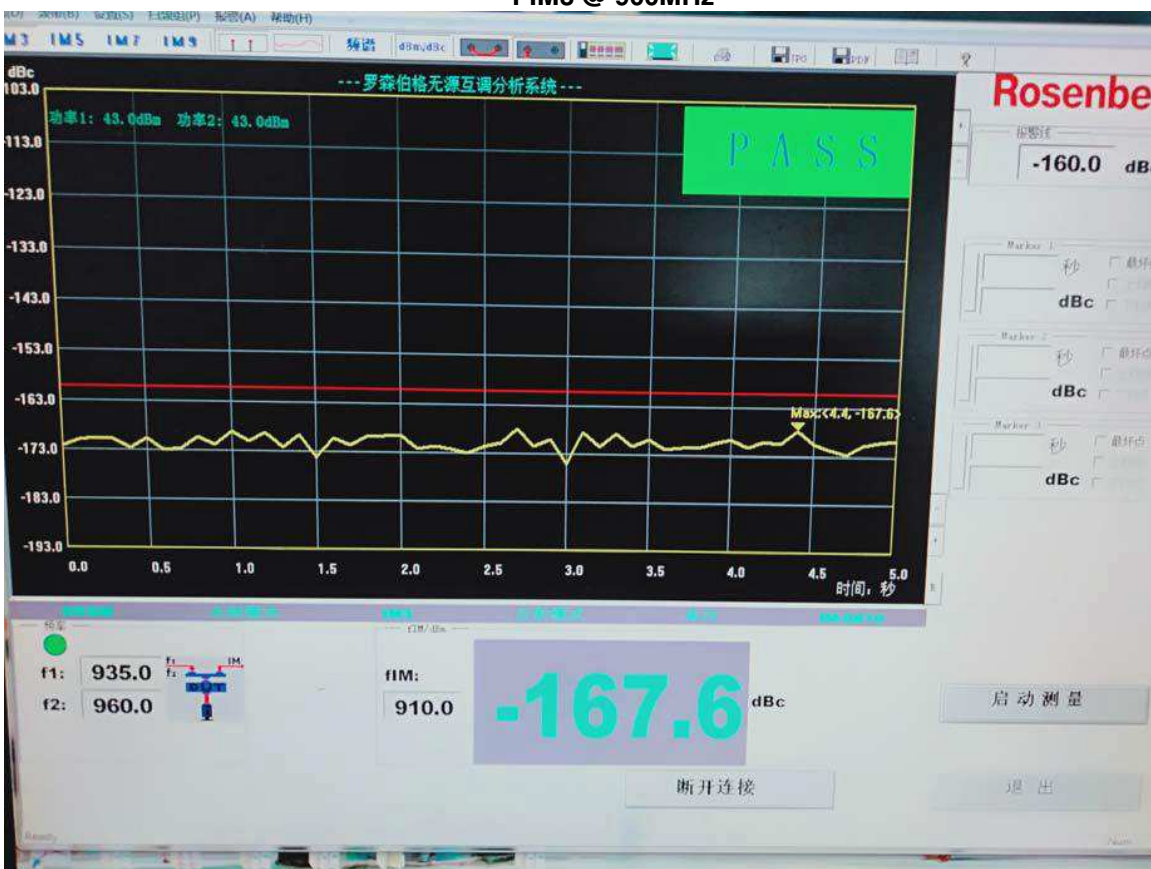


2. 2081968-1

IL&VSWR



PIM3 @ 900MHz



PIM3 @ 1800MHz

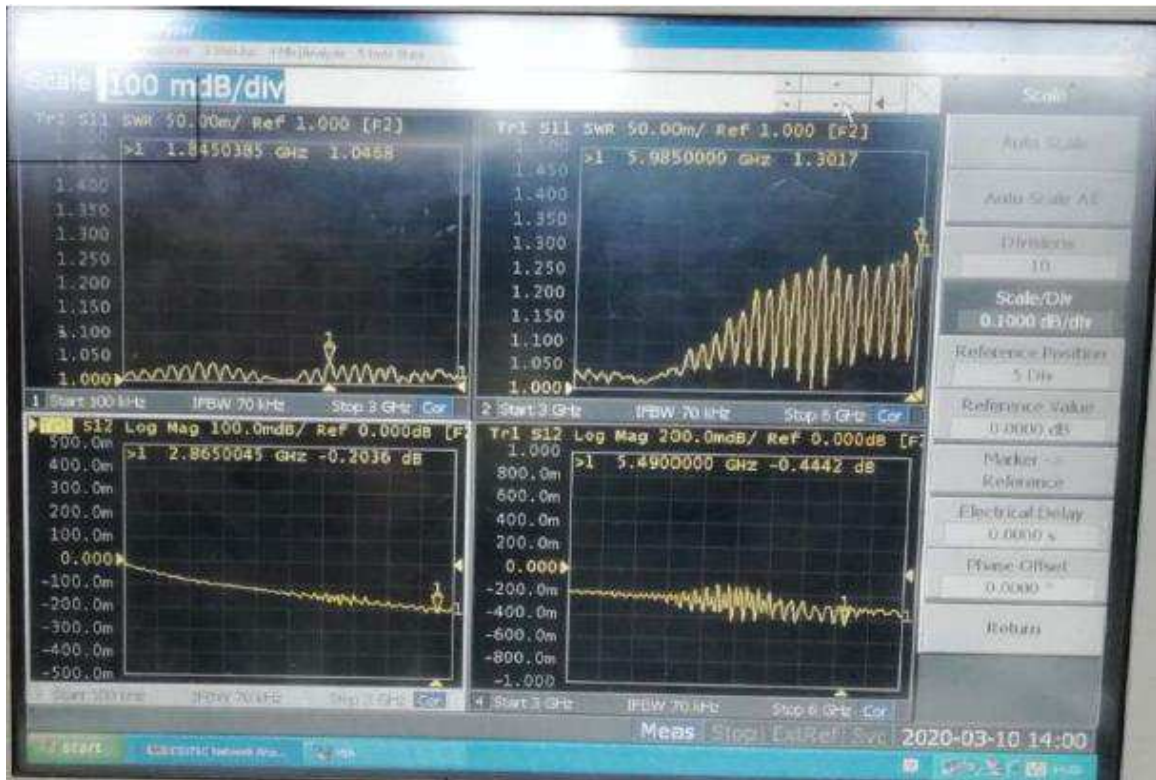


PIM3 @ 2100MHz



3. 2081969-1

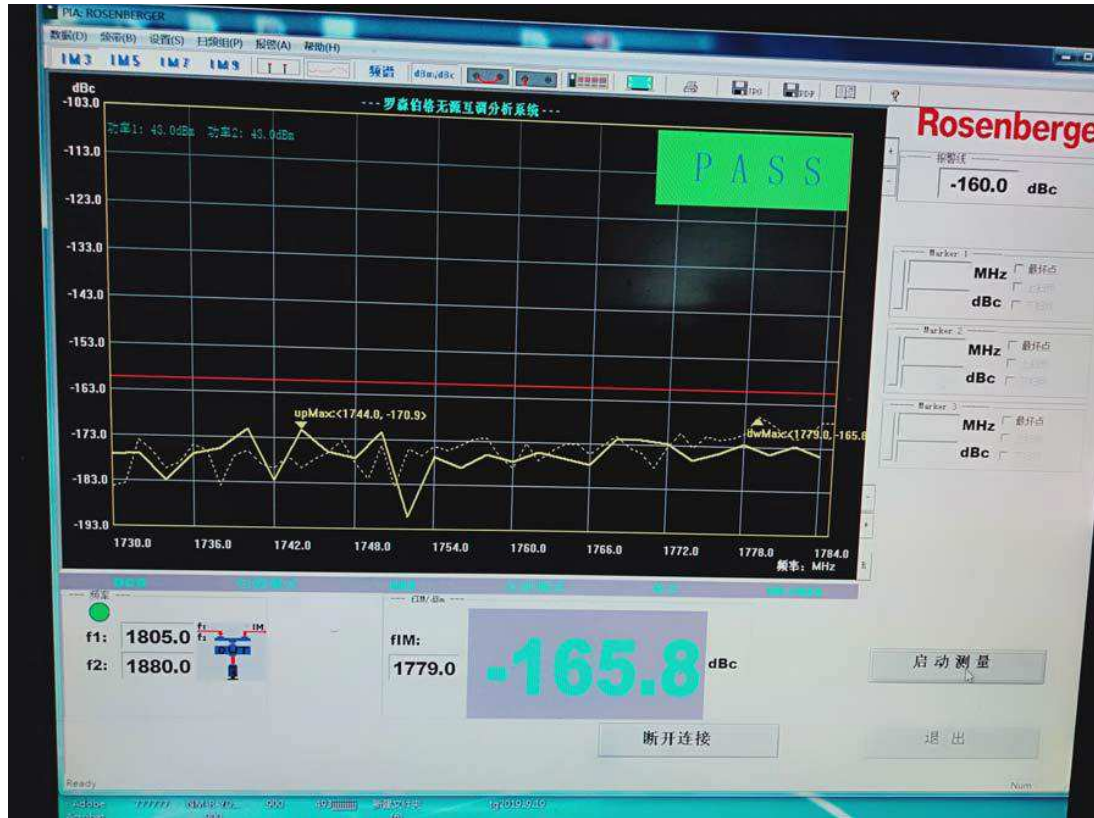
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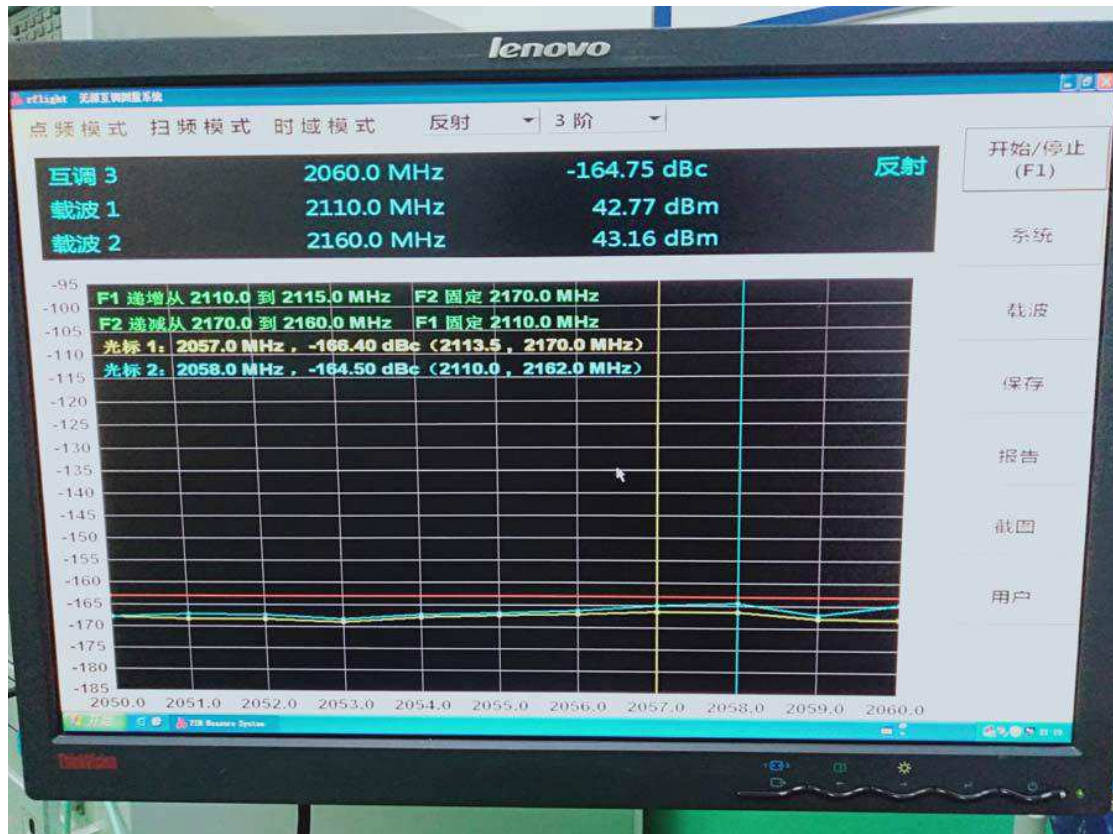
PIM3 @ 900MHz



PIM3 @ 1800MHz

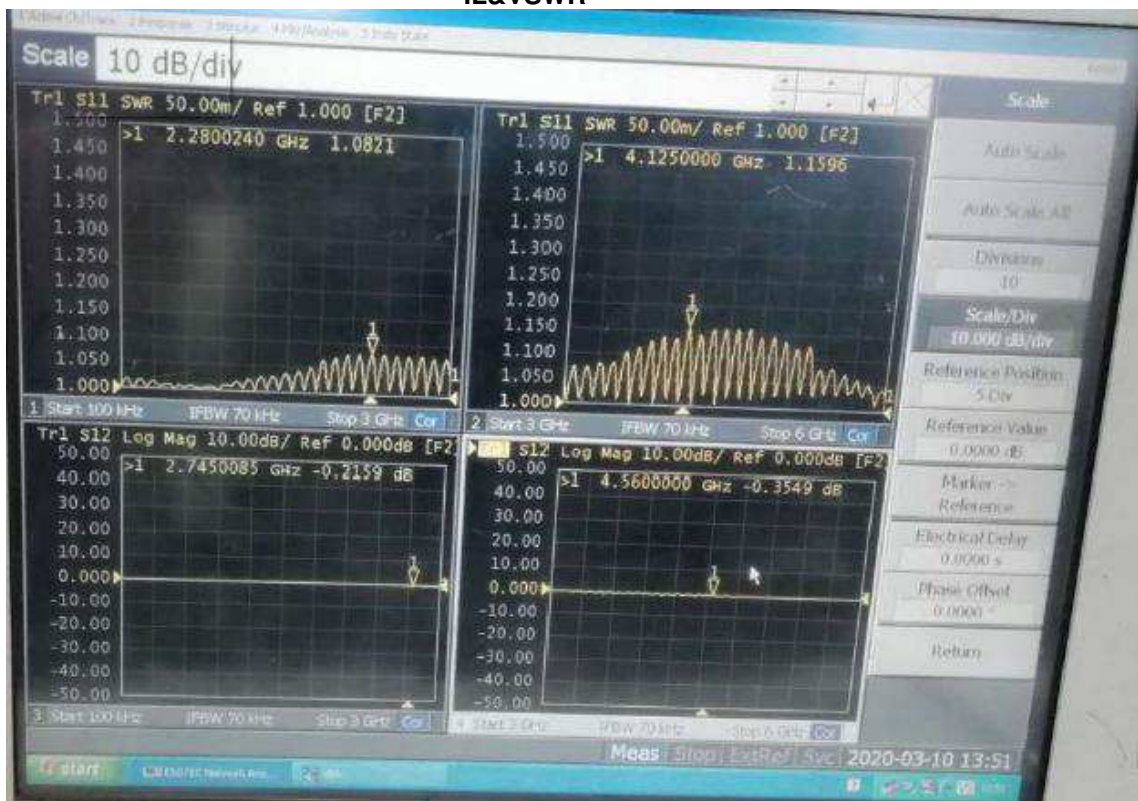


PIM3 @ 2100MHz

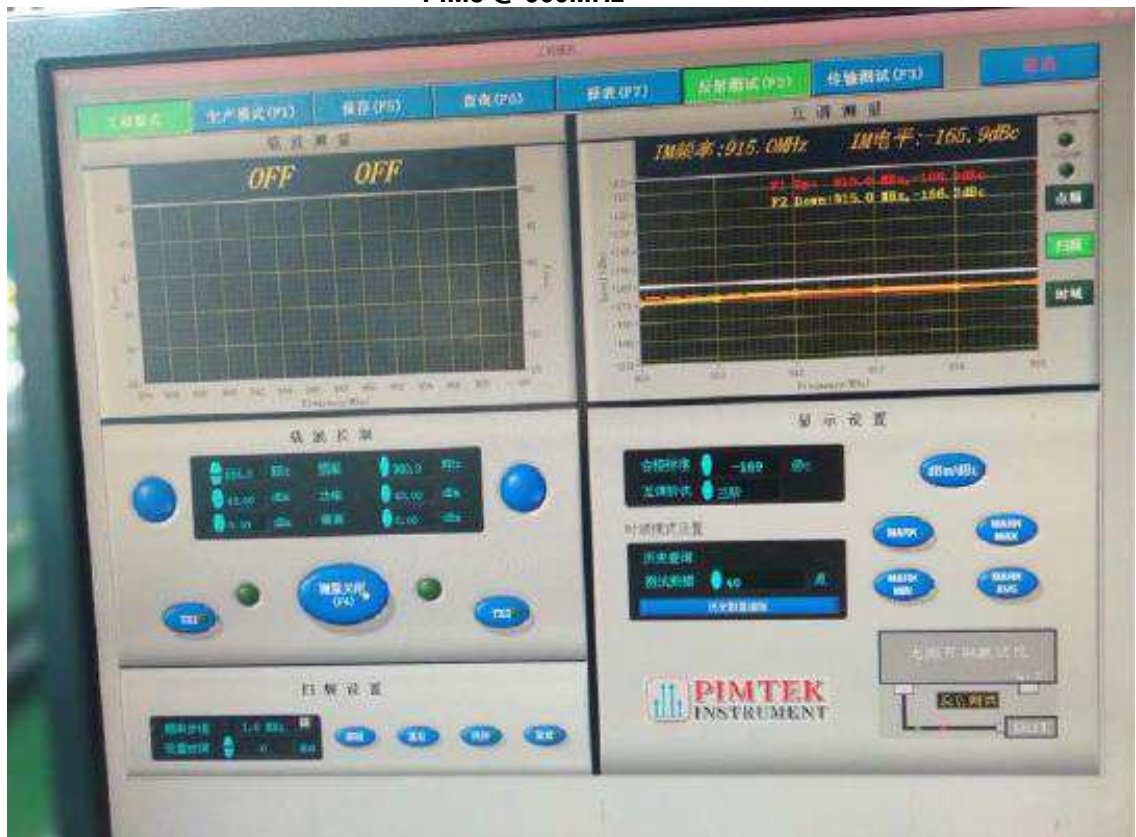


4. 2081970-1

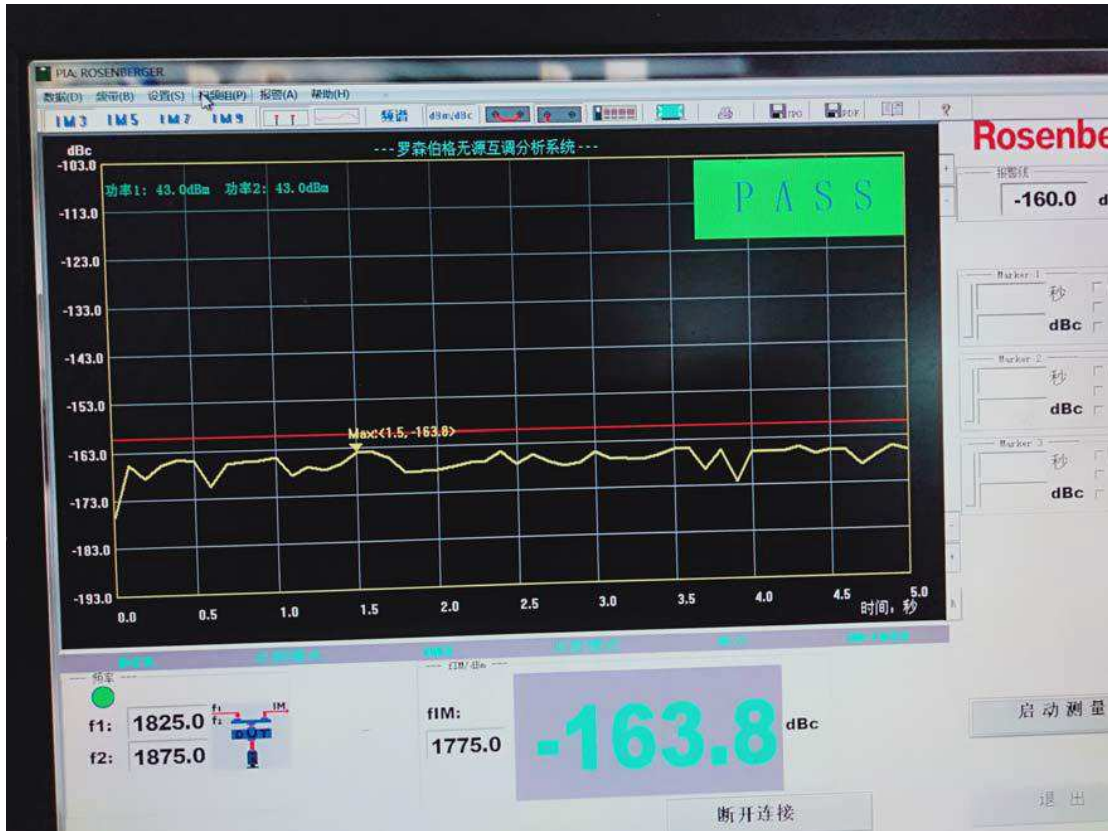
IL&VSWR



PIM3 @ 900MHz



PIM3 @ 1800MHz

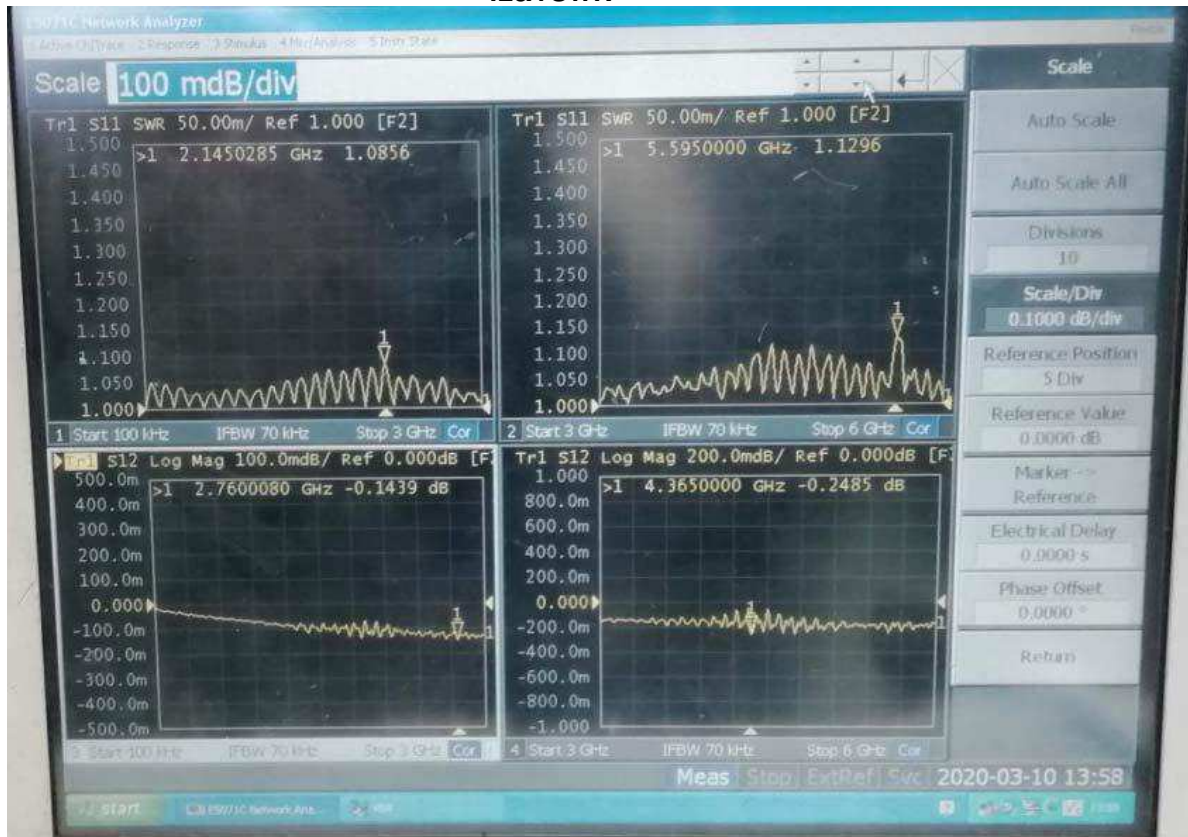


PIM3 @ 2100MHz

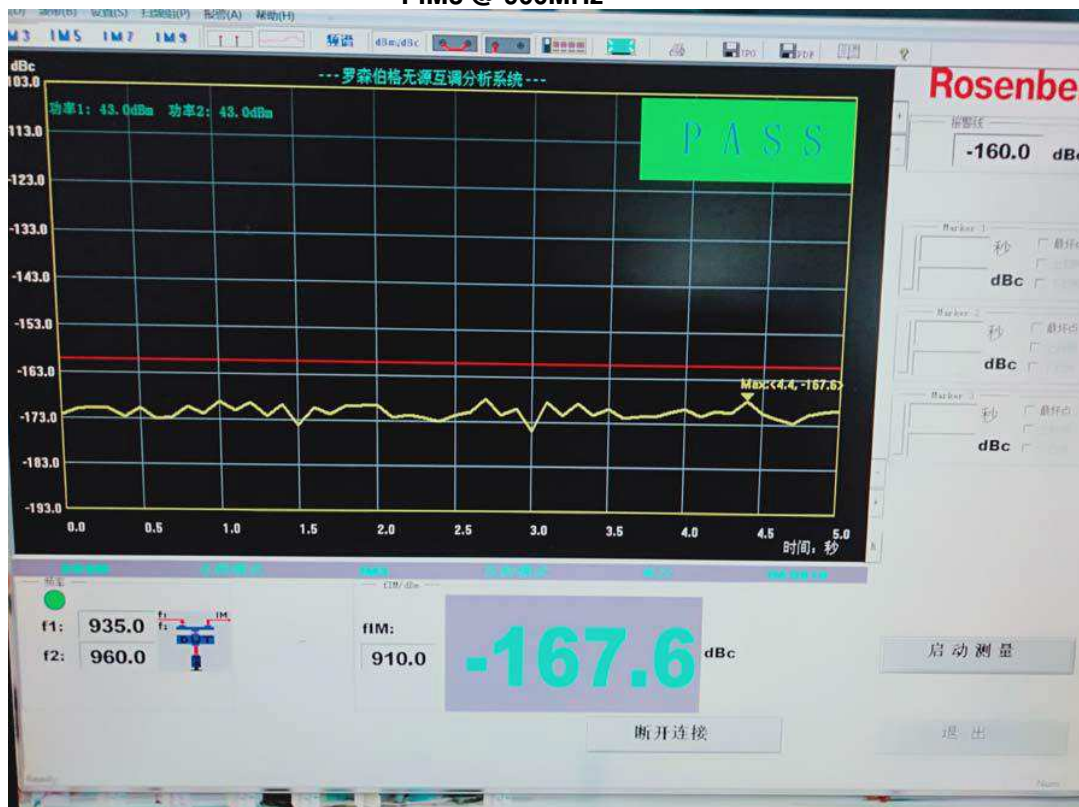


5. 2081971-1

IL&VSWR



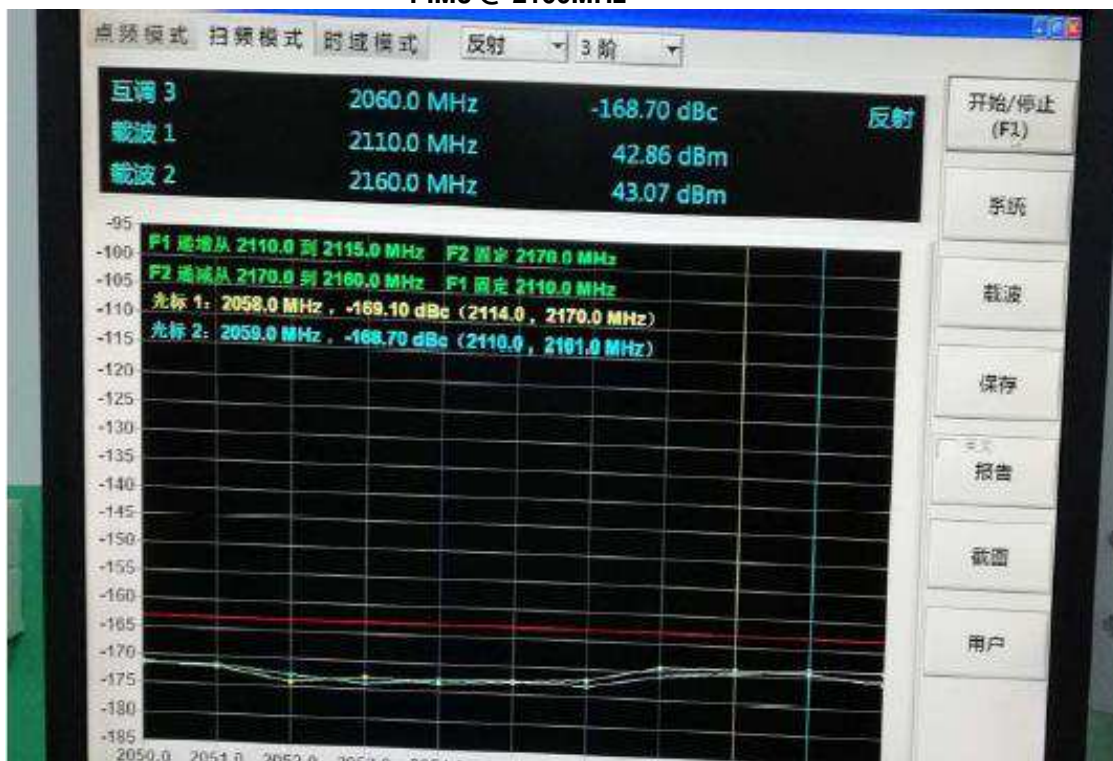
PIM3 @ 900MHz



PIM3 @ 1800MHz

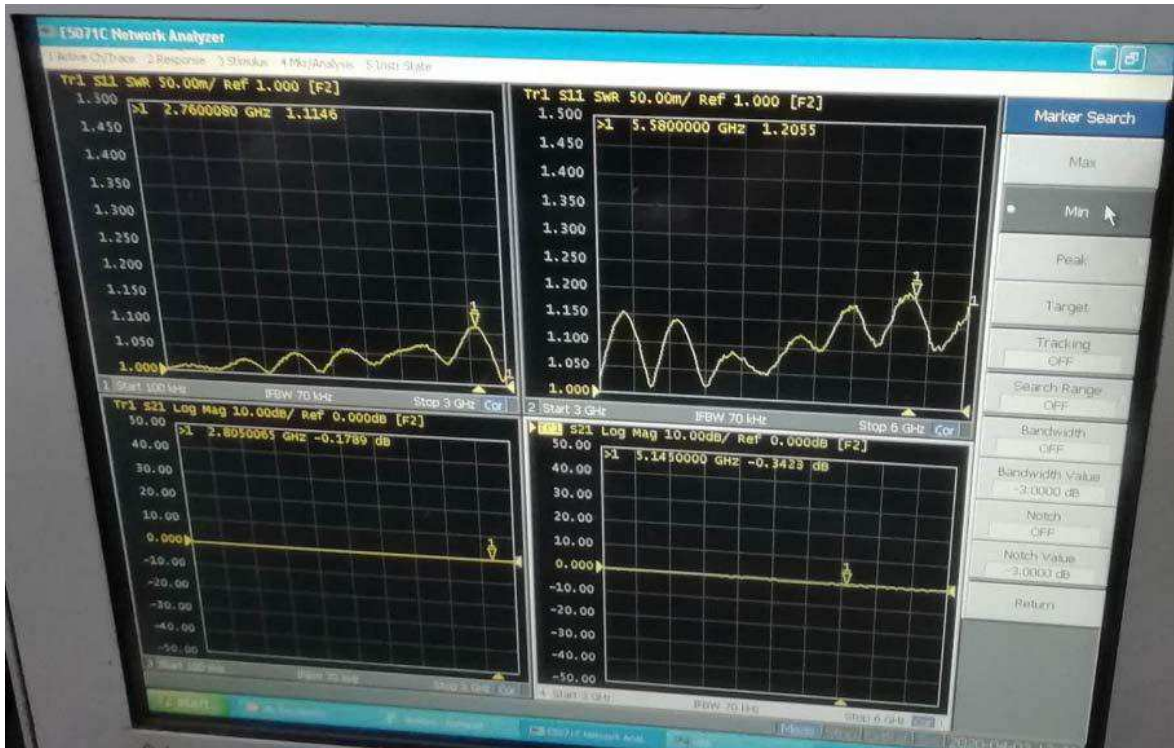


PIM3 @ 2100MHz



6. 2081972-1

IL&VSWR



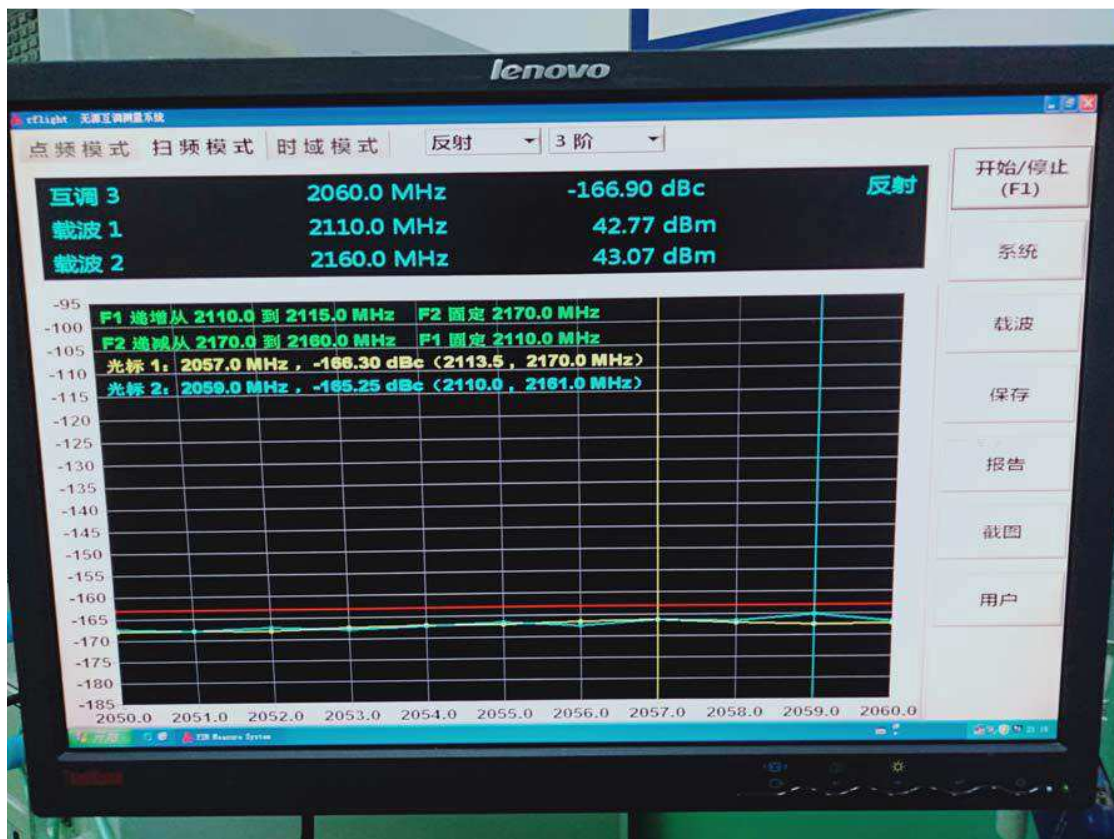
PIM3 @ 900MHz



PIM3 @ 1800MHz

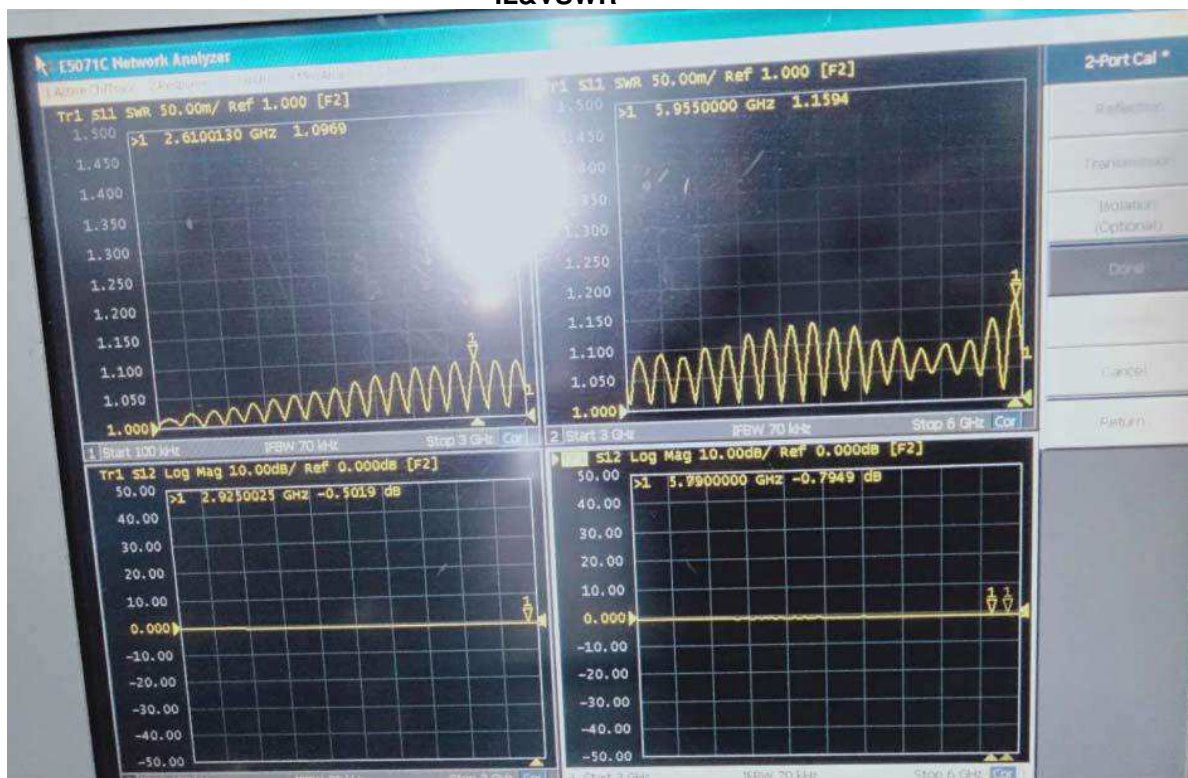


PIM3 @ 2100MHz



7. 2081973-1

IL&VSWR



PIM3 @ 900MHz



PIM3 @ 1800MHz



PIM3 @ 2100MHz



8. 2081974-1

IL&VSWR



PIM3 @ 900MHz



PIM3 @ 1800MHz

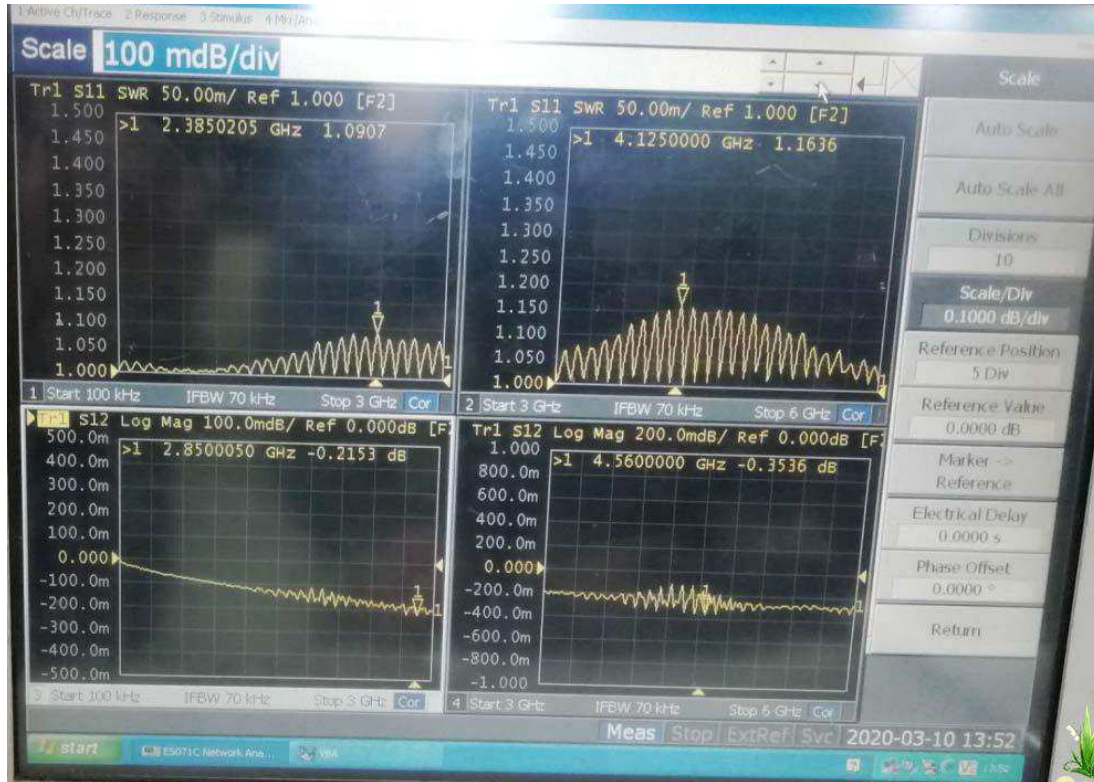


PIM3 @ 2100MHz

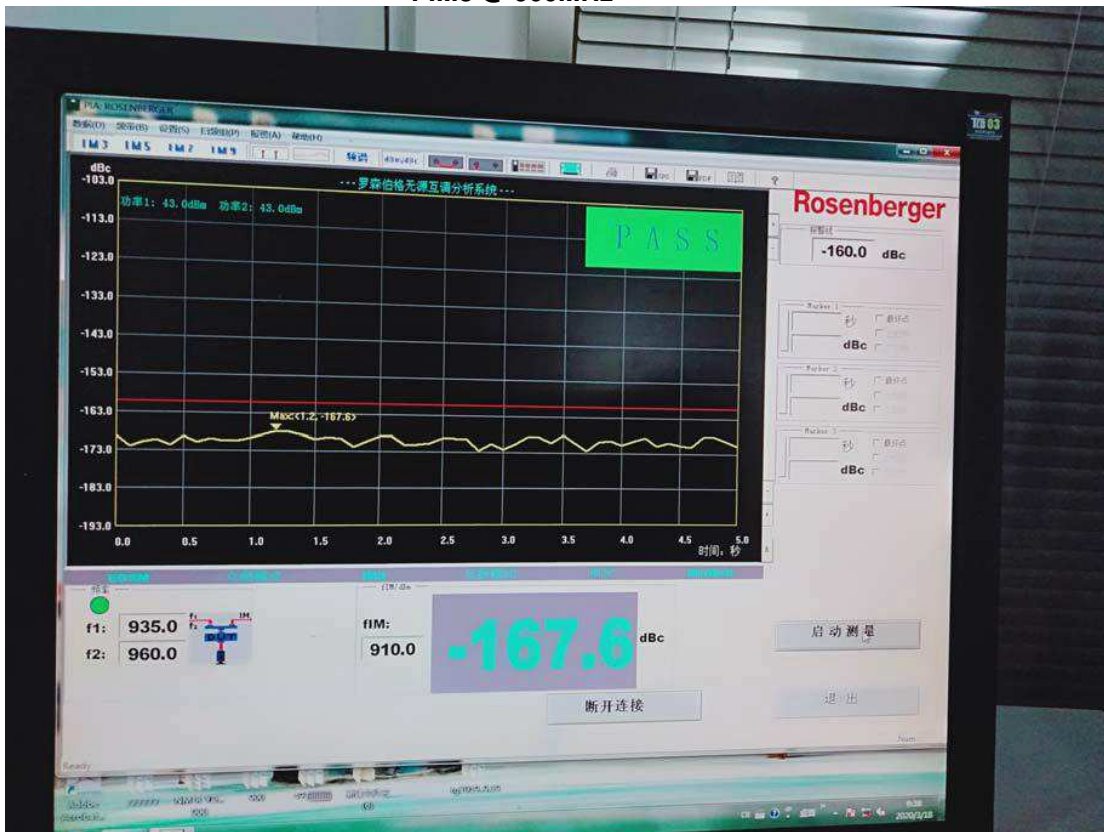


9. 2081975-1

IL&VSWR



PIM3 @ 900MHz



PIM3 @ 1800MHz

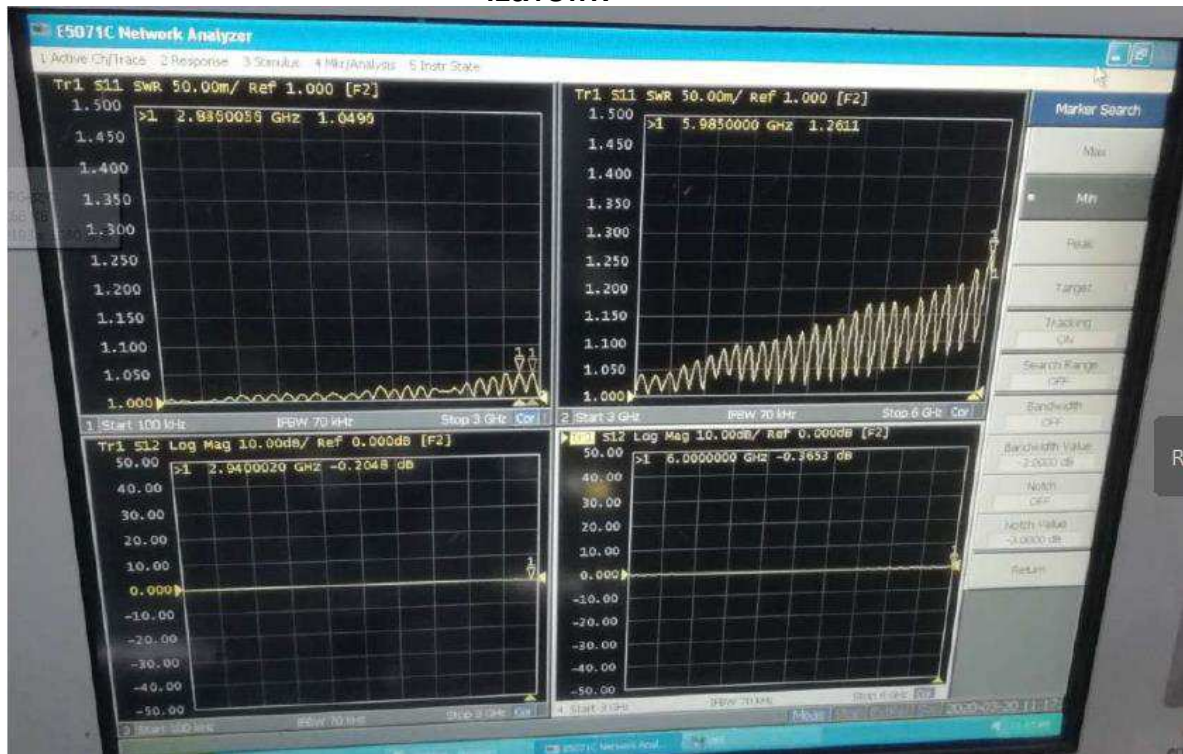


PIM3 @ 2100MHz

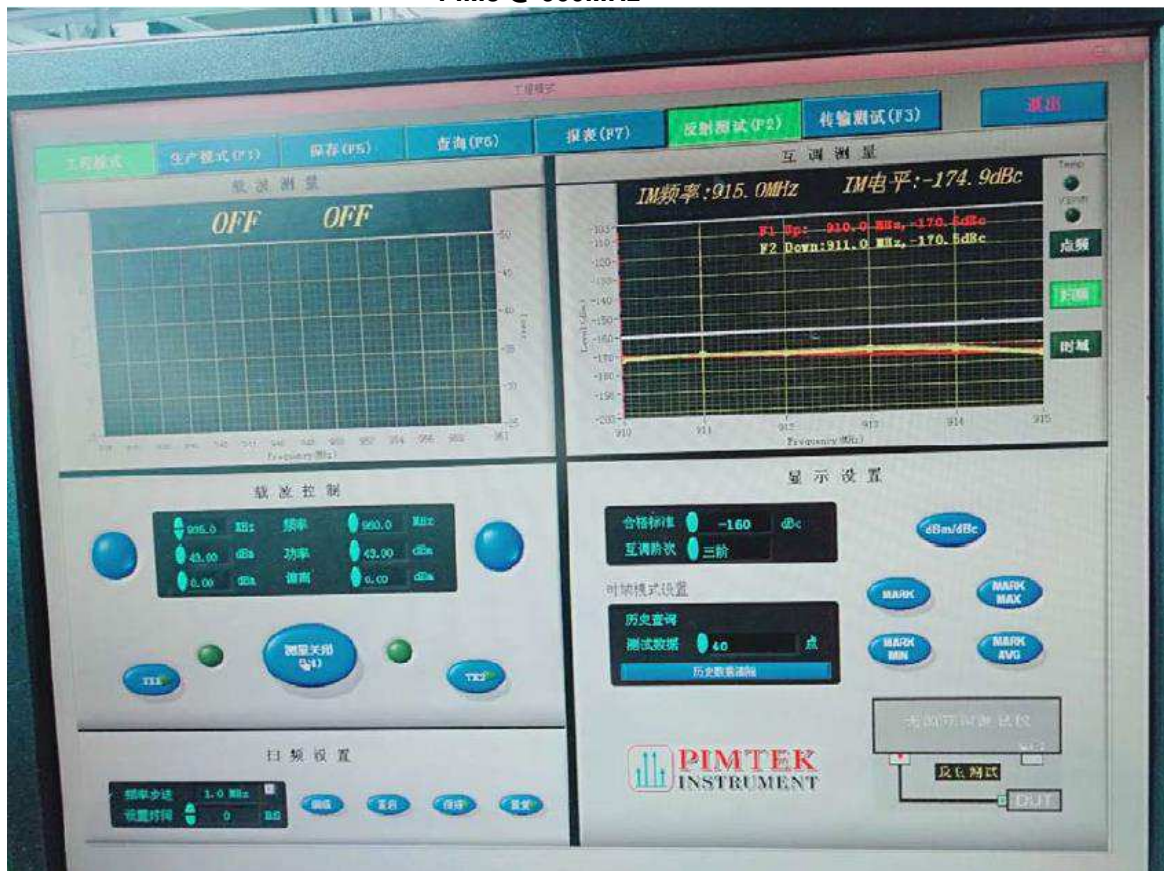


10. 2081976-1

IL&VSWR



PIM3 @ 900MHz



PIM3 @ 1800MHz



PIM3 @ 2100MHz



11. 2081977-1

IL&VSWR



PIM3 @ 900MHz

