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INTRODUCTION

**MIMO(2in1)GNSS L1+L2 5G/LTE Antenna
CPGN18-L1+L2-5G/LTE-RG174-5M-SMA/Mx2 (Magnetic Mount)**

2-Cables :1 xGNSS L1+L2 & 1x 5G/LTE

Cable 1:GNSS L1+L2 RG174 Low loss 5M SMA/M S/T

L1:1560-1610Mhz + L2:1217-1250 MHz 23-28 dBi

Cable 2 : 5G/LTE RG174 Low Loss 5M SMA/M S/T

600-960/1710-2170/2400-2700/3200~3800 MHz 2-5dBi



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1. NERAL DESCRIPTION

Model No	Products P/N
CPGN18-L1+L2-5G/LTE-RG174-5M-SMA/Mx2	CPGN18-5M

Below is a table summarizing the GNSS L1+L2 / 5G/LTEL (2-in-1) antenna design specification

Cable 1:

2.1 GNSS Active L1+L2 Antenna Electrical Properties

Antenna module type	Ceramic modules stacked in to layers L1Ceramic +L2 Ceramic
Antenna mouule size	L1:25x25mm & L2:18x18mm
Antenna Frquency Range	L1:1560~1610MHz L2: 1217~1250MHz
Antenna Maximun Gain	90° : 2.0 dBi Min. 20° : -5.0 dBi Min. Mounted on the 60mm*60mm ground plane.
LNA Gain	L1:+26~+28dB L2:+23~+26dB
LNA NF	L1:2.3dB L2:1.5dB typical
Axial Ratio	L1:3.0dB L2: 2.9 typical
Noise Figure	L1:1.5dB L2:1.6dB typical
Total Peak System Gain	+23~+28dB
V.S.W.R	<2.0 : 1 Both L1& L2 bands
Polarization	RHCP
Axial Ratio	90° : Max 3.0dB Mounted on the 60mm*60mm ground plane.
Input Voltage	2.4V-5.0V
Power Consumption	At 2.4 V Type: 13mA. Max: 16mA. At 5.0 V Type: 18mA. Max: 22mA.
Horizontal (AZ)Beamwith	360 dearees Both L1& L2 bands

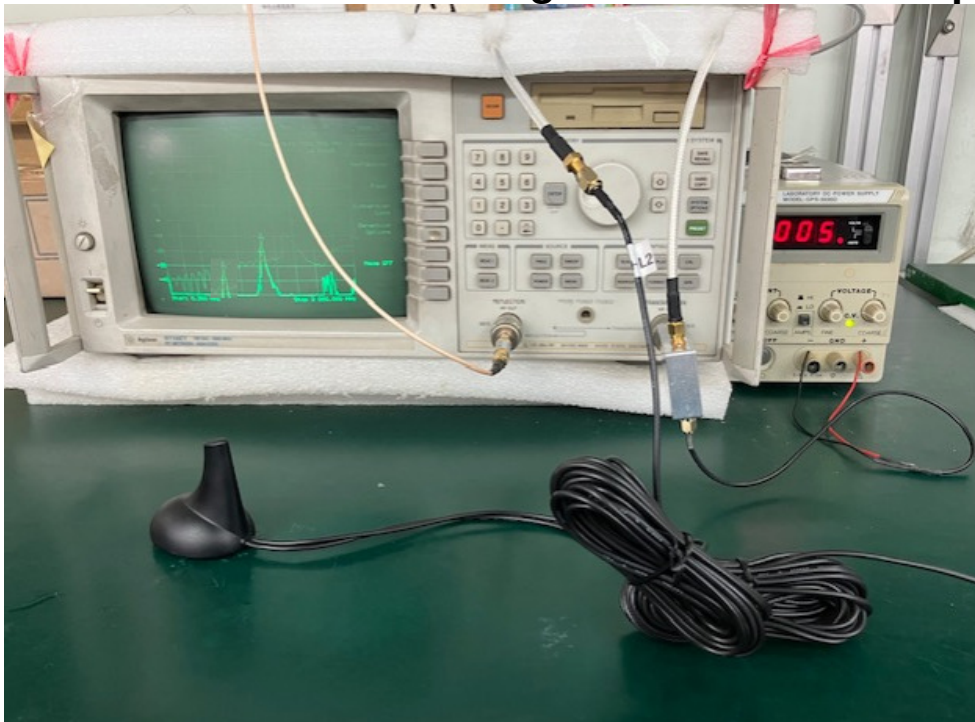
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Output Impedance	50Ω
Note: Gain includes the cable loss	

2.2 CPGN18-L1+L2 Antenna Mechanical Properties

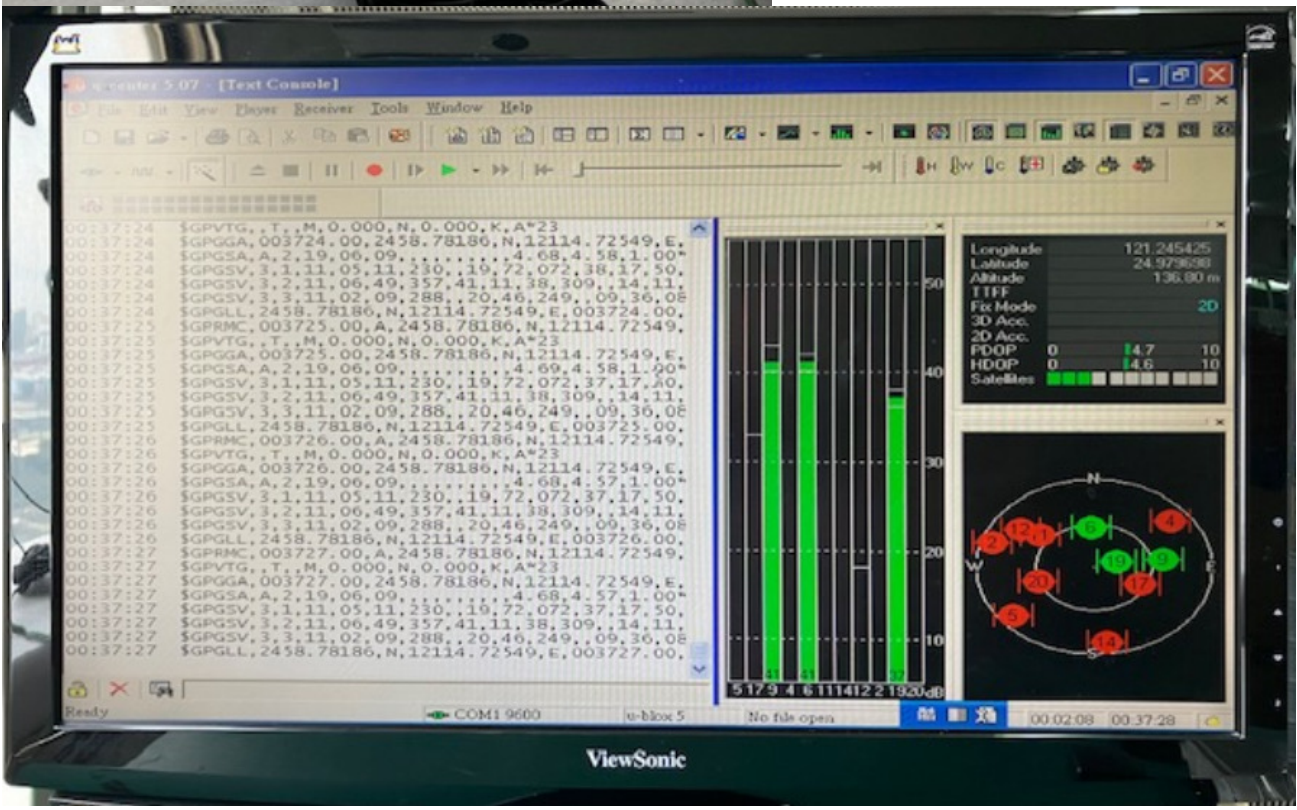
Parameter	Description
Antenna Mounting	Magnetic Mount
Waterproof	100 % waterproof.(IP66~IP67)
Shock 10msec. Half sine wave.	Shock 10msec. Half sine wave.
Antenna cable	RG174U Low loss
Antenna Cable Total Length	5000 mm(16.5ft)
Antenna Color	ABS (Black)
Connector	SMA 180°(Male)
Operating Temperature Range	-30°C~+75°C
Storage Temperature Range	-40°C~+80°C

2.3 CPGN18-L1+L2 test Magnetic Mount on iron plate(05-Sep-22)



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2.4 CPGN18 L1+L2 Satellite reception intensity (05-Sep-2022)



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Cable 2:

3.1 CPGN18 5G/LTE/4G Multi-band Antenna Electrical Properties

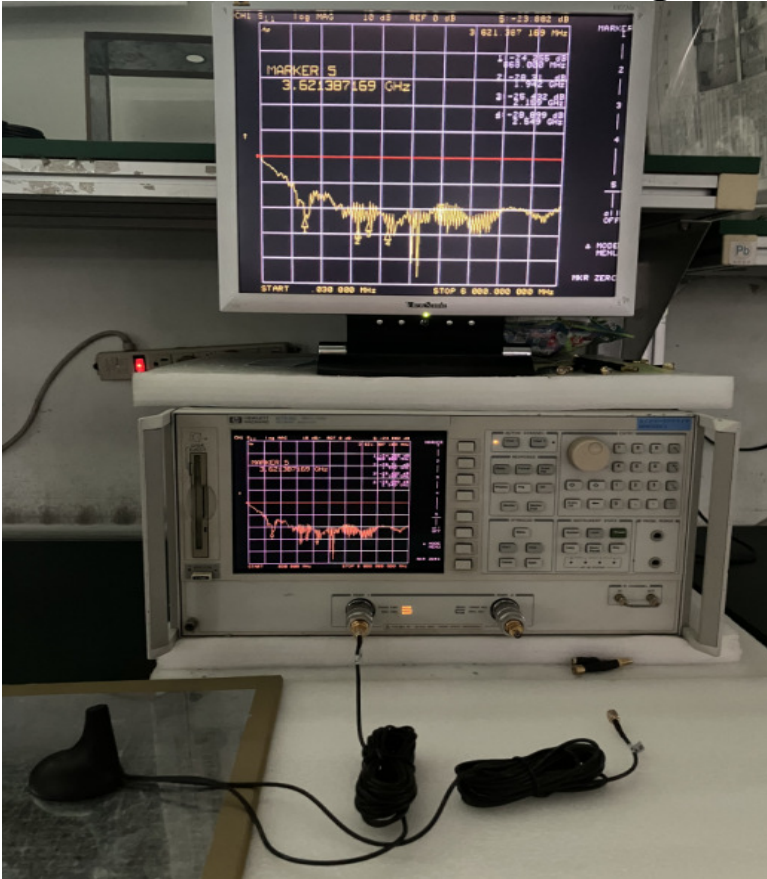
Parameter	Description
Communication System	5G/4G/3G/AMPS/GSM/DCS/UMTS/LTE
Frequency Band (MHz)	696~960/1710~2170/2400~2700/3200~3800MHz
Average Efficiency	75%/80%/83%75%
Average Gail	2.0~5.0dBi
Nominal Impedance	50 ohm
Polarization	Vertical
Return Loss (Check test data)	900.00MHz(-24.014dB),1947.9Mhz(-28.899dB) 2550.0MHz(-30.885dB),3700,0MHz(-24.107dB)
V.S.W.R <1.5:1	900.00MHz(1.134:1),1947.9Mhz(1.074:1) 2550.0MHz(1.059:1),3700,0MHz(1.133:1)
Reflection coefficient	900.00MHz(0.063),1947.9Mhz(0.036) 2550.0MHz(0.029),3700,0MHz(0.062)

3.2 5G/LTE/4G/3G/2G Multi-band Antenna Mechanical Properties

Parameter	Description
Antenna Type	External Antenna
Touch Type	Magnetic Mount
Antenna size	L:56.9mm xW:43.0mm xH:58.0mm
Antenna cable	RG174 Low loss cable
Connector Type	SMA 180°(Male)
Antenna Cable Total Length	5000mm(16.5ft) ±50mm
Antenna Color	Black
Waterproof	100% waterproof.(IP66~IP67)
Shock (Drop Test)	25CM drop on concret

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4.3 CPGN18- 5G/LTE test Magnetic Mount on iron plate



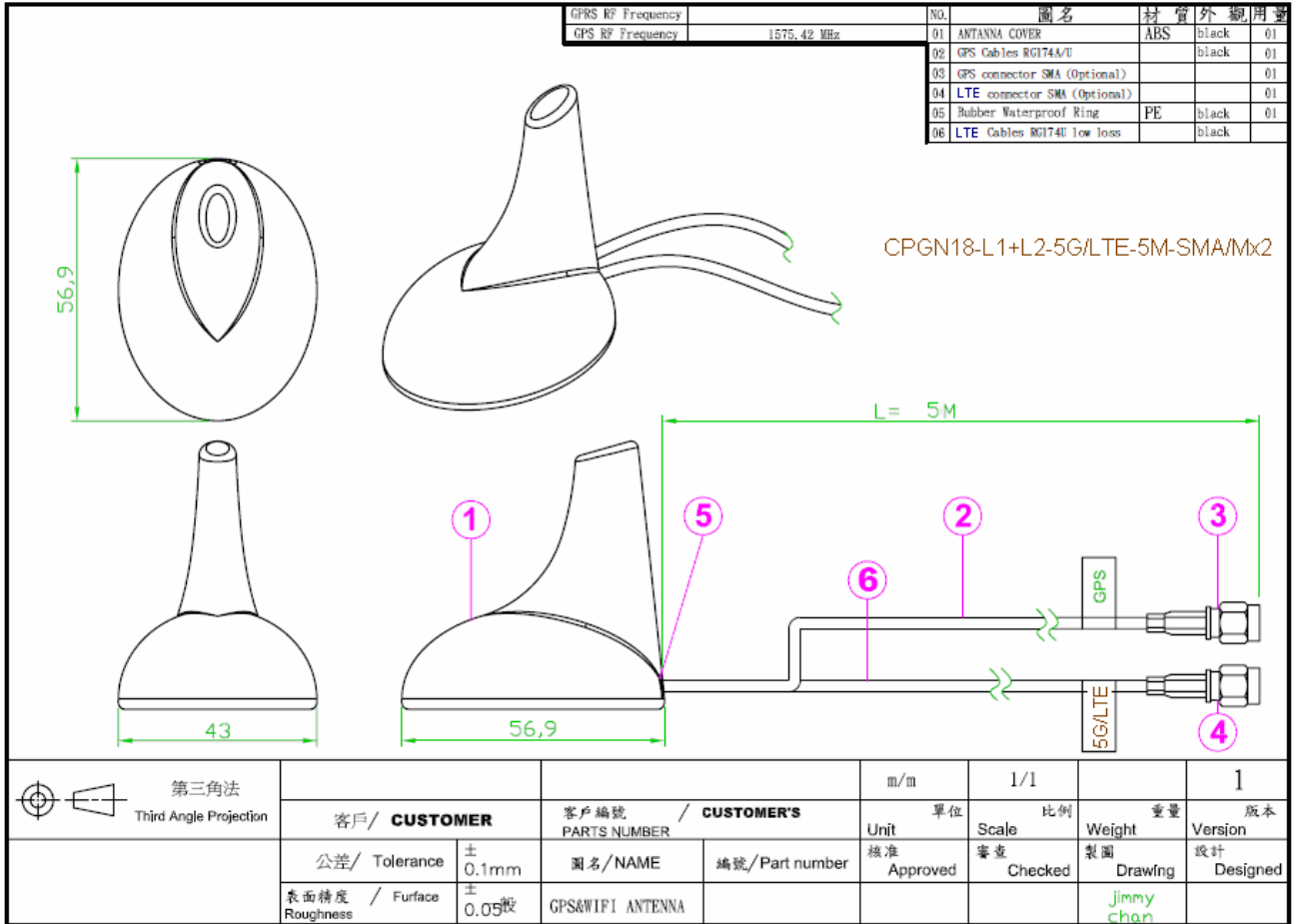
5. Antenna Appearance Size:

L: 56.9mm (2.24") W: 43.0mm(1.69") H:58.0mm (2.28")



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6.Appearance



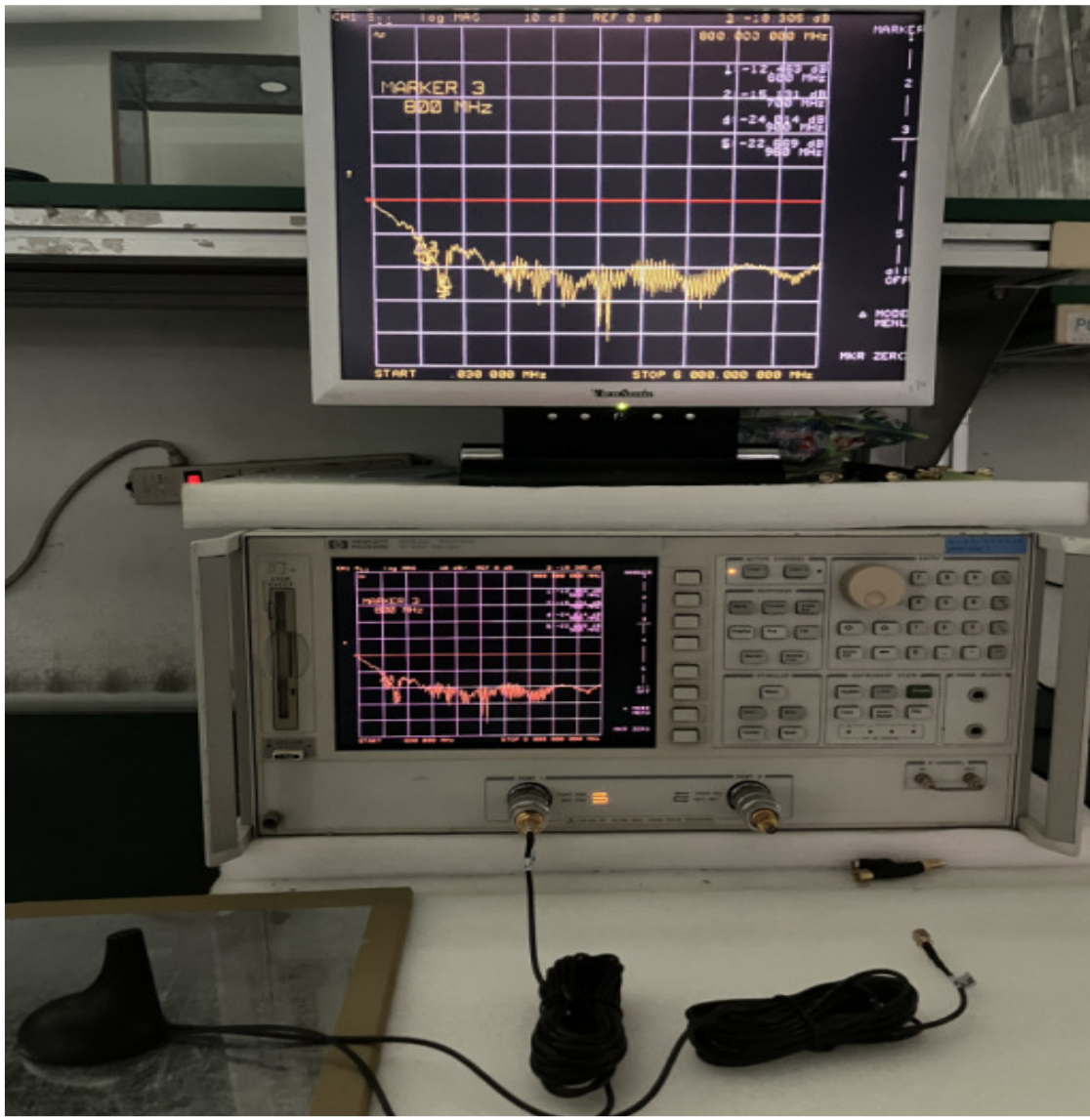
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7. 5G/LTE Multi -band Network analyzer test (05-Sep-22)

Frequency: 600~960/1710~2170/2400~2700/3200~3800MHz

7-1 Detail band test - Frequency : 600~960MHz

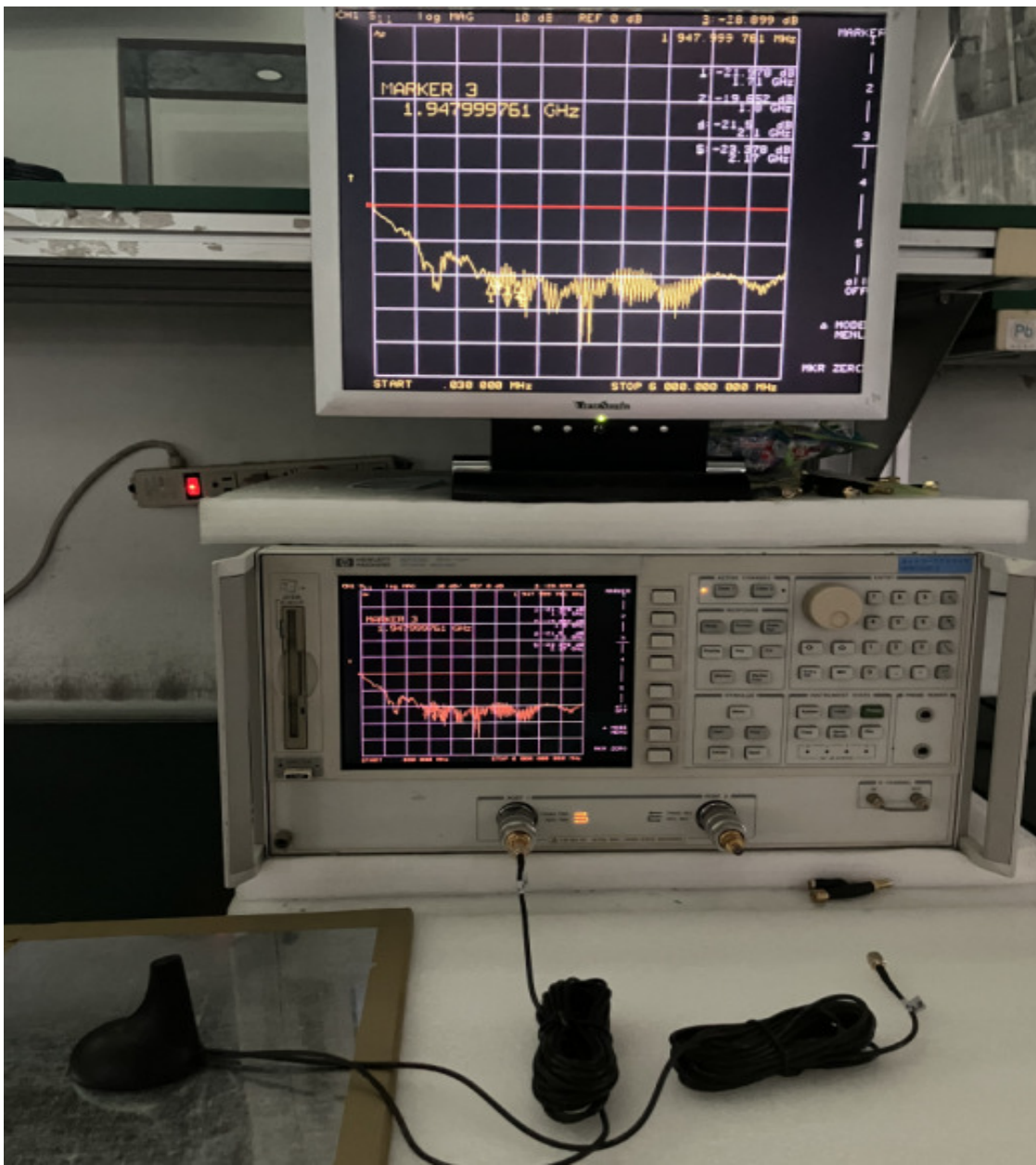
Frequency	Return loss	V.S.W.R	Reflection coefficient
600.000MHz	-12.463dB	1.625:1	0.238
700.000MHz	-15.131dB	1.425:1	0.175
800.000MHz	-18.395dB	1.273:1	0.120
900.000MHz	-24.014dB	1.134:1	0.063
960.000MHz	-22.669dB	1.159:1	0.074



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7-2 Detail band test - Frequency : 1710~2170MHz

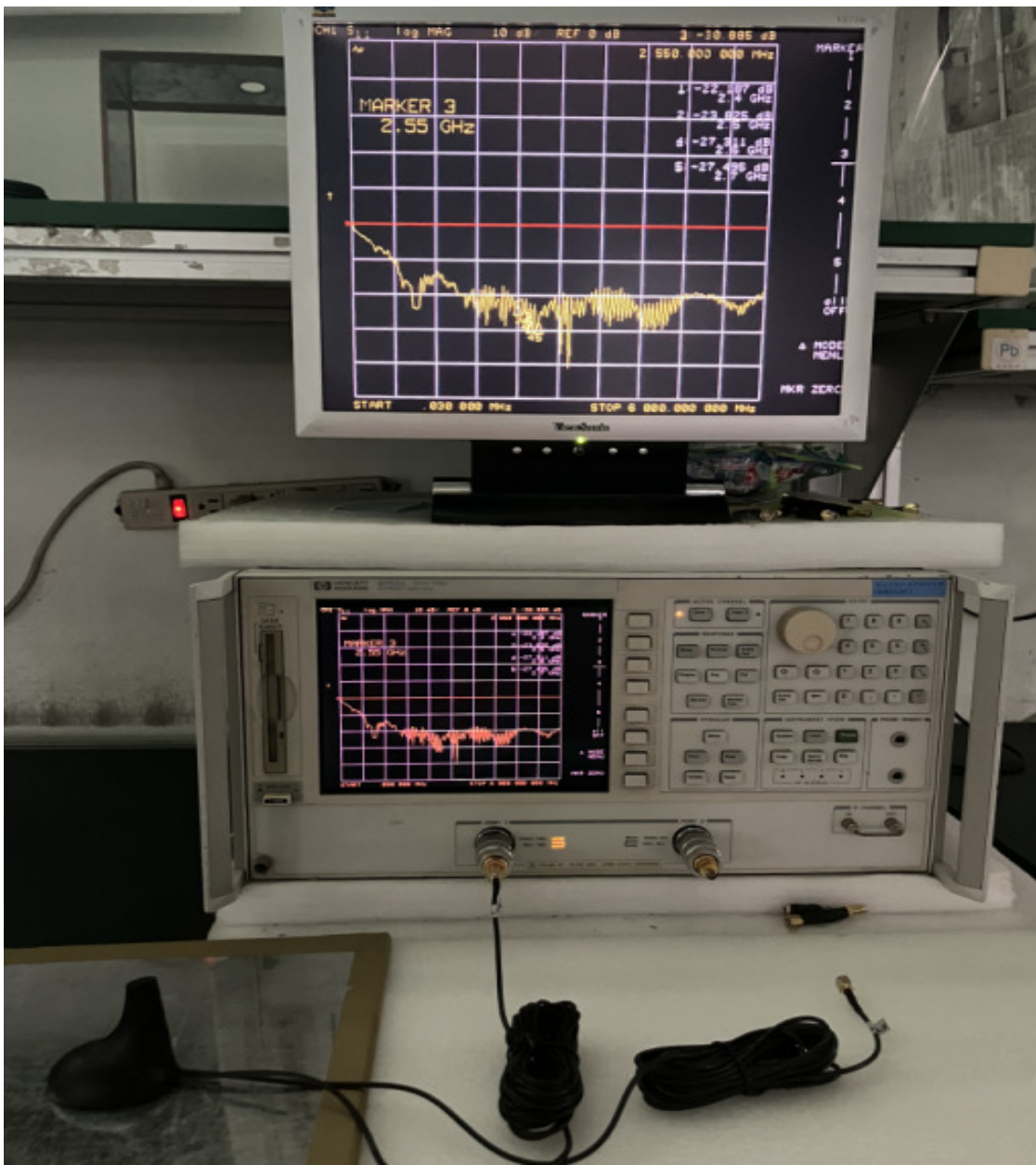
Frequency	Return loss	V.S.W.R	Reflection coefficient
1710.00MHz	-21.978dB	1.173:1	0.080
1800.00MHz	-18.652dB	1.264:1	0.117
1947.99MHz	-28.899dB	1.074:1	0.036
2100.00MHz	-21.500dB	1.184:1	0.084
2170.00MHz	-23.378dB	1.145:1	0.068



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7-3 Detail band test - Frequency : 2400-2700MHz

Frequency	Return loss	V.S.W.R	Reflection coefficient
2400.00MHz	-22.187dB	1.169:1	0.078
2500.00MHz	-23.825dB	1.138:1	0.064
2550.00MHz	-30.885dB	1.059:1	0.029
2600.00MHz	-27.311dB	1.090:1	0.043
2700.00MHz	-27.495dB	1.088:1	0.042



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7-4 Detail band test - Frequency : 3200-3800MHz

Frequency	Return loss	V.S.W.R	Reflection coefficient
3200.00MHz	-23.148dB	1.150:1	0.070
3400.00MHz	-20.456dB	1.210:1	0.095
3500.00MHz	-23.084dB	1.151:1	0.070
3700.00MHz	-24.107dB	1.133:1	0.062
3800.00MHz	-24.120dB	1.133:1	0.061

