

# Antenna Test Report

For

Project PM56

Antenna Type: PCB Antenna

Version:

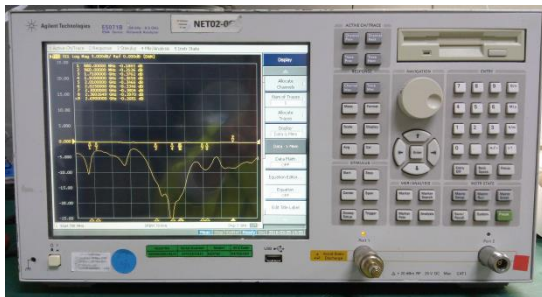
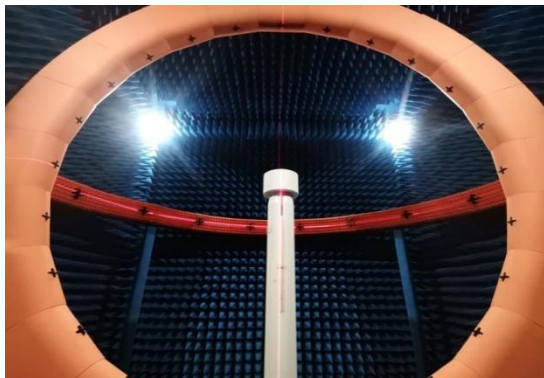
<b>Customer</b>	<b>JK</b>	<b>Project</b>	<b>PM56</b>
<b>Band</b>	<b>BT</b>	<b>Color</b>	
<b>Issued by</b>	<b>LH</b>	<b>Checked by</b>	
<b>Confirmed by</b>		<b>Date</b>	<b>2023.12.20</b>

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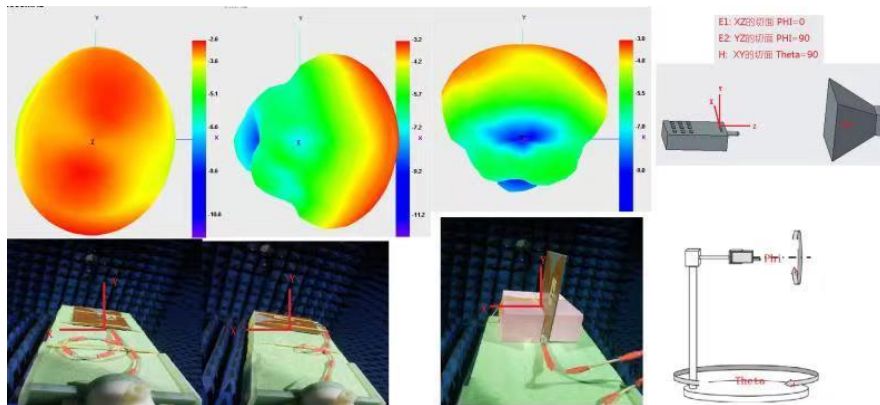


**1. Test Instrumentation and item** (测试设备及项目)

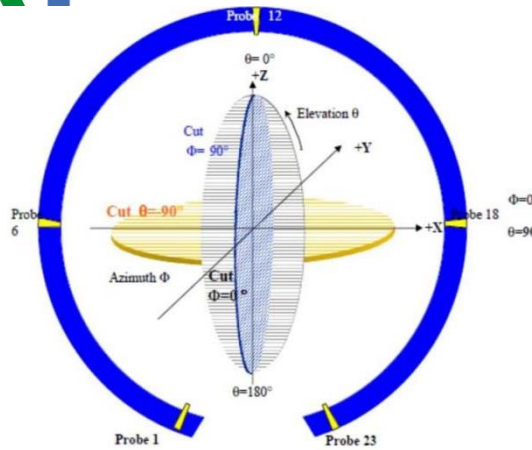
类别 (Class)	测试项目 (Test item)	设备 (Equipment)
1. S parameter	1. Return Loss (RL) 2. standing-wave ratio (VSWR) 3. Smith's original diagram (Smith chart)	Network division (VNA) : Agilent E5071B  R&S ZVB8  Protek A333
2. 耦合测试 Coupling testing)	1. 发射功率 (MAX Power) 2. 接收灵敏度 (MIN Sens)	1. 2G/3G Tester: Agilent 8960  2. The coupling box: TESCOM TC-5060A  3. 3D Chamber: ETS 3D Chamber (5x3x3)
3. 3D 无源测试 (Passive Test)	1. 效率 (Effeciency) 2. 增益 (Gain) 3. 辐射方向图 (radiation pattern)	1. 3D Chamber: TEM24 3D Chamber (5x5x5)  ETS 3D Chamber (5x3x3)  2. Network division (VNA) : Agilent E5071B  R&S ZVB8
4. 3D 有源测试 (Active Test)	1. 3D power (TRP) 2. 3D sensitivity (TIS) 3. Throughput rate	1. 3D Chamber: TEM24 3D Chamber (5x5x5)  ETS 3D Chamber (5x3x3)  2. 2G/3G Tester: Agilent 8960  3. 4G Tester: MT8820C/CMW500  4. WIFI/BT/NB-iot Tester: CMW500  5. 5G Tester: SP9500-CTS  6. Head: HEAD-P10 (FACE-P10)



## 2. Chamber coordinate axis (暗室坐标)



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### 3.Definitions (define)

VSWR: Voltage Standing Wave Rate

RL: Return loss

TRP: total radiated power

TIS: total isotropic sensitivity

### 4.Cell-Phone Photo and Dealing Method (Mobile phone image and environment processing)



### 5.Matching Circuit Description (Original matching description)

#### Original matching

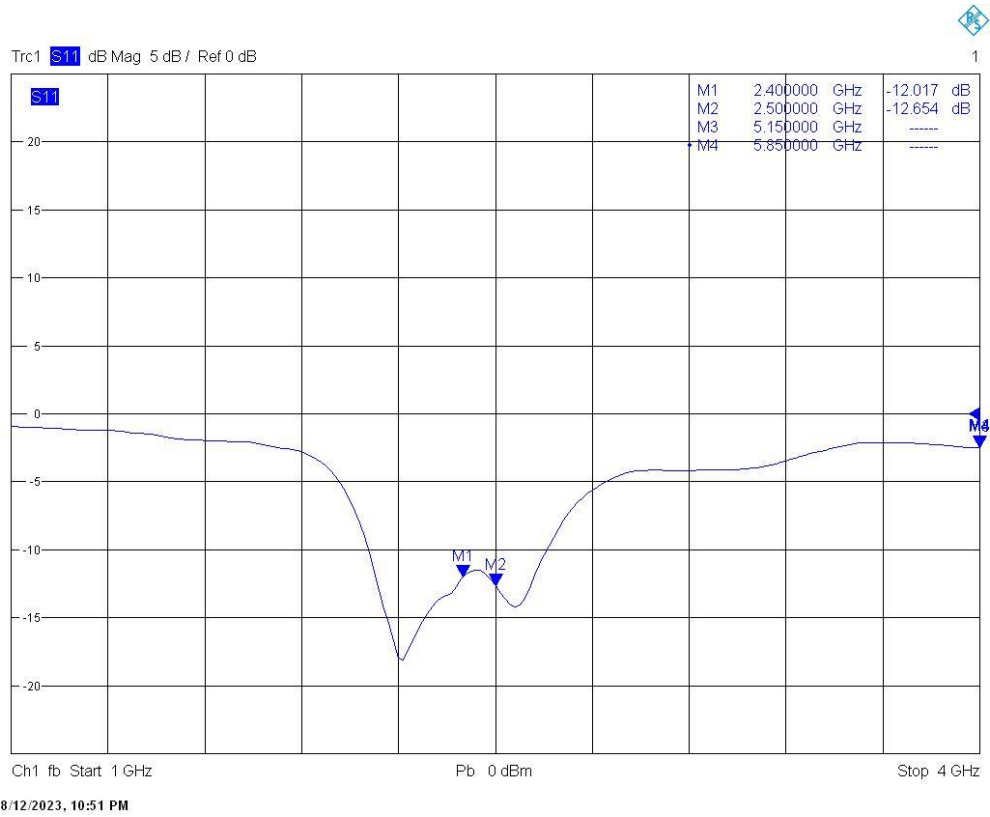
### 6.Passive Test (Passive Test)

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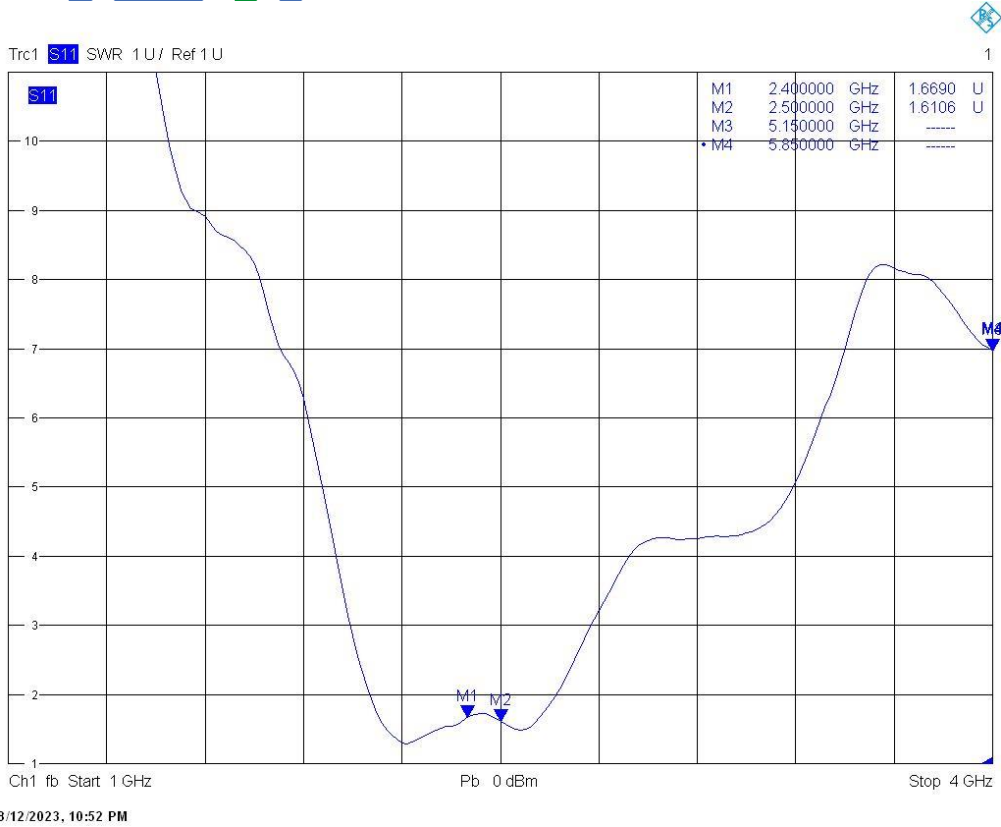
### 6.1. RL/VSWR (Return loss/standing wave ratio)

RL



VSWR

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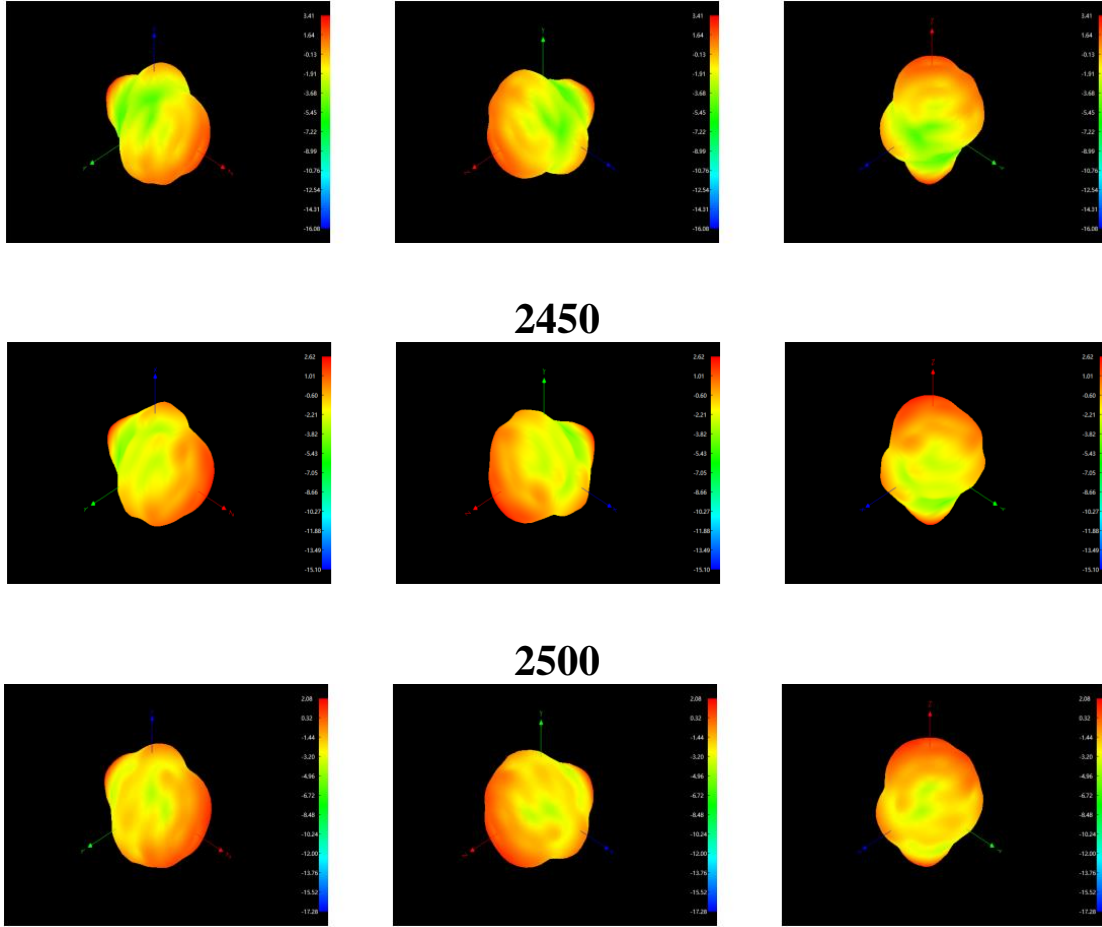


## 6.2. Efficiency, Gain, Radiation pattern

Freq (MHz)	Effi (%)	Gain (dBi)
2400	49.55	3.41
2410	48.42	2.8
2420	50.23	3.22
2430	48.53	2.84
2440	51.29	2.77
2450	49.77	2.62
2460	46.34	2.05
2470	47.21	2.17
2480	49.32	2.05
2490	53.46	2.56
2500	51.4	2.08

**2400**

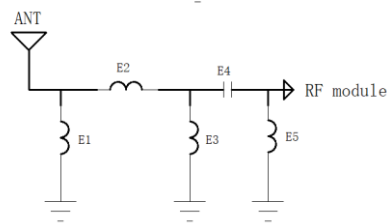
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## 7. TRP&TIS

NQI ANT TRP&TIS parameter Summary of PM56				
free space	Test	Bluetooth TRP		
	Result	0	39	78
	TRP (dBm)	7.52	9.1	10.94
	TIS (dBm)	-85.49	-85.08	-86.66

## 8. matching circuit



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Element	L(Value)	R(Value)
E1(0402)	NF	NF
E2(0402)	0Ω	0Ω
E3(0402)	NF	NF
E4(0402)	10PF	10PF
E5(0402)	NF	NF

## 9. Assembly method

