



Antenna Specification

For Project LA-220VR

[illegible]



Debugging Resume

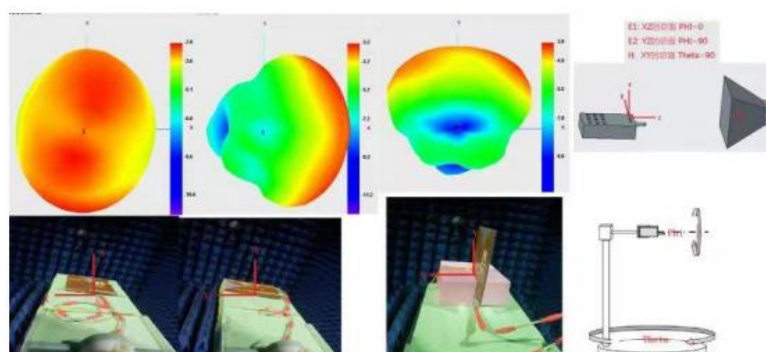
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1. Test Instrumentation and Items

Class	Test Item	Equipment
1. 1 S parameter	1. Return Loss (RL) 2. Voltage Standing Wave Ratio (VSWR) 3. Smith Chart	Network Analyzer (VNA): Agilent E5071B, R&S ZVB8, Protek A333
1.2 Coupling Testing	2. Minimum Sensitivity (MIN Sens)	2. Coupling Box: TESCOM TC-5060A 3. 3D Chamber: ETS 3D Chamber (5x3x3)
1.3 3D Passive Test	1. Efficiency 2. Gain 3. radiation pattern	1. 3D Chamber: TEM24 3D Chamber (5x5x5) ETS 3D Chamber (5x3x3) 2. VNA : Agilent E5071B R&S ZVB8
1.4 3D Active Test	1. 3D Power (TRP) 2. 3D Sensitivity (TIS) 3. Throughput Rate	1. 3D Chamber: TEM24 3D Chamber (5x5x5) 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) ETS 3D Chamber (5x3x3)

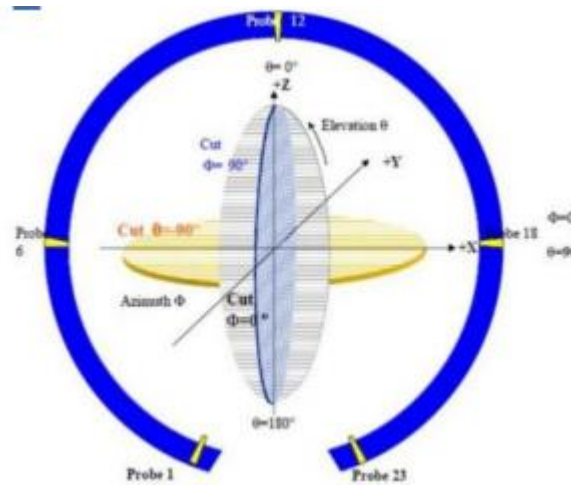


2. Chamber Coordinate Axis





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3. Definitions

VSWR: Voltage Standing Wave Ratio

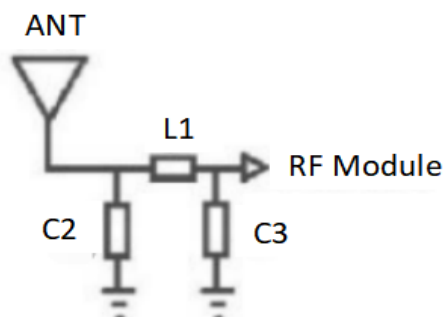
RL: Return Loss

TRP: Total Radiated Power

TIS: Total Isotropic Sensitivity

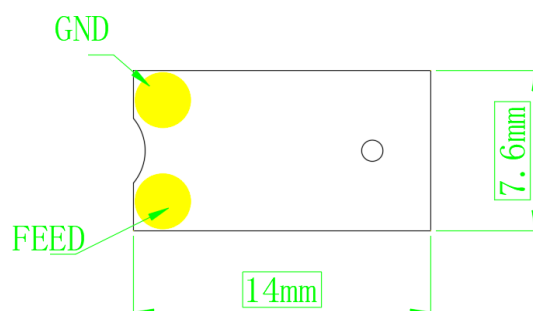
4. Cell-Phone Photo and Dealing Method

5. 1 Matching Circuit Description



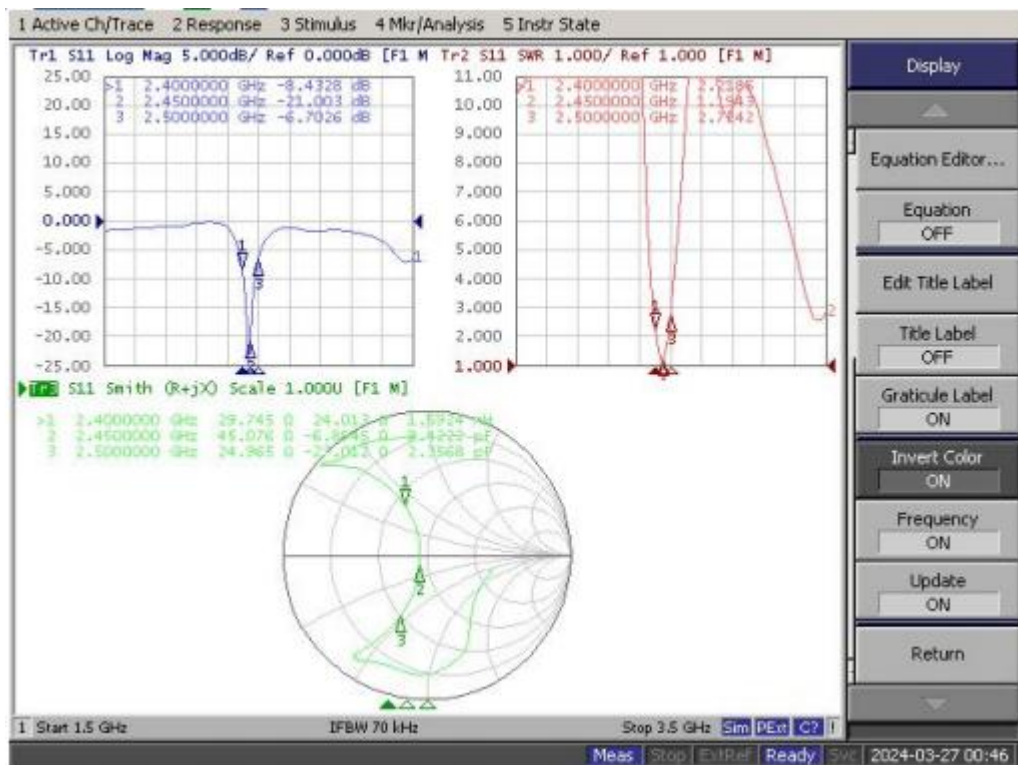
Element	Value
C2 (0201)	NC
L1 (0201)	0R
C3 (0201)	1. 5PF

5.2 Antenna size :



6.Passive Test

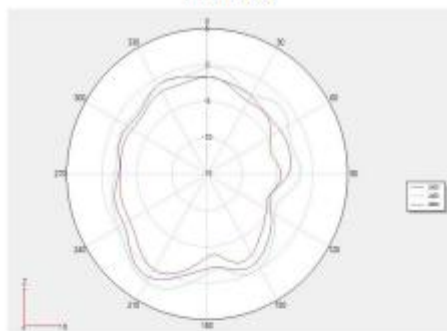
6.1. RL/VSWR (Return Loss/Voltage Standing Wave Ratio)



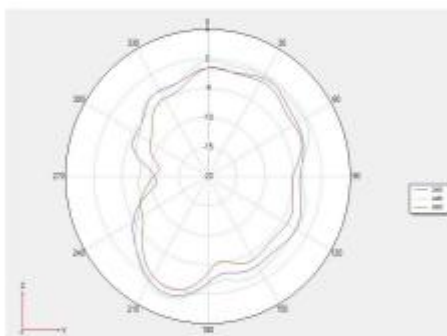
6.2.Effeciency、 Gain、 Radiation pattern

Freq (MHz)	Effi (%)	Gain (dBi)
2400	49.83	2.8
2410	50.98	2.97
2420	59.53	3.79
2430	57.09	3.93
2440	59.71	3.92
2450	59.71	4
2460	58.83	3.49
2470	55.67	3.17
2480	53.21	2.29
2490	50.12	2.23
2500	44.67	1.84

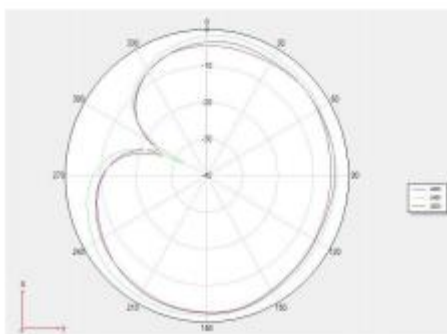
Phi 0 2D

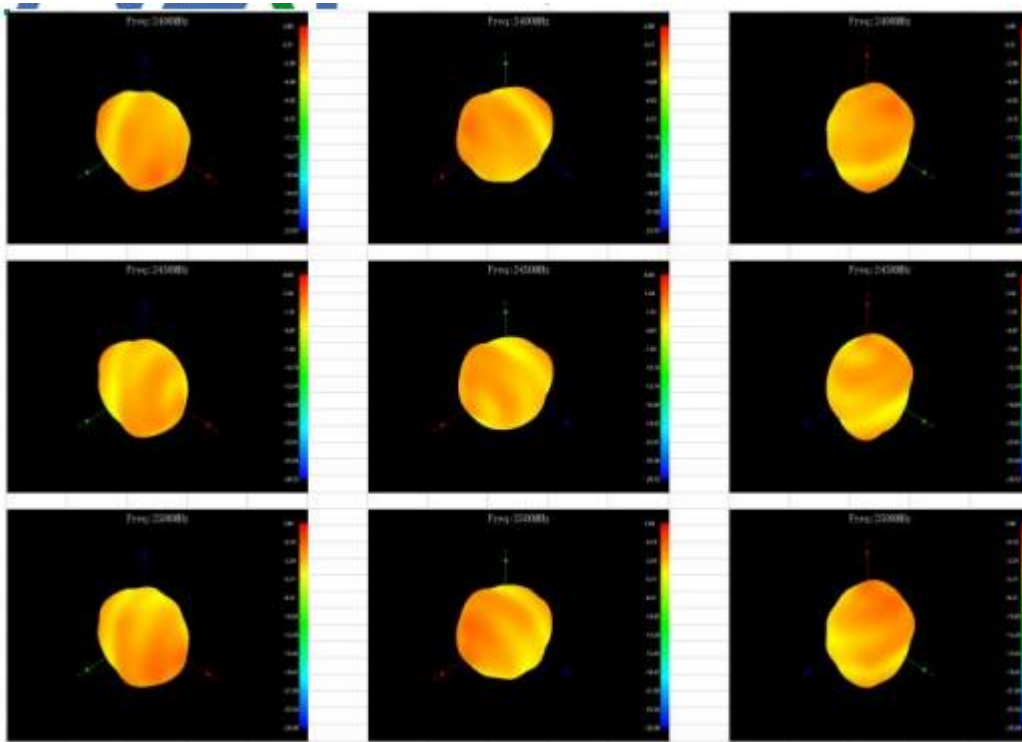


Phi 90 2D



Theta 90 2D





7. TRP & TIS

Mobile Phone: (Redmi K30)

NQI ANT TRP&TIS parameter Summary of LA-220VR				
自由空间	Test	Bluetooth TRP		
	Result	0	39	78
	TRP (dBm)	4.25	4.12	3.14
	TIS (dBm)	-88.96	-89.56	-88.13

Computer: (ASUS laptop)

NQI ANT TRP&TIS parameter Summary of LA-220VR				
自由空间	Test	Bluetooth TRP		
	Result	0	39	78
	TRP (dBm)	4.26	4.04	3.37
	TIS (dBm)	-87.95	-87.86	-88.69