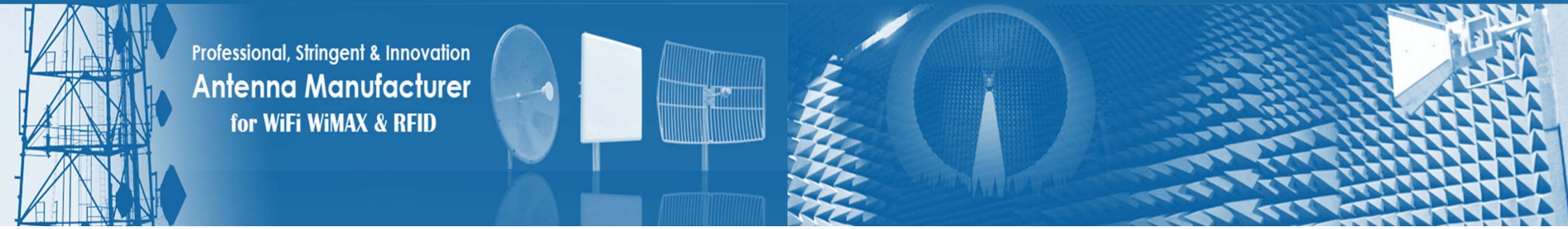
W438C

Customer:创通微

Designer: Lzh

Date:2024/01/03

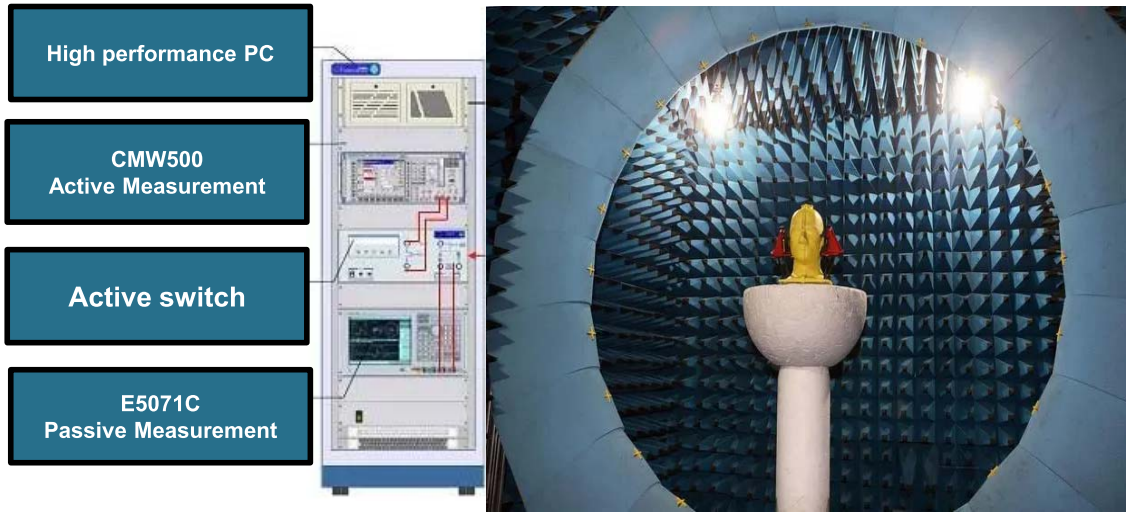


OUTLINE

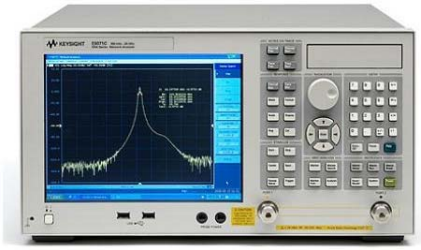
1. Benchmark
2. S-Parameters (VSWR&isolation)
3. Antenna Efficiency& Peak Gain
4. Radiation patterns
5. Summary

HL-Tronics 3D Chamber Structure

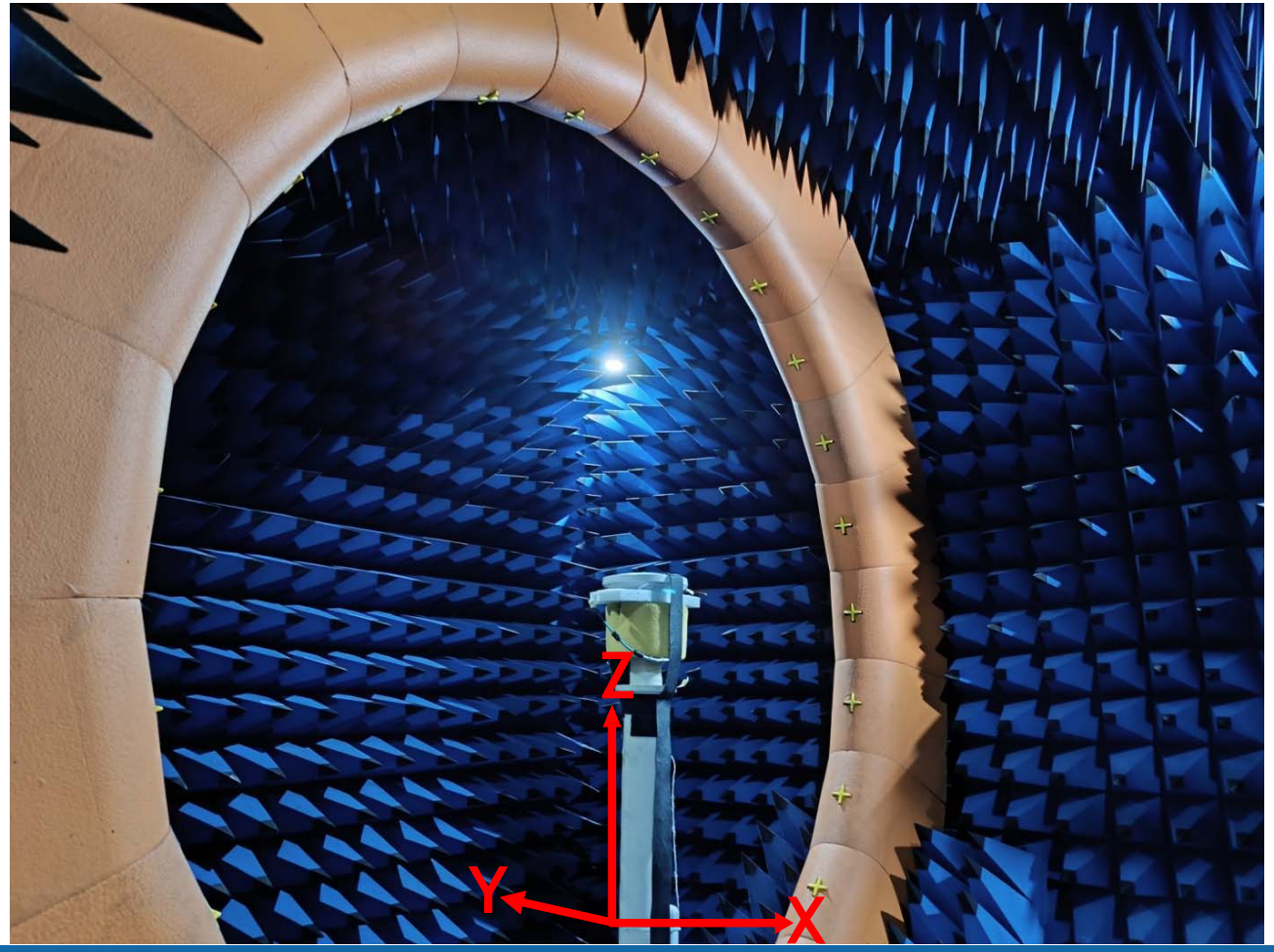
- EMT-24 Series System Components
- Chambers
- EMT Quest Software
- Positioning Systems
- Chamber Room Size: L*W*H=5*5*5 M



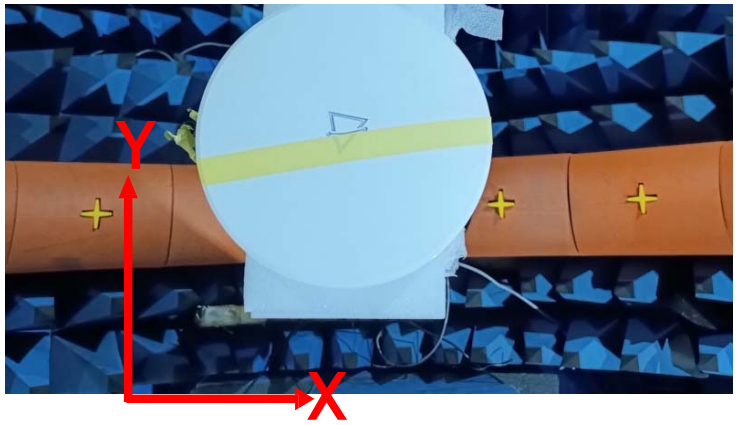
VSWR were performed using a keysight S-parameter Network Analyzer.

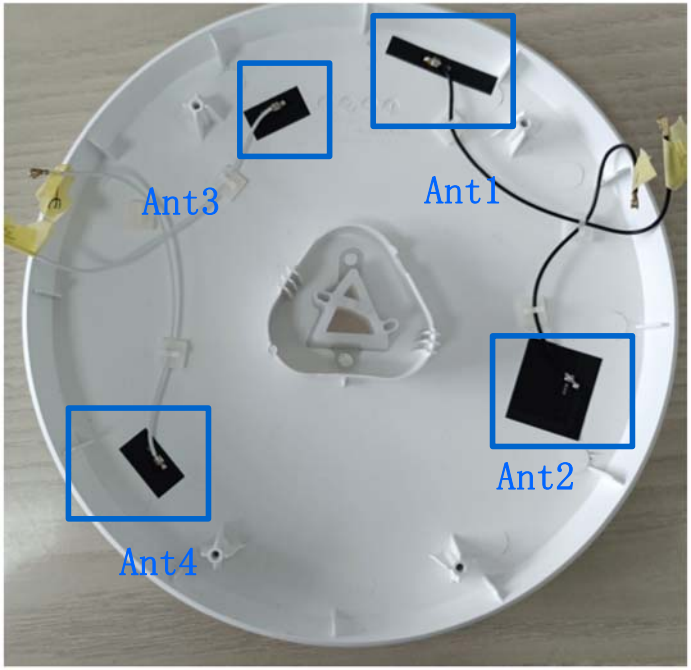


E5071C



Phi=0° = X-Z
Phi=90° = Y-Z
Theta=90° =X-Y

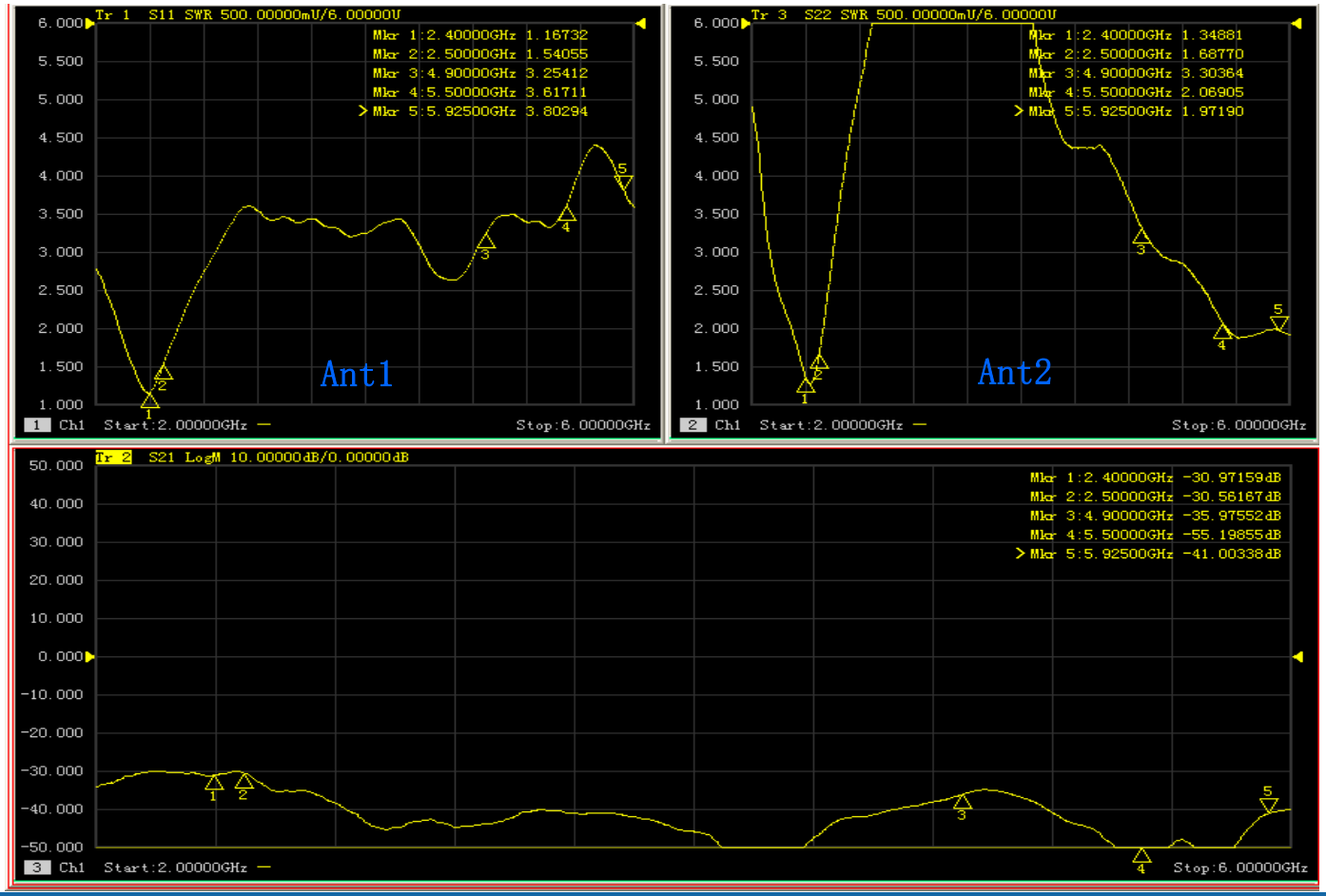




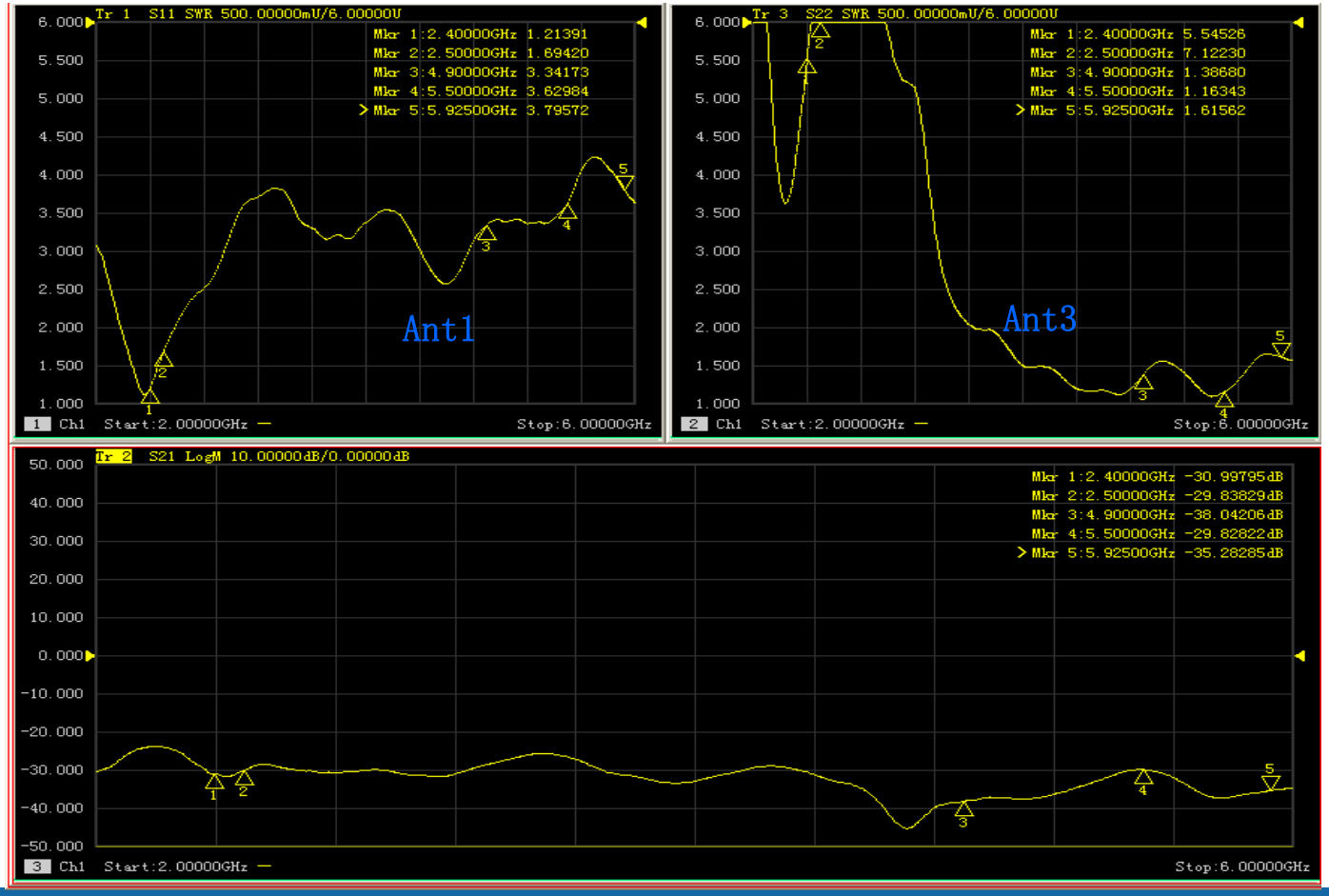
Ant1/Ant2: wifi 2G antenna Material: FPC
Ant3/Ant4: wifi 5G antenna Material: FPC

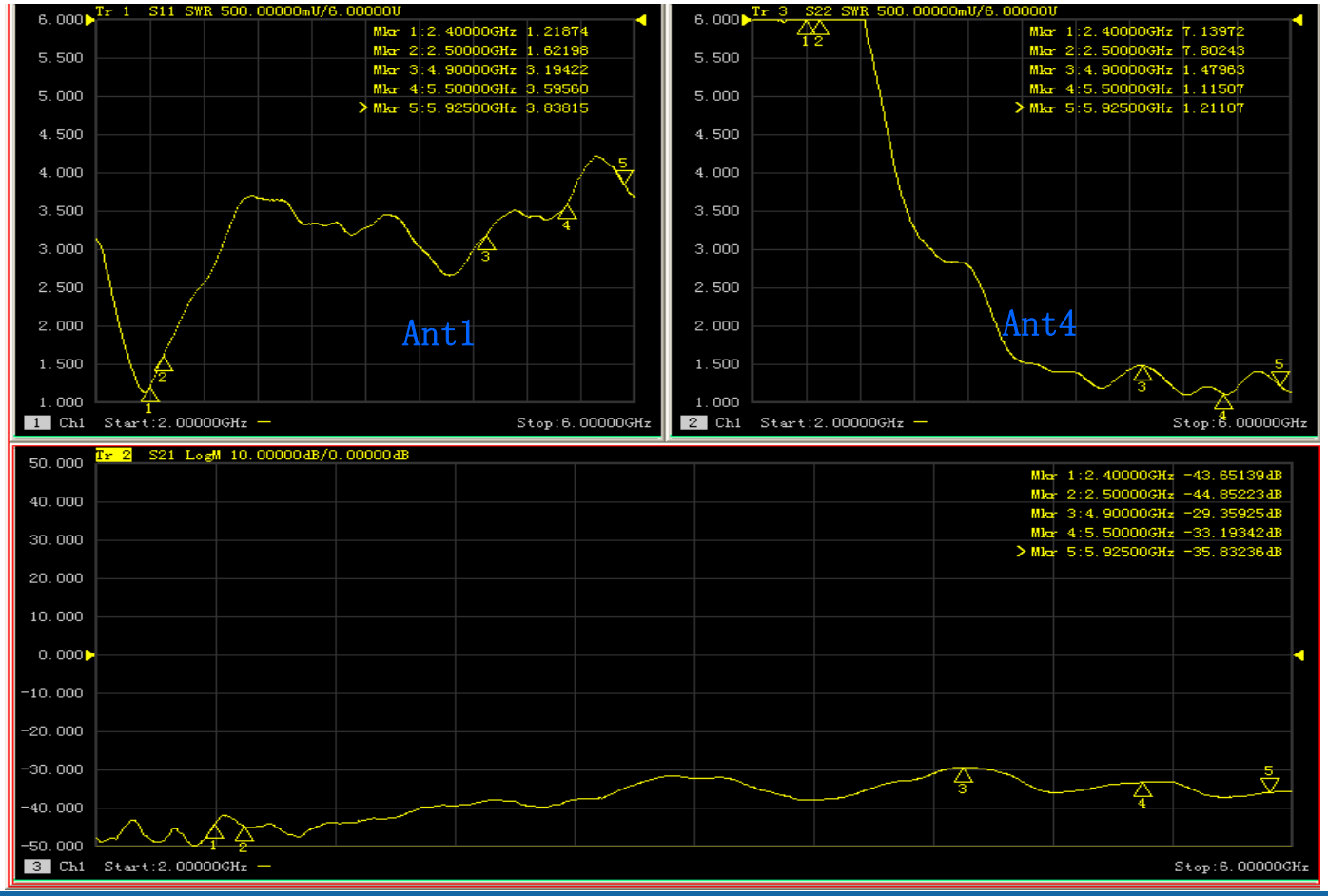
Antenna Frequency (MHz)
Ant1/Ant2: 2400~2500MHz
Ant3/Ant4: 4900~5925MHz

2. S-Parameters(VSWR&isolation)

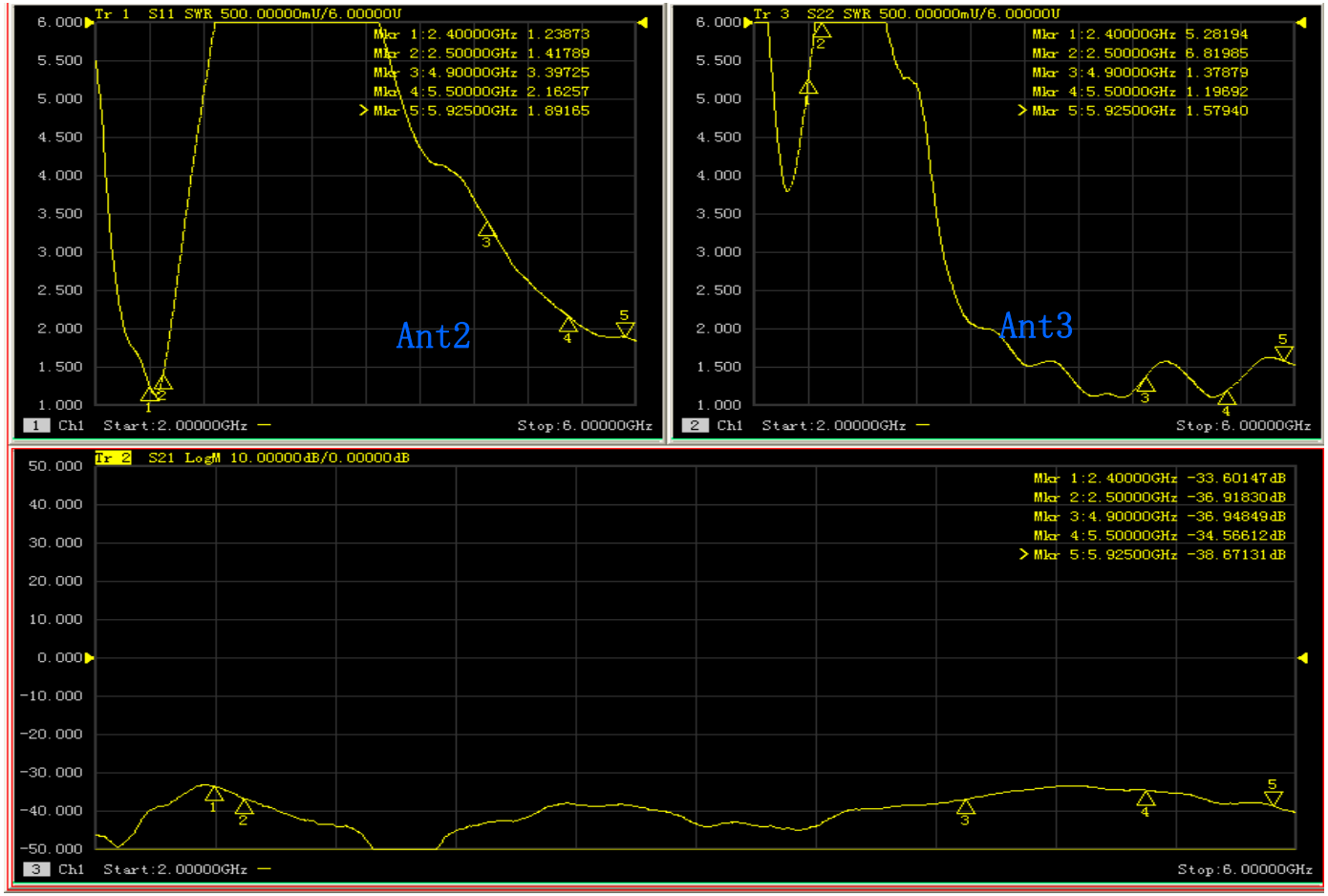


2. S-Parameters(VSWR&isolation)

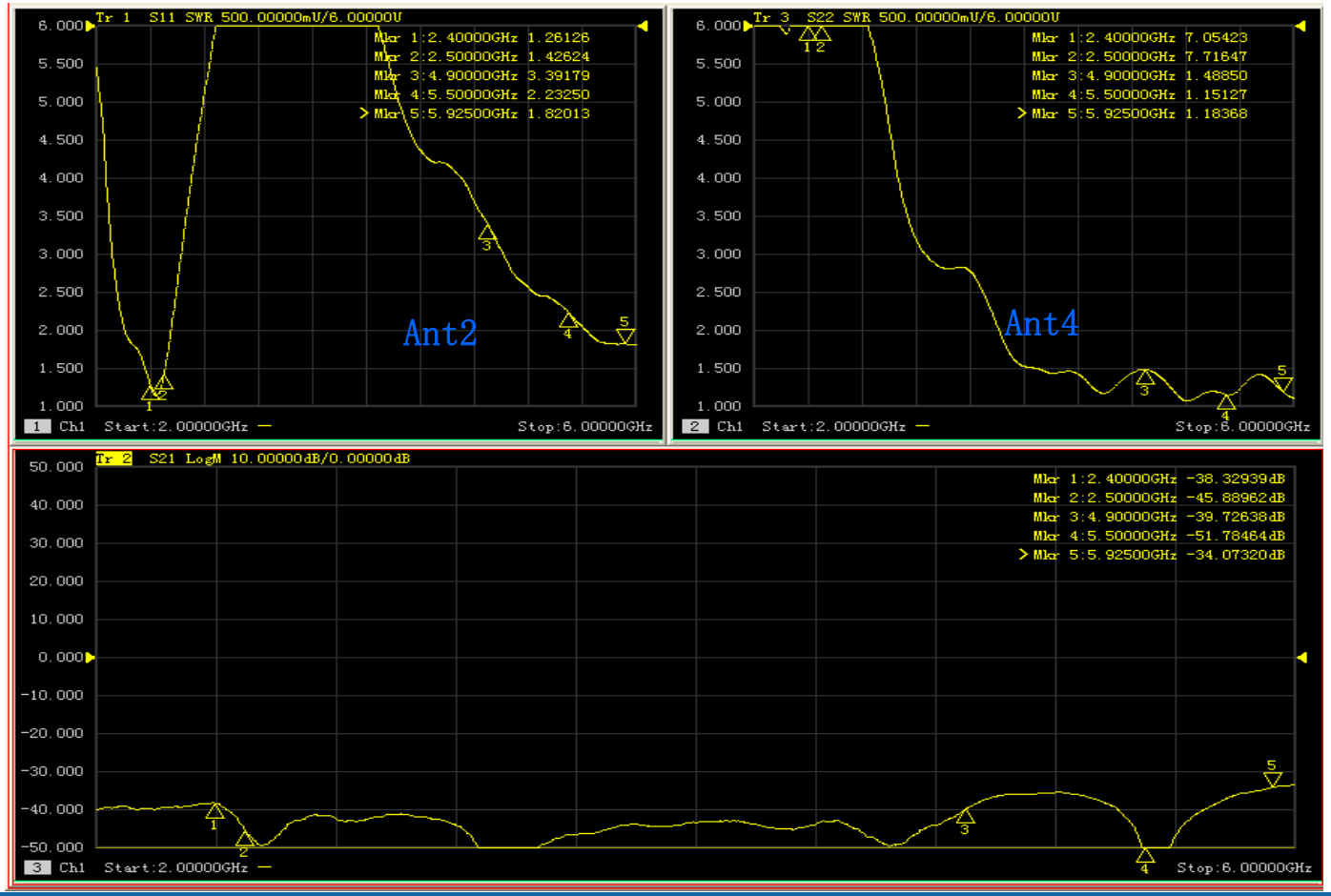


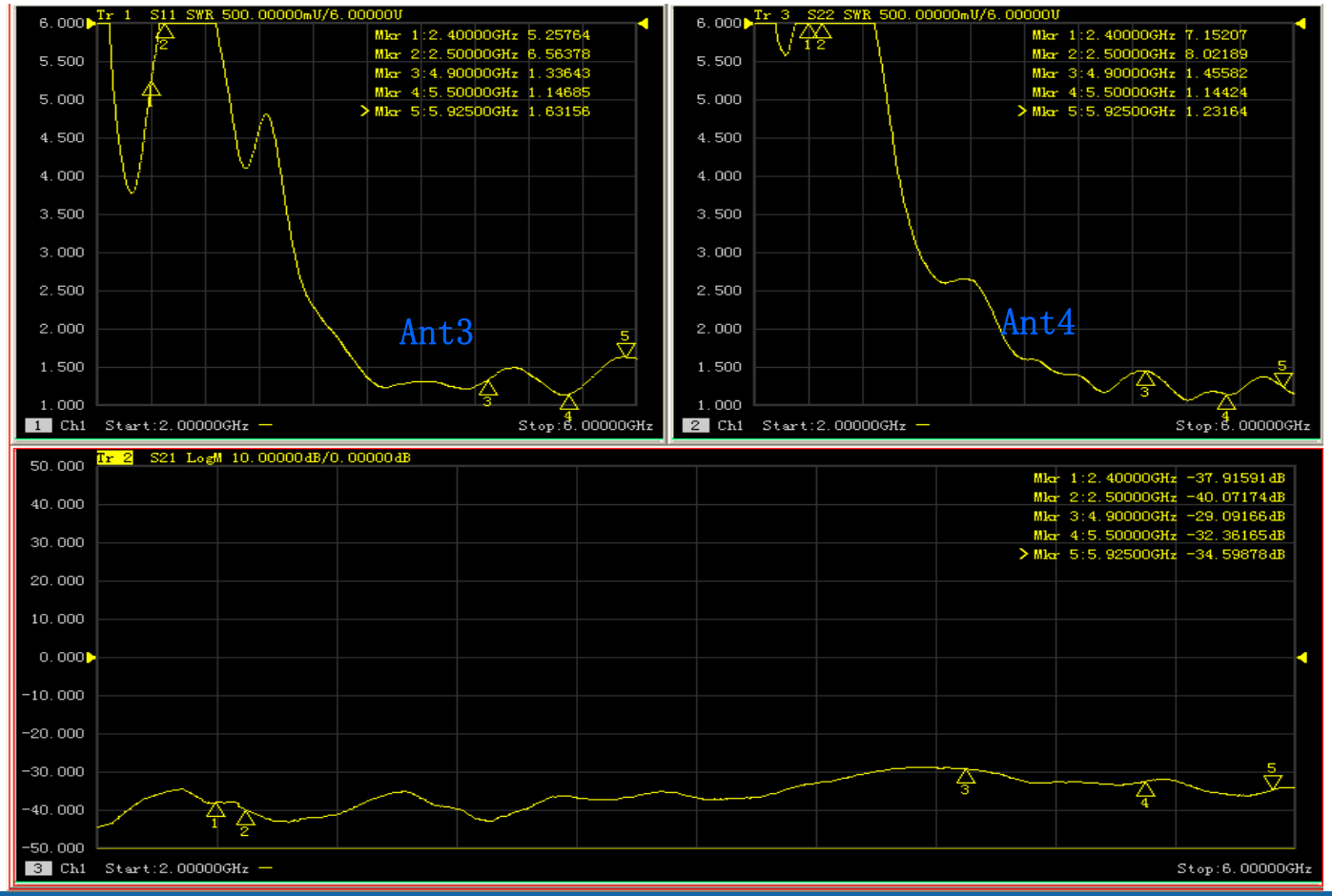

Tr 1 S11 SWR 500.00000mU/6.00000U
Mkr 1:2.40000GHz 1.21874
Mkr 2:2.50000GHz 1.62198
Mkr 3:4.90000GHz 3.19422
Mkr 4:5.50000GHz 3.59560
Mkr 5:5.92500GHz 3.83815
Ant1
1 Ch1 Start:2.00000GHz
Stop:6.00000GHz
Tr 3 S22 SWR 500.00000mU/6.00000U
Mkr 1:2.40000GHz 7.13972
Mkr 2:2.50000GHz 7.80243
Mkr 3:4.90000GHz 1.47963
Mkr 4:5.50000GHz 1.11507
Mkr 5:5.92500GHz 1.21107
Ant4
2 Ch1 Start:2.00000GHz
Stop:6.00000GHz
Tr 2 S21 LogM 10.00000dB/0.00000dB
Mkr 1:2.40000GHz -43.65139dB
Mkr 2:2.50000GHz -44.85223dB
Mkr 3:4.90000GHz -29.35925dB
Mkr 4:5.50000GHz -33.19342dB
Mkr 5:5.92500GHz -35.83236dB
3 Ch1 Start:2.00000GHz
Stop:6.00000GHz

2. S-Parameters(VSWR&isolation)

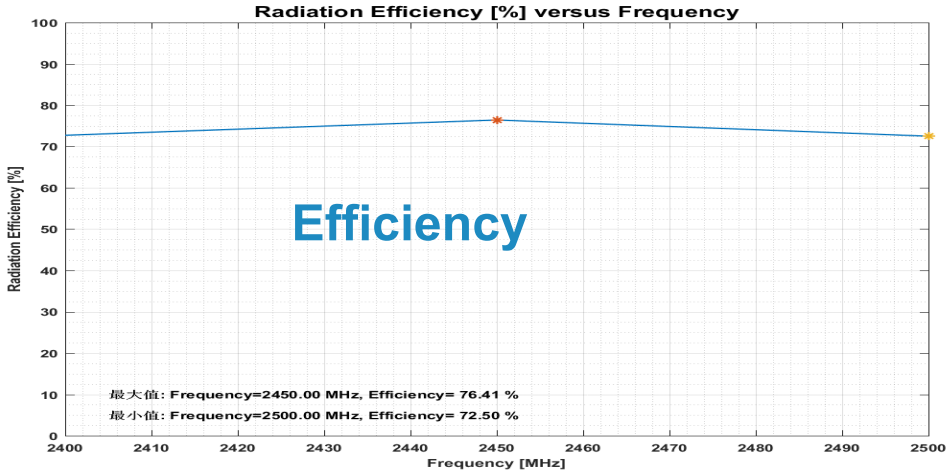


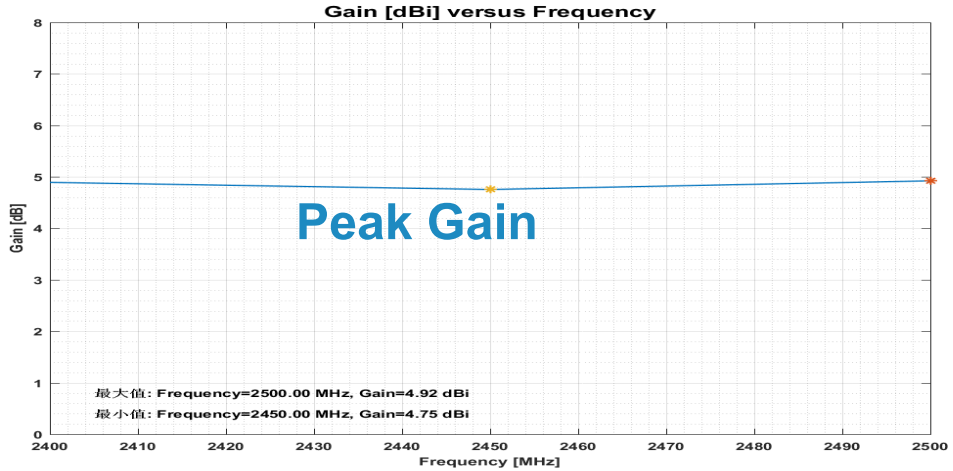
2. S-Parameters(VSWR&isolation)



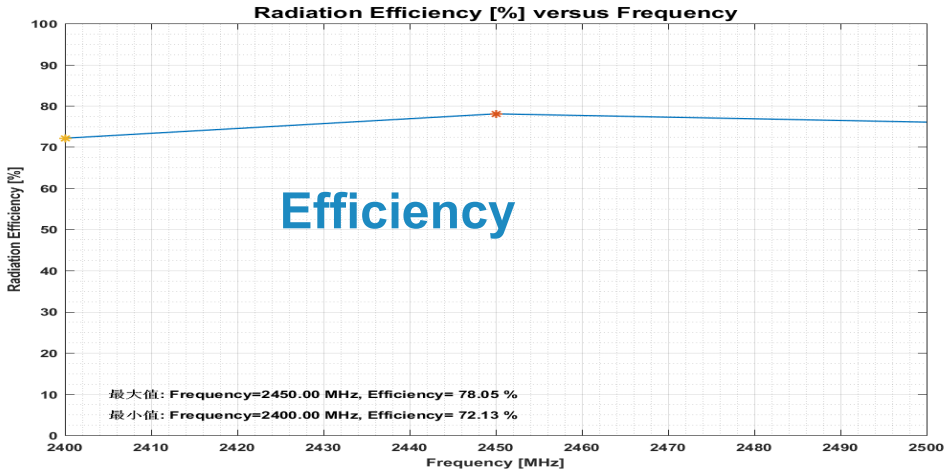

Tr 1 S11 SWR 500.00000mU/6.00000U
Mkr 1:2.40000GHz 5.25764
Mkr 2:2.50000GHz 6.56378
Mkr 3:4.90000GHz 1.33643
Mkr 4:5.50000GHz 1.14685
Mkr 5:5.92500GHz 1.63156
Ant3
Ch1 Start:2.00000GHz
Stop:6.00000GHz
Tr 3 S22 SWR 500.00000mU/6.00000U
Mkr 1:2.40000GHz 7.15207
Mkr 2:2.50000GHz 8.02189
Mkr 3:4.90000GHz 1.45582
Mkr 4:5.50000GHz 1.14424
Mkr 5:5.92500GHz 1.23164
Ant4
Ch1 Start:2.00000GHz
Stop:6.00000GHz
Tr 2 S21 LogM 10.00000dB/0.00000dB
Mkr 1:2.40000GHz -37.91591dB
Mkr 2:2.50000GHz -40.07174dB
Mkr 3:4.90000GHz -29.09166dB
Mkr 4:5.50000GHz -32.36165dB
Mkr 5:5.92500GHz -34.59878dB
Ch1 Start:2.00000GHz
Stop:6.00000GHz

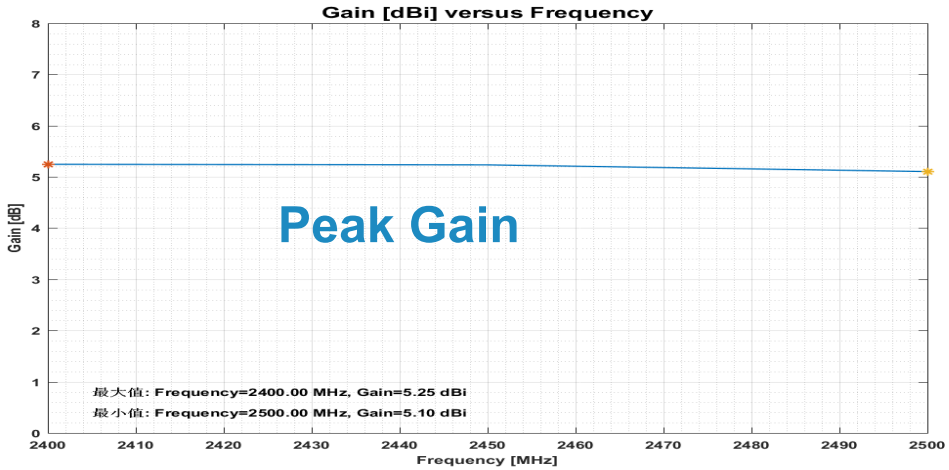
3. Antenna Efficiency& Peak Gain Ant1



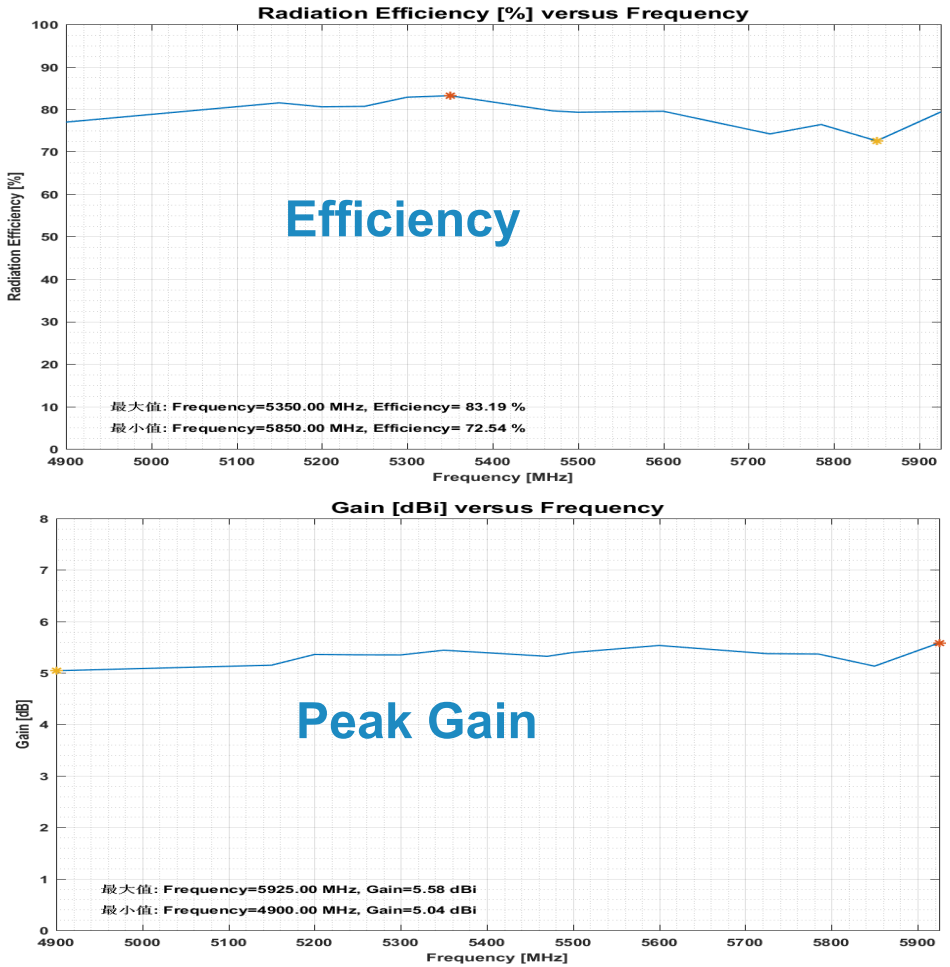


3. Antenna Efficiency& Peak Gain Ant2

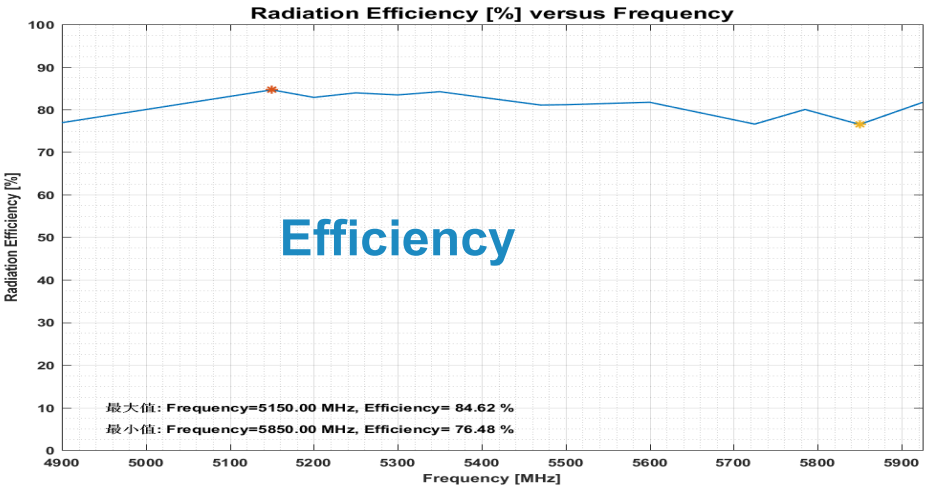


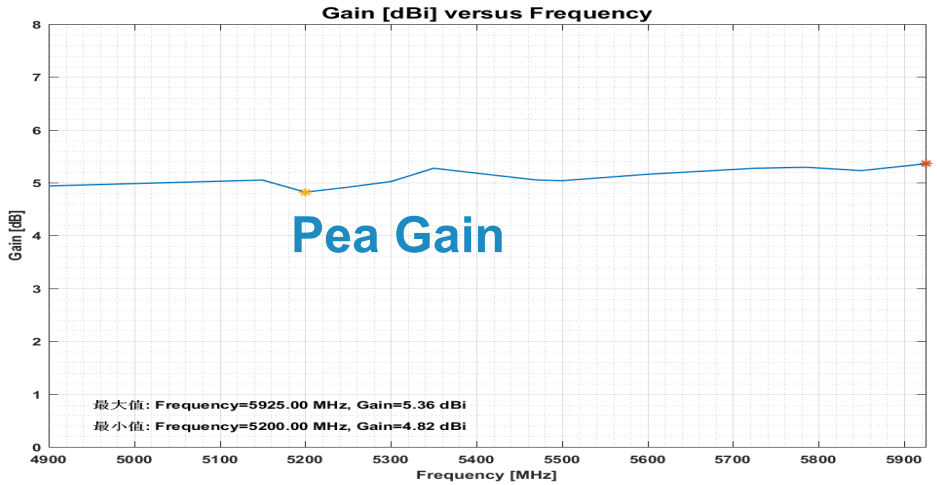


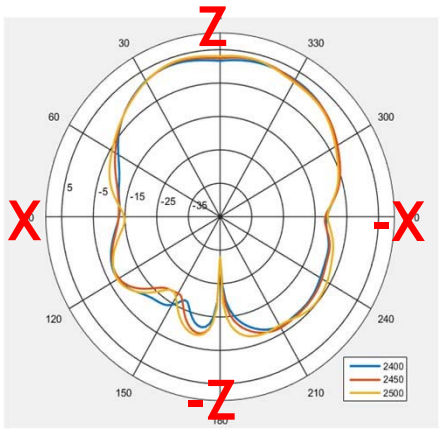
3. Antenna Efficiency& Peak Gain Ant3



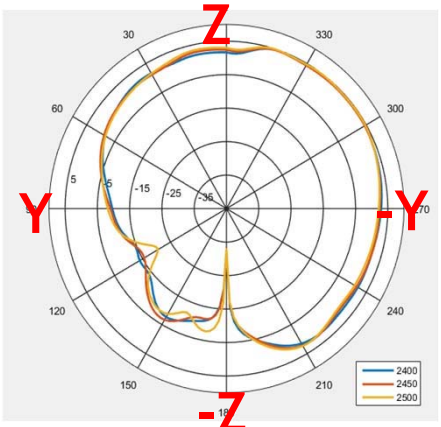
3. Antenna Efficiency& Peak Gain Ant4



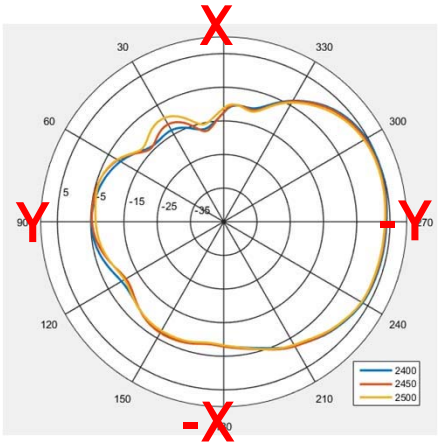




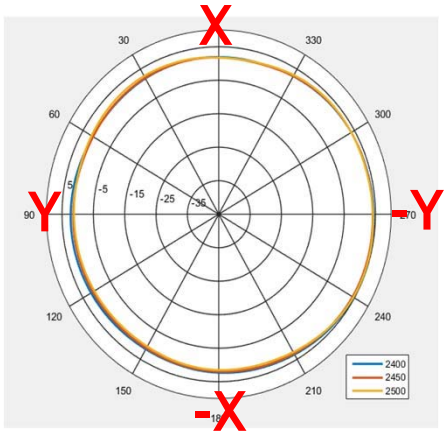
Phi=0°



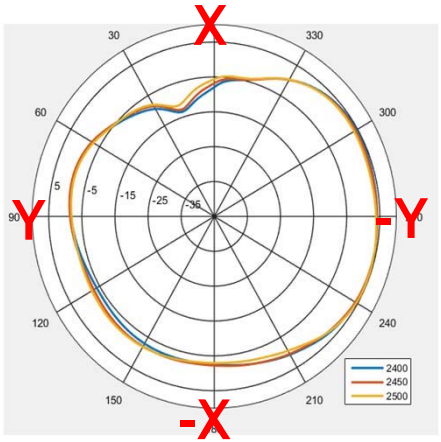
Phi=90°



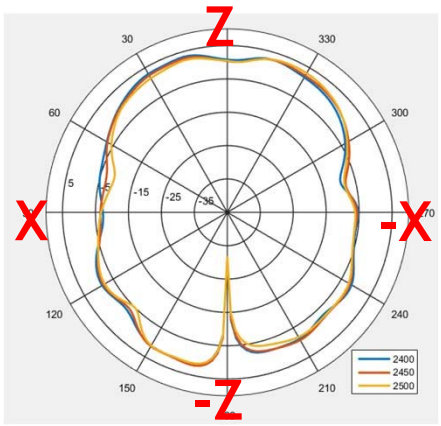
Theta=90°



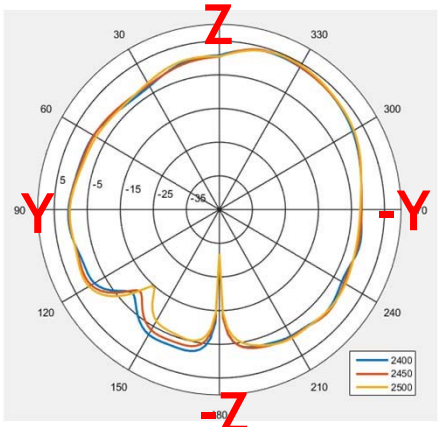
Theta=30°



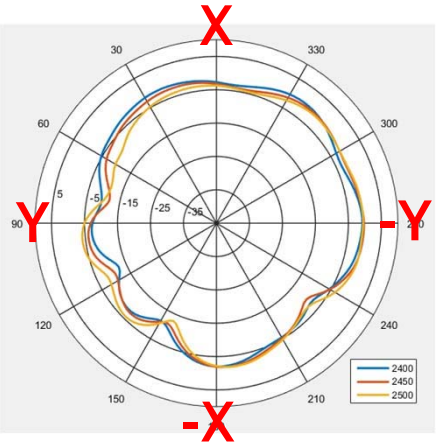
Theta=60°



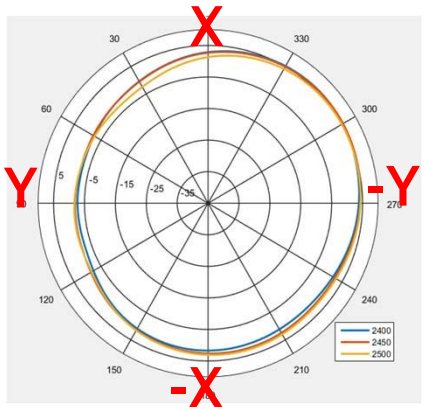
Phi=0°



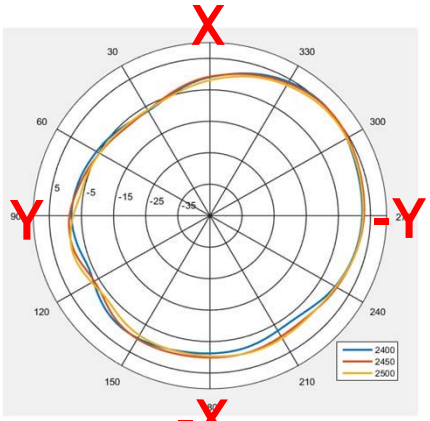
Phi=90°



Theta=90°

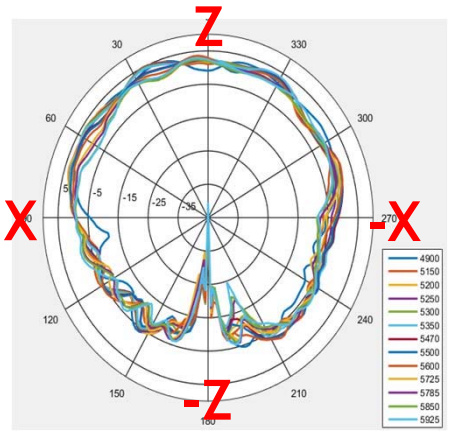


Theta=30°

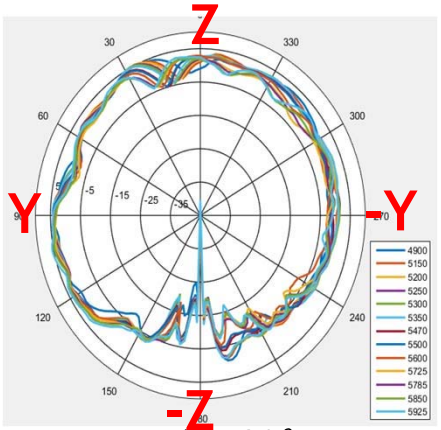


Theta=60°

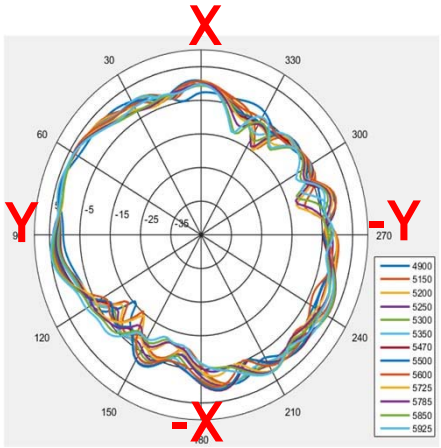
4. Radiation patterns Ant3 5G



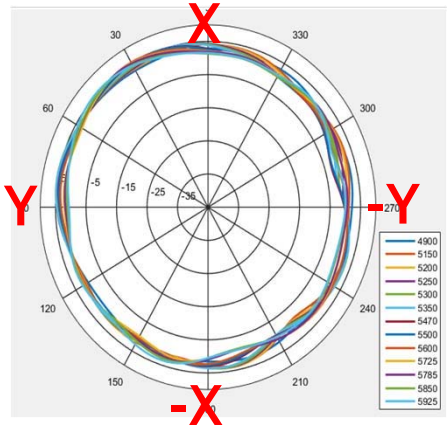
Phi=0°



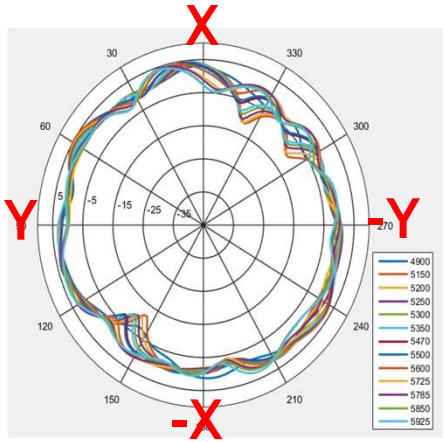
Phi=90°



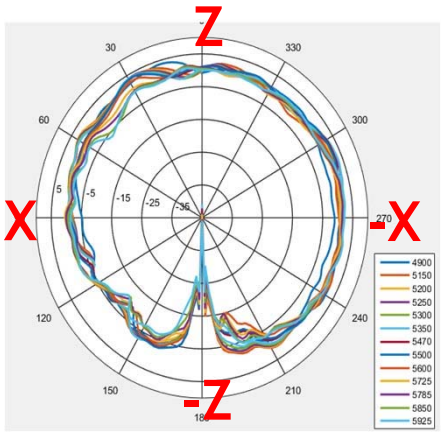
Theta=90°



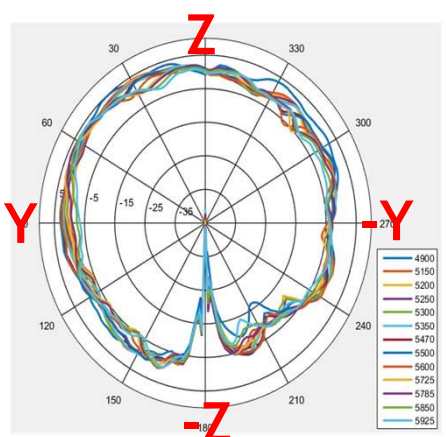
Theta=30°



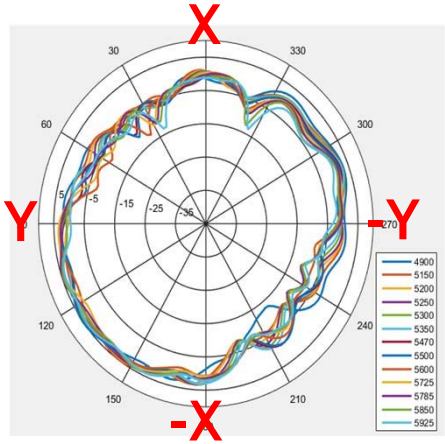
Theta=60°



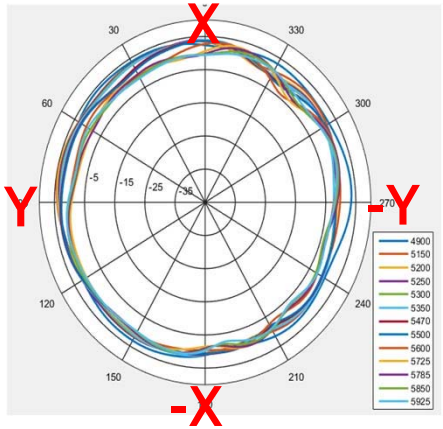
Phi=0°



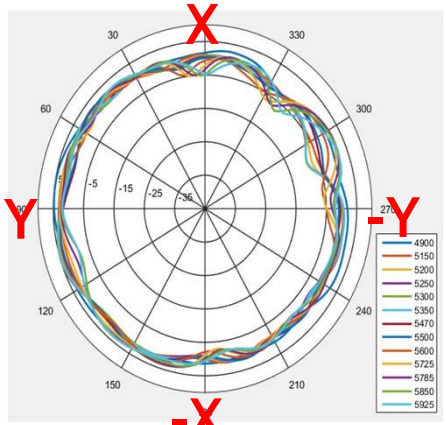
Phi=90°



Theta=90°



Theta=30°



Theta=60°

5. Summary

1. The measurements are as follows:

Item	Frequency (MHz)	2400	2450	2500
Ant1	Peak Gain (dBi)	4. 85	5. 05	4. 82
	Efficiency (%)	72. 71	76. 41	72. 50
Ant2	Peak Gain (dBi)	5. 25	5. 24	5. 10
	Efficiency (%)	72. 13	78. 05	76. 03

Item	Frequency (MHz)	4900	5150	5200	5250	5300	5350	5470	5500	5600	5725	5785	5850	5925
Ant3	Peak Gain (dBi)	5. 04	5. 15	5. 36	5. 35	5. 35	5. 44	5. 32	5. 40	5. 53	5. 37	5. 37	5. 13	5. 58
	Efficiency (%)	76. 96	81. 50	80. 57	80. 68	82. 84	83. 19	79. 62	79. 29	79. 52	74. 19	76. 40	72. 54	79. 35
Ant4	Peak Gain (dBi)	4. 94	5. 05	4. 82	4. 92	5. 02	5. 27	5. 05	5. 04	5. 16	5. 27	5. 29	5. 23	5. 36
	Efficiency (%)	76. 90	84. 62	82. 85	83. 91	83. 43	84. 19	81. 05	81. 13	81. 70	76. 57	80. 01	76. 48	81. 68

Thanks!