



IP5446M

Antenna Test Report

Date : Aug. 6, 2022
Prepared by : Jerry Ko



Outline

- Antenna Structure & Placement
- Return Loss & Isolation
- Radiation Pattern
- System Coverage
- Peak Gain & Efficiency

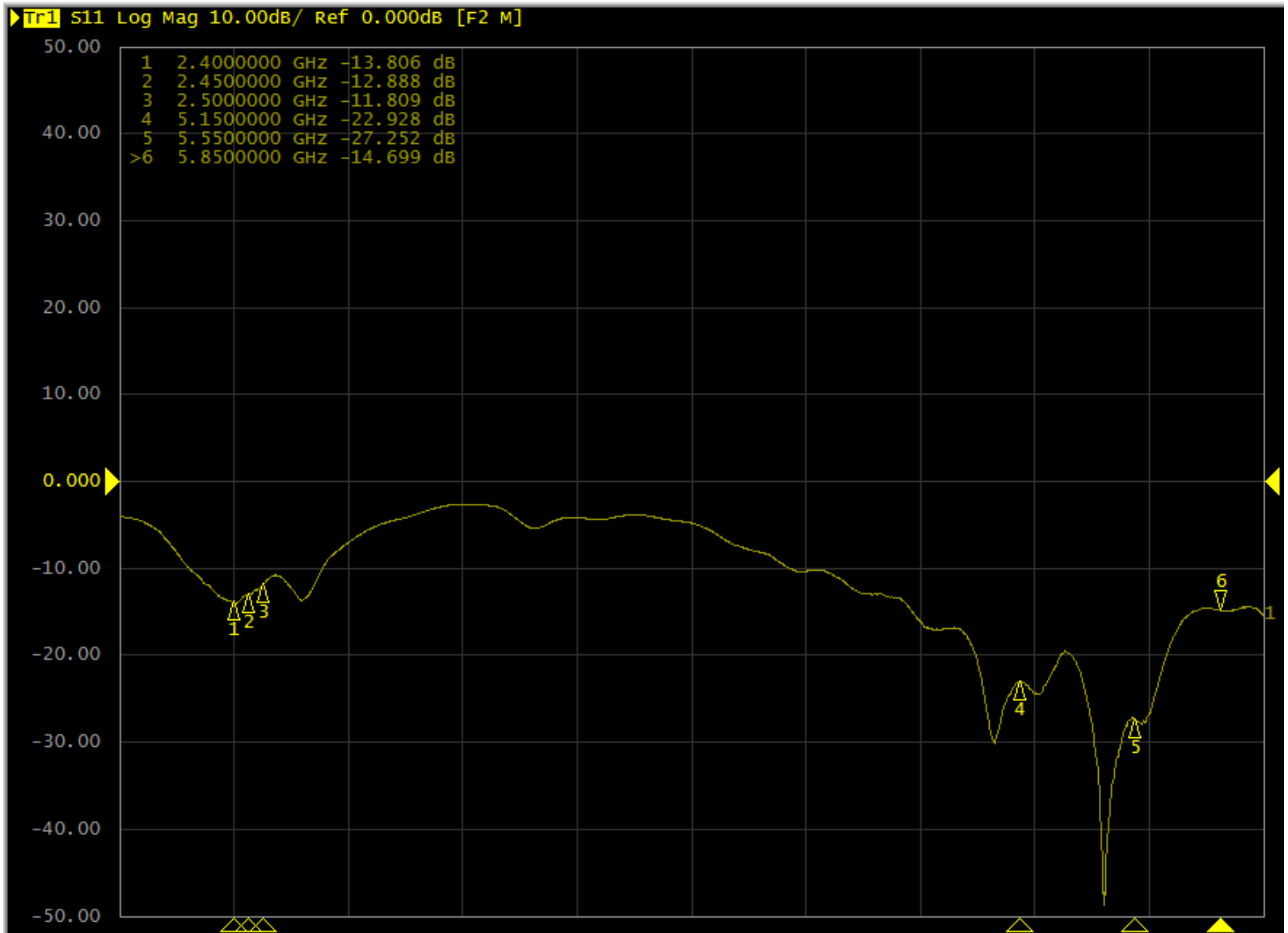
Antenna Structure

Ant No.	Operating Band	Type	Material	Feeding	Dimension
Ant 1	WiFi 2.4G/5G	Dipole	PCB	Cable	30(L) x 20(W) x 0.8(T) mm ³
Ant 2	WiFi 2.4G/5G	Dipole	PCB	Cable	30(L) x 20(W) x 0.8(T) mm ³
Ant 3	WiFi 2.4G/5G	Dipole	PCB	Cable	30(L) x 20(W) x 0.8(T) mm ³
Ant 4	WiFi 2.4G/5G	Dipole	PCB	Cable	30(L) x 20(W) x 0.8(T) mm ³

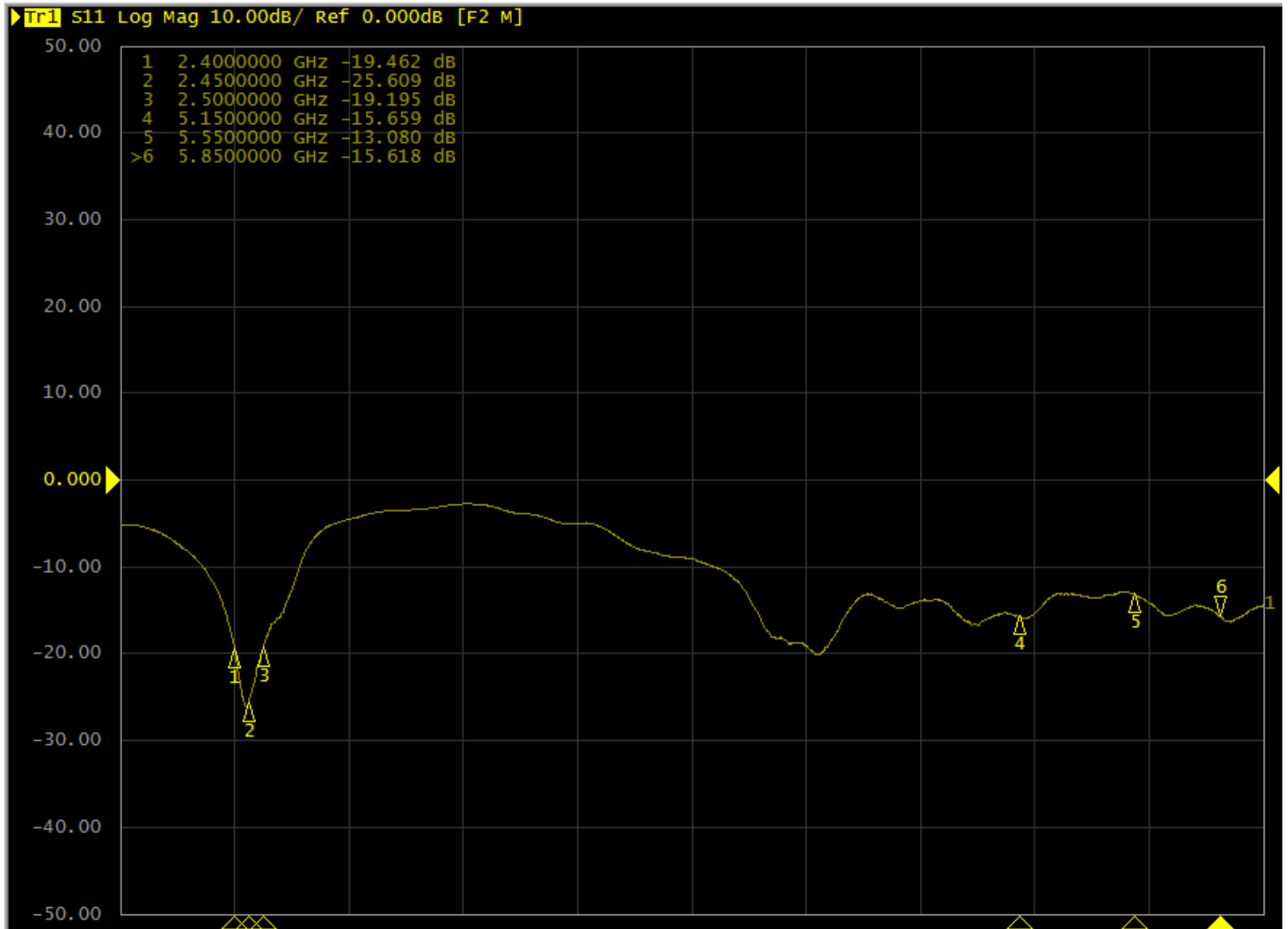
Manufacture by HL Tronics(Kunshan)Co.Ltd

Address: 中國江苏省昆山市盛晞路688号2号楼西单元

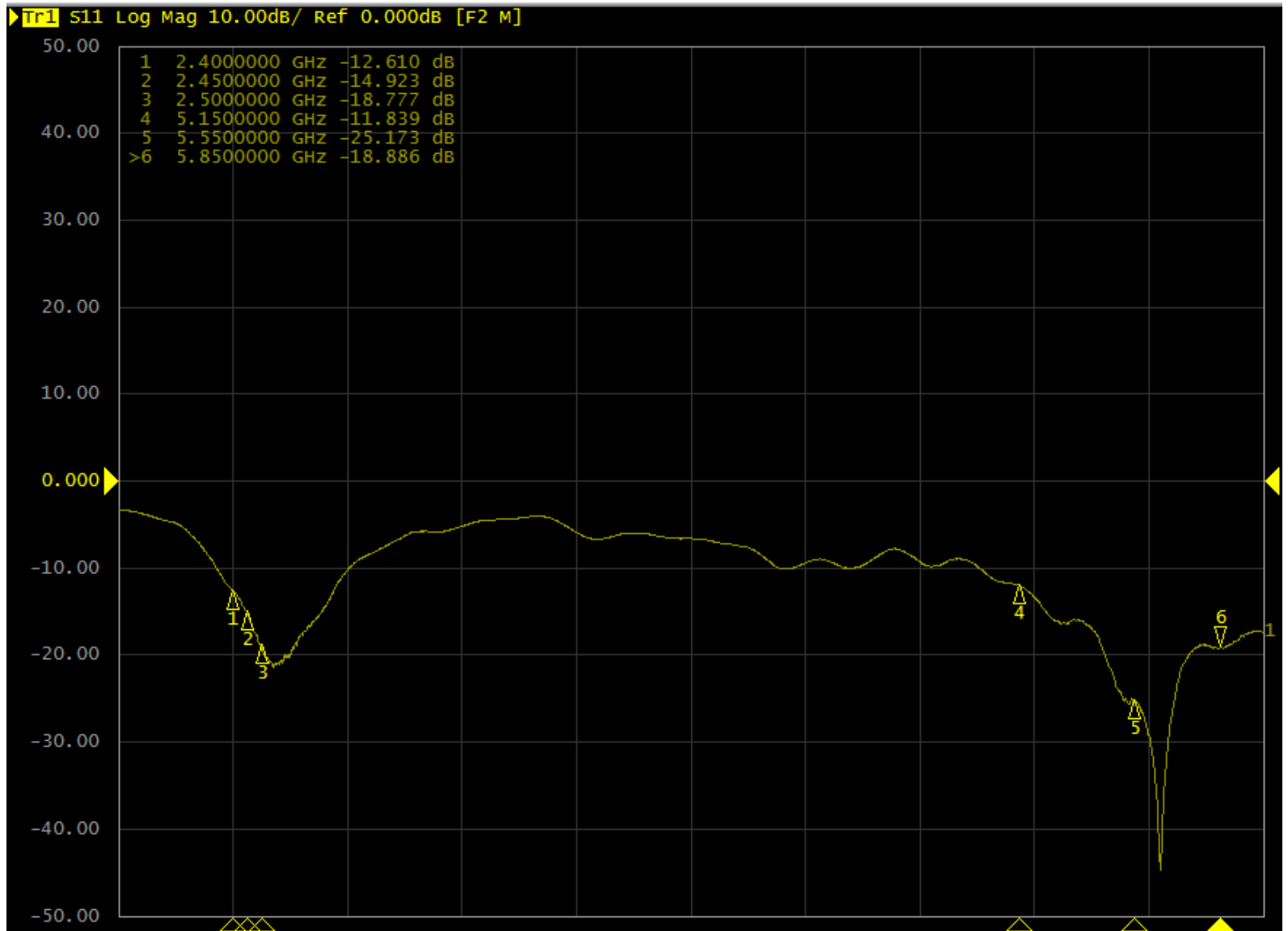
Return Loss – Ant 1



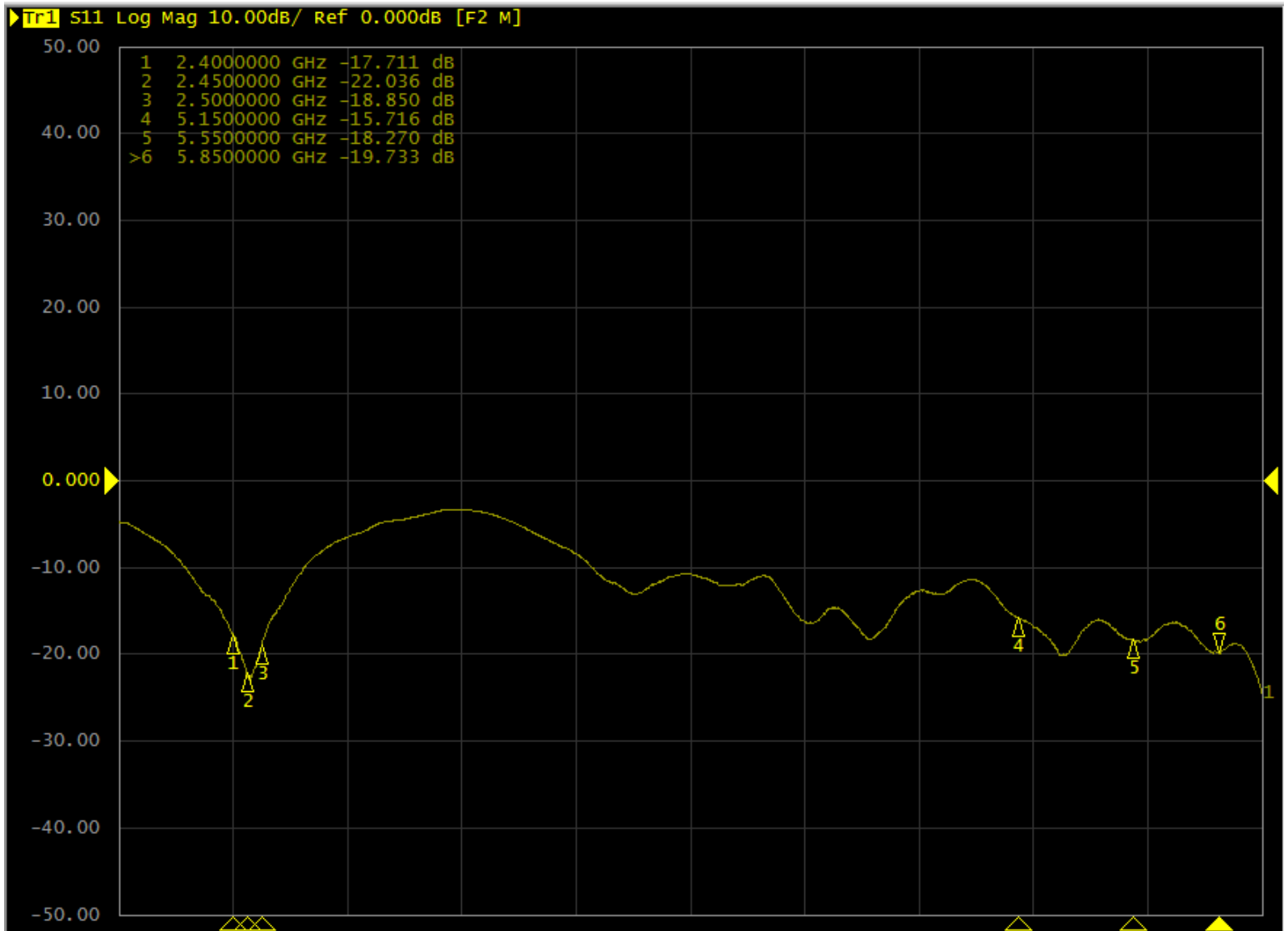
Return Loss – Ant 2



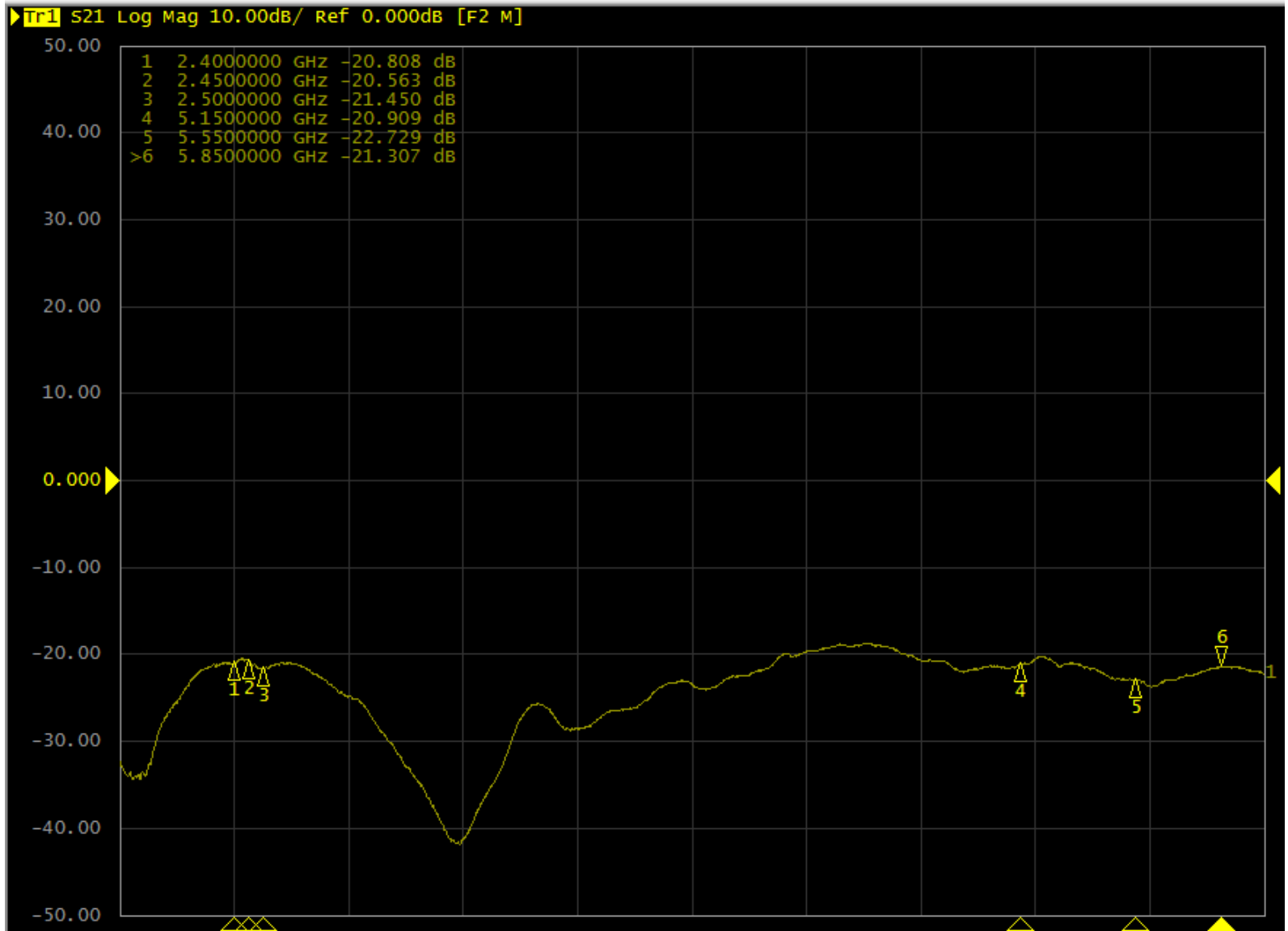
Return Loss – Ant 3



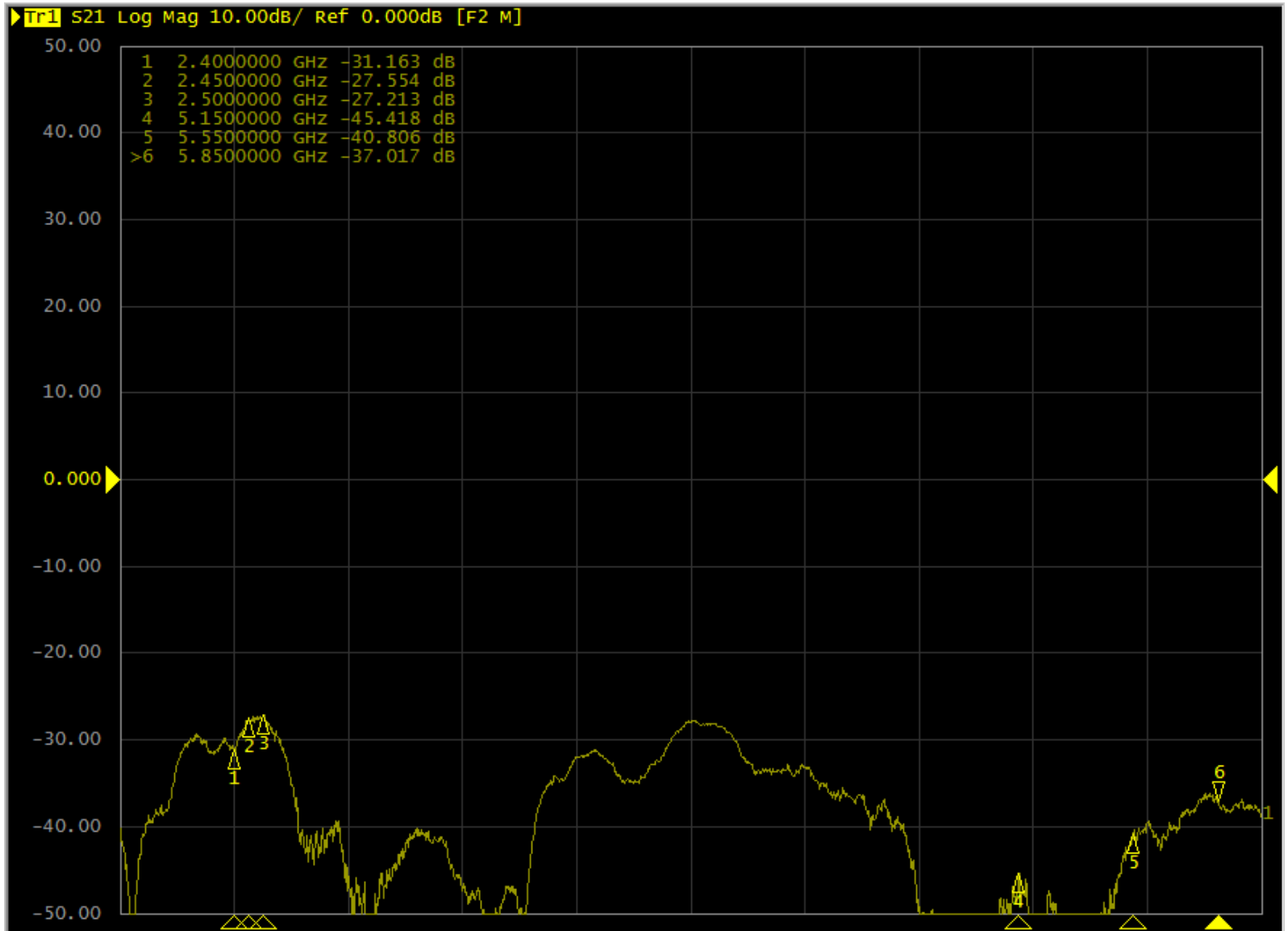
Return Loss – Ant 4



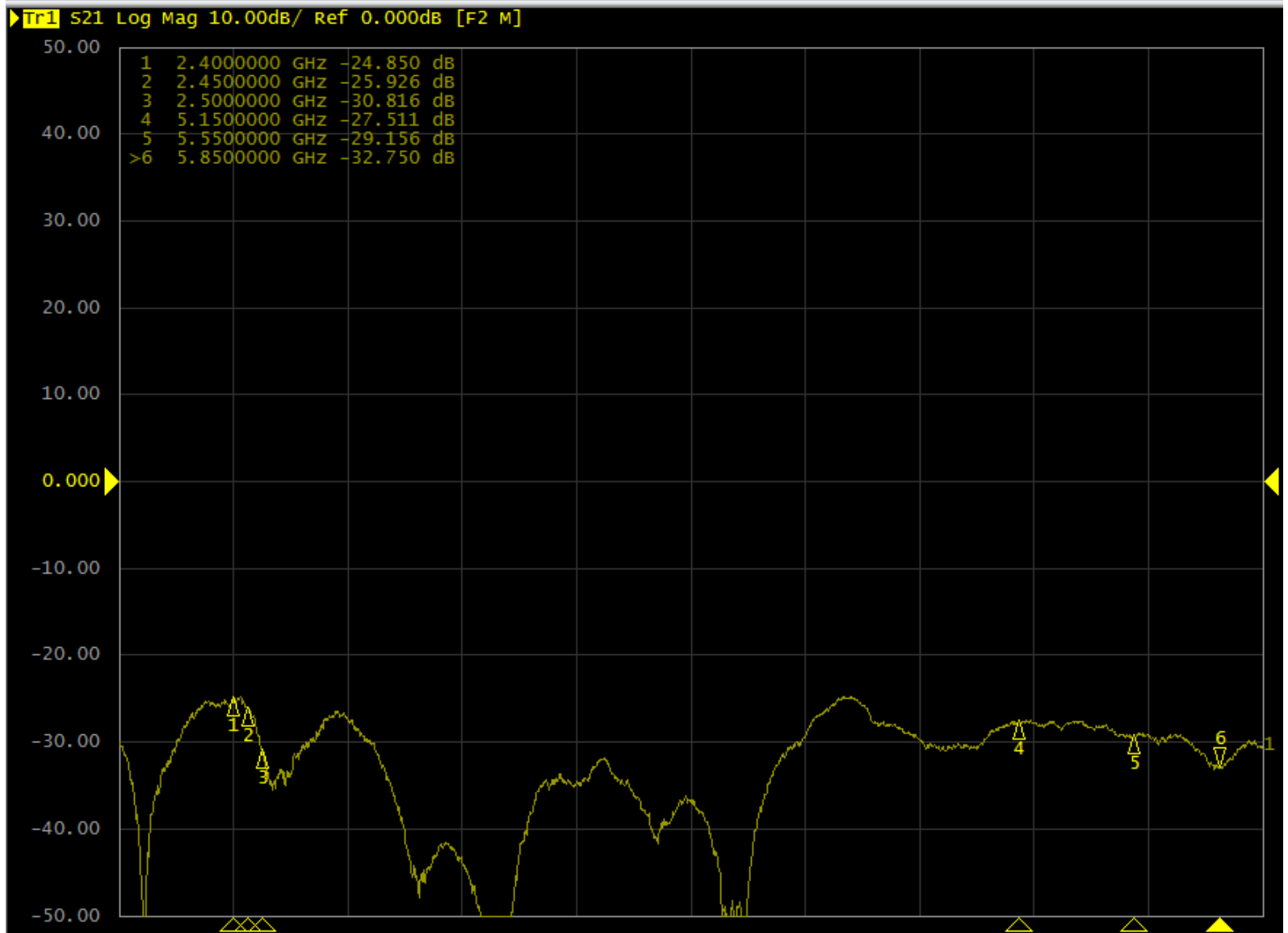
Isolation – Ant 1 & Ant 2



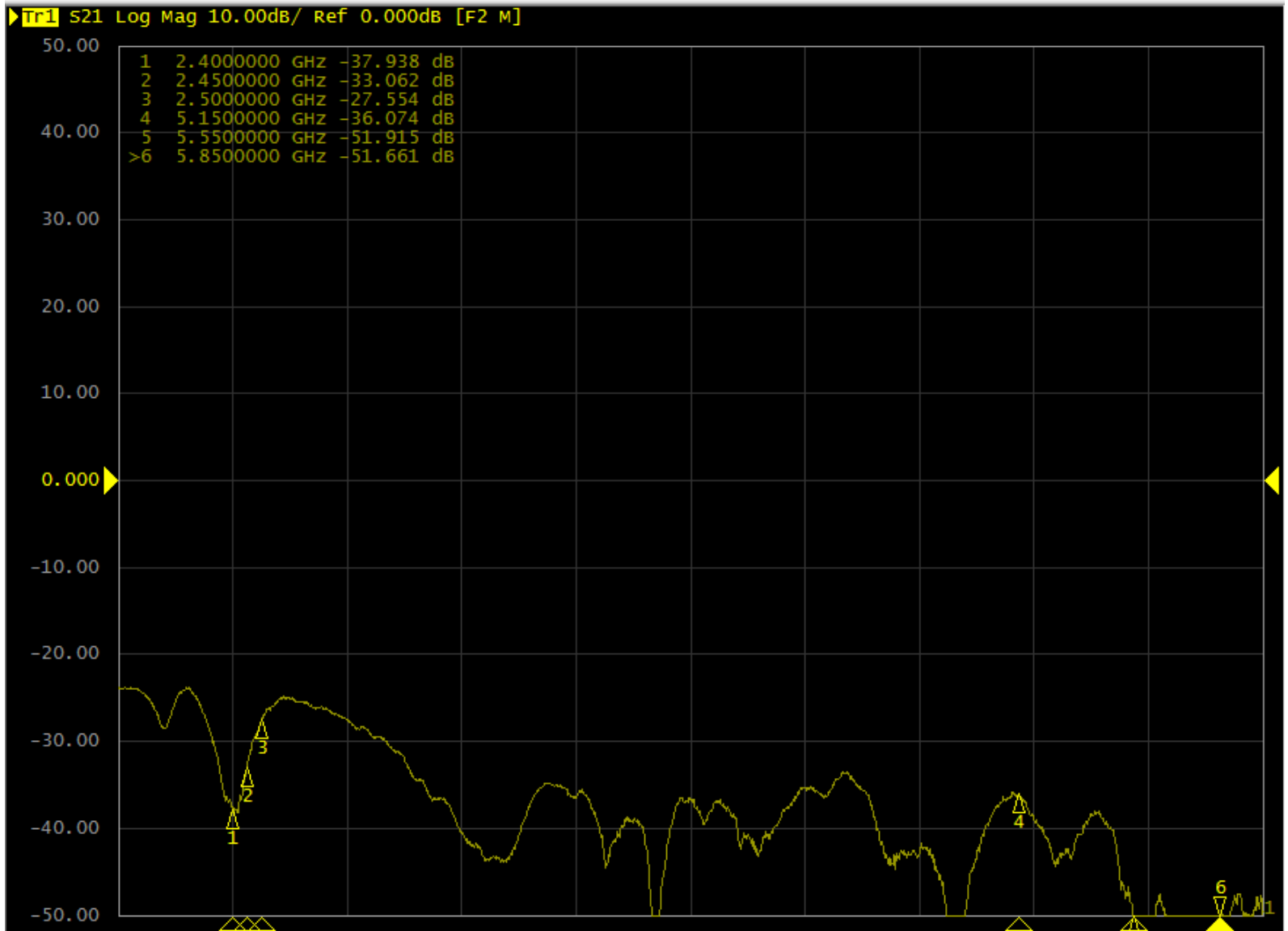
Isolation – Ant 1 & Ant 3



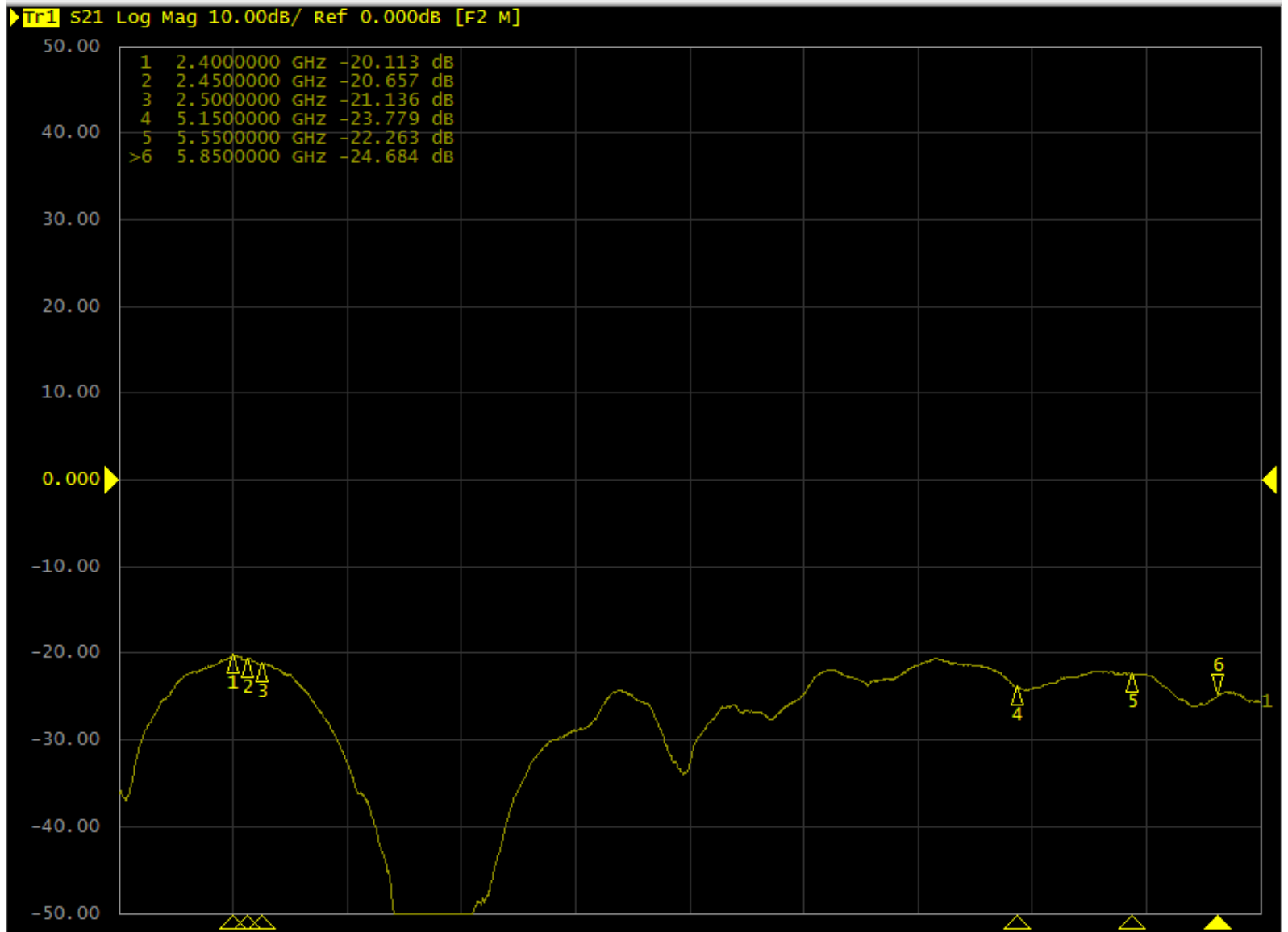
Isolation – Ant 1 & Ant 4



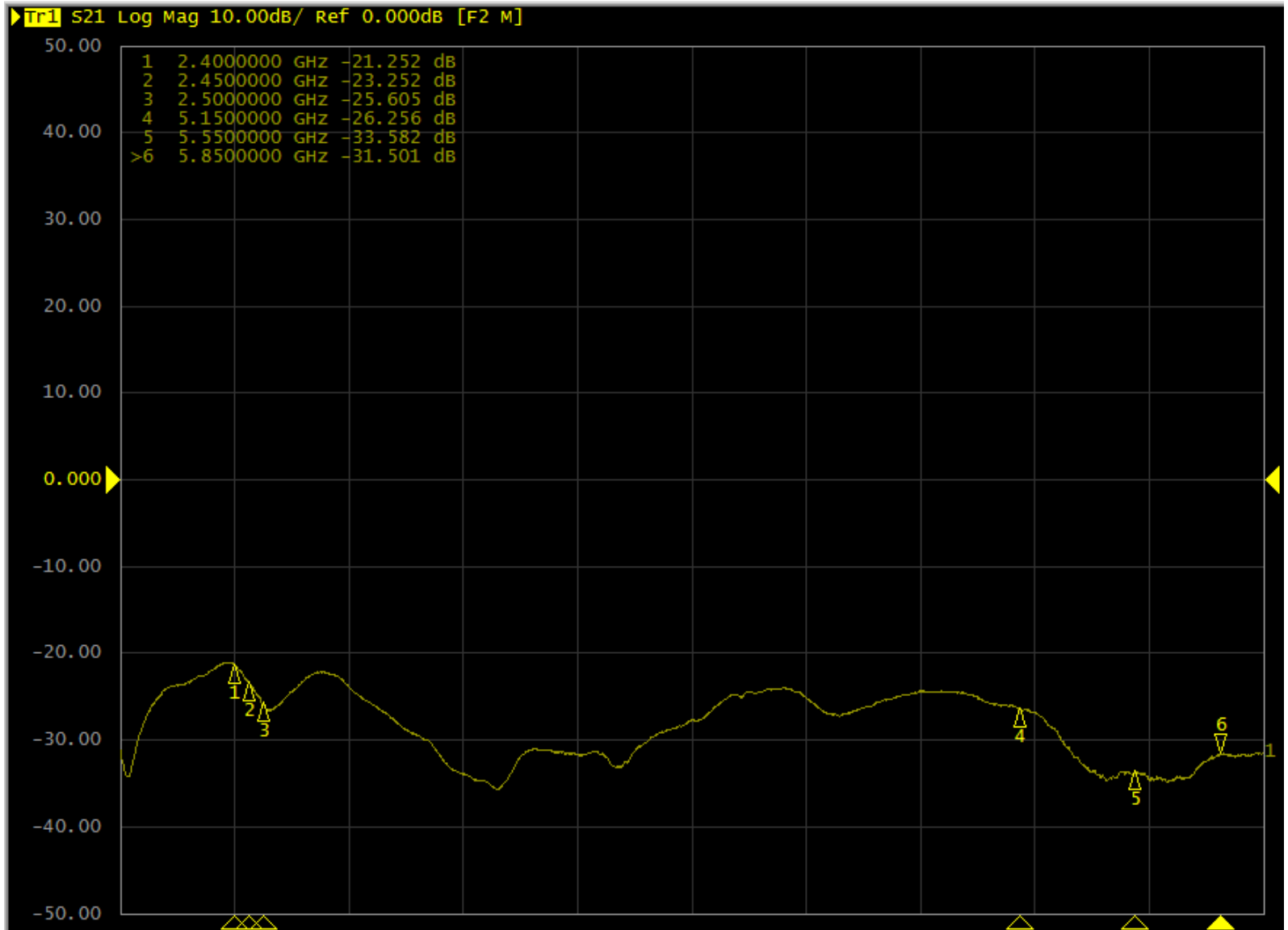
Isolation – Ant 2 & Ant 3



Isolation – Ant 2 & Ant 4

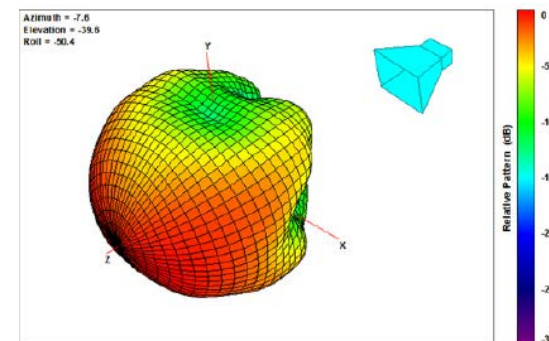
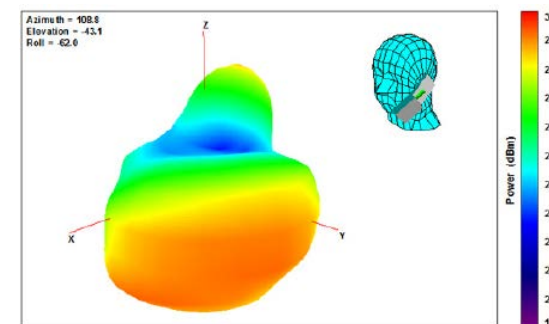
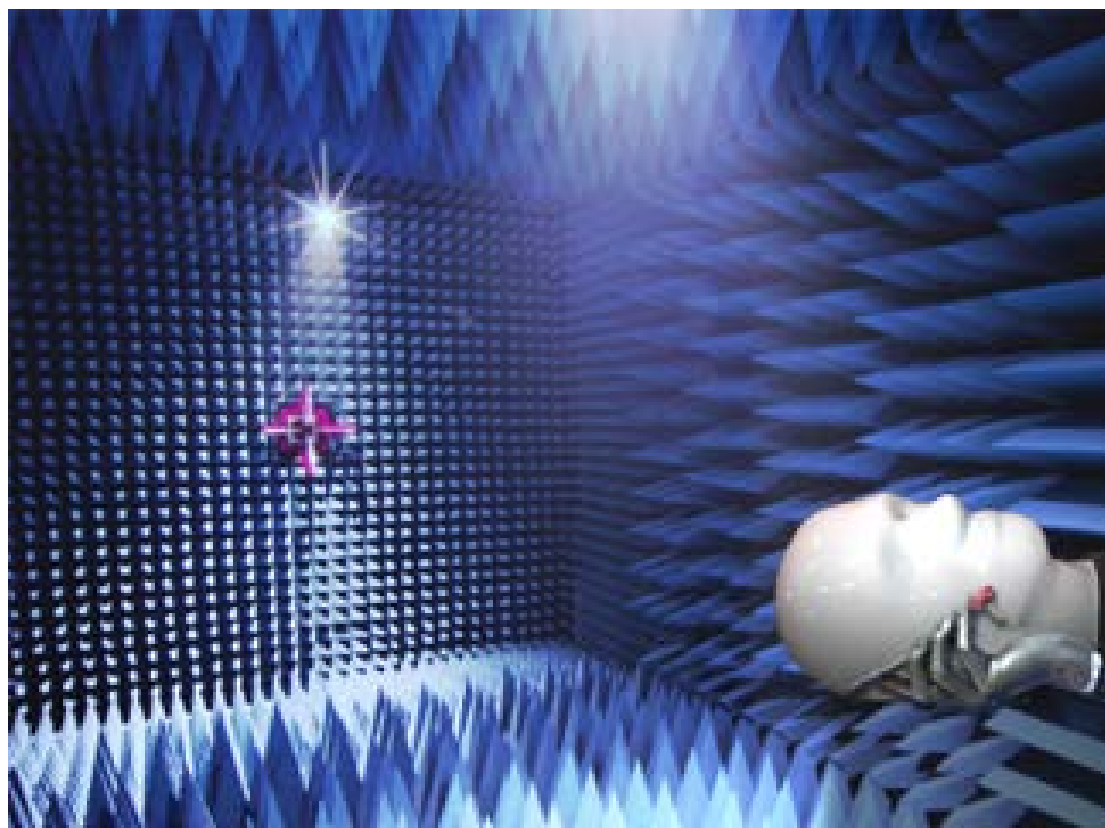


Isolation – Ant 3 & Ant 4

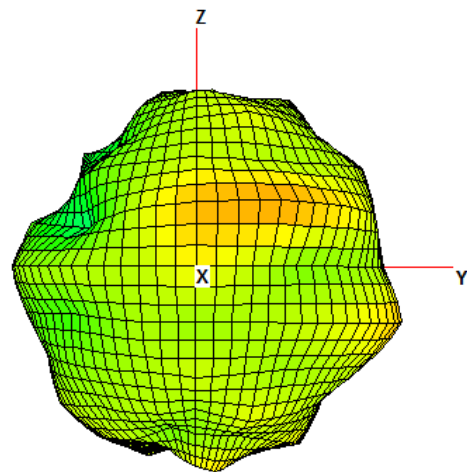


Antenna Measurement Chamber

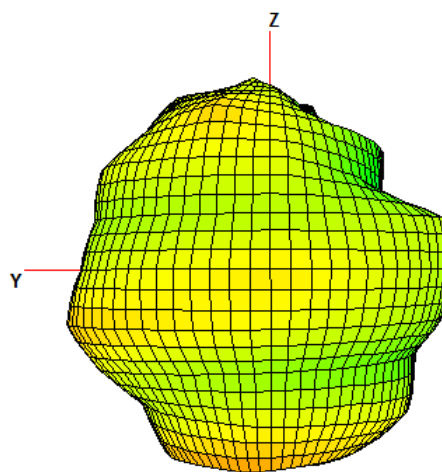
- ETS AMS-8500 antenna measurement system
- Interior dimensions : 7.32(L) \times 3.66(W) \times 3.66(H)m³
- Operating band : 700 MHz – 10 GHz
- Support passive test & active test
- Provide graphic data display



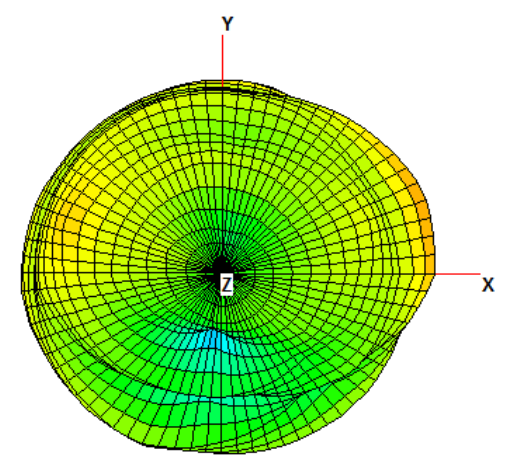
Radiation Pattern – Ant 1 @ WiFi 2G



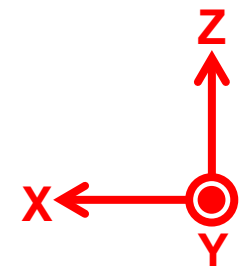
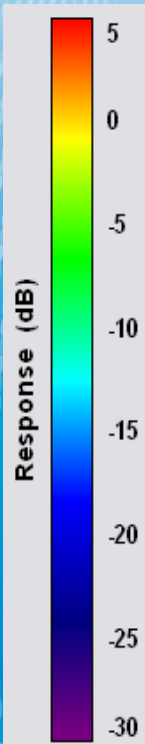
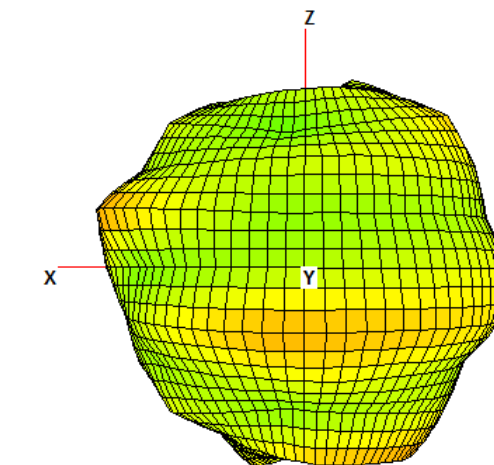
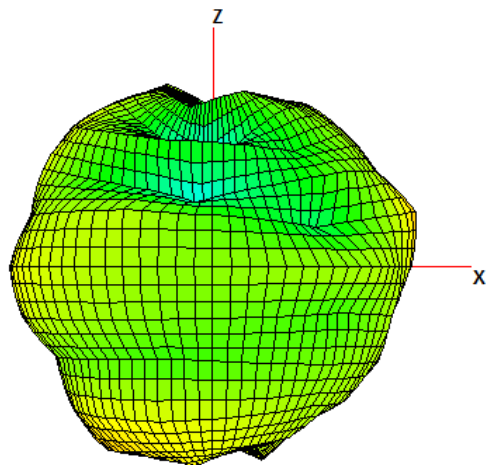
YZ-Plane



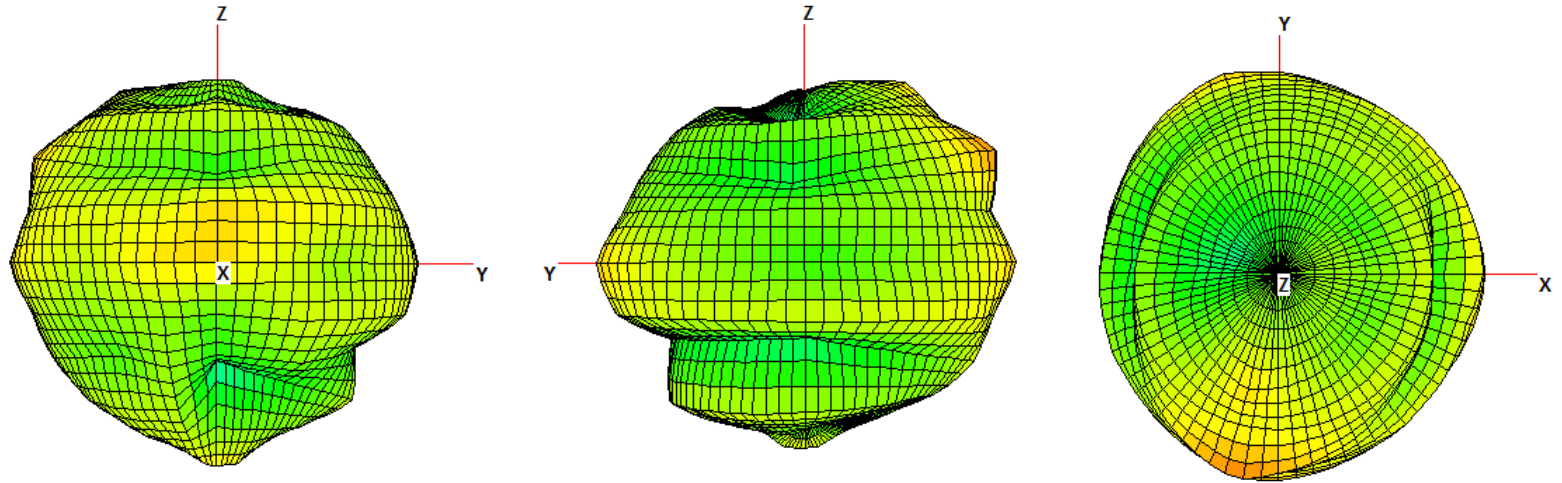
XZ-Plane



XY-Plane

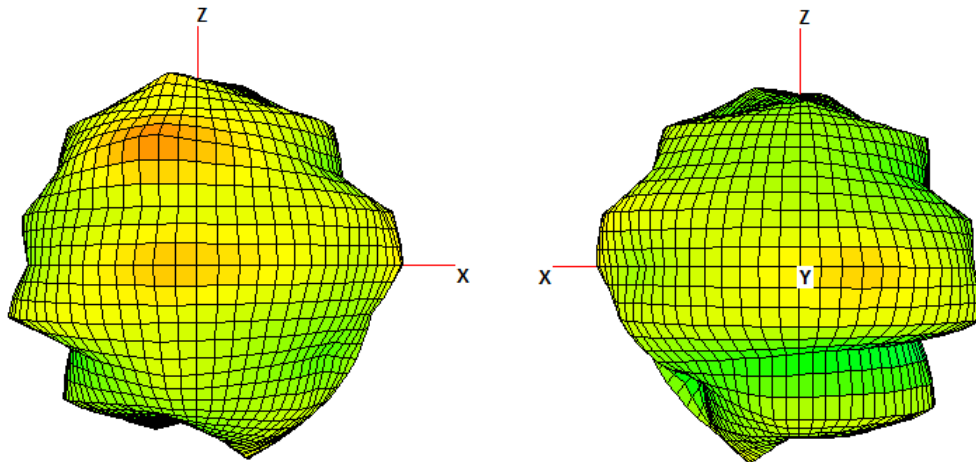


Radiation Pattern – Ant 2 @ WiFi 2G

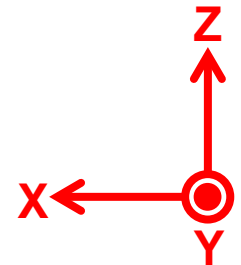


YZ-Plane

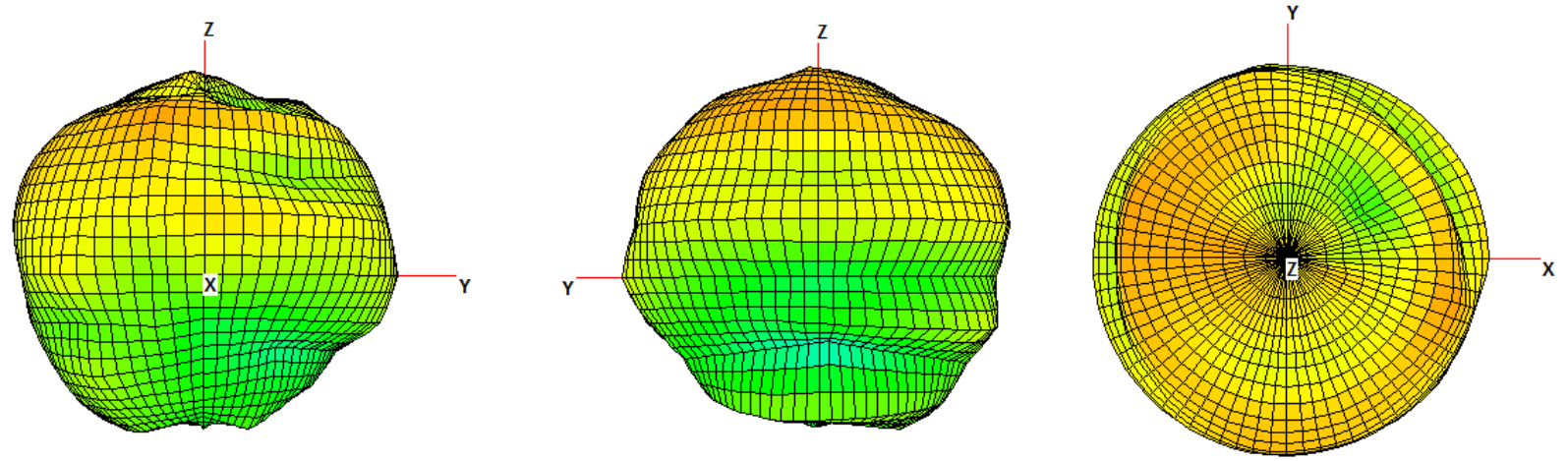
XY-Plane



XZ-Plane

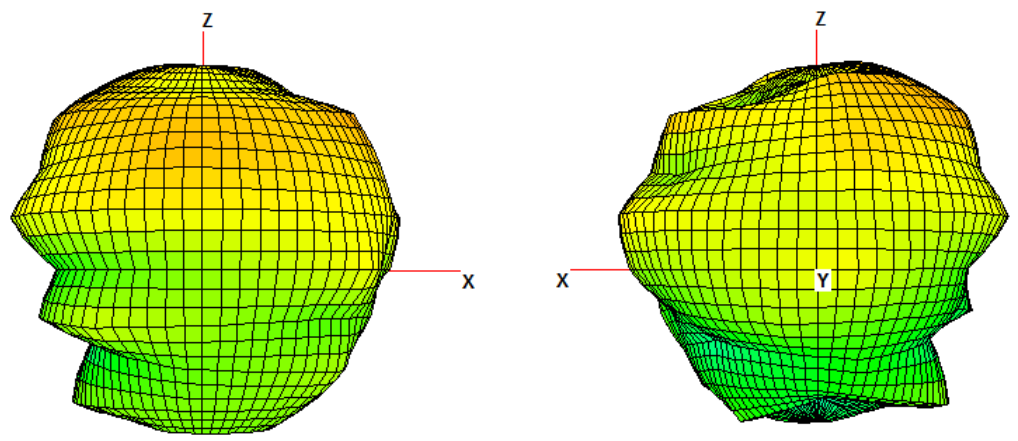


Radiation Pattern – Ant 3 @ WiFi 2G

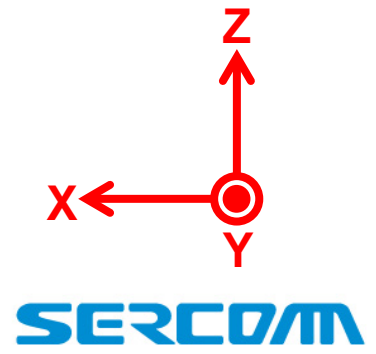
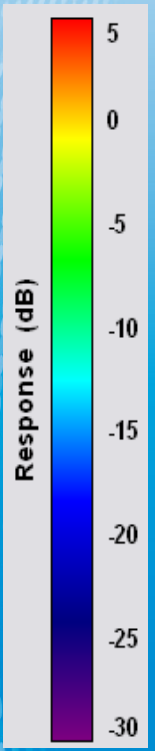


YZ-Plane

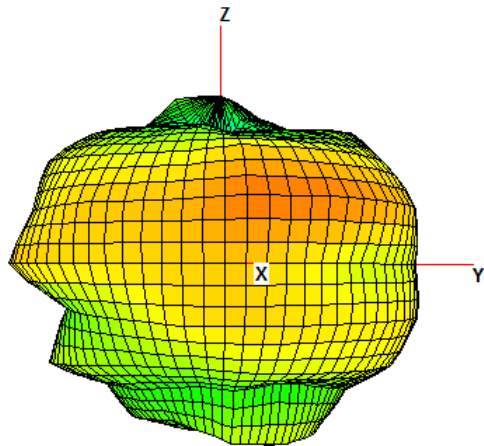
XY-Plane



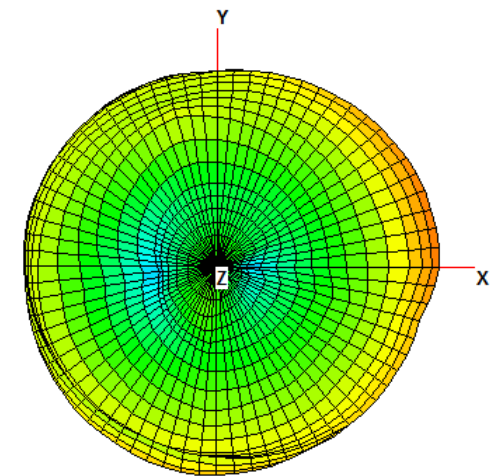
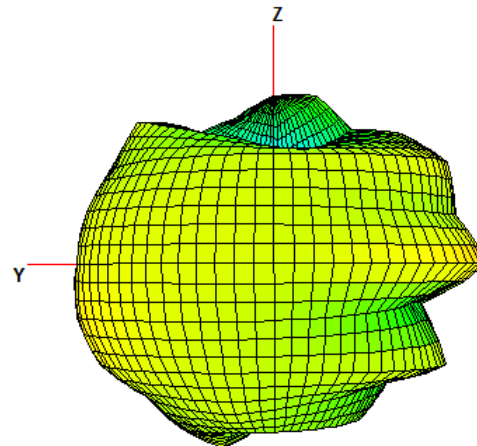
XZ-Plane



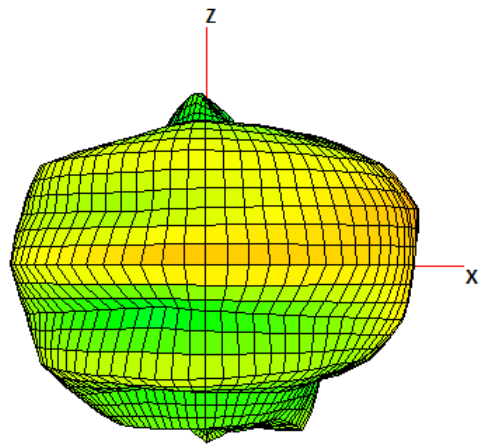
Radiation Pattern – Ant 4 @ WiFi 2G



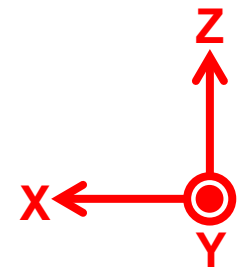
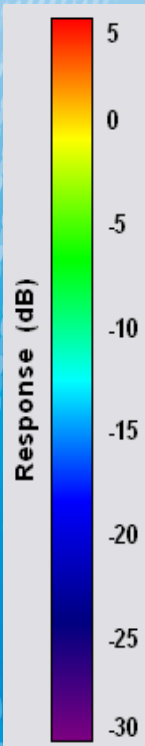
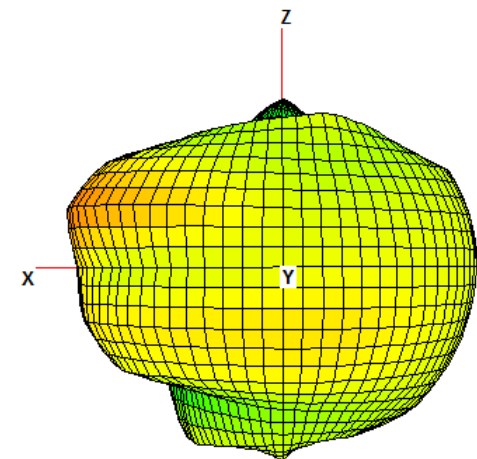
YZ-Plane



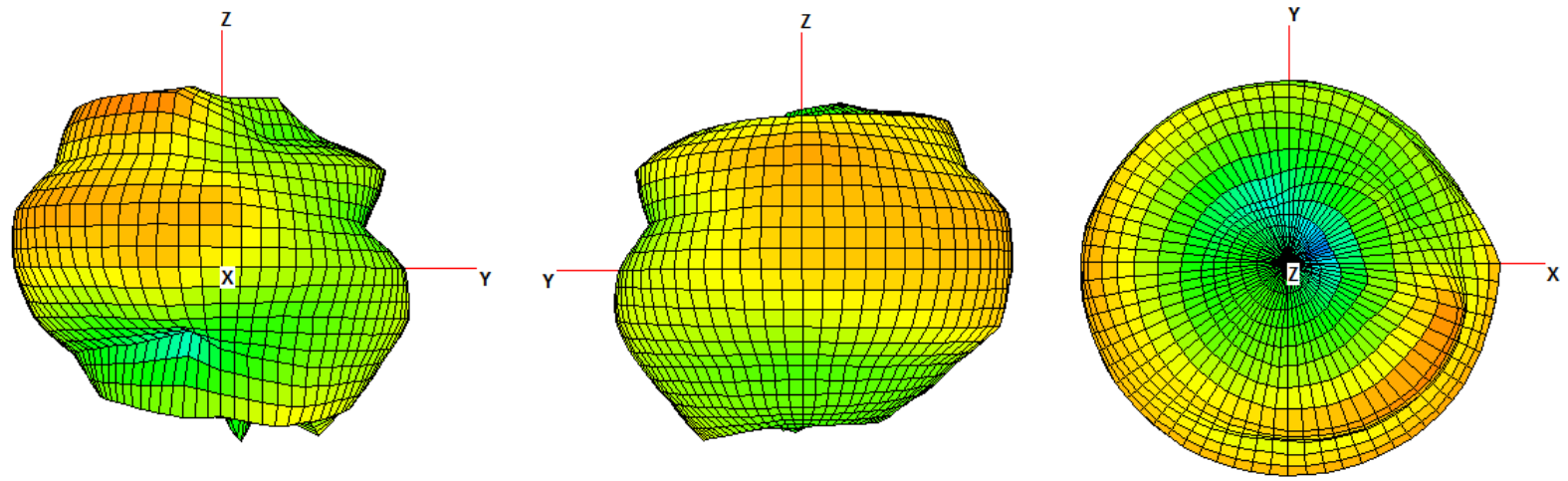
XY-Plane



XZ-Plane

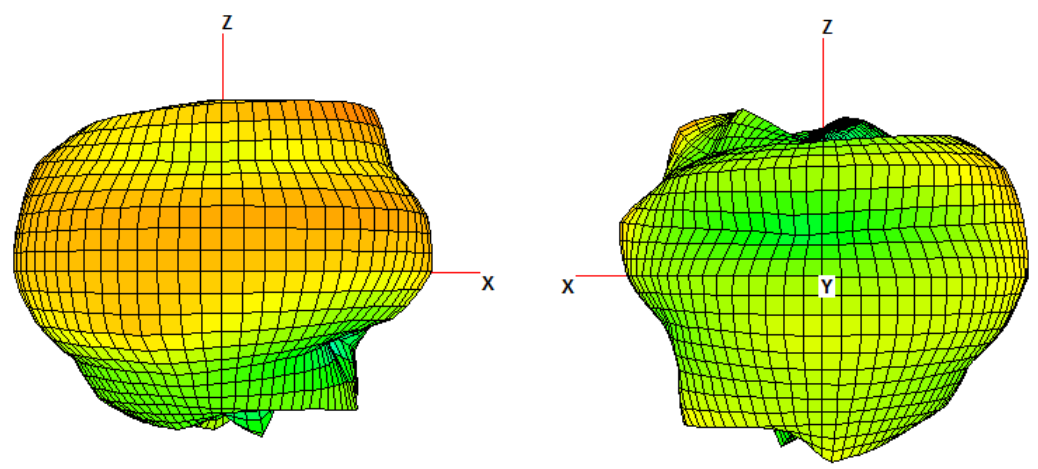


Radiation Pattern – Ant 1 @ WiFi 5G

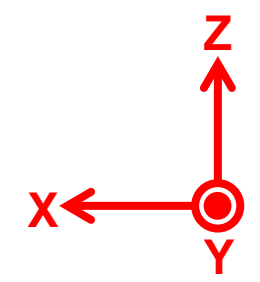


YZ-Plane

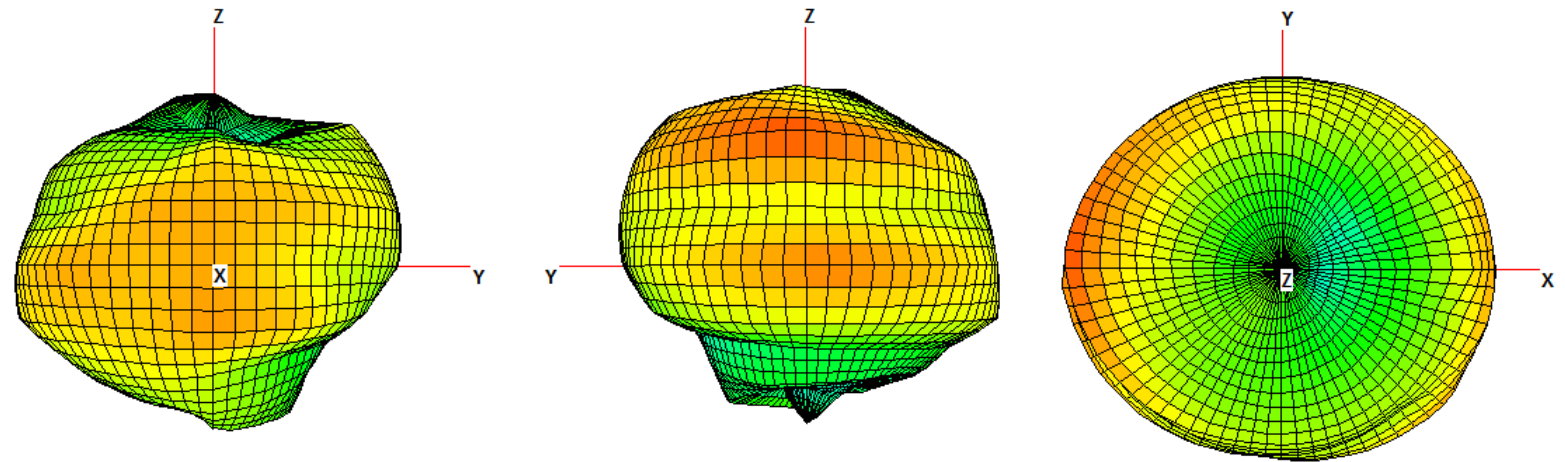
XY-Plane



XZ-Plane

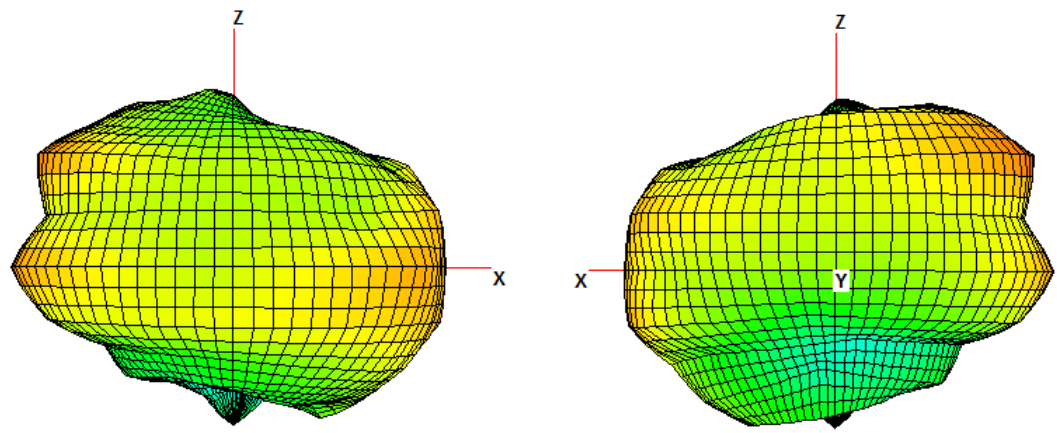


Radiation Pattern – Ant 2 @ WiFi 5G

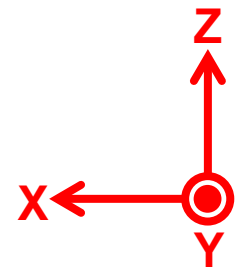


YZ-Plane

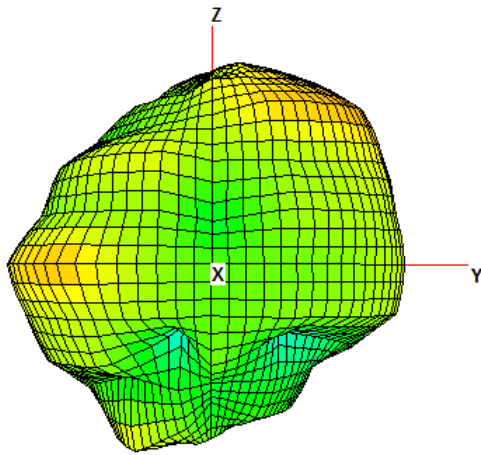
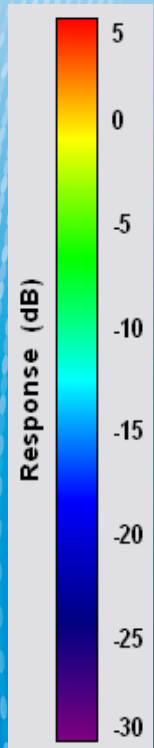
XY-Plane



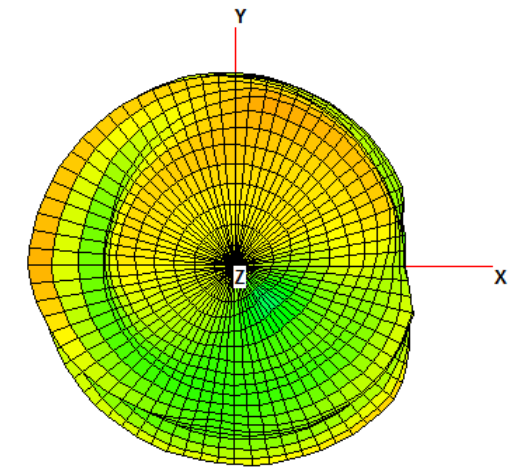
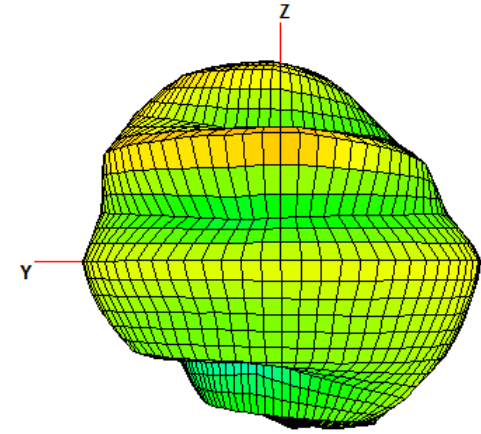
XZ-Plane



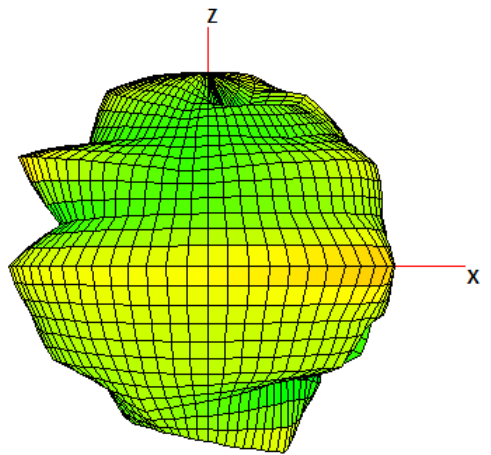
Radiation Pattern – Ant 3 @ WiFi 5G



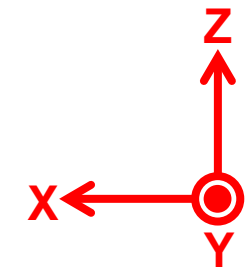
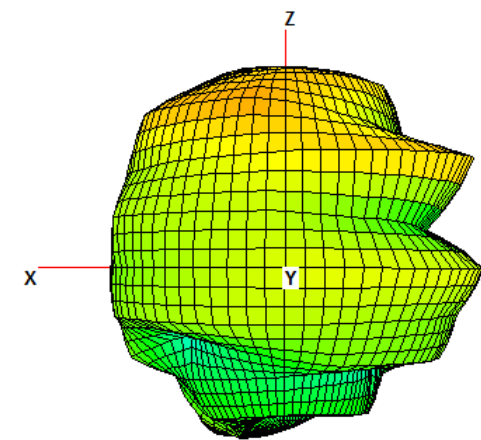
YZ-Plane



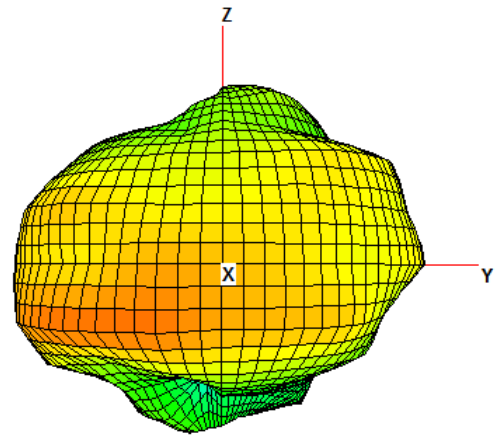
XY-Plane



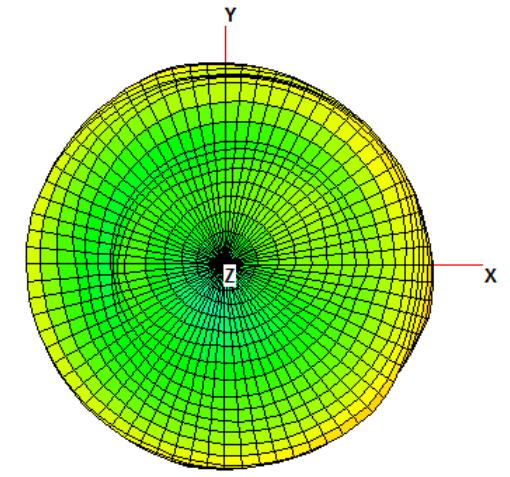
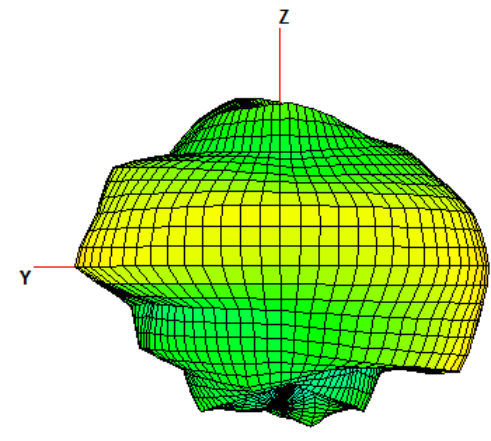
XZ-Plane



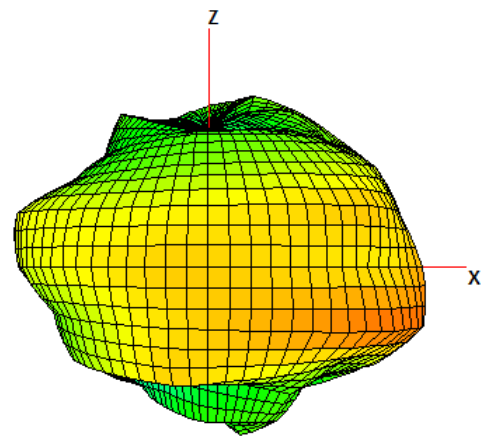
Radiation Pattern – Ant 4 @ WiFi 5G



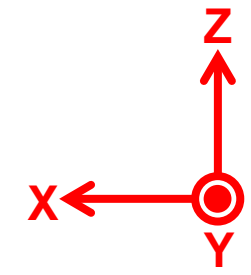
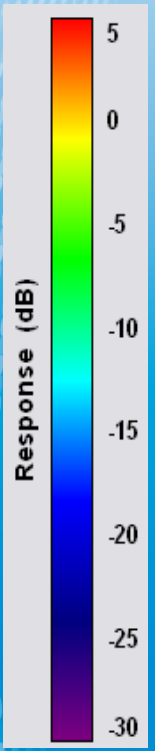
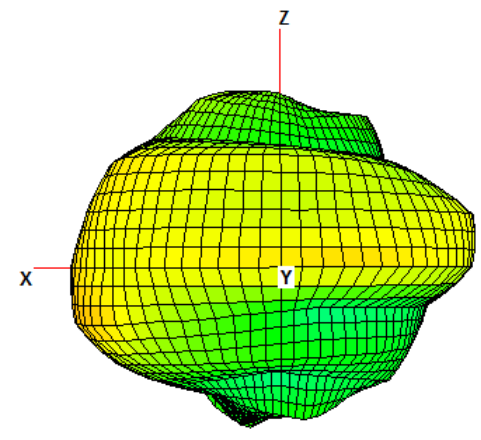
YZ-Plane



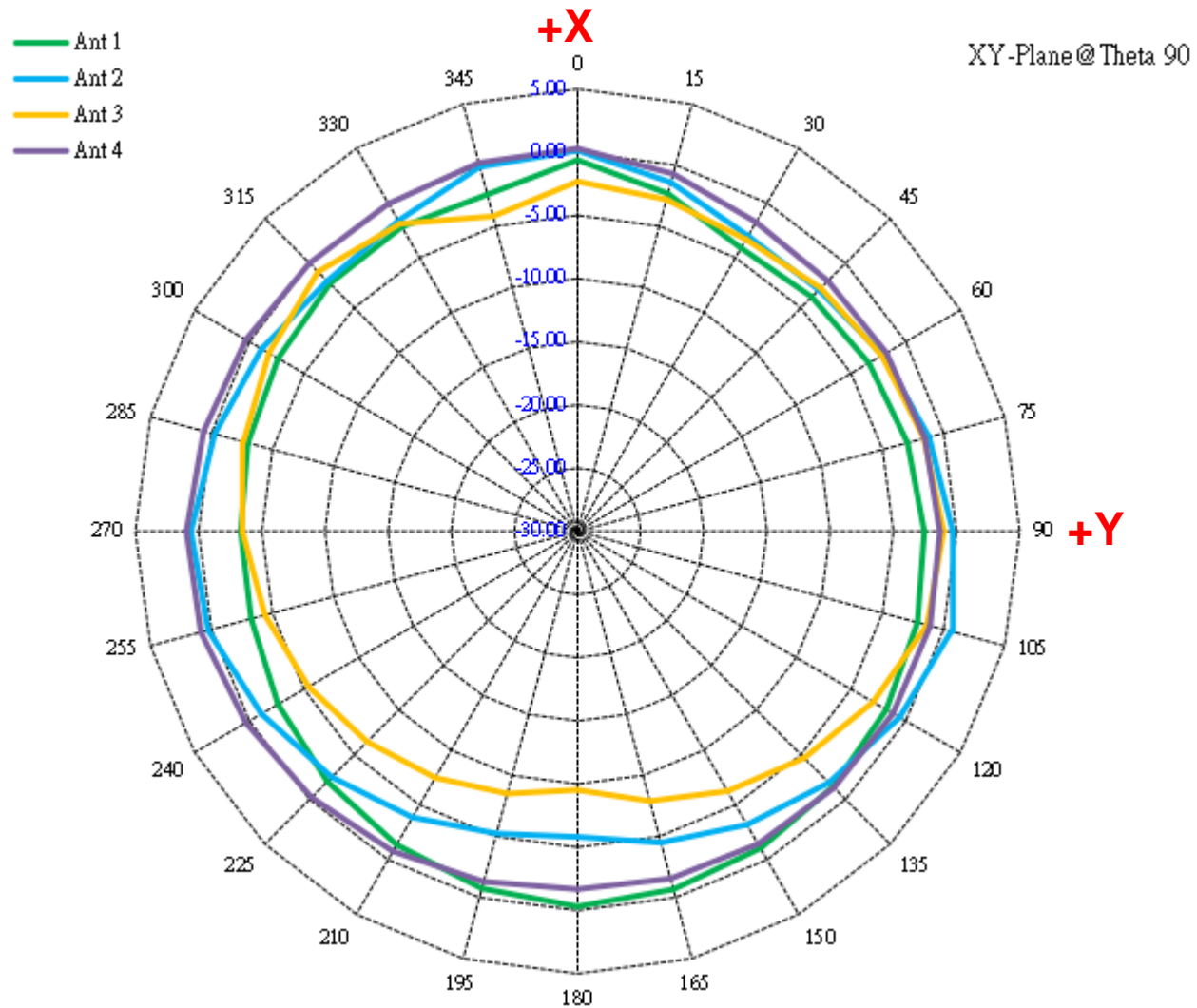
XY-Plane



XZ-Plane

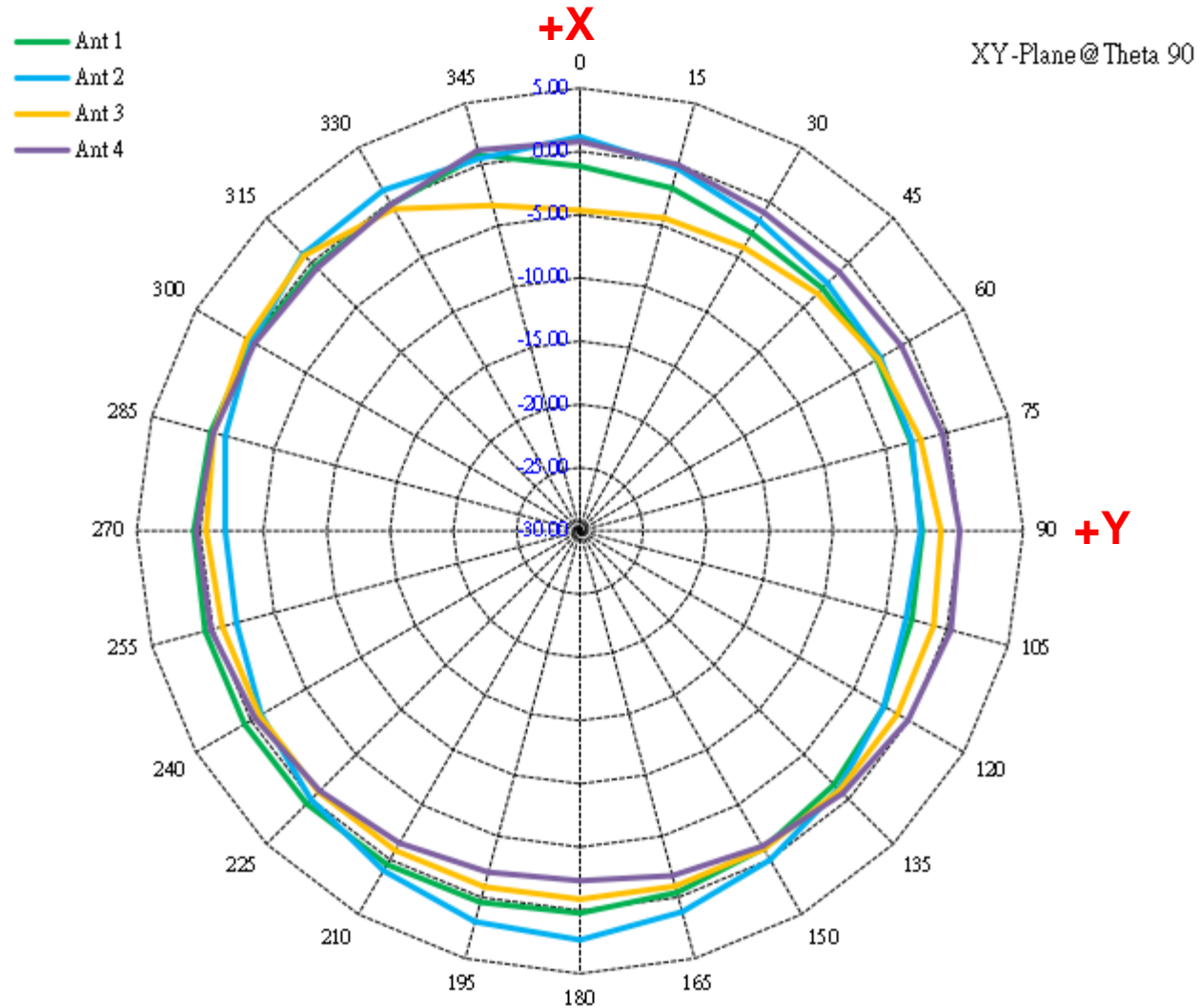


System Coverage – WiFi 2G



- These 2D patterns are extracted from 3D pattern data. Please use 3D pattern as reference.

System Coverage – WiFi 5G



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Peak Gain & Efficiency

Ant 1		
Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
2400	2.3	60
2450	2.6	60
2500	3.1	61
5150	3.0	64
5550	2.6	60
5850	2.4	58

Ant 2		
Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
2400	2.6	57
2450	3.0	60
2500	2.4	58
5150	2.9	67
5550	2.6	64
5850	3.1	62

Ant 3		
Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
2400	2.7	56
2450	3.1	60
2500	2.8	59
5150	3.2	57
5550	3.0	60
5850	2.9	58

Ant 4		
Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
2400	2.1	56
2450	2.6	57
2500	2.4	58
5150	2.8	60
5550	3.0	62
5850	2.7	55

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