Sony Mariner
Antenna Data Sheet

Date : Apr 12, 2023
Prepared by : Larry Jiang

Outline

- Antenna Structure & Placement
- Test Infomation
- Test Configuration
- Test Setup & Procedure
- Test Equipment & Calibration
- Antenna Specification
- Return Loss & Isolation
- Radiation Pattern
- Peak Gain & Efficiency

Antenna Structure & Placement

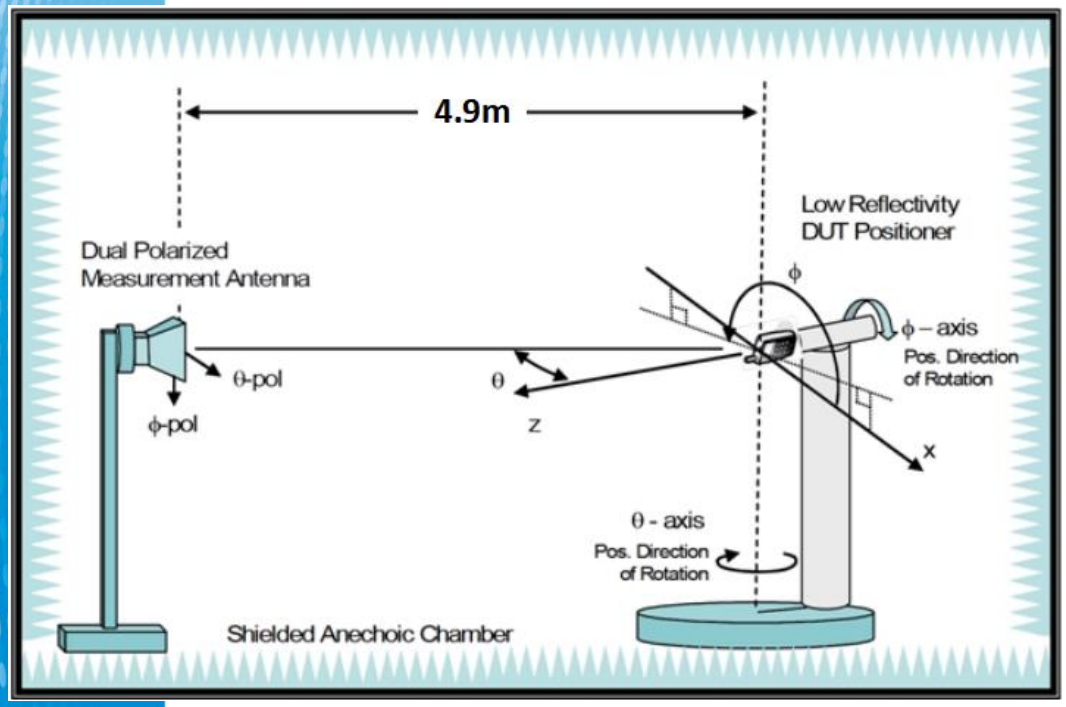
Ant No.	Operating Band	Type	Material	Feeding	Dimension
Ant 1~4 WiFi 2G/5G	2400 MHz ~ 2500 MHz 5150 MHz ~ 5850 MHz	Dipole	PCB	Cable	34(L) x 14(W) x 0.6(T) mm^3
Ant 5 BLE	2400 MHz ~ 2500 MHz	Dipole	PCB	Cable	22(L) x 18(W) x 0.4(T) mm^3

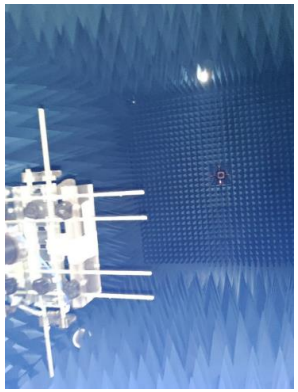
Test Infomation

Iteam	Description
Brand Name	Sony
Equipment	Wi-Fi
Test Location	8F, No. 3-1, YuanQu St. Taipei, Taiwan 115 R.O.C.
Test Condition	Radiation
Test Engineer	Larry Jiang
Test Environment	ETS-8500 Antenna Measurement Chamber
Test Date	Mar. 1, 2023 ~ Mar. 10, 2023

Test Configuration

ETS AMS-8500 antenna measurement system with a size of 7.32(L) × 3.66(W) × 3.66(H) m^3 is used for antenna performance test, which is based on the great-circle test method defined by CTIA. The multi-axis positioning system (MAPS) rotates the DUT around two orthogonal axes for full spherical coverage.



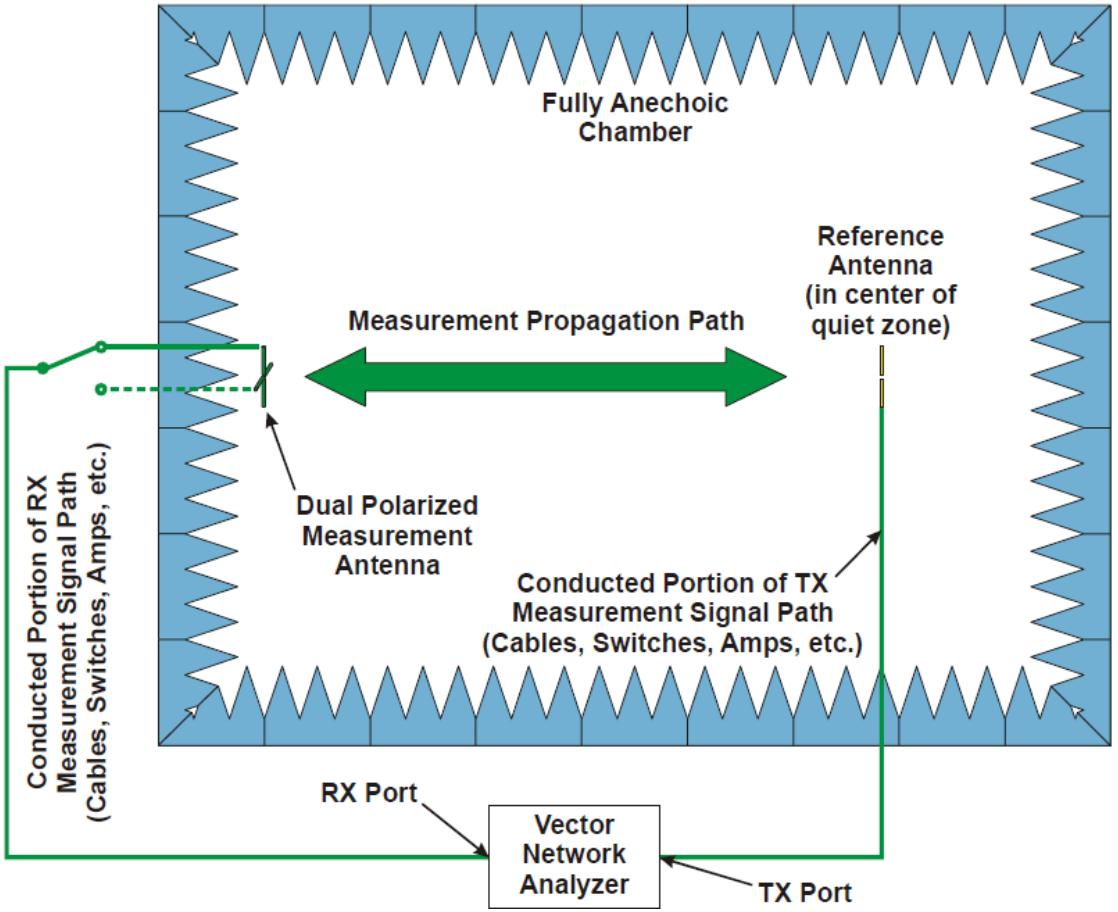


Test Setup & Procedure

1. Fix the DUT on the dielectric support structure and connect the feeding cable to the antenna used for test
2. Set measurement parameters such as frequency range and sampling angle
3. Perform 3D test and then get far-field data (radiation pattern, gain, efficiency)

Equipment Used Information (With Calibration)

Network analyzer and reference antennas (Precision Sleeve Dipole) are used for calibration. Path loss for each band can be checked and calculated.



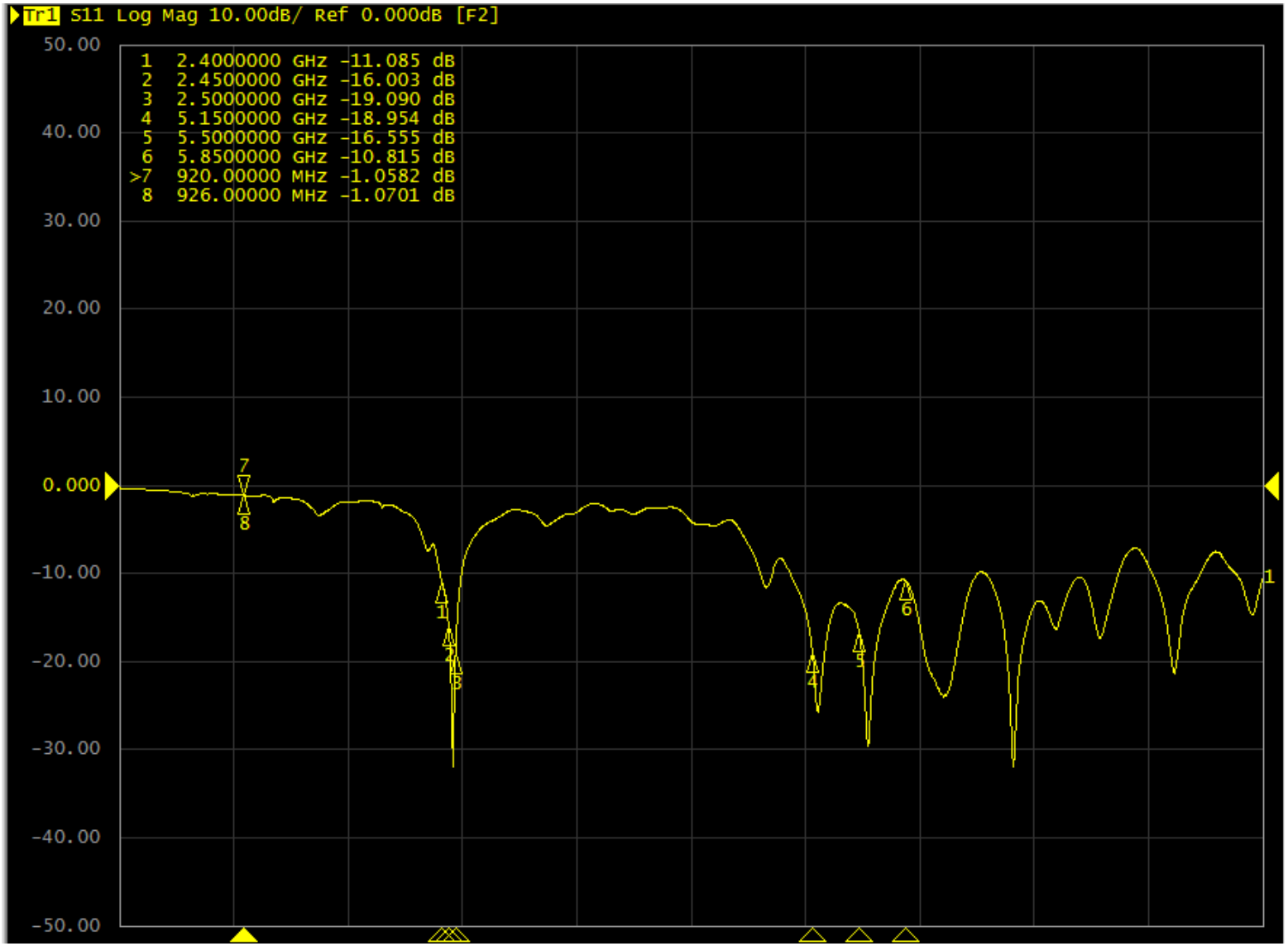
Equipment Used Information

Instrument	Brand	Characteristics	Model No.	Serial No.	Calibration Due Date
Precision Sleeve Dipole	ETS-Lindgren	700 MHz ~ 900 MHz	3126-700	00169715	Feb 13, 2023
Precision Sleeve Dipole	ETS-Lindgren	900 MHz ~ 1000 MHz	3126-900	00169592	Feb 13, 2023
Precision Sleeve Dipole	ETS-Lindgren	1400 MHz ~ 1700 MHz	3126-1550	00164599	Feb 13, 2023
Precision Sleeve Dipole	ETS-Lindgren	1700 MHz ~ 2000 MHz	3126-1850	00169588	Feb 13, 2023
Precision Sleeve Dipole	ETS-Lindgren	2000 MHz ~ 2300 MHz	3126-2150	00169593	Feb 13, 2023
Precision Sleeve Dipole	ETS-Lindgren	2300 MHz ~ 2700 MHz	3126-2500	00169597	Feb 13, 2023
Precision Sleeve Dipole	ETS-Lindgren	5000 MHz ~ 6000 MHz	3126-5500	00169728	Feb 13, 2023
Horn Antenna	SCHWARZBECK	1 GHz ~ 18 GHz	BBHA 9120D	BBHA 9120D-1294	Feb 13, 2023
EMQuest Antenna Measurement Software	ETS-Lindgren	Control chamber system	EMQ-100	1437	Non-Calibration Required

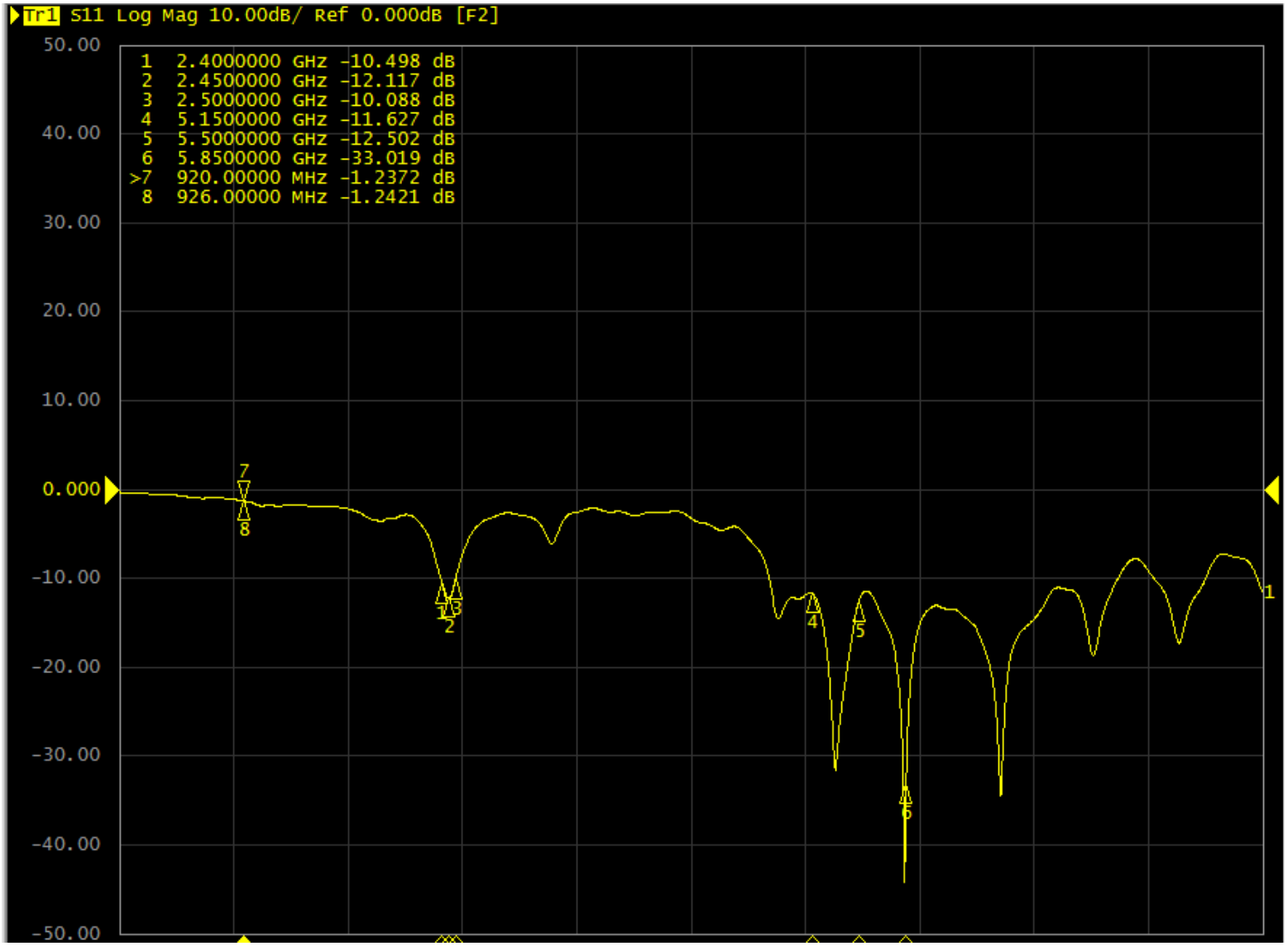
Antenna Specification

Antenna Specification	Comply	Note
Return Loss: > 10dB (WiFi & BLE)	Yes	
Isolation : > 15dB (WiFi & BLE)	Yes	
Efficiency : > 50% (WiFi & BLE)	Yes	

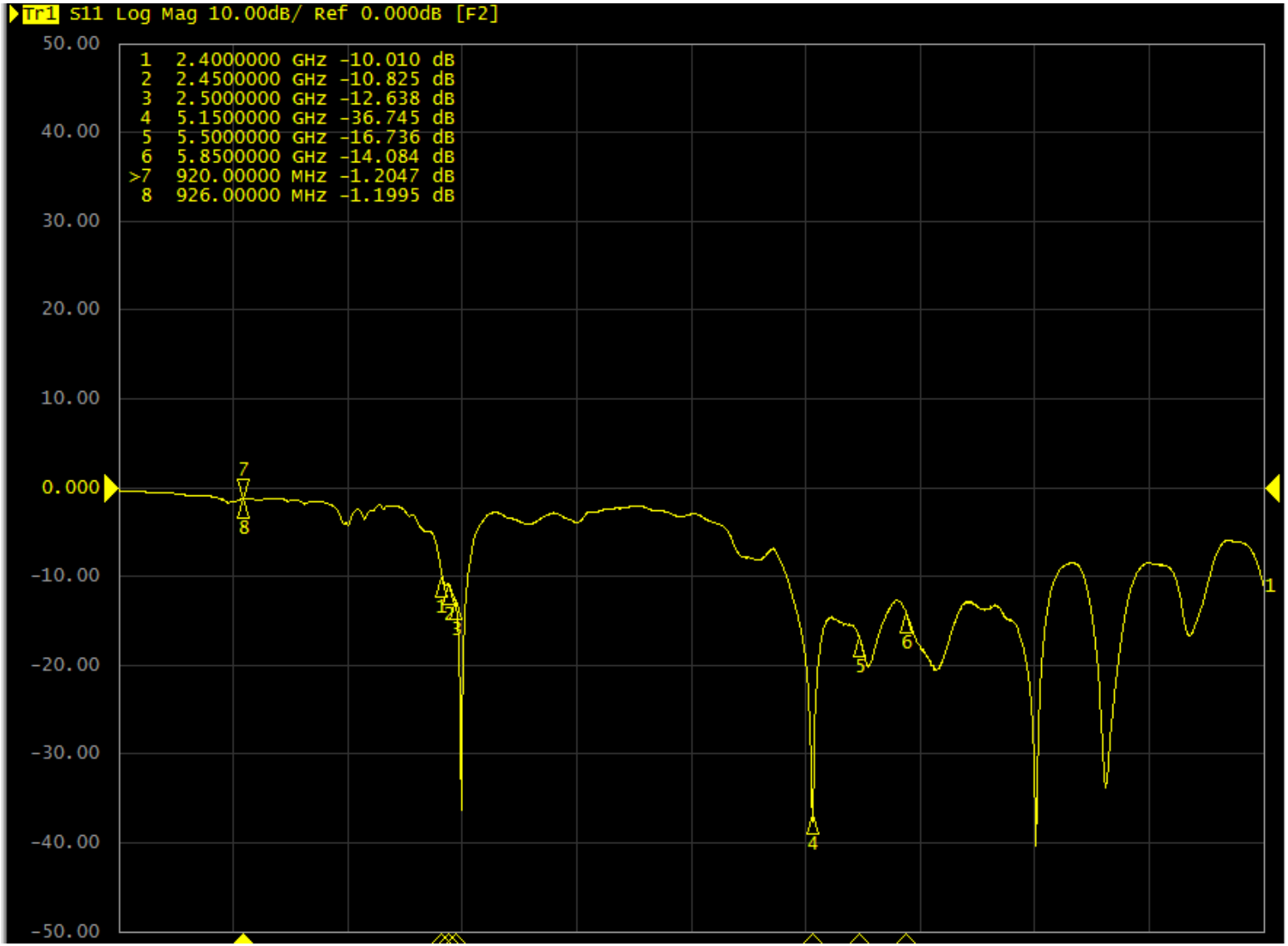
Return Loss – Ant 1 WiFi 2G/5G



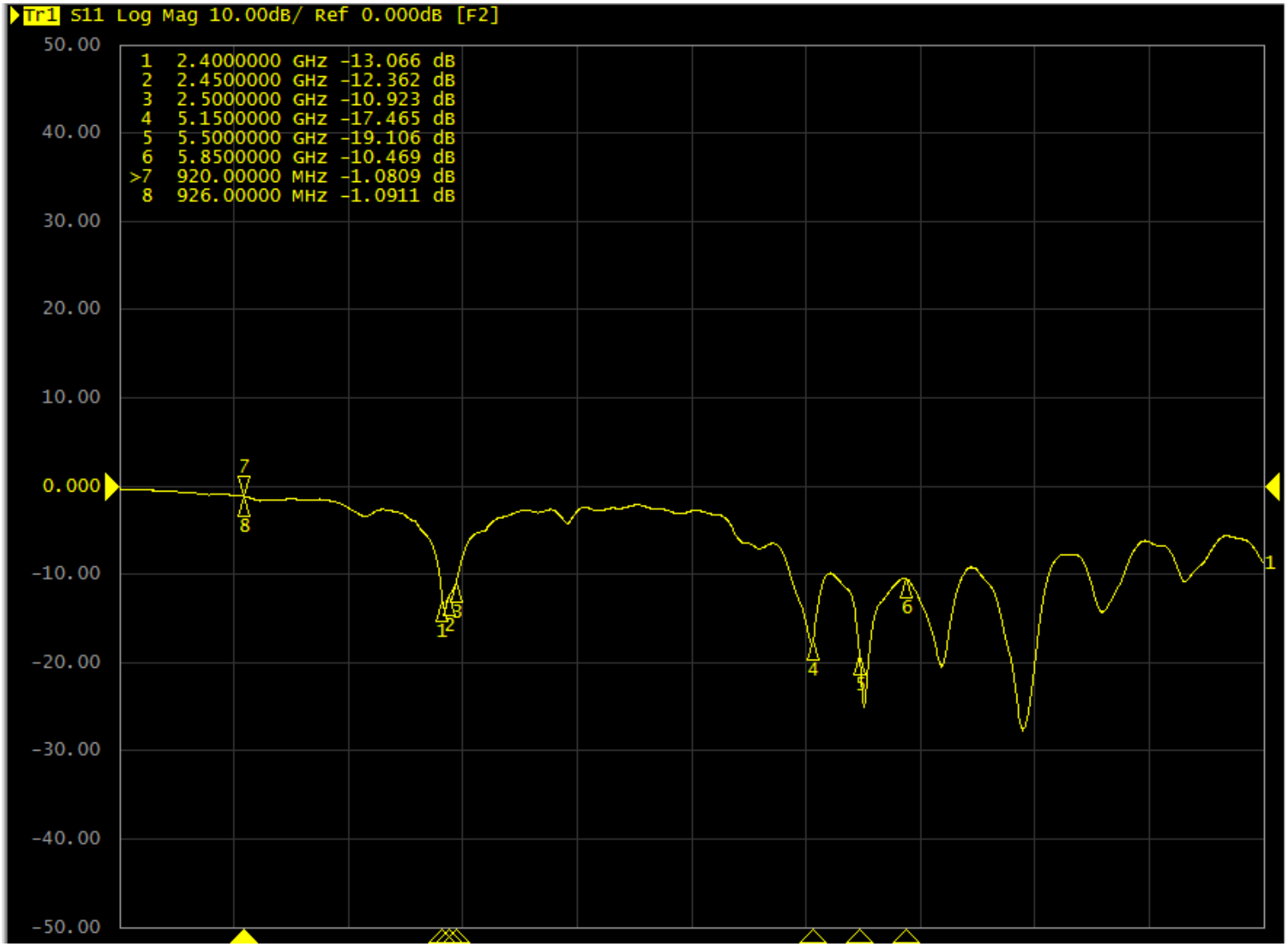
Return Loss – Ant 2 WiFi 2G/5G



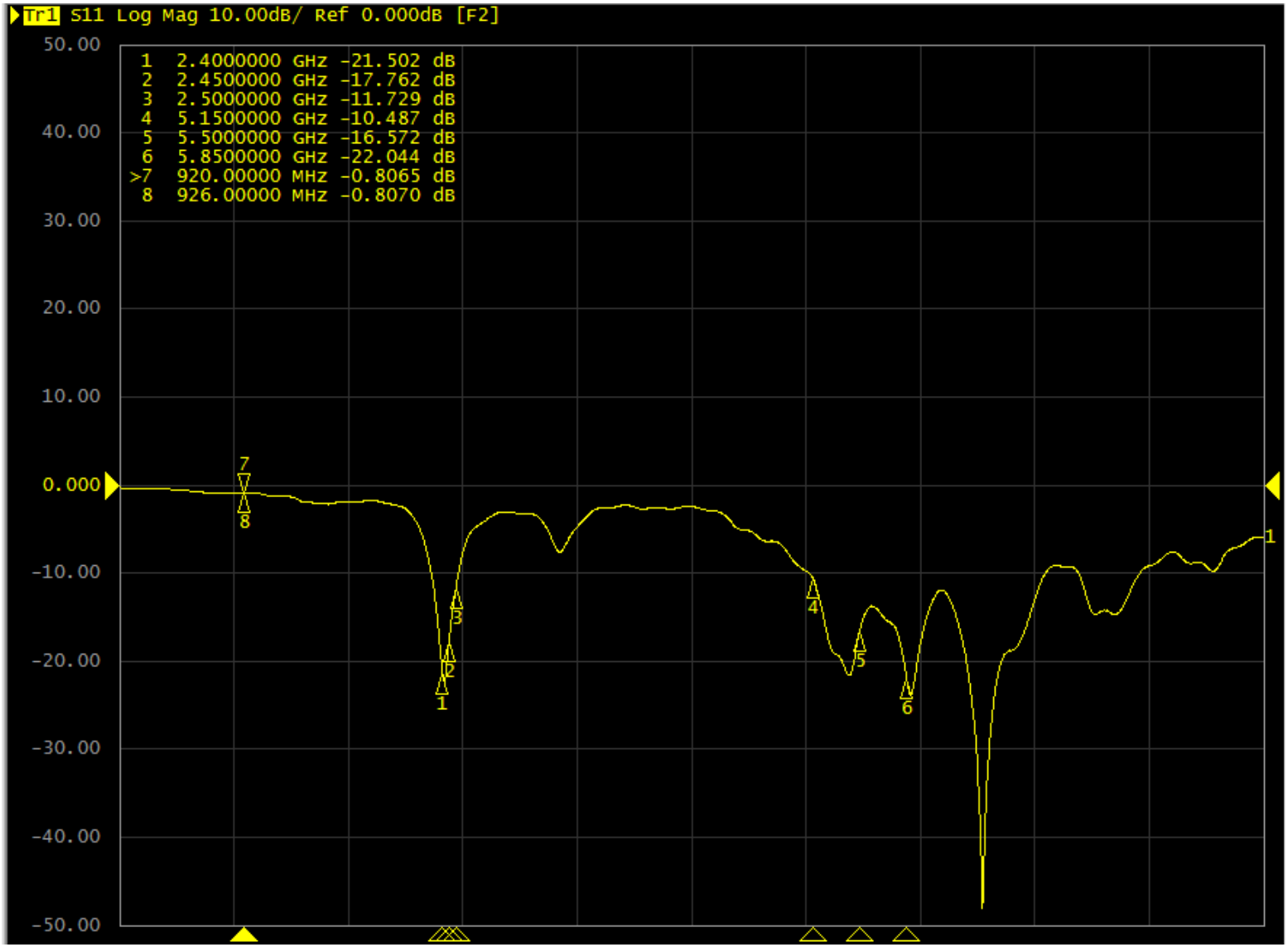
Return Loss – Ant 3 WiFi 2G/5G



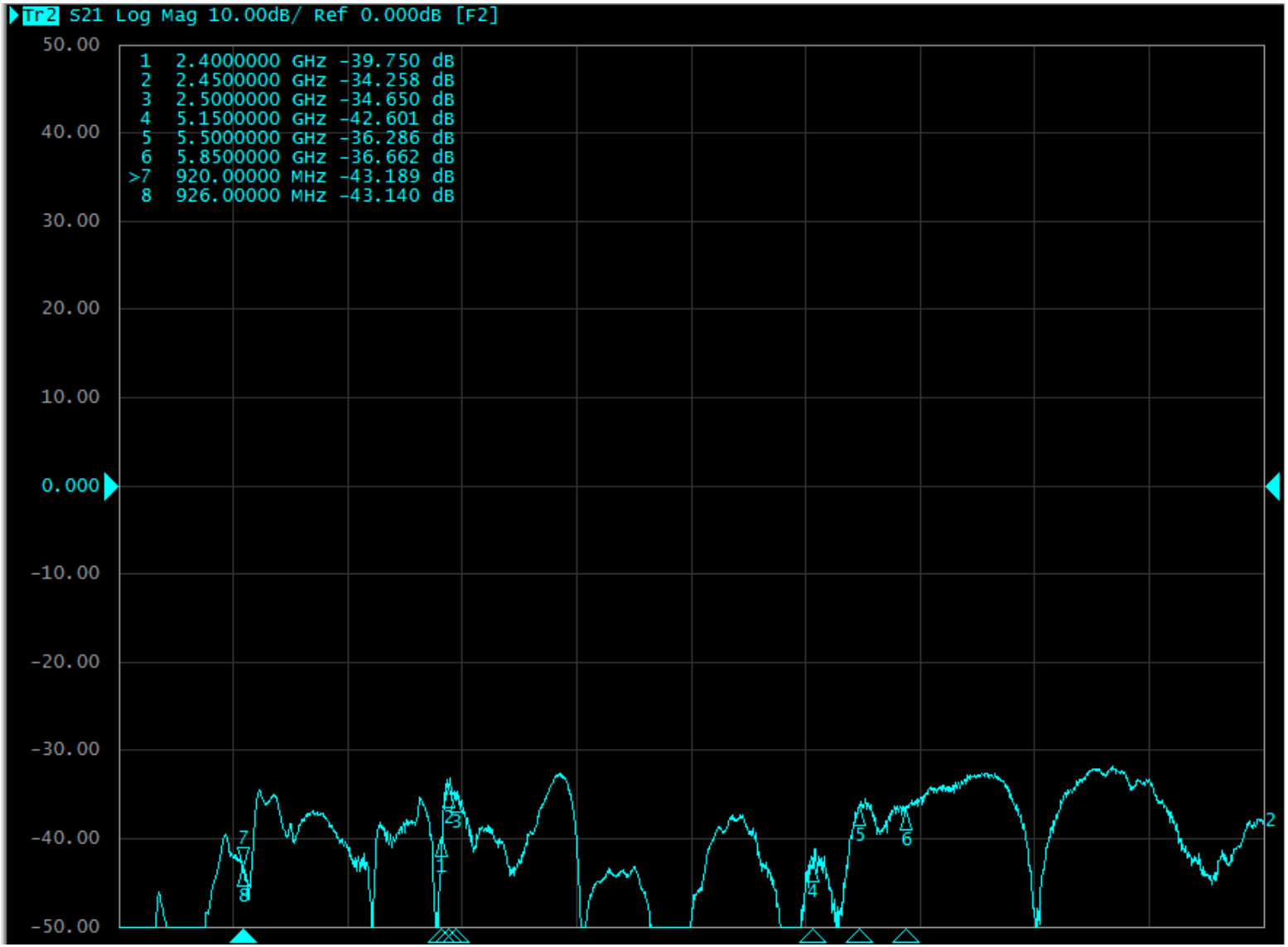
Return Loss – Ant 4 WiFi 2G/5G



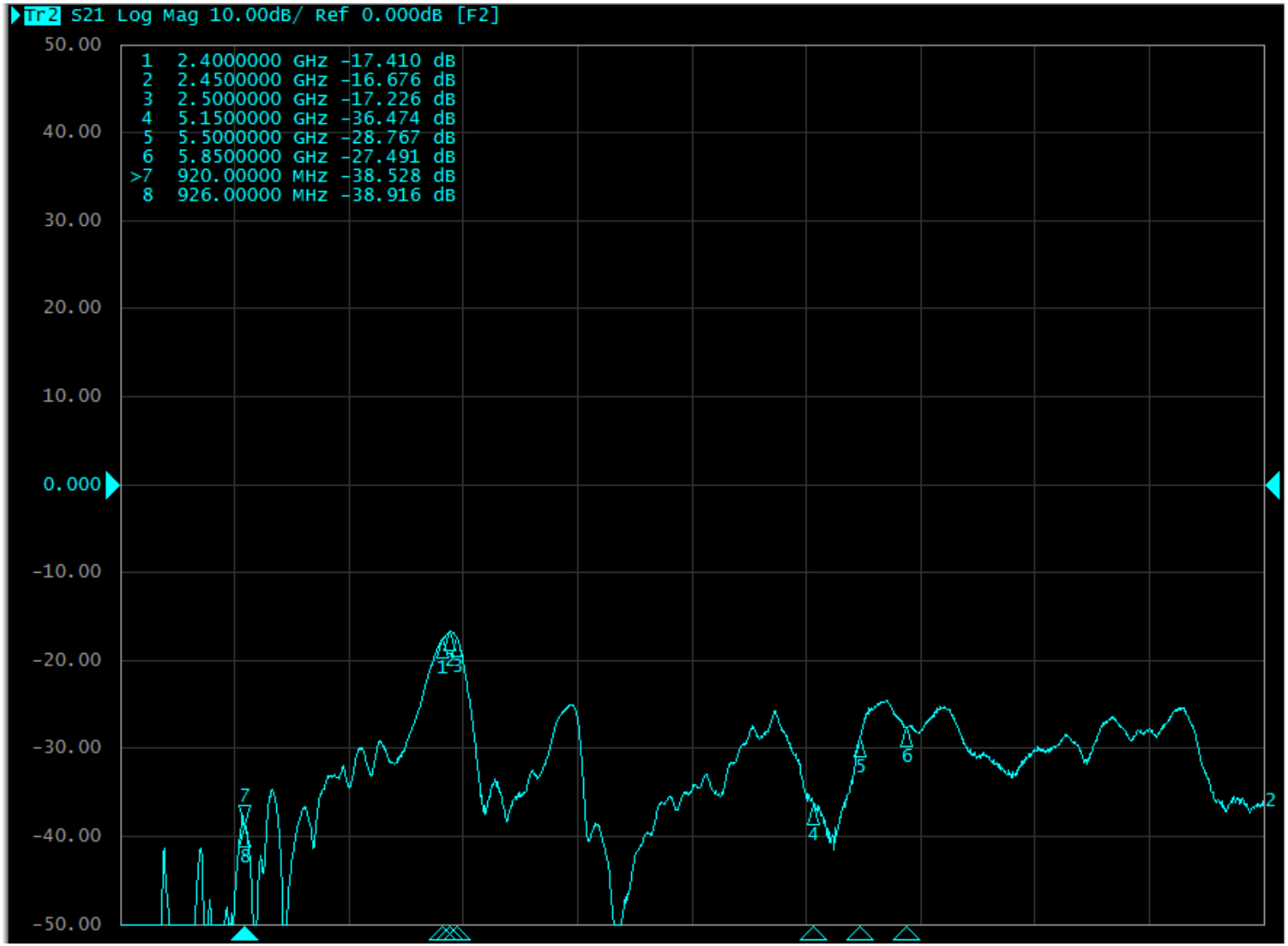
Return Loss – Ant 5 BLE



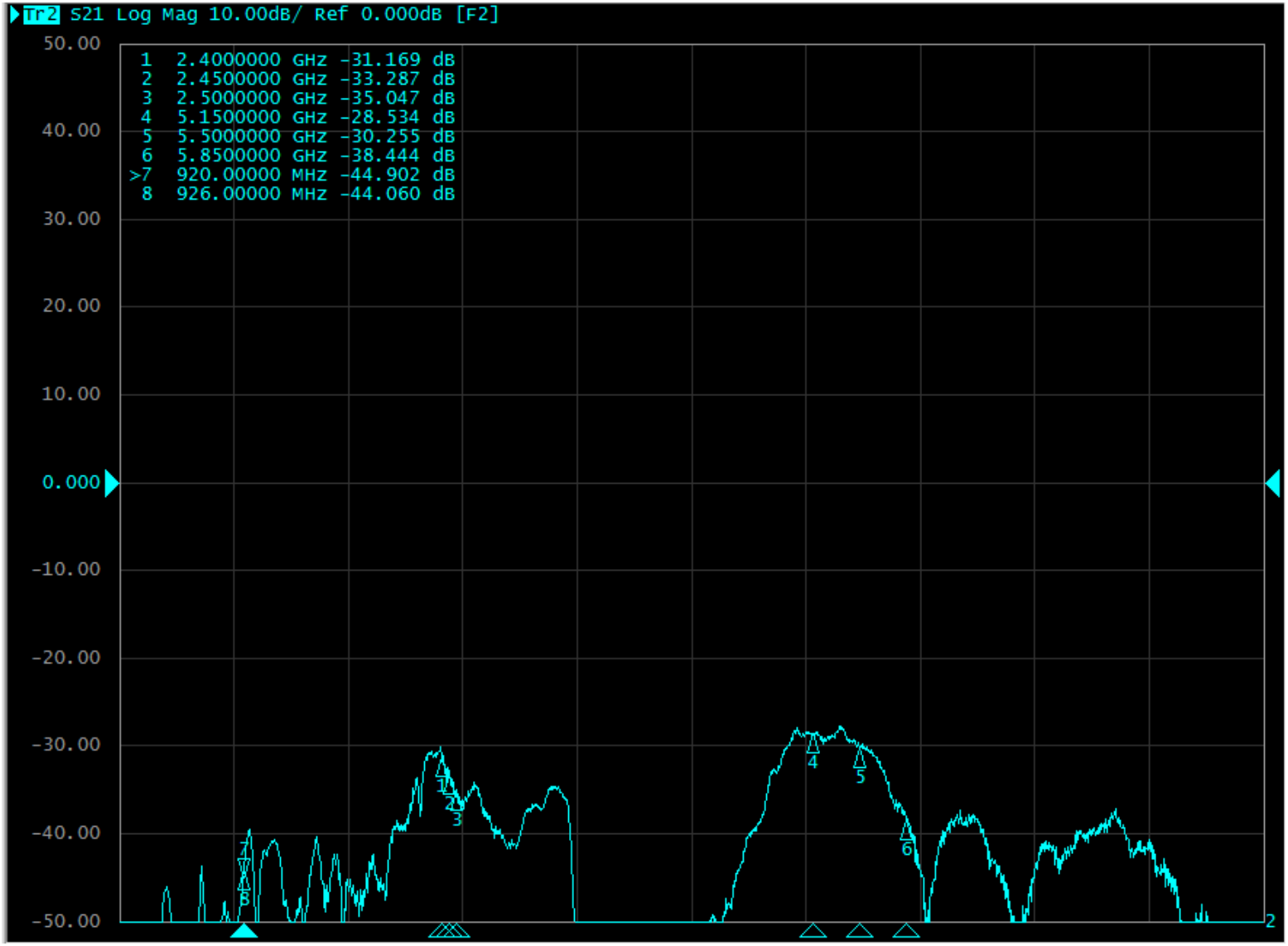
Isolation – Ant 1 to Ant 2



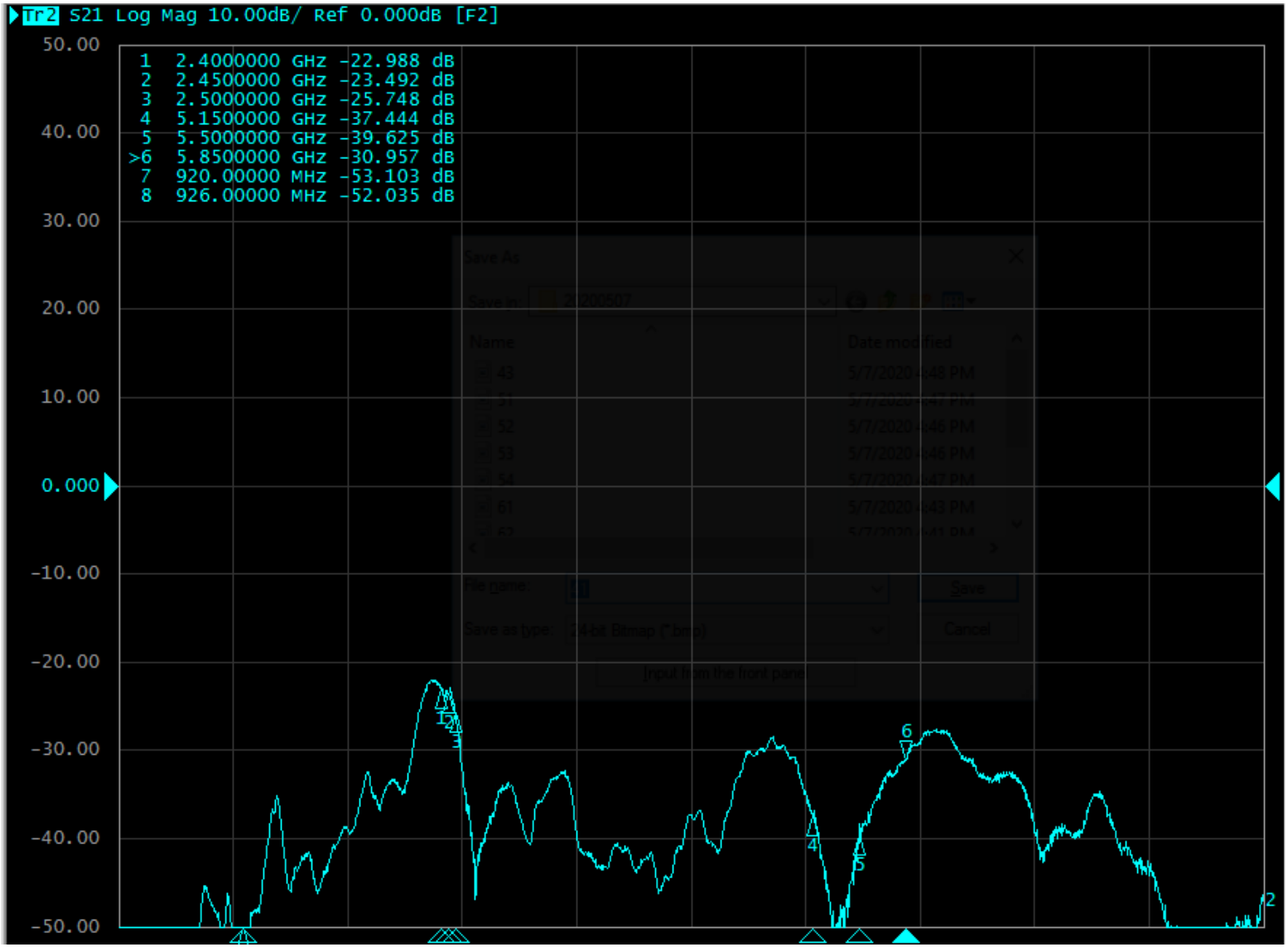
Isolation – Ant 1 to Ant 3



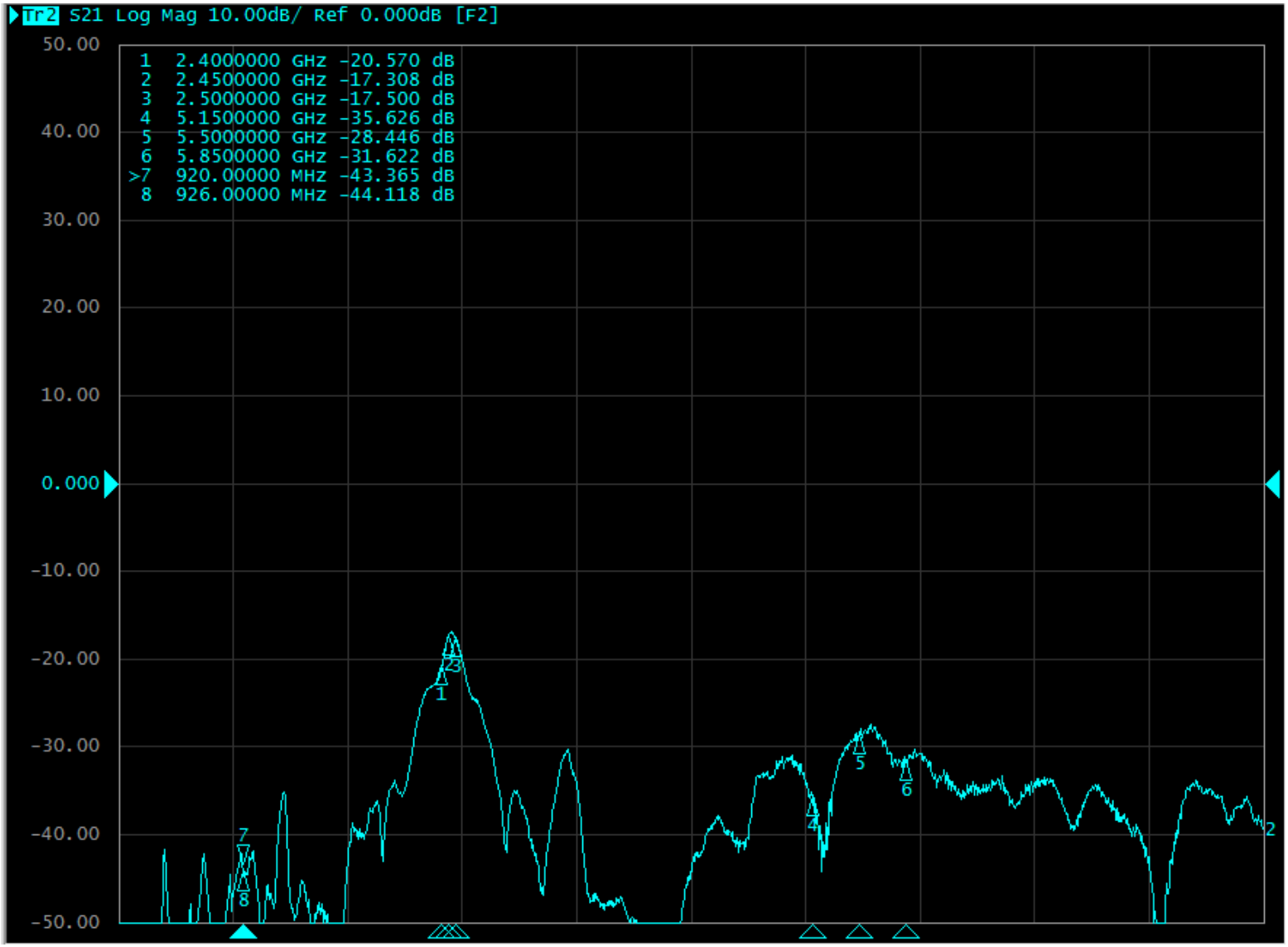
Isolation – Ant 1 to Ant 4



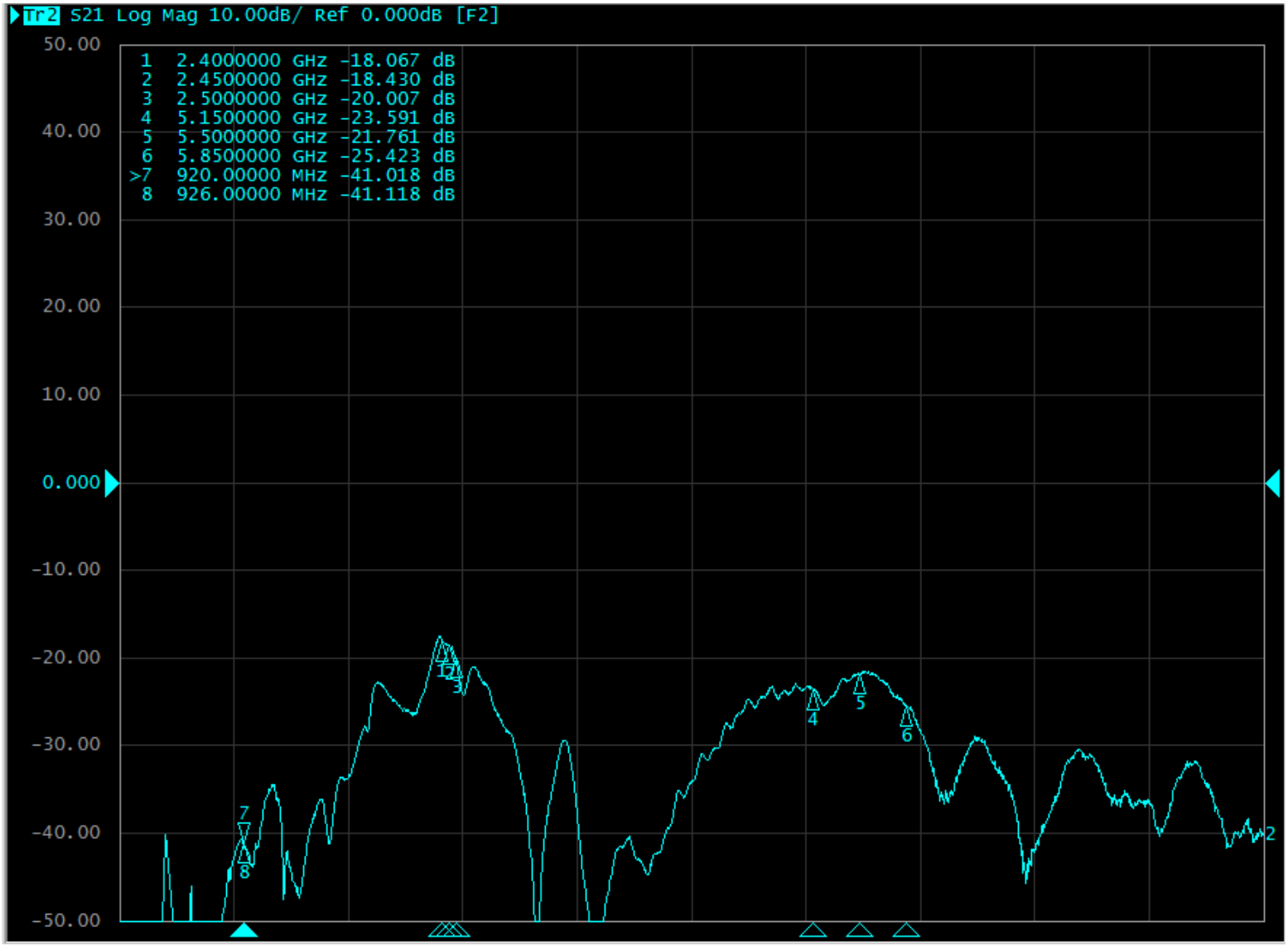
Isolation – Ant 1 to Ant 5



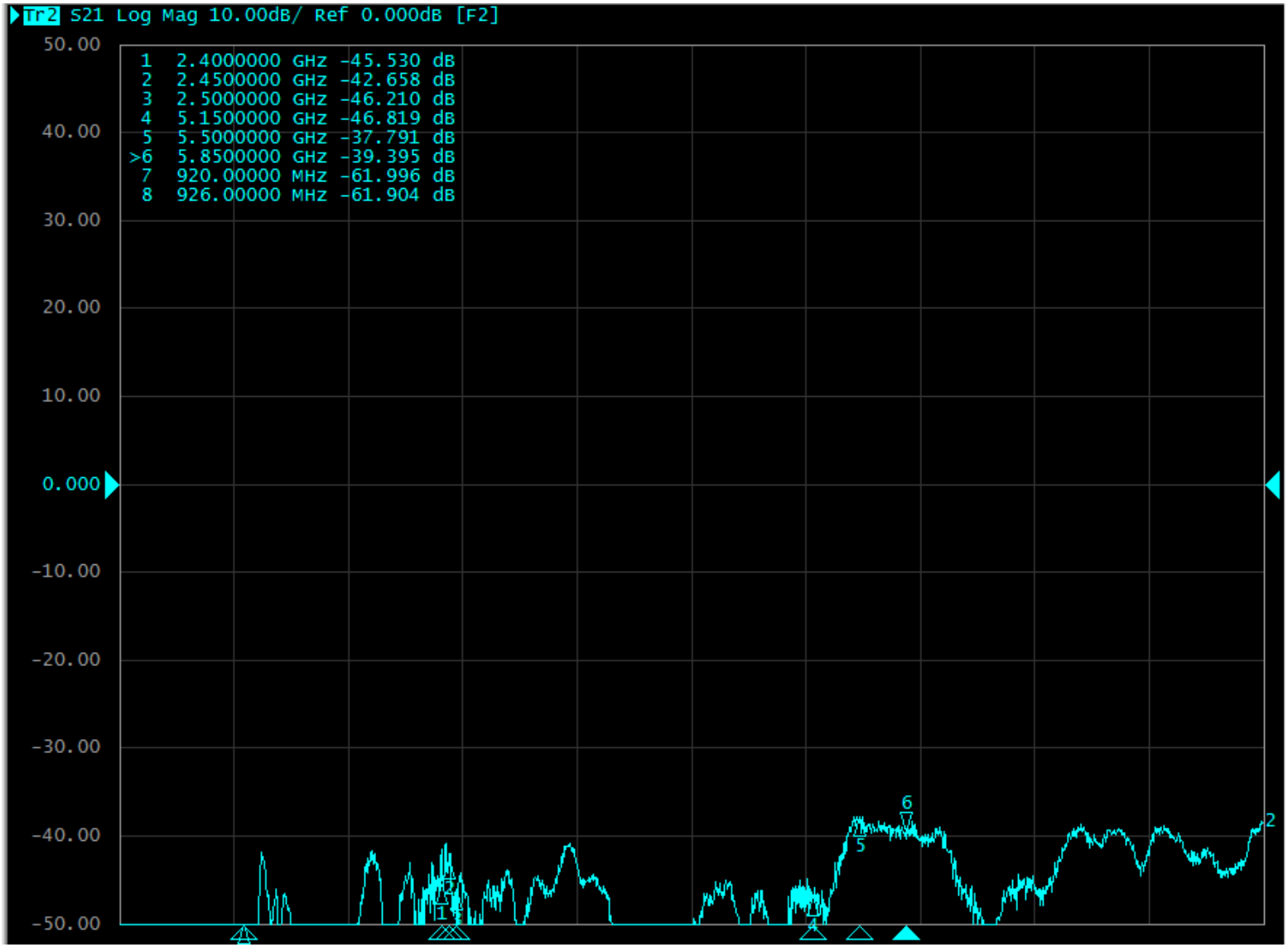
Isolation – Ant 2 to Ant 3



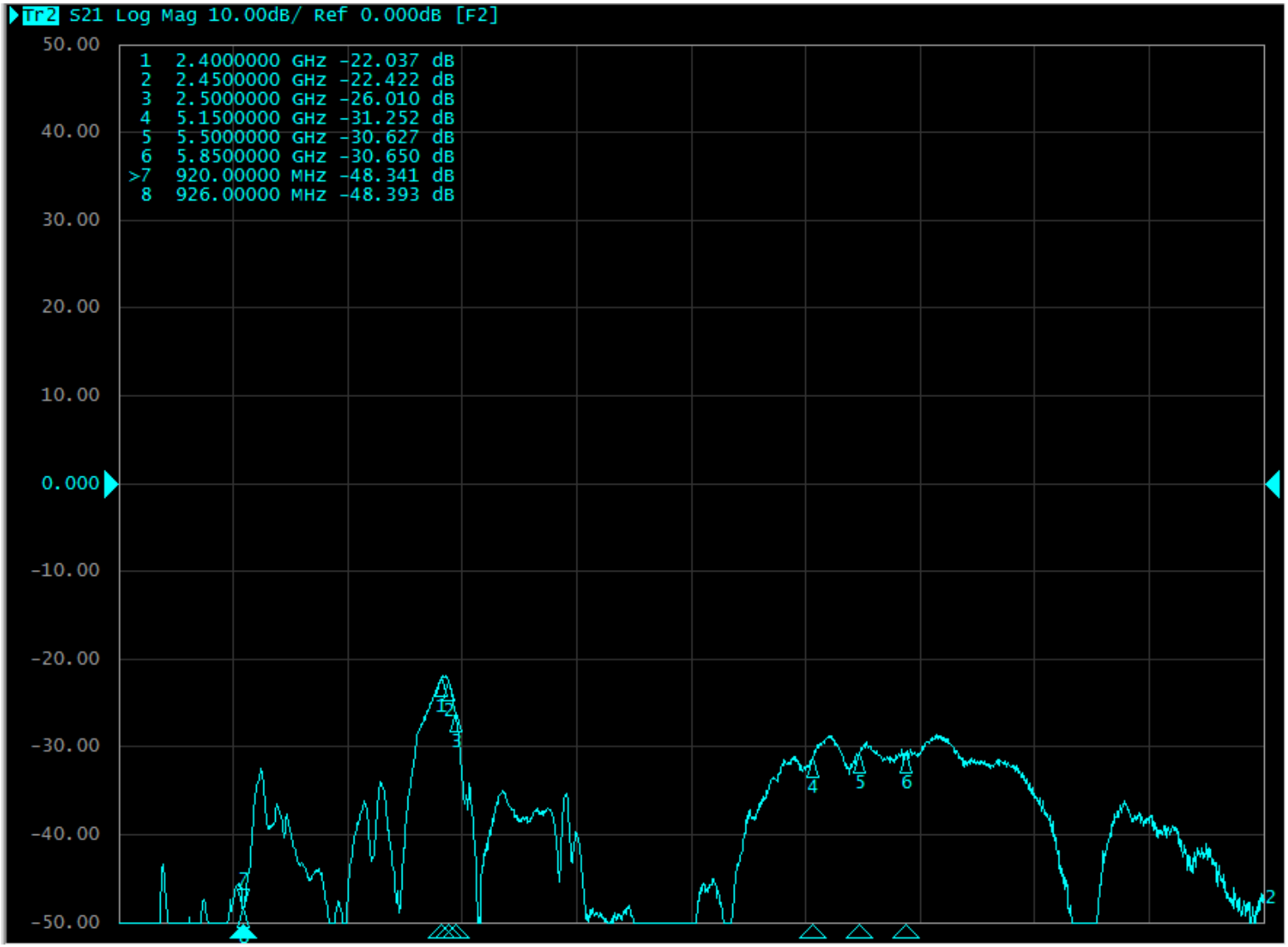
Isolation – Ant 2 to Ant 4



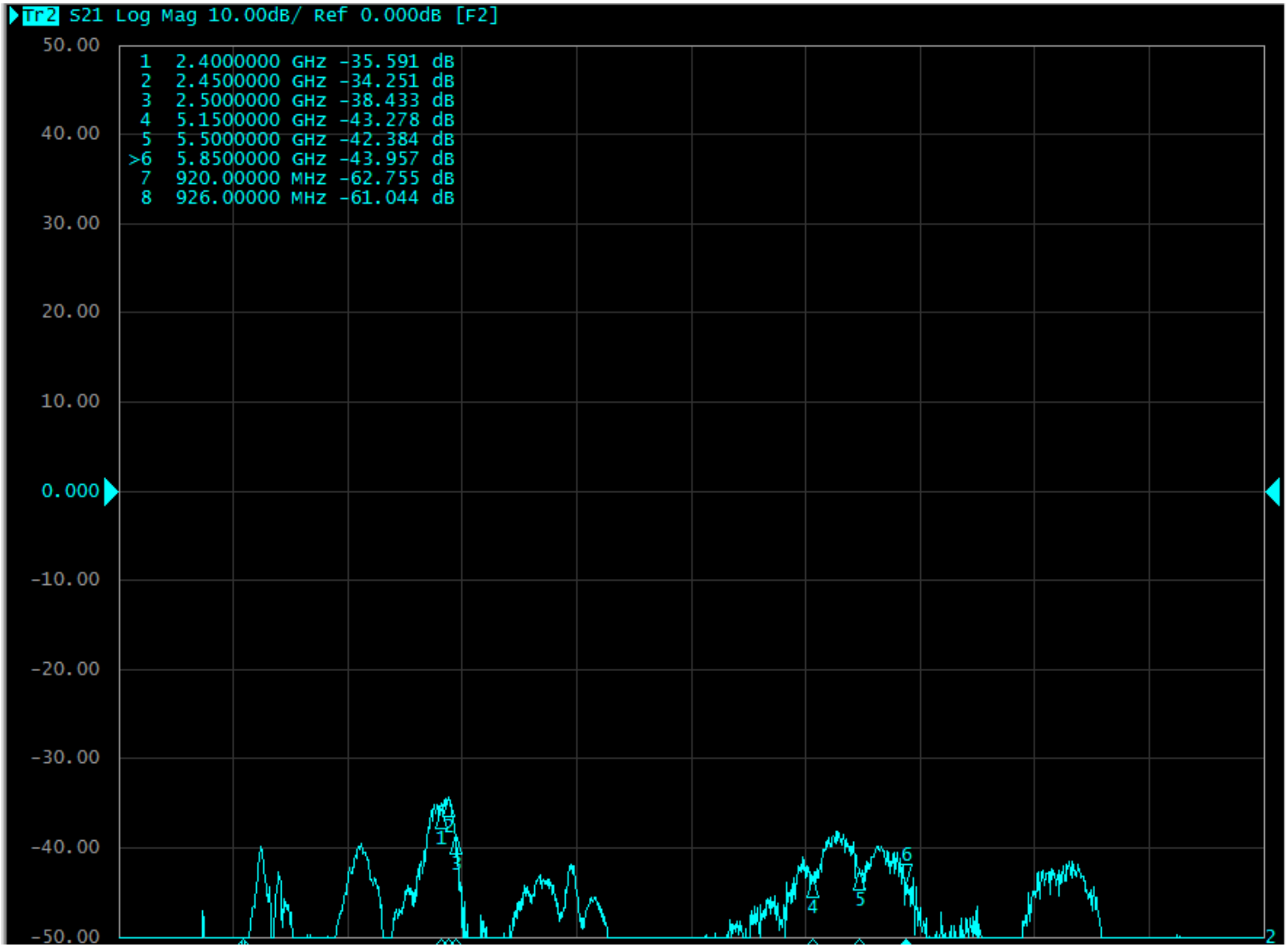
Isolation – Ant 2 to Ant 5



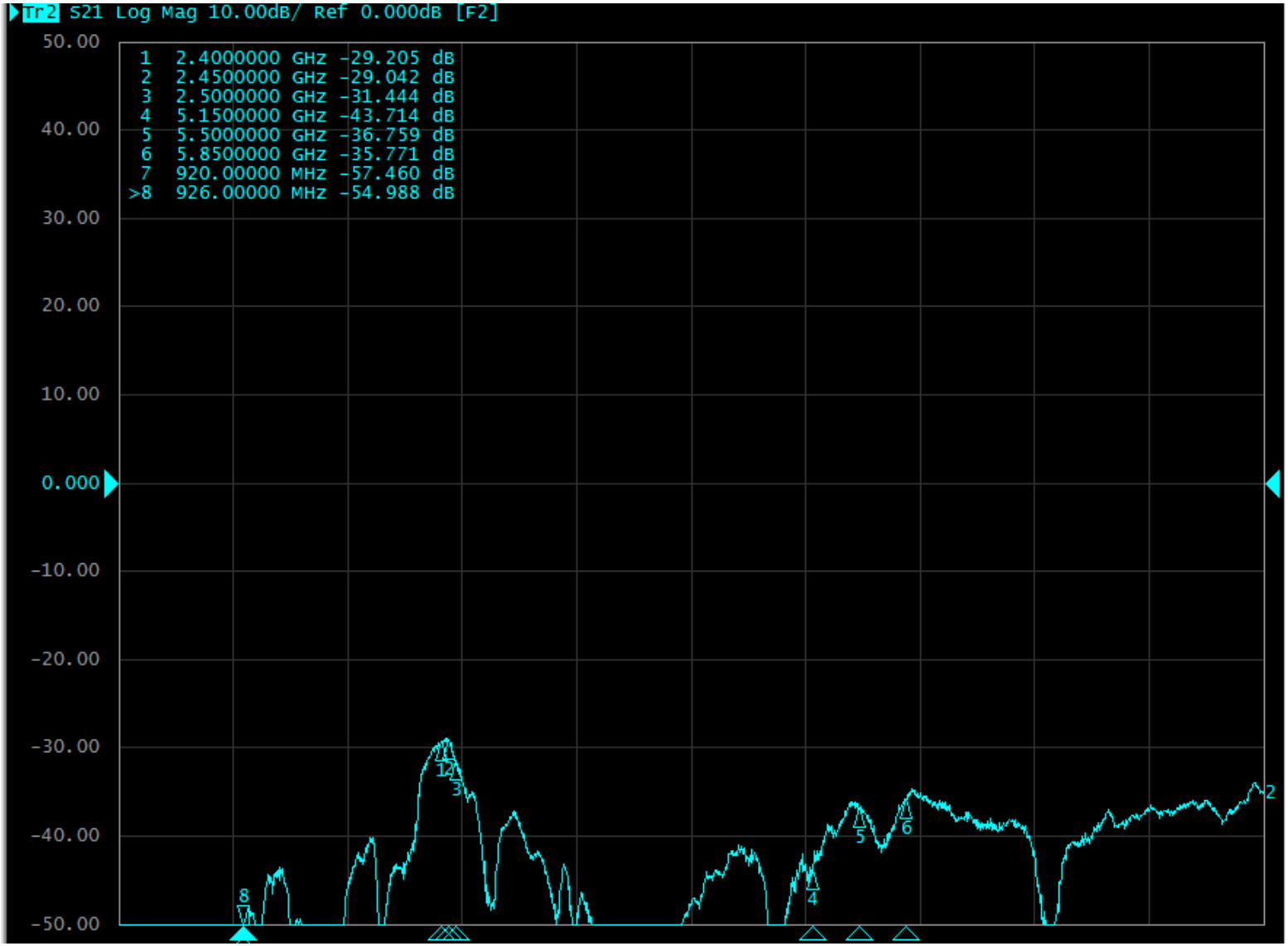
Isolation – Ant 3 to Ant 4



Isolation – Ant 3 to Ant 5

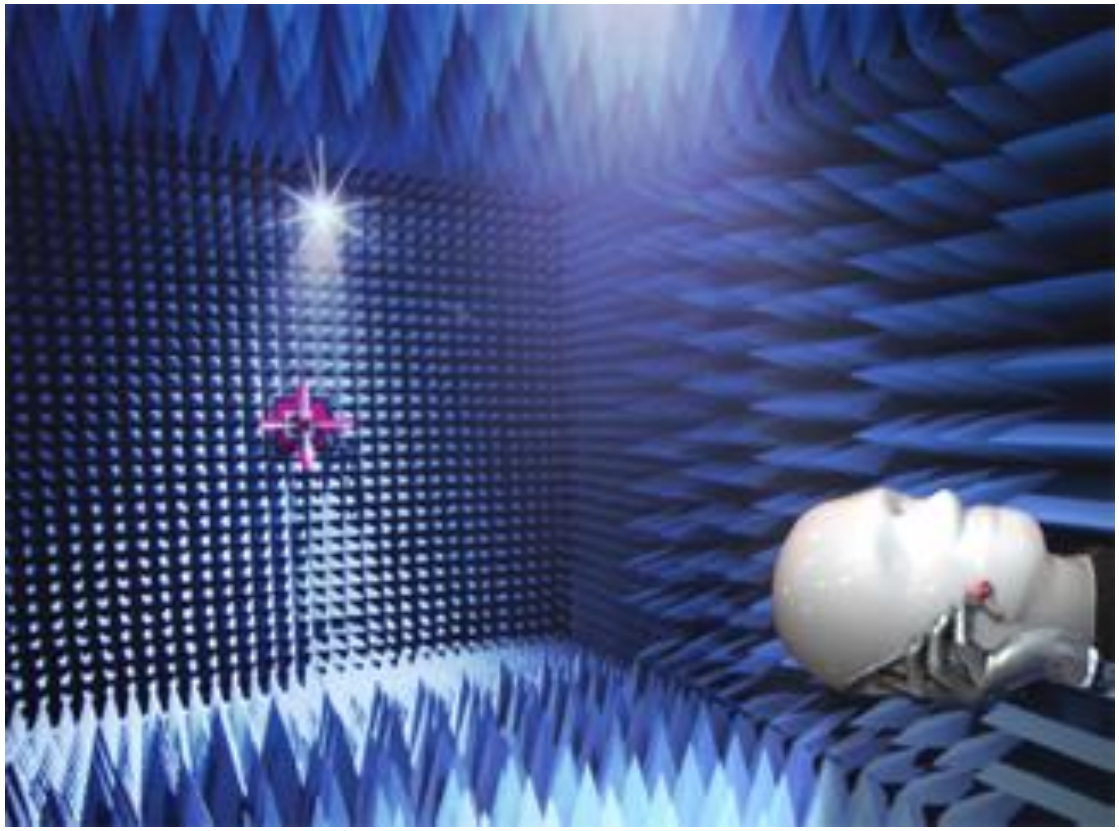


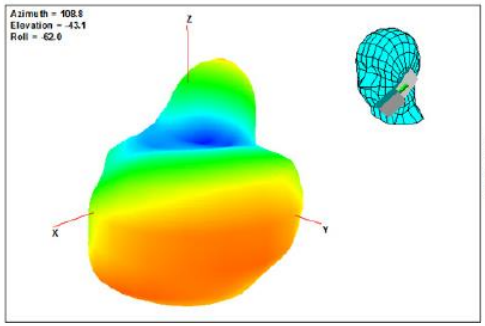
Isolation – Ant 4 to Ant 5

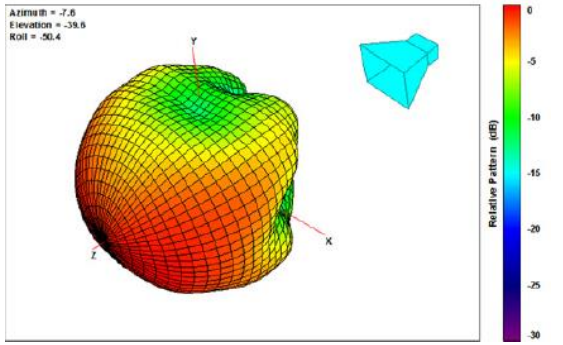


Antenna Measurement Chamber

- ETS AMS-8500 antenna measurement system
- Interior dimensions : 7.32(L)×3.66(W)×3.66(H)m^3
- Operating band : 700 MHz – 10 GHz
- Support passive test & active test
- Provide graphic data display







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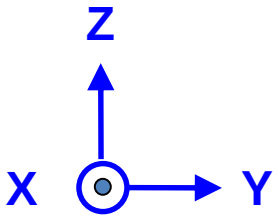
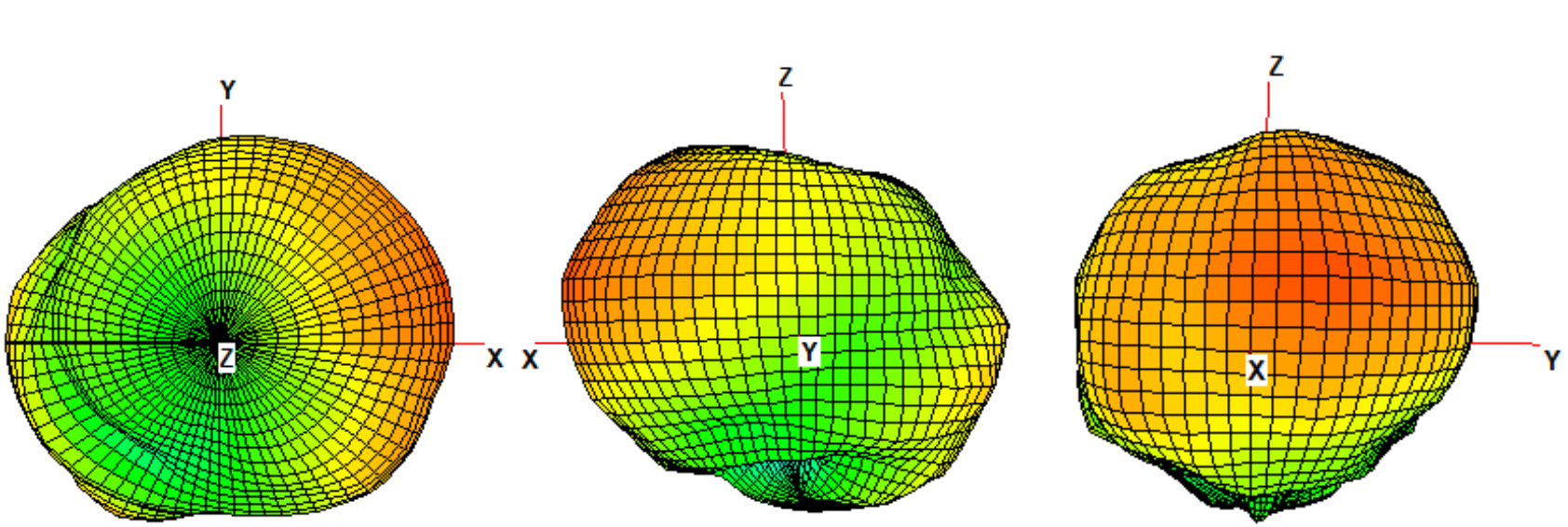
Radiation Pattern – Ant 1 @ 2450MHz





X-Y plane

Z-X plane

Z-Y plane

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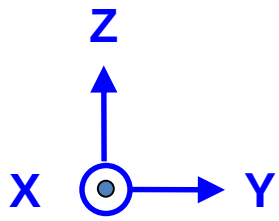
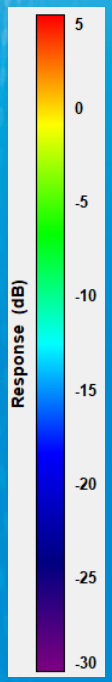
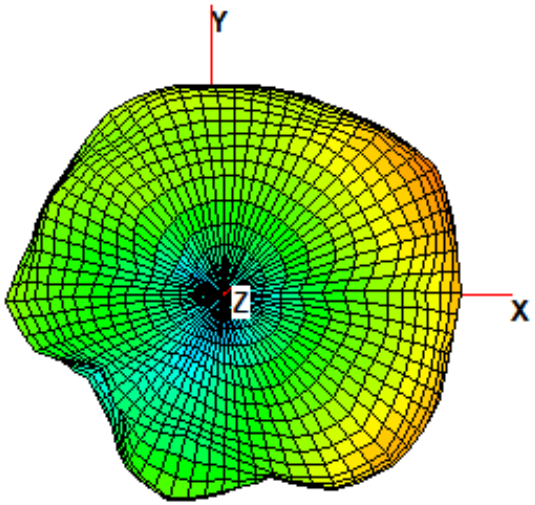
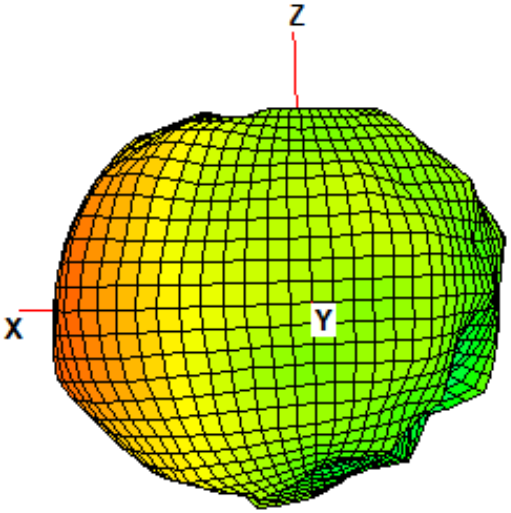
Radiation Pattern – Ant 1 @ 5500MHz



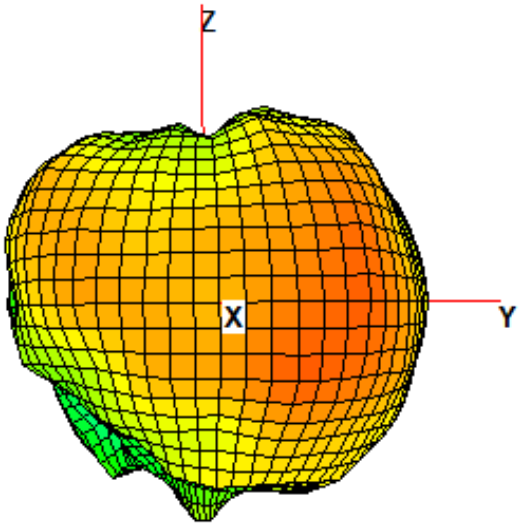




X-Y plane



Z-X plane



Z-Y plane

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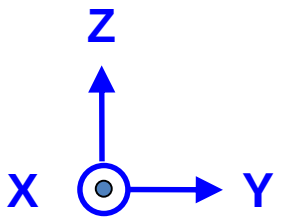
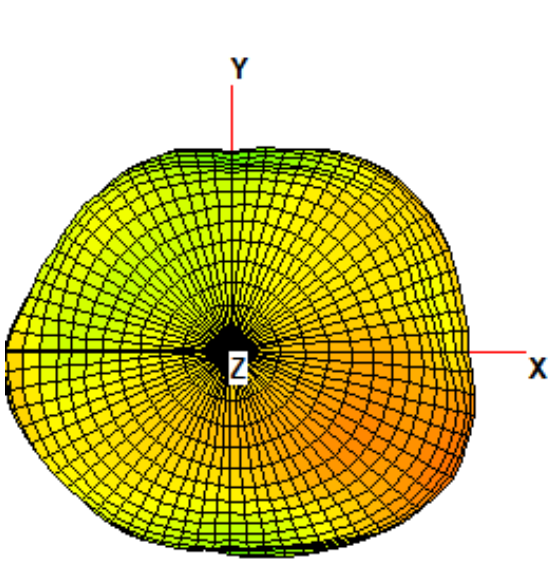
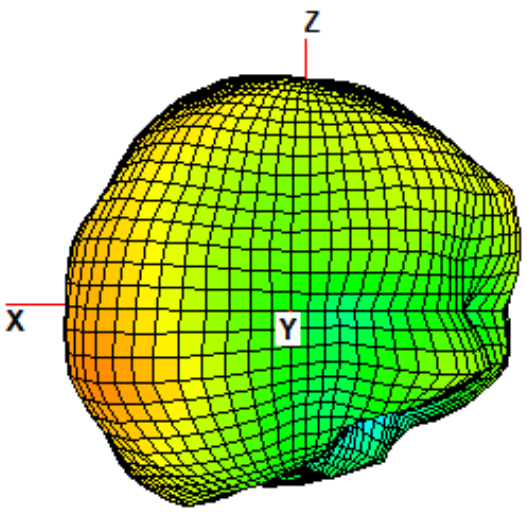
Radiation Pattern – Ant 2 @ 2450MHz

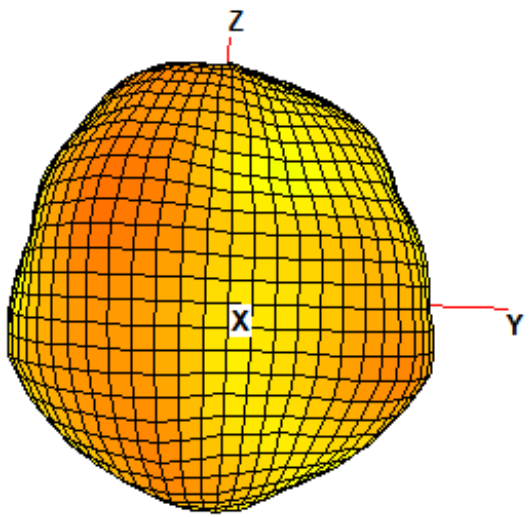




X-Y plane



Z-X plane



Z-Y plane

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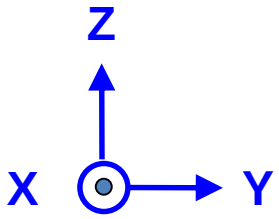
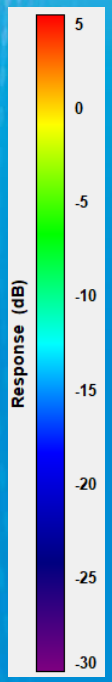
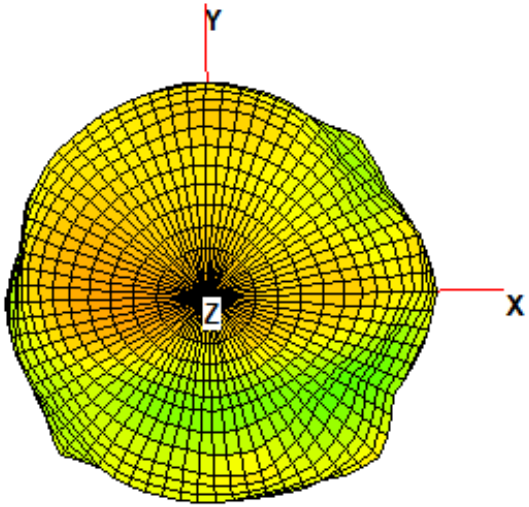
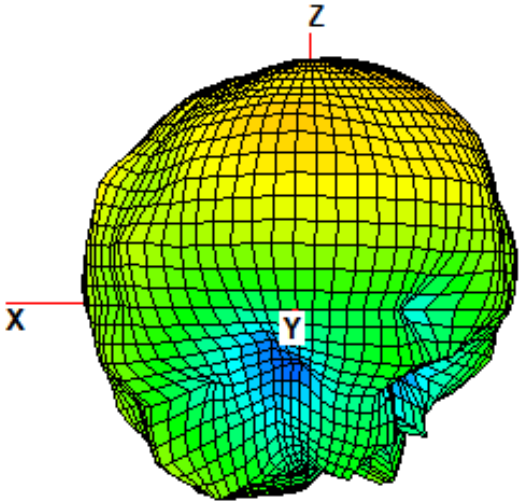
Radiation Pattern – Ant 2 @ 5500MHz



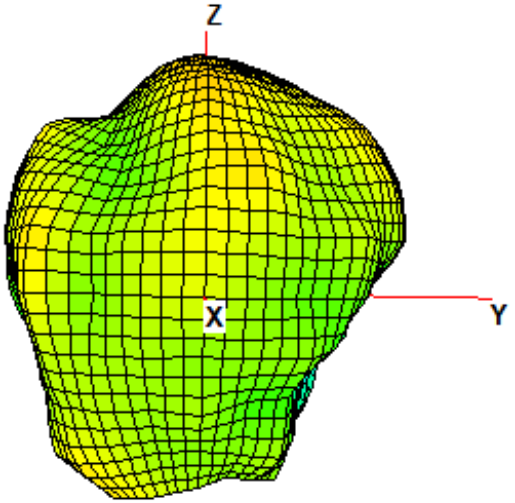




X-Y plane



Z-X plane



Z-Y plane

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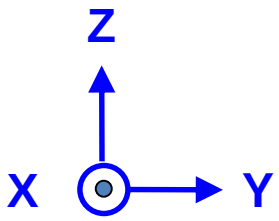
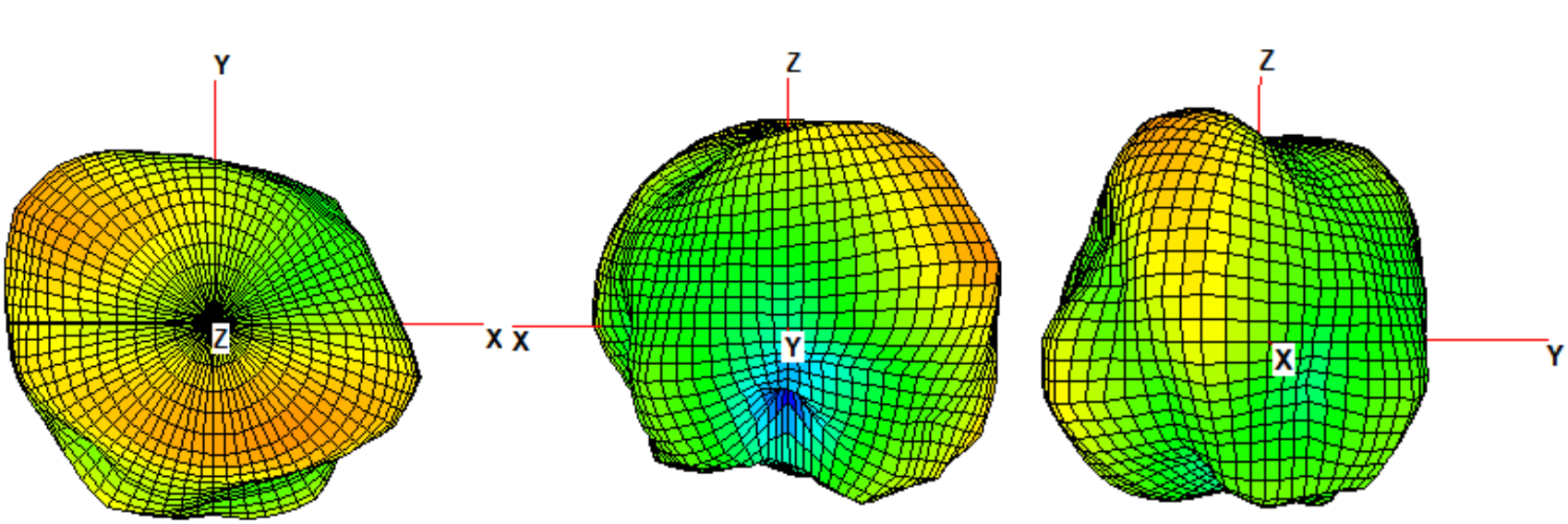
Radiation Pattern – Ant 3 @ 2450MHz





X-Y plane

Z-X plane

Z-Y plane

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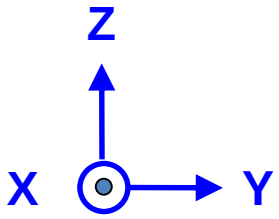
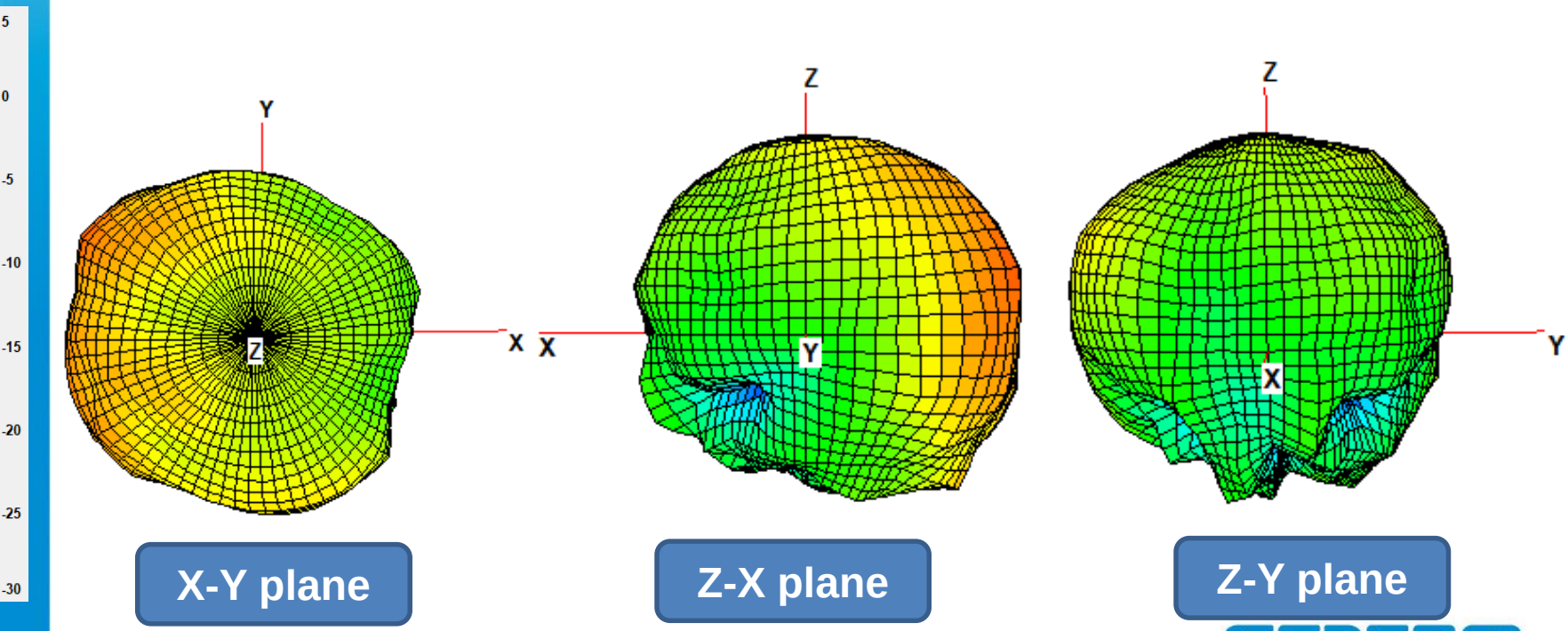
Radiation Pattern – Ant 3 @ 5500MHz





X-Y plane

Z-X plane

Z-Y plane

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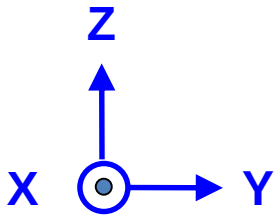
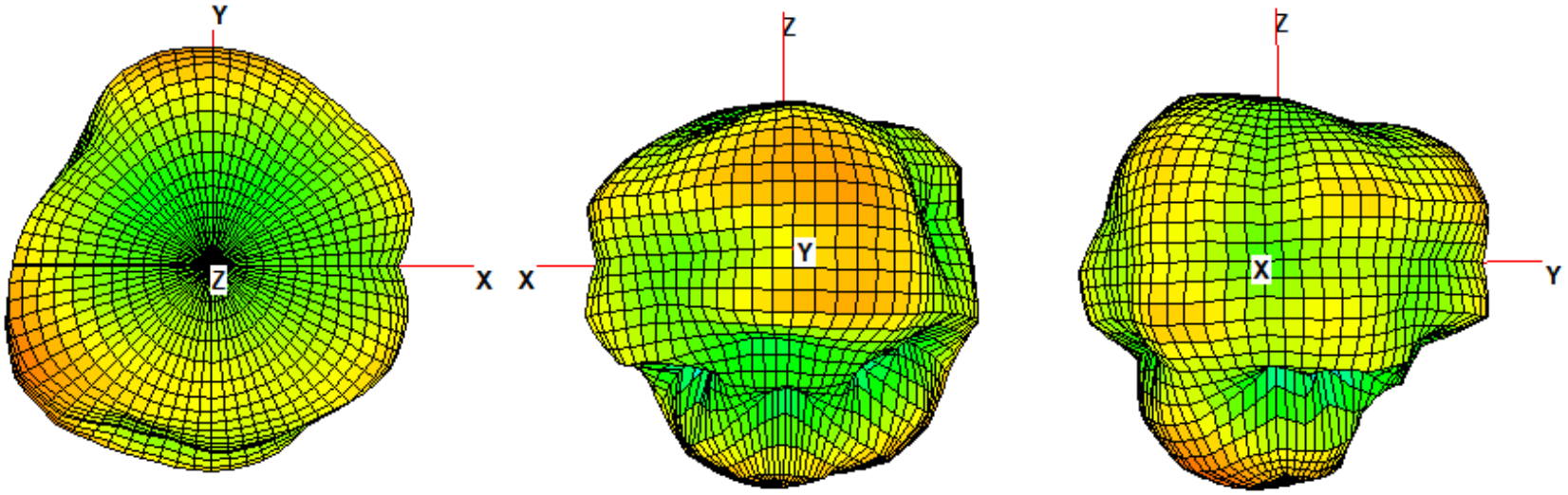
Radiation Pattern – Ant 4 @ 2450MHz





X-Y plane

Z-X plane

Z-Y plane

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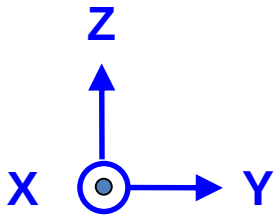
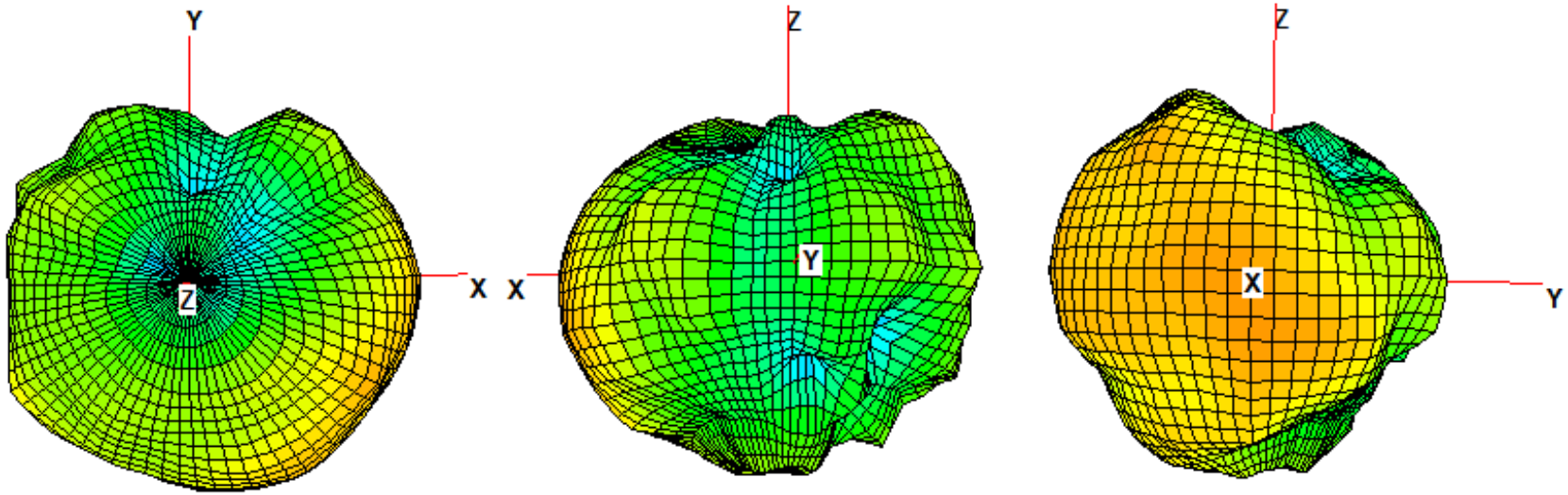
Radiation Pattern – Ant 4 @ 5500MHz





X-Y plane

Z-X plane

Z-Y plane

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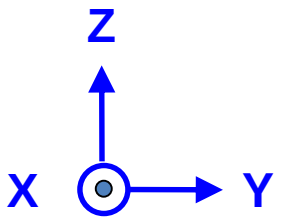
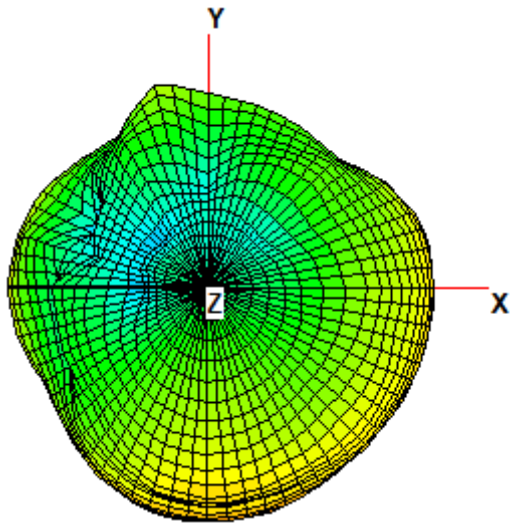
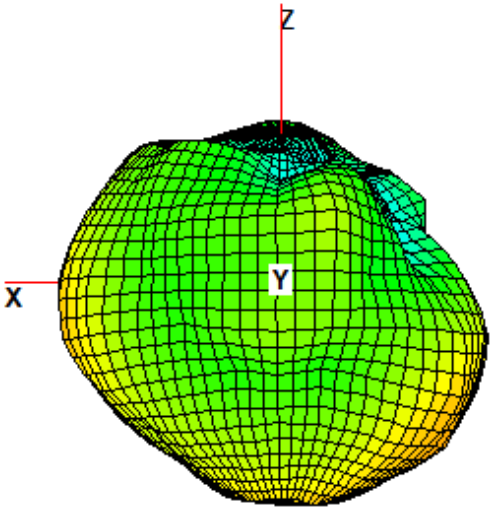
Radiation Pattern – Ant 5 @ 2450MHz

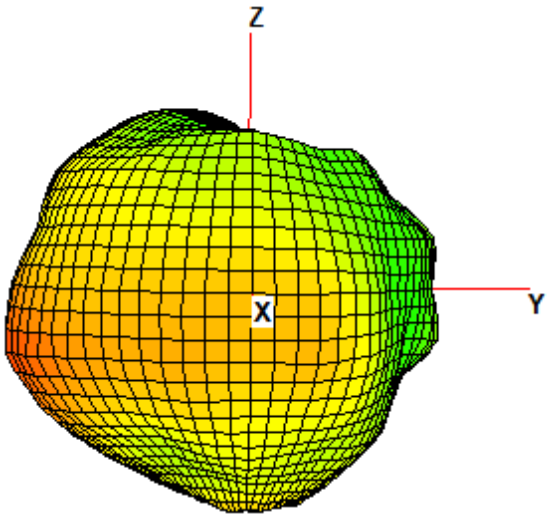




X-Y plane



Z-X plane



Z-Y plane

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Peak Gain & Efficiency

Ant 1 WiFi 2G/5G Performance		
Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)
2400	55	3.1
2450	55	3.3
2500	54	3.3
5150	57	2.9
5500	59	3.0
5850	56	3.1

Peak Gain & Efficiency

Ant 2 WiFi 2G/5G Performance		
Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)
2400	61	2.5
2450	58	2.6
2500	59	2.7
5150	59	2.7
5500	61	2.7
5850	59	2.8

Peak Gain & Efficiency

Ant 3 WiFi 2G/5G Performance		
Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)
2400	60	2.6
2450	63	2.9
2500	60	2.8
5150	59	3.3
5500	62	3.5
5850	62	3.4

Peak Gain & Efficiency

Ant 4 WiFi 2G/5G Performance		
Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)
2400	61	2.9
2450	62	3.1
2500	63	3.0
5150	61	3.2
5500	62	2.9
5850	58	2.7

Peak Gain & Efficiency

Ant 5 BLE Performance		
Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)
2400	61	3.0
2450	60	2.9
2500	60	2.8

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