

WCHA43M

Passive Data

2025/09/25

1. Test Condition

* WCHA43M Chip Antenna

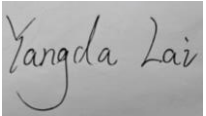
- Test Chamber: Aplustech OTA Chamber

(Address: R&D Building No.9, Main Park, Taohuayuan Science & Technology Innovation Park, Shenzhen, China)

- Network Analyzer : Return Loss

- 3D Passive Chamber : Gain and Efficiency

- Measured by Yangda Lai 2025/09/25



2. Test Environment

Refer to WCHA43M_ANT Test set up.

Antenna Gain Measurement Procedure and Software

OTA measurement system

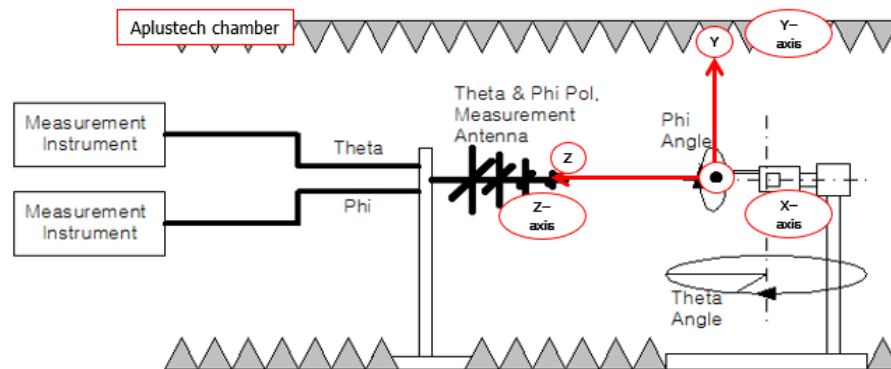
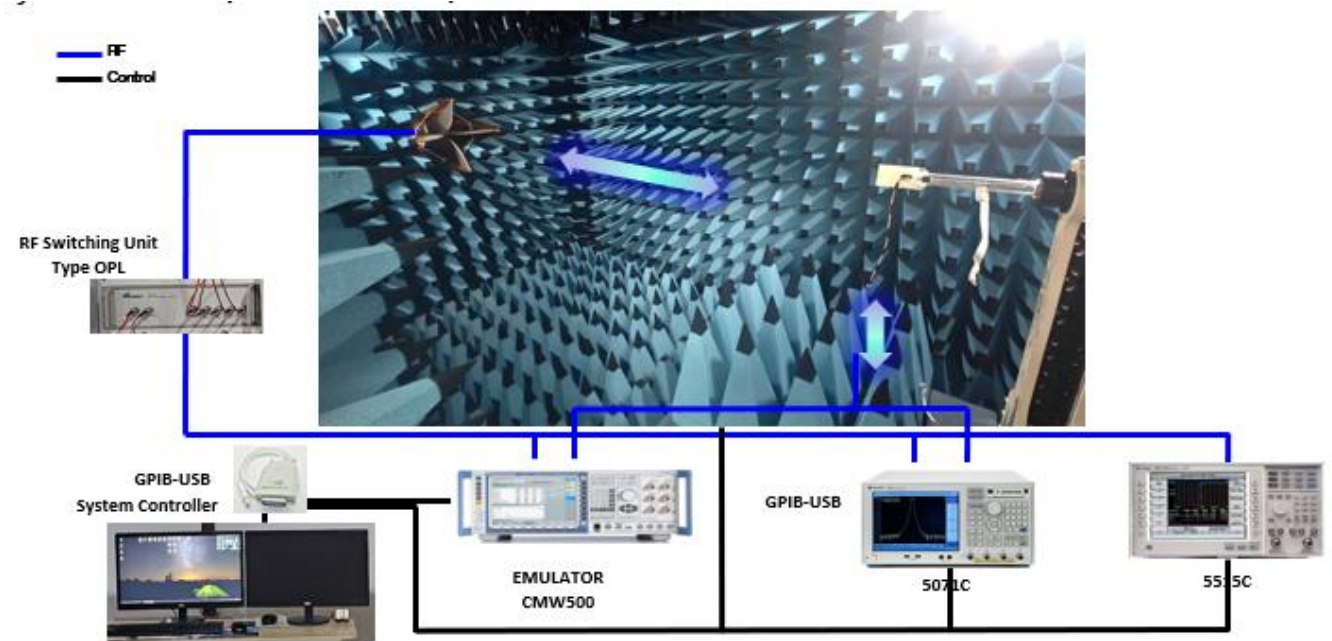
- Test Frequency : Support 400 MHz to 7.5 GHz
- Chamber Size: 4m x 2.5m x 2.5m

Support

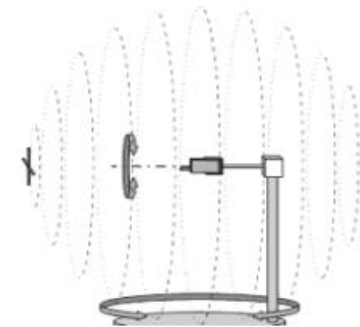
- LTE Support ALL Band (FDD/TDD)
- CDMA,GSM,WCDMA Support ALL Band
- Passive Efficiency Measurement (400 MHz ~ 7.5GHz)

Measurement specifications

- Test Plan for RF Performance Evaluation for LTE Mobile Converged Devices
- Test Plan for Wireless Device Over-the-Air Performance



Great Circle Cut Method

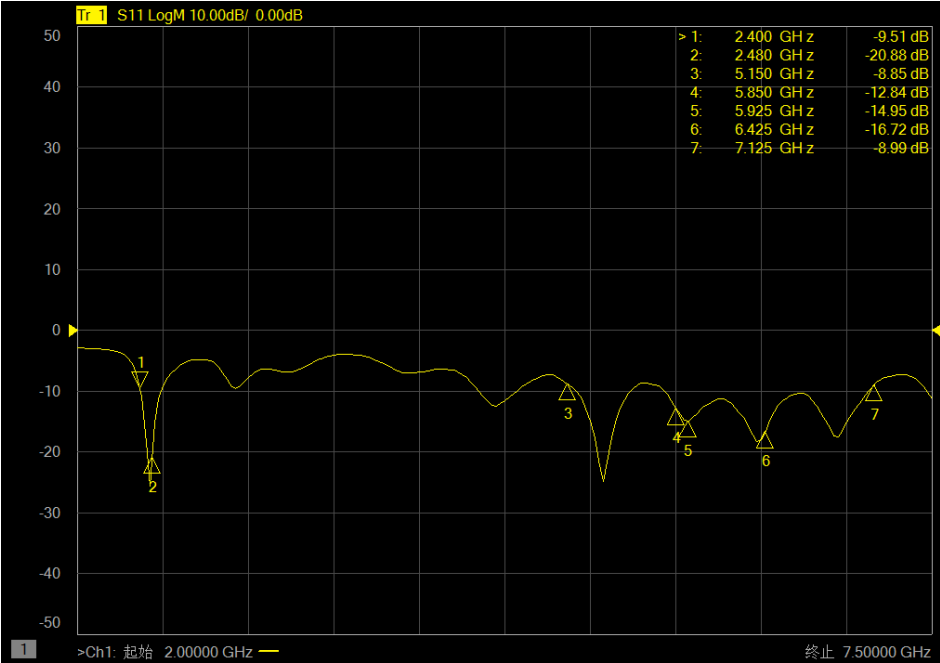


Item	Measuring Instruments	Latest Calibration Schedule
1	OTA Chamber	2024/12/01
2	Network Analyzer Keysight 5071c	2025/06/20

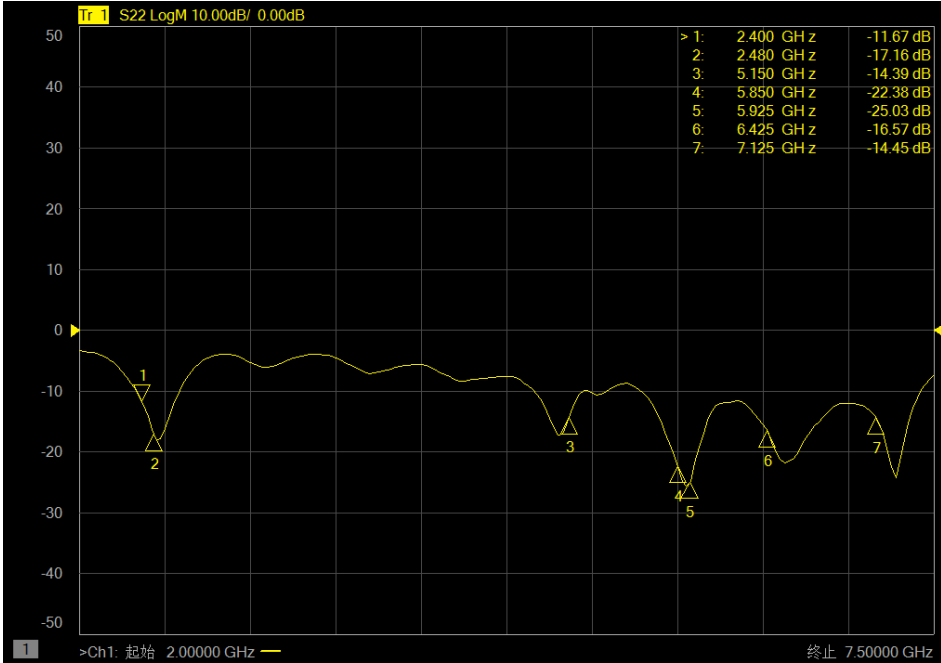
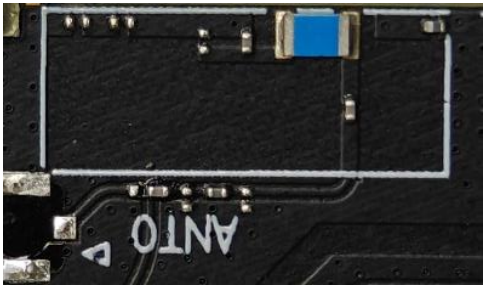
Electrical Characteristics

Item	Specification ANT0				Specification ANT1				Specification BT0	Specification BT1
Antenna Type	Chip Antenna				Chip Antenna				Chip Antenna	Chip Antenna
Central Frequency	2440MHz	5550MHz	6175MHz	6775MHz	2440MHz	5550MHz	6175MHz	6775MHz	2440MHz	2440MHz
Band Width	80MHz	700MHz	500MHz	700MHz	80MHz	700MHz	500MHz	700MHz	80MHz	80MHz
Peak Gain	0.05dBi	-1.24dBi	0.05dBi	-1.45dBi	-0.11dBi	-1.30dBi	-0.70dBi	-0.40dBi	-1.89dBi	1.44dBi
Return Loss	<-8dB				<-10dB				<-10dB	<-6dB
Polarization	Linear				Linear				Linear	Linear
Azimuth Beam width	Omni-directional				Omni-directional				Omni-directional	Omni-directional
Impedance	50Ω				50Ω				50Ω	50Ω
Dimension	12*5*0.55mm				10.5*5*0.55mm				8*3*0.55mm	8*3*0.55mm

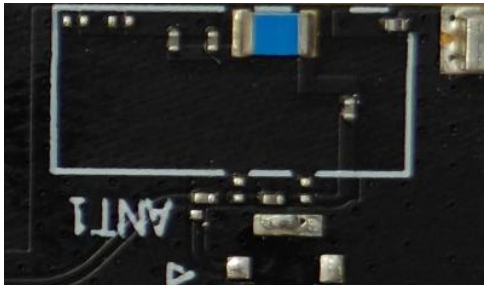
Passive test-Return Loss-WiFi



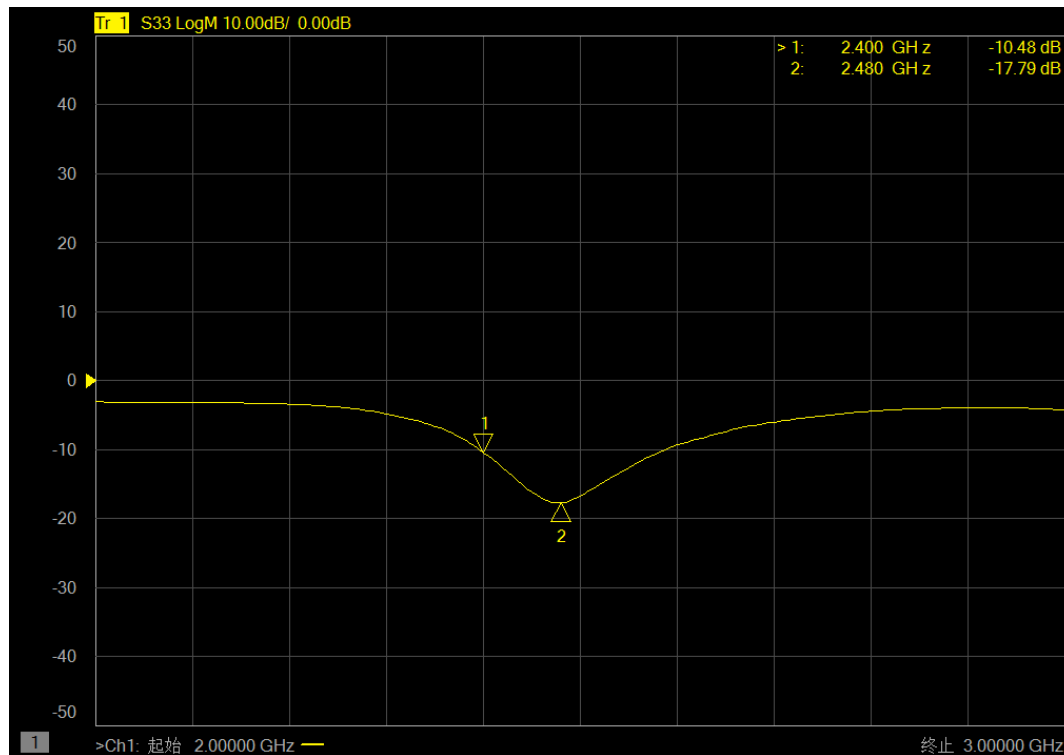
ANT0



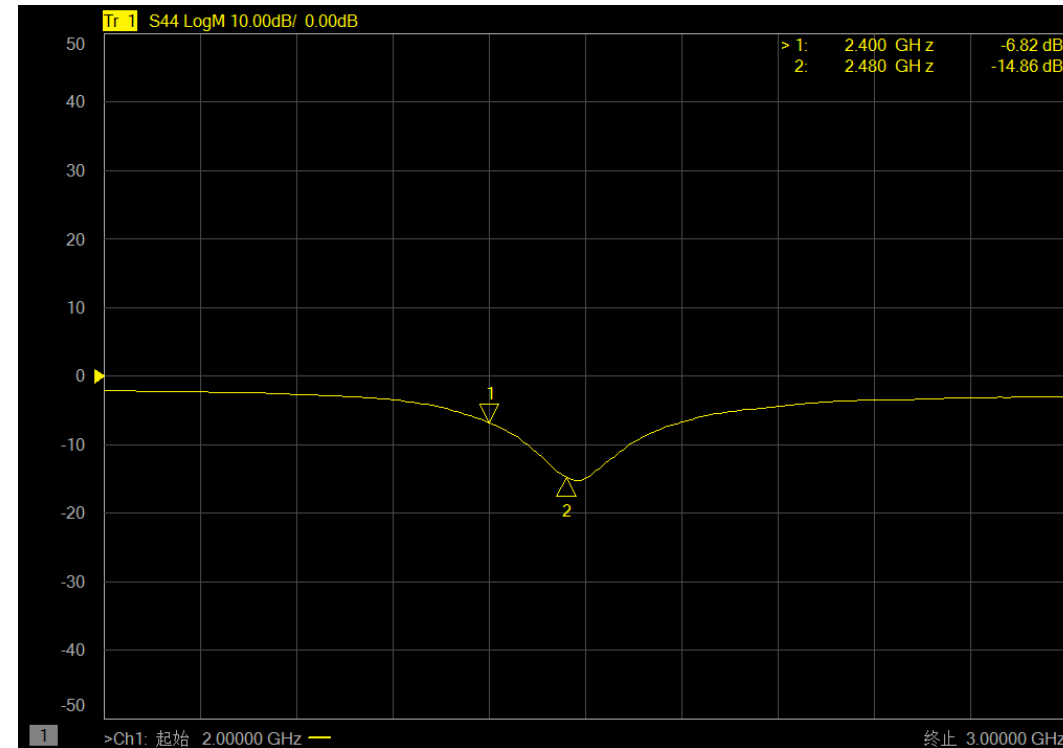
ANT1



Passive test-Return Loss-BT



BT0



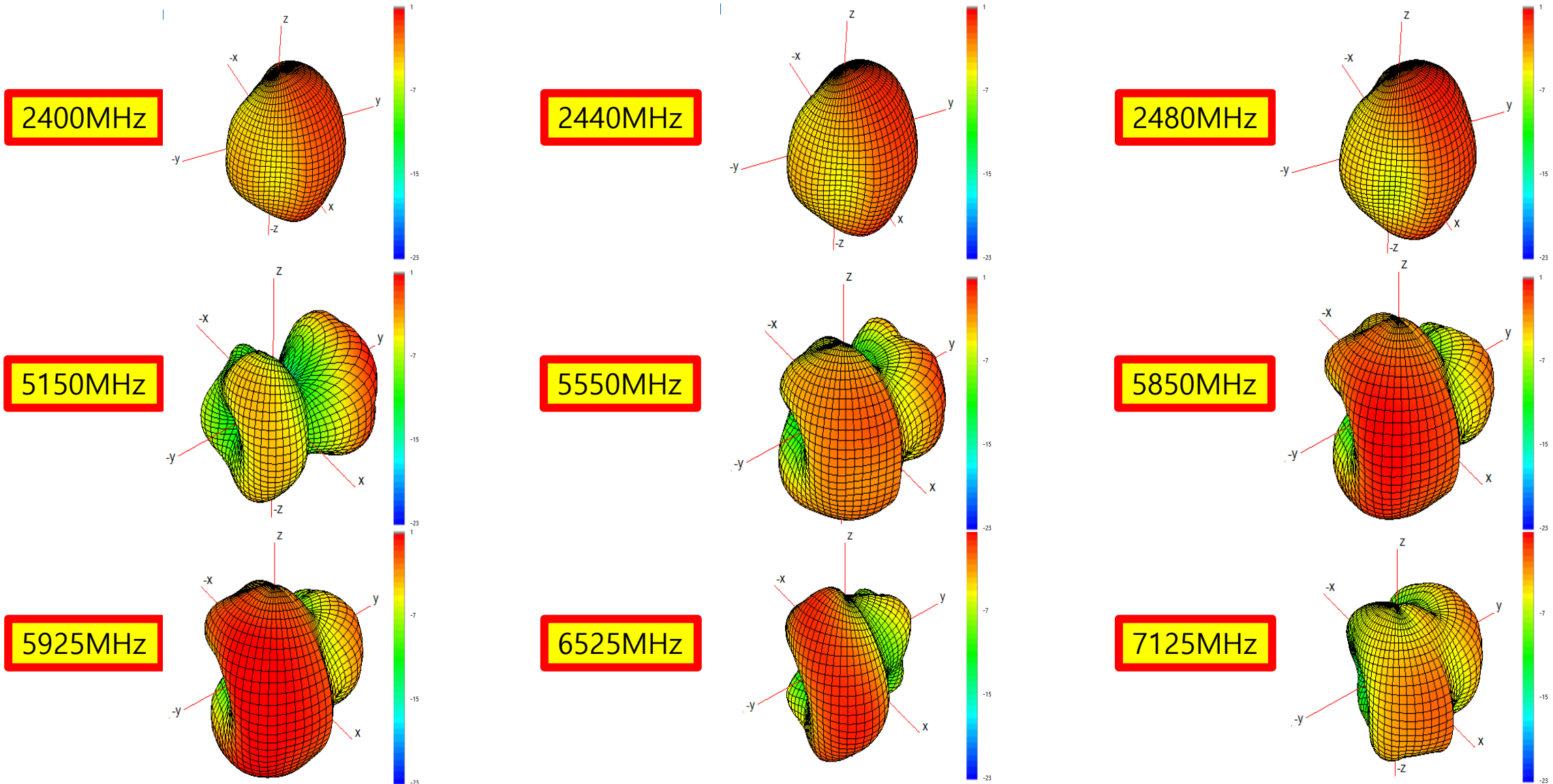
BT1



ANT0 Passive Test-Antenna 3D Gain

Frequency	Efficiency	Average Gain			Max Gain		
		Ver	Hor	Total	Ver	Hor	Total
2400MHz	24.96 %	-11.63 dBi	-7.43 dBi	-6.03 dBi	-1.93 dBi	-1.16 dBi	-0.25 dBi
2410MHz	25.00 %	-11.57 dBi	-7.44 dBi	-6.02 dBi	-1.84 dBi	-1.16 dBi	-0.24 dBi
2420MHz	25.12 %	-11.54 dBi	-7.42 dBi	-6.00 dBi	-1.86 dBi	-1.04 dBi	-0.16 dBi
2430MHz	25.55 %	-11.44 dBi	-7.36 dBi	-5.93 dBi	-1.72 dBi	-0.96 dBi	-0.08 dBi
2440MHz	25.96 %	-11.32 dBi	-7.31 dBi	-5.86 dBi	-1.64 dBi	-0.83 dBi	0.05 dBi
2450MHz	26.13 %	-11.31 dBi	-7.27 dBi	-5.83 dBi	-1.62 dBi	-0.84 dBi	0.02 dBi
2460MHz	25.77 %	-11.30 dBi	-7.36 dBi	-5.89 dBi	-1.60 dBi	-0.91 dBi	-0.04 dBi
2470MHz	25.54 %	-11.32 dBi	-7.41 dBi	-5.93 dBi	-1.68 dBi	-0.93 dBi	-0.08 dBi
2480MHz	25.80 %	-11.22 dBi	-7.39 dBi	-5.88 dBi	-1.62 dBi	-0.99 dBi	-0.15 dBi
5150MHz	25.44 %	-12.54 dBi	-8.58 dBi	-5.94 dBi	-3.70 dBi	-1.99 dBi	-1.74 dBi
5250MHz	26.95 %	-12.00 dBi	-7.79 dBi	-5.69 dBi	-4.08 dBi	-1.51 dBi	-1.29 dBi
5350MHz	26.82 %	-11.50 dBi	-7.51 dBi	-5.72 dBi	-4.87 dBi	-1.67 dBi	-1.29 dBi
5450MHz	27.43 %	-11.34 dBi	-7.43 dBi	-5.62 dBi	-4.13 dBi	-1.74 dBi	-1.24 dBi
5550MHz	26.33 %	-11.70 dBi	-7.55 dBi	-5.80 dBi	-4.88 dBi	-2.59 dBi	-2.11 dBi
5650MHz	27.26 %	-11.57 dBi	-7.38 dBi	-5.64 dBi	-4.88 dBi	-2.27 dBi	-2.20 dBi
5750MHz	26.65 %	-11.81 dBi	-7.43 dBi	-5.74 dBi	-4.41 dBi	-1.83 dBi	-1.72 dBi
5850MHz	27.23 %	-11.62 dBi	-7.36 dBi	-5.65 dBi	-4.14 dBi	-1.56 dBi	-1.37 dBi
5925MHz	28.67 %	-11.03 dBi	-6.82 dBi	-5.43 dBi	-3.25 dBi	-1.09 dBi	-0.68 dBi
6075MHz	26.81 %	-10.82 dBi	-7.32 dBi	-5.72 dBi	-3.39 dBi	-1.38 dBi	-1.02 dBi
6225MHz	27.18 %	-10.76 dBi	-7.26 dBi	-5.66 dBi	-2.08 dBi	-0.78 dBi	-0.68 dBi
6375MHz	27.19 %	-10.79 dBi	-7.24 dBi	-5.66 dBi	-1.60 dBi	0.02 dBi	0.05 dBi
6425MHz	25.88 %	-11.89 dBi	-8.89 dBi	-5.87 dBi	-2.49 dBi	-1.49 dBi	-1.45 dBi
6675MHz	25.54 %	-12.91 dBi	-9.26 dBi	-5.93 dBi	-3.65 dBi	-3.03 dBi	-2.98 dBi
6825MHz	25.65 %	-12.11 dBi	-9.21 dBi	-5.91 dBi	-4.24 dBi	-2.51 dBi	-1.57 dBi
6975MHz	26.85 %	-11.77 dBi	-8.18 dBi	-5.71 dBi	-4.34 dBi	-2.54 dBi	-1.67 dBi
7125MHz	26.84 %	-12.68 dBi	-8.72 dBi	-5.71 dBi	-5.42 dBi	-2.95 dBi	-2.88 dBi

ANT0 Passive Test-Antenna 3D Radiation Pattern

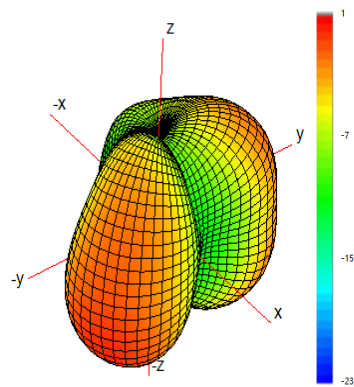


ANT1 Passive Test-Antenna 3D Gain

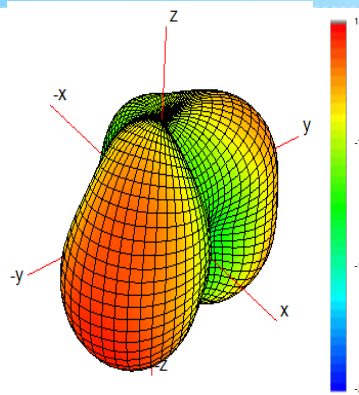
Frequency	Efficiency	Average Gain			Max Gain		
		Ver	Hor	Total	Ver	Hor	Total
2400MHz	26.78 %	-11.40 dBi	-7.09 dBi	-5.72 dBi	-6.32 dBi	-1.17 dBi	-0.84 dBi
2410MHz	26.75 %	-11.47 dBi	-7.07 dBi	-5.73 dBi	-6.59 dBi	-1.01 dBi	-0.70 dBi
2420MHz	26.66 %	-11.55 dBi	-7.06 dBi	-5.74 dBi	-6.80 dBi	-0.92 dBi	-0.62 dBi
2430MHz	26.99 %	-11.51 dBi	-7.01 dBi	-5.69 dBi	-6.91 dBi	-0.80 dBi	-0.52 dBi
2440MHz	27.57 %	-11.44 dBi	-6.91 dBi	-5.60 dBi	-6.86 dBi	-0.62 dBi	-0.33 dBi
2450MHz	28.13 %	-11.37 dBi	-6.81 dBi	-5.51 dBi	-6.73 dBi	-0.47 dBi	-0.20 dBi
2460MHz	28.57 %	-11.32 dBi	-6.74 dBi	-5.44 dBi	-6.75 dBi	-0.43 dBi	-0.16 dBi
2470MHz	28.76 %	-11.25 dBi	-6.72 dBi	-5.41 dBi	-6.76 dBi	-0.38 dBi	-0.11 dBi
2480MHz	29.32 %	-11.13 dBi	-6.65 dBi	-5.33 dBi	-6.47 dBi	-0.37 dBi	-0.11 dBi
5150MHz	25.83 %	-11.65 dBi	-8.54 dBi	-5.88 dBi	-4.22 dBi	-3.66 dBi	-3.30 dBi
5250MHz	25.34 %	-12.20 dBi	-9.27 dBi	-5.96 dBi	-5.48 dBi	-4.60 dBi	-4.45 dBi
5350MHz	25.13 %	-12.15 dBi	-8.23 dBi	-6.00 dBi	-4.70 dBi	-2.13 dBi	-1.82 dBi
5450MHz	26.64 %	-11.63 dBi	-7.50 dBi	-5.74 dBi	-4.07 dBi	-1.77 dBi	-1.52 dBi
5550MHz	26.06 %	-11.74 dBi	-7.60 dBi	-5.84 dBi	-4.20 dBi	-1.96 dBi	-1.81 dBi
5650MHz	27.19 %	-11.23 dBi	-7.06 dBi	-5.64 dBi	-4.30 dBi	-1.79 dBi	-1.32 dBi
5750MHz	27.68 %	-11.24 dBi	-6.96 dBi	-5.74 dBi	-4.50 dBi	-1.69 dBi	-1.30 dBi
5850MHz	27.43 %	-11.22 dBi	-7.01 dBi	-5.65 dBi	-4.42 dBi	-1.89 dBi	-1.57 dBi
5925MHz	29.18 %	-10.91 dBi	-6.76 dBi	-5.43 dBi	-3.81 dBi	-1.79 dBi	-0.98 dBi
6075MHz	27.04 %	-10.77 dBi	-7.29 dBi	-5.72 dBi	-3.32 dBi	-2.19 dBi	-1.05 dBi
6225MHz	26.95 %	-10.55 dBi	-7.41 dBi	-5.66 dBi	-3.03 dBi	-2.35 dBi	-0.70 dBi
6375MHz	29.80 %	-10.15 dBi	-6.96 dBi	-5.66 dBi	-2.23 dBi	-1.75 dBi	-0.77 dBi
6425MHz	30.19 %	-10.26 dBi	-6.82 dBi	-5.87 dBi	-2.78 dBi	-2.09 dBi	-0.91 dBi
6675MHz	30.72 %	-10.55 dBi	-6.59 dBi	-5.93 dBi	-3.18 dBi	-0.76 dBi	-0.74 dBi
6825MHz	31.80 %	-10.79 dBi	-6.30 dBi	-5.91 dBi	-2.81 dBi	-0.40 dBi	-0.40 dBi
6975MHz	27.51 %	-11.43 dBi	-6.92 dBi	-5.71 dBi	-2.99 dBi	-0.81 dBi	-0.81 dBi
7125MHz	26.40 %	-11.45 dBi	-7.16 dBi	-5.71 dBi	-3.31 dBi	-0.81 dBi	-0.78 dBi

ANT1 Passive Test-Antenna 3D Radiation Pattern

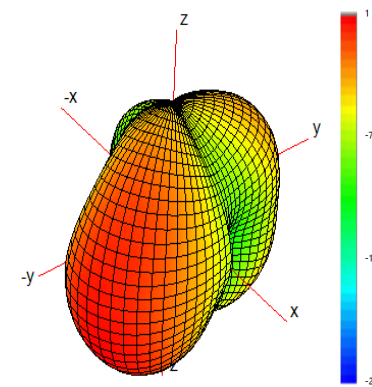
2400MHz



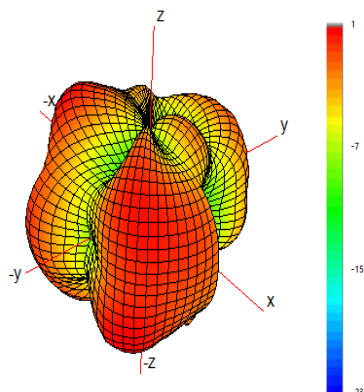
2440MHz



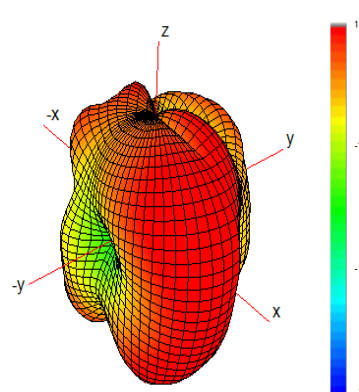
2480MHz



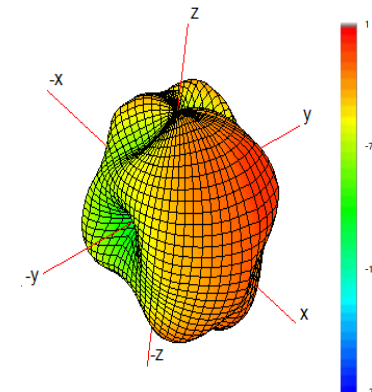
5150MHz



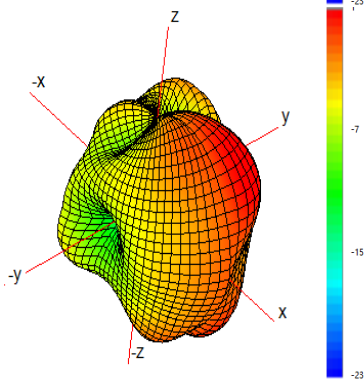
5500MHz



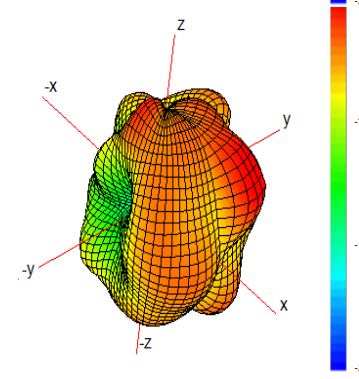
5850MHz



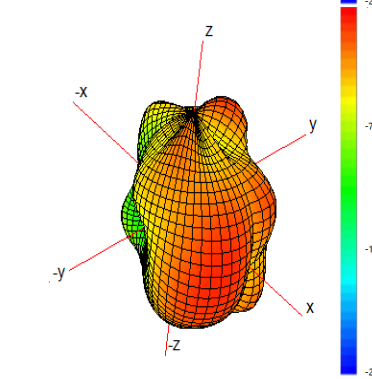
6000MHz



6525MHz



7000MHz

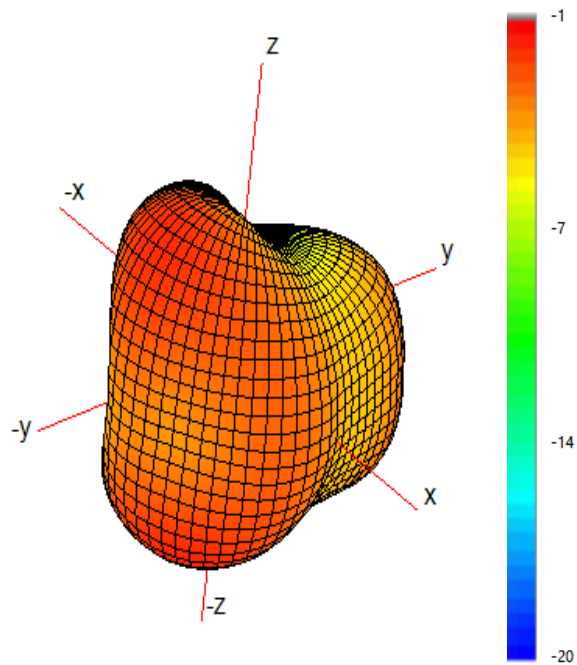


BT0 Passive Test-Antenna 3D Gain

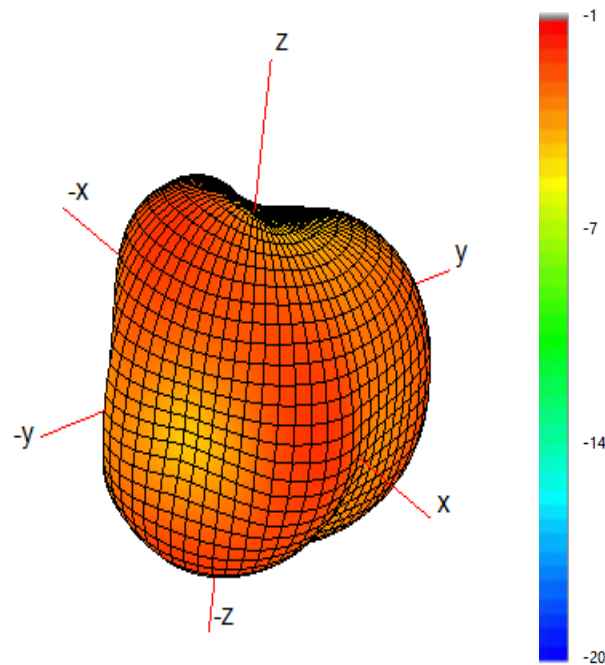
Frequency	Efficiency	Average Gain			Max Gain		
		Ver	Hor	Total	Ver	Hor	Total
2400MHz	26.04 %	-11.15 dBi	-7.36 dBi	-5.84 dBi	-3.46 dBi	-2.89 dBi	-1.93 dBi
2410MHz	27.02 %	-10.93 dBi	-7.23 dBi	-5.68 dBi	-3.46 dBi	-2.90 dBi	-1.89 dBi
2420MHz	27.98 %	-10.73 dBi	-7.09 dBi	-5.53 dBi	-3.31 dBi	-2.79 dBi	-1.90 dBi
2430MHz	28.55 %	-10.66 dBi	-7.00 dBi	-5.44 dBi	-3.36 dBi	-2.76 dBi	-1.97 dBi
2440MHz	29.05 %	-10.59 dBi	-6.92 dBi	-5.37 dBi	-3.41 dBi	-2.75 dBi	-2.03 dBi
2450MHz	29.84 %	-10.49 dBi	-6.80 dBi	-5.25 dBi	-3.47 dBi	-2.65 dBi	-2.07 dBi
2460MHz	30.33 %	-10.44 dBi	-6.71 dBi	-5.18 dBi	-3.55 dBi	-2.60 dBi	-2.18 dBi
2470MHz	30.74 %	-10.41 dBi	-6.65 dBi	-5.12 dBi	-3.65 dBi	-2.44 dBi	-2.20 dBi
2480MHz	30.71 %	-10.43 dBi	-6.64 dBi	-5.13 dBi	-3.76 dBi	-2.33 dBi	-2.12 dBi

BT0 Passive Test-Antenna 3D Radiation Pattern

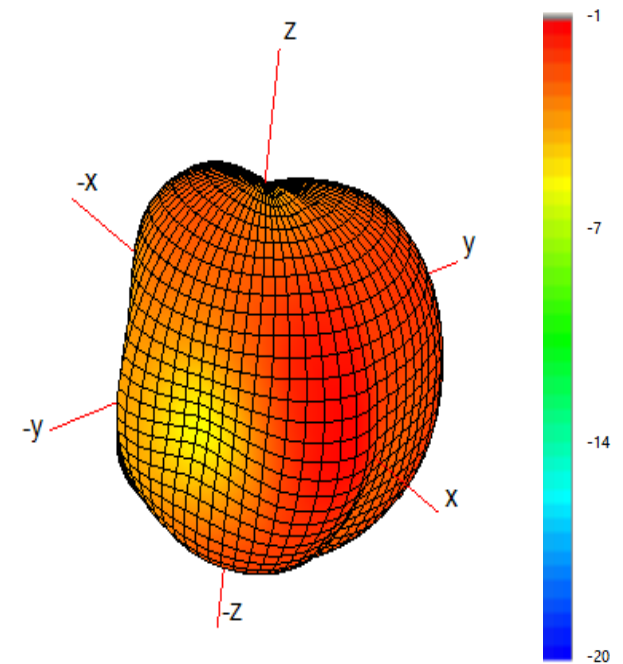
2400MHz



2440MHz



2480MHz



BT1 Passive Test-Antenna 3D Gain

Frequency	Efficiency	Average Gain			Max Gain		
		Ver	Hor	Total	Ver	Hor	Total
2400MHz	40.73 %	-10.52 dBi	-4.97 dBi	-3.90 dBi	-3.42 dBi	0.38 dBi	0.61 dBi
2410MHz	42.27 %	-10.38 dBi	-4.80 dBi	-3.74 dBi	-3.35 dBi	0.59 dBi	0.74 dBi
2420MHz	43.74 %	-10.25 dBi	-4.65 dBi	-3.59 dBi	-3.44 dBi	0.80 dBi	0.95 dBi
2430MHz	45.37 %	-10.13 dBi	-4.48 dBi	-3.43 dBi	-3.42 dBi	0.98 dBi	1.05 dBi
2440MHz	46.00 %	-10.09 dBi	-4.41 dBi	-3.37 dBi	-3.55 dBi	1.12 dBi	1.15 dBi
2450MHz	47.23 %	-9.98 dBi	-4.30 dBi	-3.26 dBi	-3.68 dBi	1.29 dBi	1.32 dBi
2460MHz	47.98 %	-9.91 dBi	-4.23 dBi	-3.19 dBi	-3.72 dBi	1.31 dBi	1.34 dBi
2470MHz	48.07 %	-9.90 dBi	-4.22 dBi	-3.18 dBi	-3.86 dBi	1.41 dBi	1.44 dBi
2480MHz	47.83 %	-9.89 dBi	-4.25 dBi	-3.20 dBi	-3.81 dBi	1.40 dBi	1.43 dBi

BT1 Passive Test-Antenna 3D Radiation Pattern

