
Antenna specification

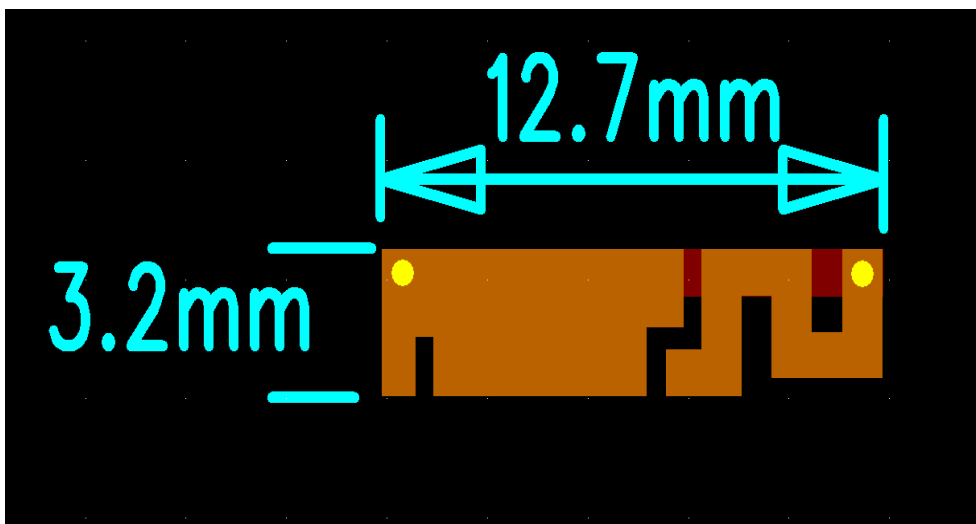
1、 Antenna introduction

The Bluetooth module antenna is directly used on the PCB.

Manufacturer: Lenze Design Inc

Address : 7th Floor,Ching Po Building,Shenzhen Special Zone Press Group,Futian District,Shenzhen

2、 Antenna shape



3、 Antenna parameter

The Bluetooth antenna operates at 2402-2480 MHz and generates resonance in this band. The table below shows the main parameters of the antenna.

Frequency (MHz)	2400 ~ 2500 MHz
VSWR	≤ 1.95
Impedance	50 Ohm Nominal
Return Loss	-15 dB Max
Radiation	Omni-directional
Gain (Peak)	3.29 dBi
Polarization	Linear, Vertical
Admitted Power	1MW
Connector	Tin

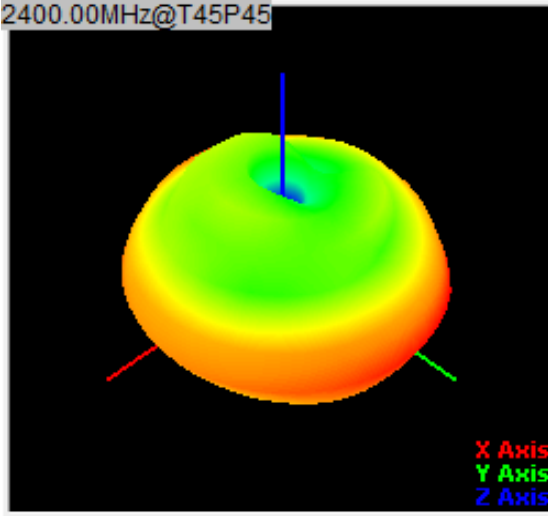
4、Antenna gain report

Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Point Values											
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	-2.74	-2.27	-2.47	-2.23	-2.11	-1.73	-1.74	-1.78	-1.99	-2.23	-2.11
Peak EIRP (dBm)	2.22	2.71	2.36	2.54	2.63	3.12	3.21	3.29	3.02	2.74	2.67
Directivity (dBi)	4.96	4.97	4.84	4.77	4.73	4.85	4.96	5.07	5.01	4.97	4.78
Efficiency (dB)	-2.74	-2.27	-2.47	-2.23	-2.11	-1.73	-1.74	-1.78	-1.99	-2.23	-2.11
Efficiency (%)	53.20	59.40	56.60	59.80	61.60	67.10	66.90	66.30	63.20	59.80	61.50
Gain (dBi)	2.22	2.71	2.36	2.54	2.63	3.12	3.21	3.29	3.02	2.74	2.67
NHPRP $\pm\pi/4$ (dBm)	-3.54	-3.09	-3.42	-3.21	-3.08	-2.59	-2.54	-2.55	-2.87	-3.19	-3.28
NHPRP $\pm\pi/6$ (dBm)	-4.02	-3.57	-3.91	-3.71	-3.61	-3.13	-3.09	-3.08	-3.38	-3.70	-3.81
NHPRP $\pm\pi/8$ (dBm)	-4.26	-3.80	-4.13	-3.94	-3.85	-3.38	-3.33	-3.32	-3.61	-3.93	-4.03
Upper Hem. PRP (dBm)	-5.63	-5.18	-5.40	-5.16	-5.02	-4.62	-4.62	-4.67	-4.92	-5.20	-5.11
Lower Hem. PRP (dBm)	-5.87	-5.38	-5.57	-5.32	-5.22	-4.87	-4.89	-4.91	-5.08	-5.28	-5.14
Upper Hem. PRP (%)	27.37	30.37	28.82	30.45	31.51	34.55	34.48	34.08	32.22	30.17	30.85
Lower Hem. PRP (%)	25.87	28.98	27.74	29.34	30.06	32.55	32.44	32.26	31.01	29.63	30.62



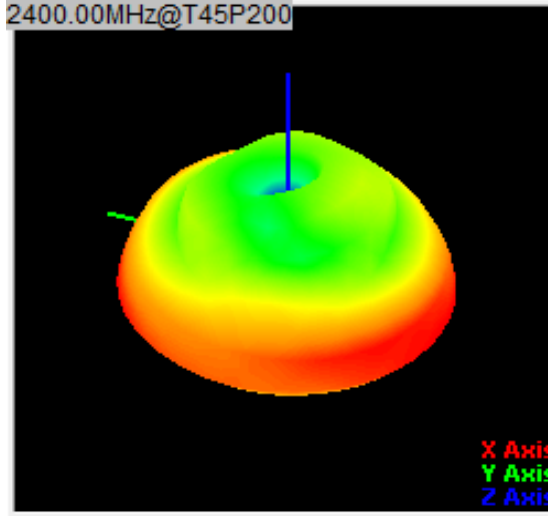
2.22
-3.56
-9.33
-15.11
-20.89
-26.67
-32.44
-38.22
-44
-49.77
-55.55
-61.33
-67.1
-72.88
-78.66
-84.44
-90.21
-95.99

2400.00MHz@T45P45



X Axis
Y Axis
Z Axis

2400.00MHz@T45P200

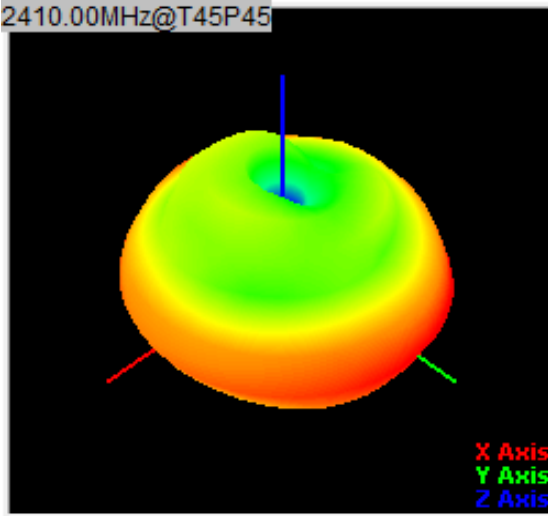


X Axis
Y Axis
Z Axis



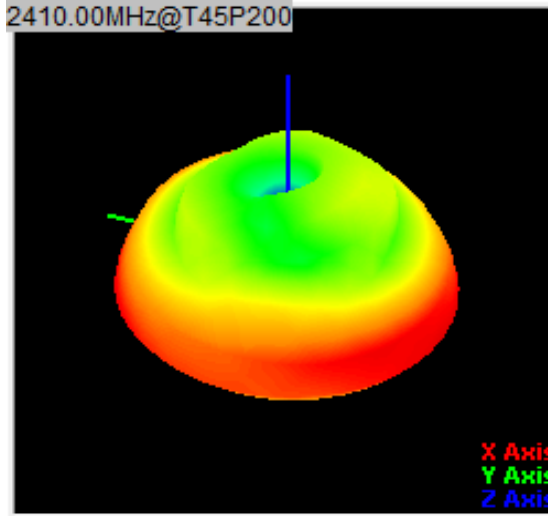
2.71
-3.1
-8.9
-14.71
-20.52
-26.32
-32.13
-37.93
-43.74
-49.54
-55.35
-61.16
-66.96
-72.77
-78.57
-84.38
-90.18
-95.99

2410.00MHz@T45P45



X Axis
Y Axis
Z Axis

2410.00MHz@T45P200

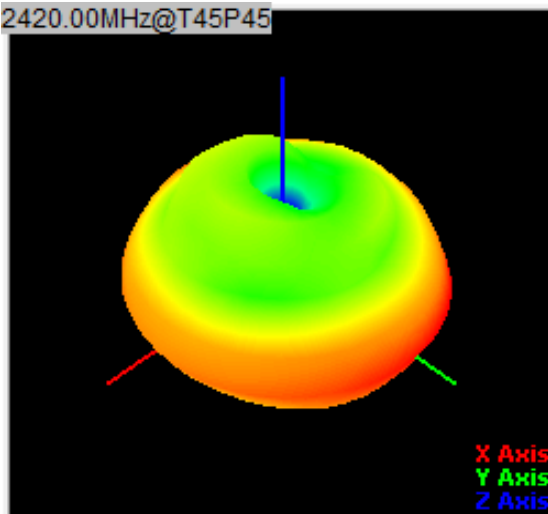


X Axis
Y Axis
Z Axis



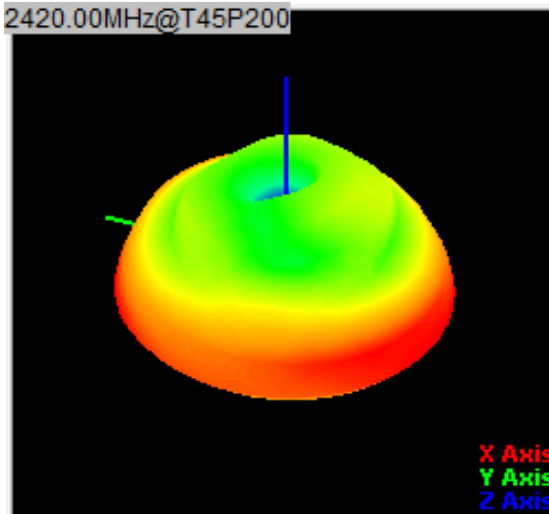
2.36
-3.42
-9.21
-14.99
-20.78
-26.56
-32.35
-38.13
-43.92
-49.71
-55.49
-61.28
-67.06
-72.85
-78.63
-84.42
-90.2
-95.99

2420.00MHz@T45P45



X Axis
Y Axis
Z Axis

2420.00MHz@T45P200

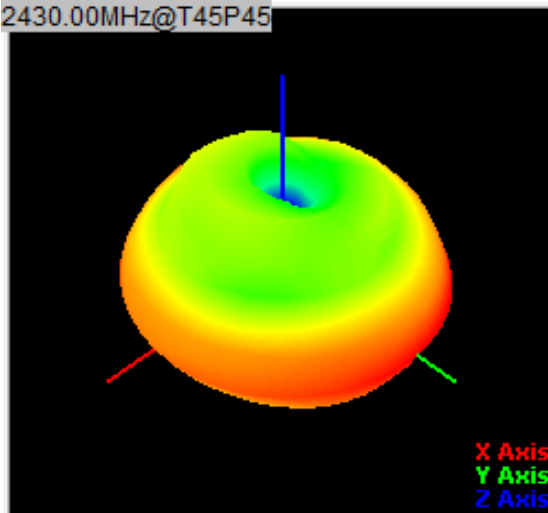


X Axis
Y Axis
Z Axis



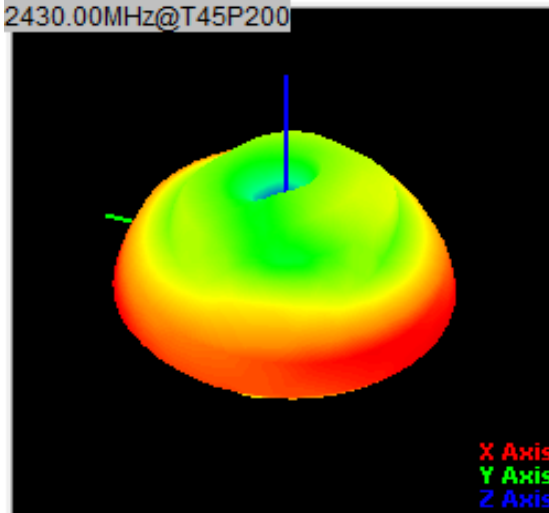
2.54
-3.26
-9.05
-14.85
-20.64
-26.44
-32.23
-38.03
-43.83
-49.62
-55.42
-61.21
-67.01
-72.81
-78.6
-84.4
-90.19
-95.99

2430.00MHz@T45P45



X Axis
Y Axis
Z Axis

2430.00MHz@T45P200



X Axis
Y Axis
Z Axis

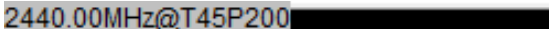


2.63

2440.00MHz@T45P45

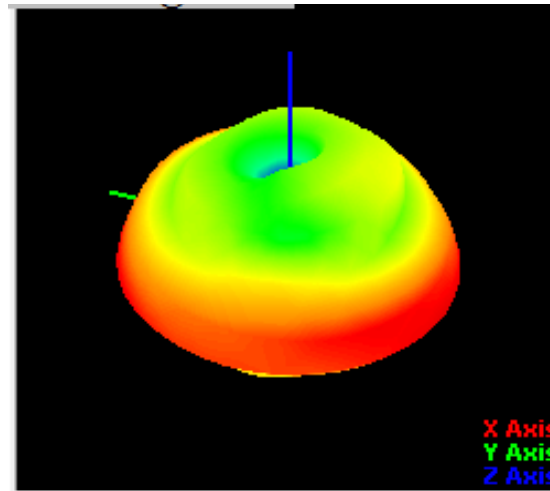
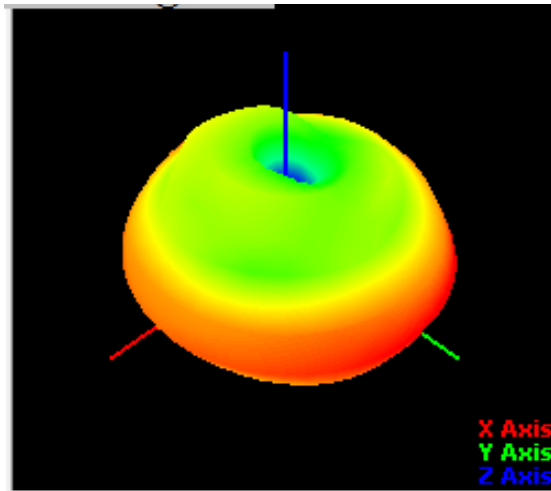


2440.00MHz@T45P200



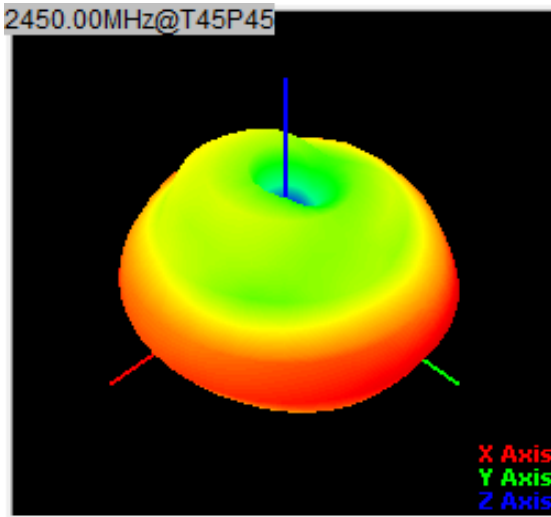


-3.17
-8.97
-14.77
-20.58
-26.38
-32.18
-37.98
-43.78
-49.58
-55.38
-61.18
-66.98
-72.79
-78.59
-84.39
-90.19
-95.99

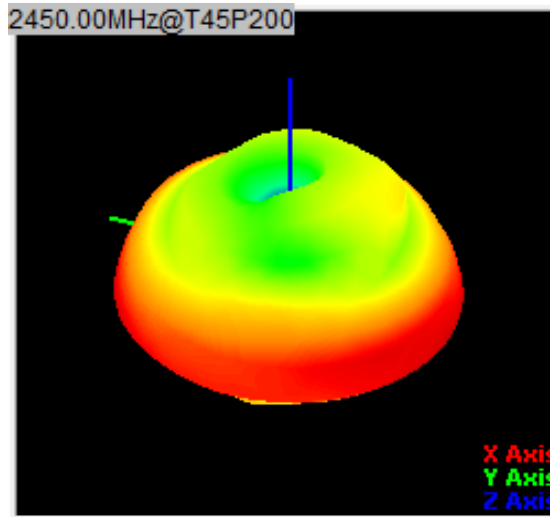


3.12
-2.71
-8.54
-14.37
-20.2
-26.03
-31.86
-37.69
-43.52
-49.35
-55.18
-61.01
-66.84
-72.67
-78.5
-84.33
-90.16
-95.99

2450.00MHz@T45P45

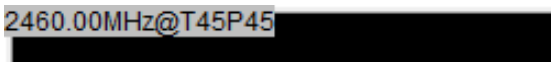


2450.00MHz@T45P200

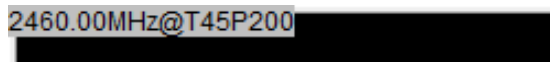


3.21
-2.62

2460.00MHz@T45P45

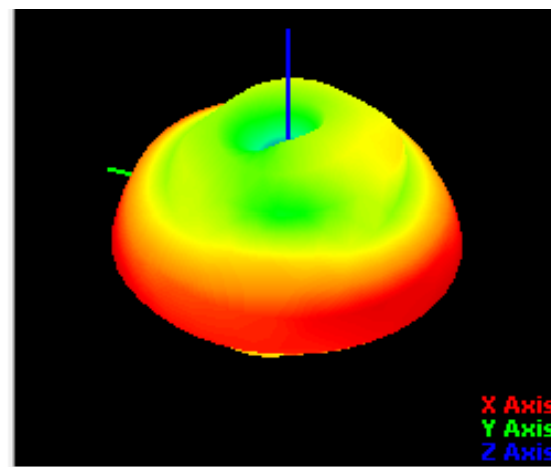
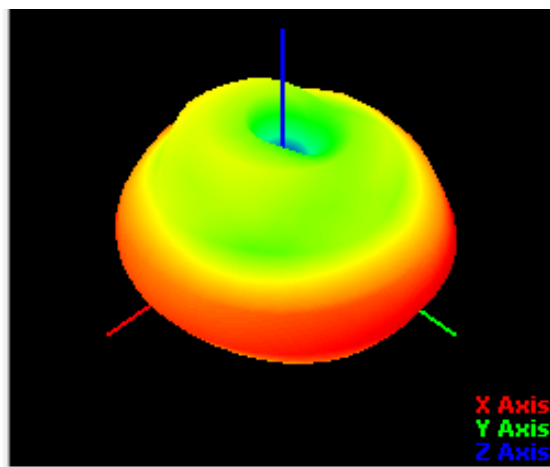


2460.00MHz@T45P200



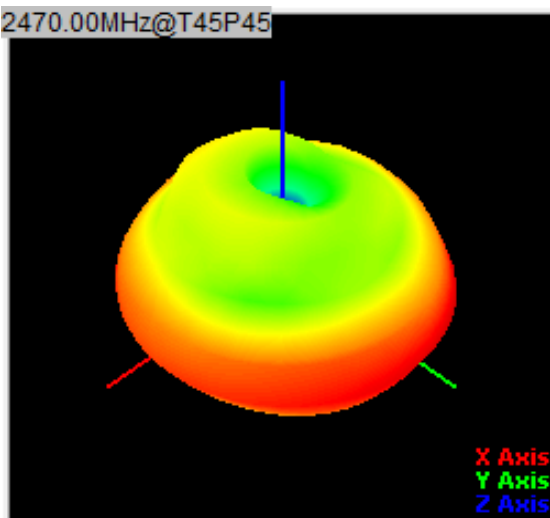


-8.46
-14.29
-20.13
-25.96
-31.8
-37.64
-43.47
-49.31
-55.14
-60.98
-66.81
-72.65
-78.48
-84.32
-90.15
-95.99

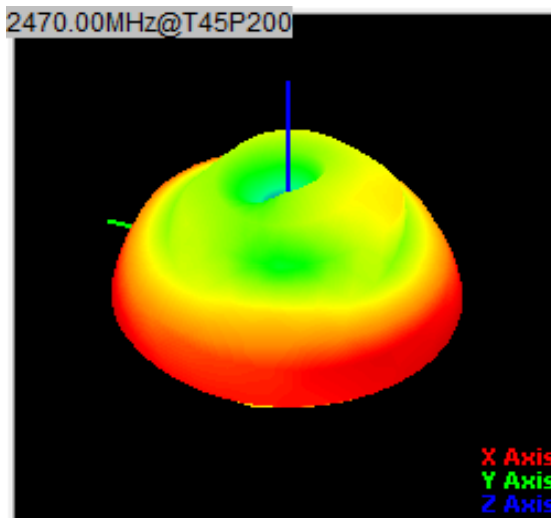


3.29
-2.55
-8.39
-14.23
-20.07
-25.91
-31.75
-37.59
-43.43
-49.27
-55.11
-60.95
-66.79
-72.63
-78.47
-84.31
-90.15
-95.99

2470.00MHz@T45P45

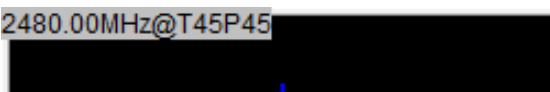


2470.00MHz@T45P200

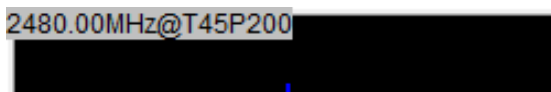


3.02
-2.8
-8.63

2480.00MHz@T45P45

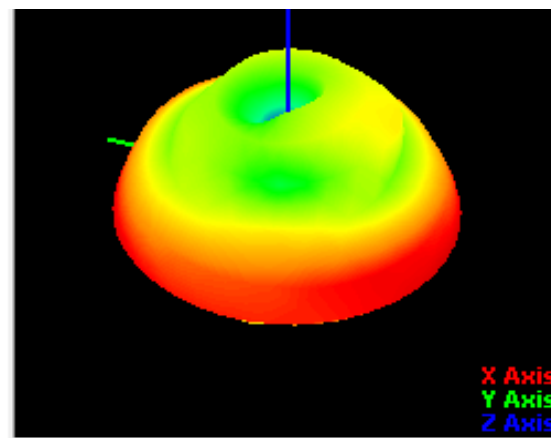
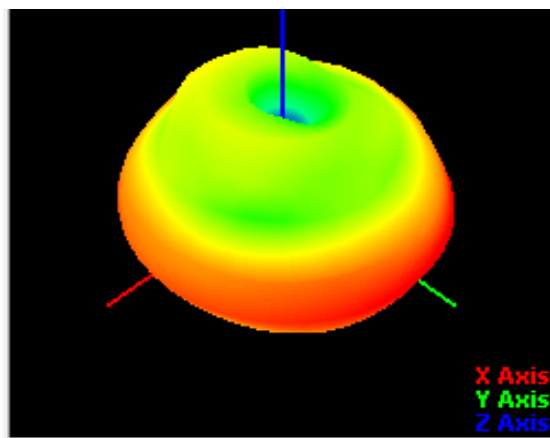


2480.00MHz@T45P200



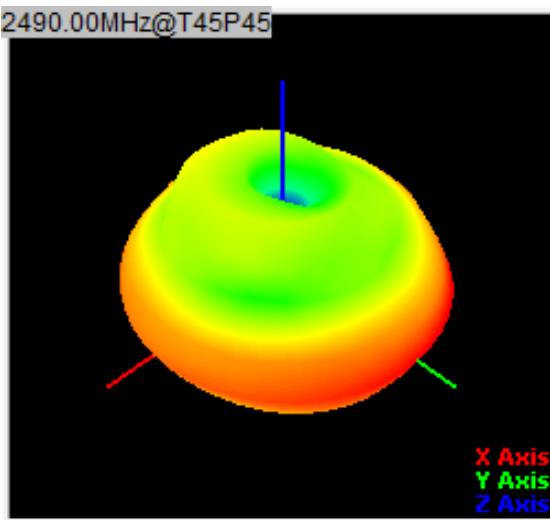


-14.45
-20.28
-26.1
-31.92
-37.75
-43.57
-49.4
-55.22
-61.05
-66.87
-72.69
-78.52
-84.34
-90.17
-95.99

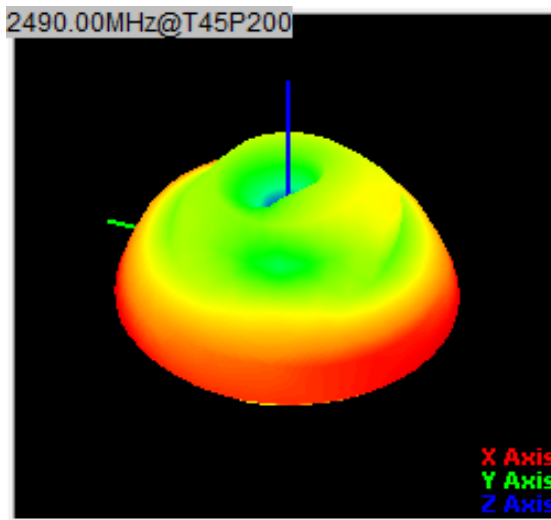


2.74
-3.07
-8.87
-14.68
-20.49
-26.3
-32.11
-37.91
-43.72
-49.53
-55.34
-61.14
-66.95
-72.76
-78.57
-84.37
-90.18
-95.99

2490.00MHz@T45P45

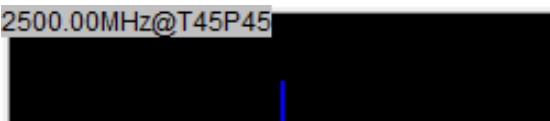


2490.00MHz@T45P200

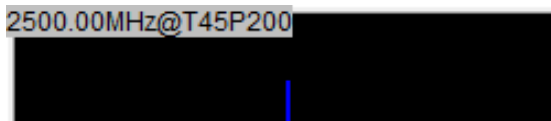


2.67
-3.13
-8.94
-14.74

2500.00MHz@T45P45



2500.00MHz@T45P200





-20.54
-26.35
-32.15
-37.95
-43.76
-49.56
-55.36
-61.17
-66.97
-72.78
-78.58
-84.38
-90.19
-95.99

