



## Alpha 40

2G/3G/4G/5G/Dual Band WiFi Adhesive T-bar Antenna



### Key Features

- Balanced dipole design - ground plane independent
- Low Loss PRO100 cable
- Flexible antenna construction suitable for fitting to large-radius, curved surfaces

### General Description

The Alpha 40 is a good wideband antenna for many IoT applications. The slim adhesive design is simple and quick to fit.

The antenna has two sticky pads to mount it wherever it is required. The pads ensure there is a small gap between the antenna and the surface it is to be mounted on.

The Alpha 40 is available with different length cables and SMA Male connectors. Alternative cable lengths and connectors can be supplied for volume orders.

### Additional Considerations

- Simple installation with adhesive pads
- Reduced attenuation from Low Loss cable
- Meets all EU compliance criteria for electronic goods

A Adhesive	2G GSM	3G UMTS	4G LTE
5G LTE	ISM 868	ISM 915	LoRa Wireless
WLAN 2400	WLAN 5800	BLE Bluetooth	ZB Zigbee



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### Electrical Specifications

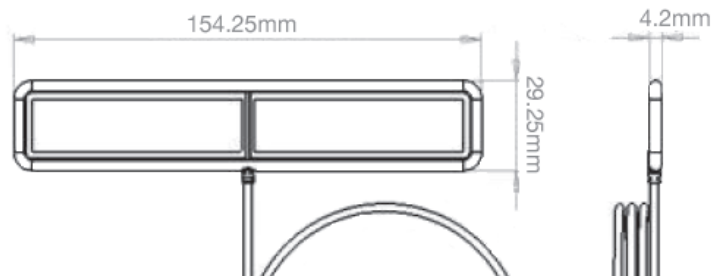
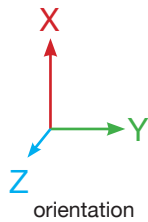
Impedance:	50 Ohm
Max Input Power:	1 Watt
Polarization:	Vertical
Ground Plane Independent:	Yes

### Environmental Specification

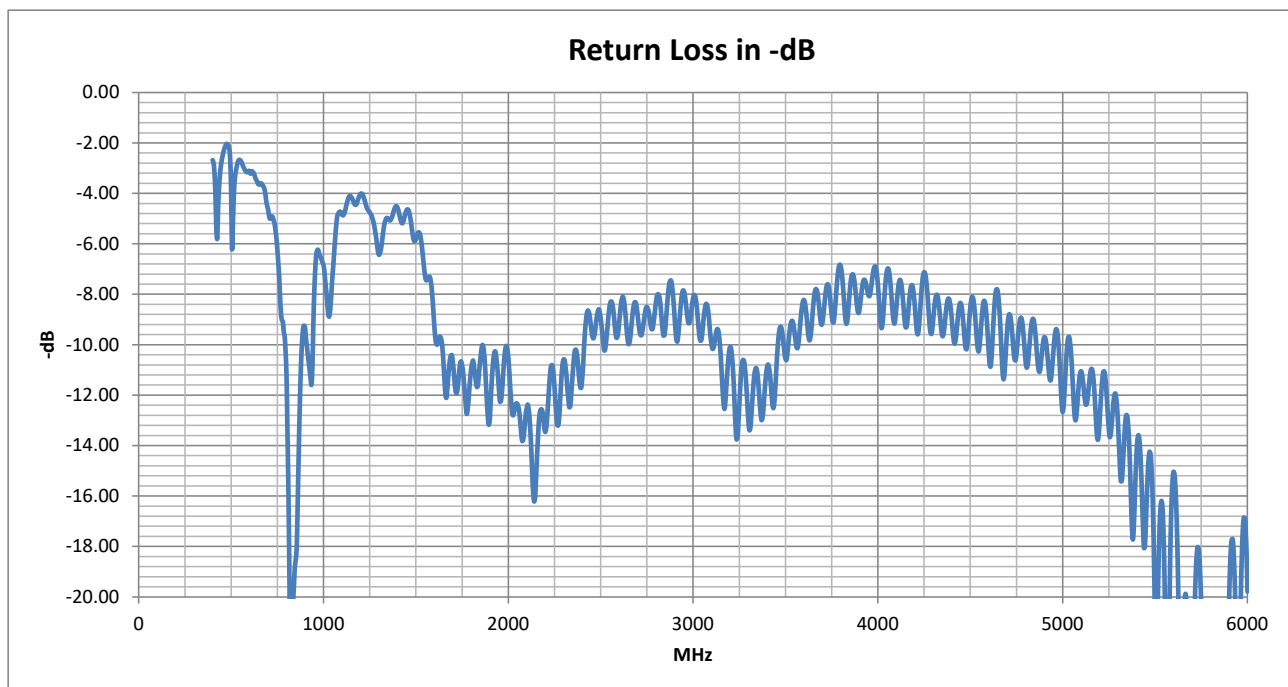
Operating Temperature range:	-30 - +60°C
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### Mechanical Specifications

Dimensions:	154.25 x 29.25 x 4.2 mm
Weight:	40 g
Cable:	PRO100 low loss
Connector:	SMA Male
Radome Material:	PVC
Mounting Method:	Adhesive



### Return Loss tested with 1.5 m cable

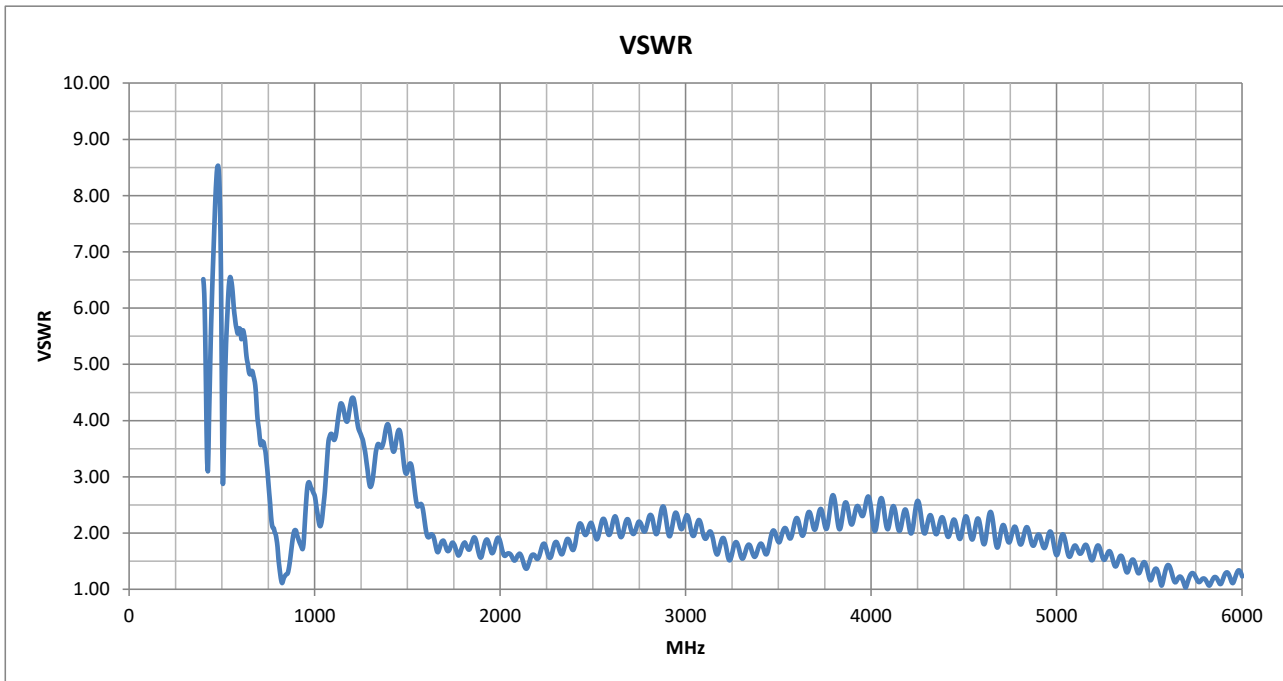




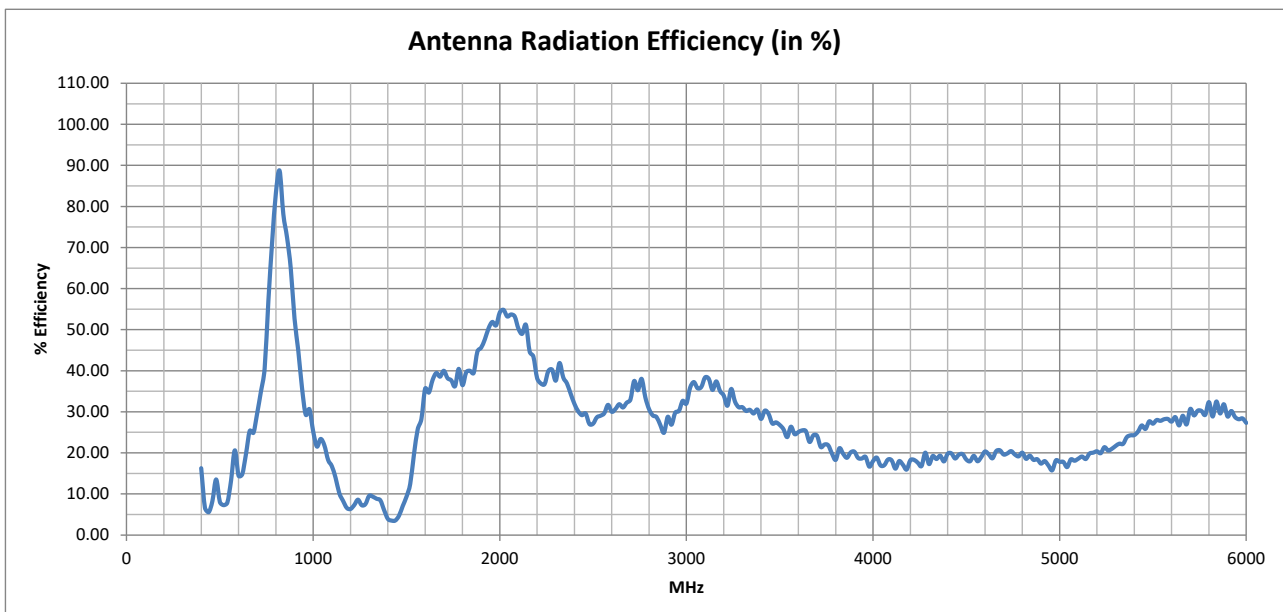
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### VSWR tested with 1.5 m cable



### Radiation Efficiency tested with 1.5 m cable





### LTE/5G Band Coverage

LTE, CAT-M/5G Bands	NB-IoT Band	Regional Coverage	Uplink	Downlink	Avg Efficiency % over band	Max VSWR over Band
1/n1	B1	Europe / Asia	1920-1980 MHz	2110-2170 MHz	50.23 / 47.70 ●	1.88 / 1.62
2/n2	B2	North America/Latin America/Caribbean	1850-1910 MHz	1930-1990 MHz	43.47 / 51.02 ●	1.92 / 1.92
3/n3	B3	Europe/Africa/Asia/Oceania	1710-1785 MHz	1805-1880 MHz	38.17 / 40.04 ●	1.83 / 1.92
4	B4	North America/Latin America/Caribbean	1710-1755 MHz	2110-2155 MHz	38.02 / 48.76 ●	1.83 / 1.62
5/n5	B5	Country Specific	824-849 MHz	869-894 MHz	79.77 / 63.34 ●	1.27 / 2.05
7/n7		Latin America/Europe/Asia +	2500-2570 MHz	2620-2690 MHz	29.23 / 31.75 ●	2.25 / 2.30
8/n8	B8	Europe / Asia +	880-915 MHz	925-960 MHz	54.19 / 36.73 ●	2.05 / 2.80
11	B11	Country Specific	1427.9-1447.9 MHz	1475.9-1495.9 MHz	3.90 / 7.02 ✖	3.81 / 3.42
12/n12	B12	North America/Caribbean +	699-716 MHz	729-746 MHz	29.82 / 44.16 ●	3.95 / 3.61
13/n13	B13	North America/Caribbean +	777-787 MHz	746-756 MHz	70.49 / 48.78 ●	2.09 / 3.13
14/n14	B14	Country Specific	788-798 MHz	758-768 MHz	77.23 / 56.28 ●	2.01 / 2.71
17	B17	North America/Caribbean +	704-716 MHz	734.746 MHz	32.28 / 44.16 ●	3.84 / 3.52
18/n18	B18	Country Specific	815-830 MHz	860-875 MHz	83.35 / 68.65 ●	1.26 / 1.72
19	B19	Country Specific	830-845 MHz	875-890 MHz	79.77 / 63.34 ●	1.26 / 2.04
20/n20	B20	Europe/Africa +	832-862 MHz	791-821 MHz	76.05 / 80.34 ●	1.45 / 1.98
21		Country Specific	1447.9-1462.9 MHz	1495.9-1510.9 MHz	5.09 / 9.59 ✖	3.84 / 3.22
25/n25	B25	Country Specific	1850-1915 MHz	1525-1559 MHz	43.47 / 19.24 ☹	1.92 / 3.15
26/n26	B26	Country Specific	814-849 MHz	859-894 MHz	80.62 / 67.05 ●	1.39 / 2.05
28/n28	B28	Latin America/Europe/Asia +	703-748 MHz	758-803 MHz	44.16 / 68.15 ●	3.84 / 2.71
29/n29		Country Specific	-	717-728 MHz	35.04 ●	3.63
30/n30		Country Specific	2305-2315 MHz	2350-2360 MHz	39.73 / 37.63 ●	1.84 / 1.89
31	B31	Country Specific	452.5-457.5 MHz	462.5-467.5 MHz	6.89 / 10.88 ✖	7.50 / 8.28
32		Country Specific	-	1452-1496 MHz	6.14 ✖	3.84
38/n38		Europe +	2570-2620 MHz		30.51 ●	2.30
39/n39		Country Specific	1880-1920 MHz		45.97 ●	1.85
40/n40		Asia +	2300-2400 MHz		36.83 ●	1.90
41/n41		Country Specific	2496-2690 MHz		30.16 ●	2.30
42		Country Specific	3400-3600 MHz		26.81 ●	2.27
43		Country Specific	3600-3800 MHz		22.75 ●	2.67
46/n46		Country Specific	5150-5925 MHz		26.24 ●	1.79
48/n48		Country Specific	3550-3700 MHz		24.62 ●	2.38
65/n65		Country Specific	1920-2010 MHz	2110-2200 MHz	51.66 / 46.12 ●	1.92 / 1.62
66/n66	B66	Country Specific	1710-1780 MHz	2110-2200 MHz	38.51 / 46.12 ●	1.83 / 1.62
71/n71	B71	Country Specific	663-698 MHz	617-652 MHz	26.63 / 18.58 ☹	4.88 / 5.60

Table data for bands as detailed in 3GPP TS 36.101 & 38.101

● Usable Band      ☹ Adequate in good signal area      ✖ Not Usable





### 5G Extended Table for Band Coverage

LTE/5G Band	NB-IoT Band	Uplink	Downlink	Avg Efficiency % over band	Max VSWR over Band
n24		1626.5 – 1660.5 MHz	1525 – 1559 MHz	37.29 / 19.24	1.98 / 3.15
n34		2010 – 2025 MHz		54.08	1.71
n47		5855 – 5925 MHz		30.28	1.30
n50		1432 – 1517 MHz		6.75	3.84
n51		1427 – 1432 MHz		3.51	3.54
n53		2483.5 – 2495 MHz		27.07	2.18
n67		738 – 758 MHz		44.16	3.45
n70	B70	1695 – 1710 MHz	1995 – 2020 MHz	38.91 / 53.36	1.86 / 1.90
n74		1427 – 1470 MHz	1475 – 1518 MHz	4.69 / 8.37	3.84 / 3.42
n75		1432 – 1517 MHz		6.75	3.84
n76		1427 – 1432 MHz		3.51	3.54
n77		3300 – 4200 MHz		22.56	2.67
n78		3300 – 3800 MHz		25.85	2.67
n79		4400 – 5000 MHz		18.93	2.37
n80		1710 – 1785 MHz		38.17	1.83
n81		880 – 915 MHz		54.19	2.05
n82		832 – 862 MHz		76.05	1.45
n83		703 – 748 MHz		40.53	3.84
n84		1920 – 1980 MHz		50.23	1.88
n85	B85	698 – 716 MHz	728 – 746 MHz	29.82 / 44.16	3.95 / 3.61
n86		1710 – 1780 MHz		38.51	1.83
n89		824 – 849 MHz		79.77	1.27
n90		2496 – 2690 MHz		30.16	2.30
n91		832 – 862 MHz	1427 – 1432 MHz	76.05 / 3.51	1.45 / 3.54
n92		832 – 862 MHz	1432 – 1517 MHz	76.05 / 6.75	1.45 / 3.84
n93		880 – 915 MHz	1427 – 1432 MHz	54.19 / 3.51	2.05 / 3.54
n94		880 – 915 MHz	1432 – 1517 MHz	54.19 / 6.75	2.05 / 3.84
n95		2010 – 2025 MHz		54.08	1.71
n96		5925 – 7125 MHz		not measured	
n97		2300 – 2400 MHz		36.83	1.90
n98		1880 – 1920 MHz		45.97	1.85
n99		1626.5 – 1660.5 MHz		37.29	1.98

Table data for bands as detailed in 3GPP TS 38.101

● Usable Band     
 ⊖ Adequate in good signal area     
 ✘ Not Usable

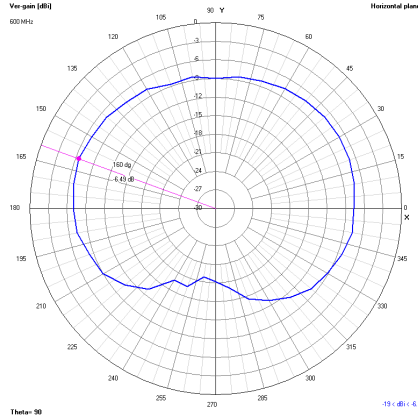


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### Radiation Plots tested with 1.5 m cable

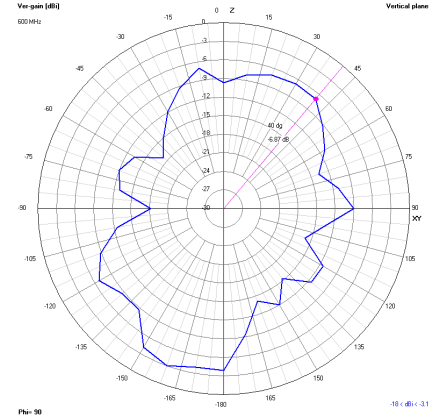
#### 600 MHz XY



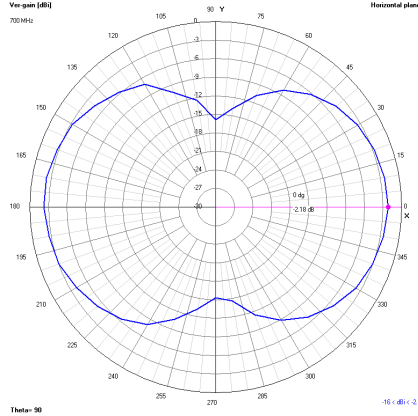
#### XZ



#### YZ



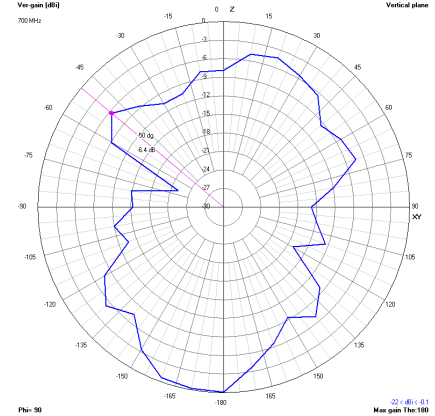
#### 700 MHz XY



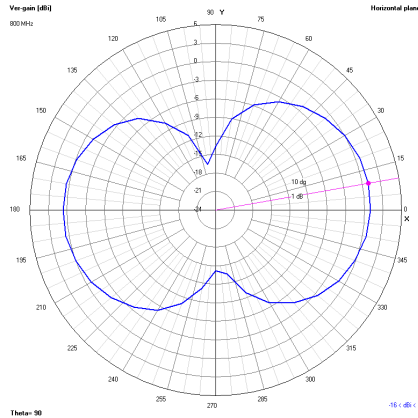
#### XZ



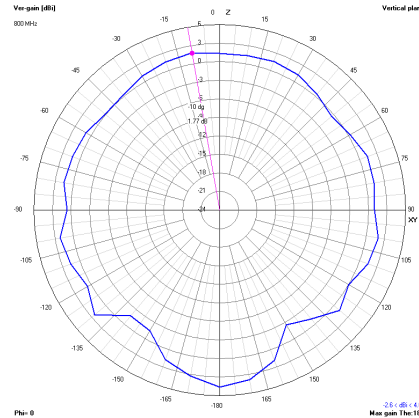
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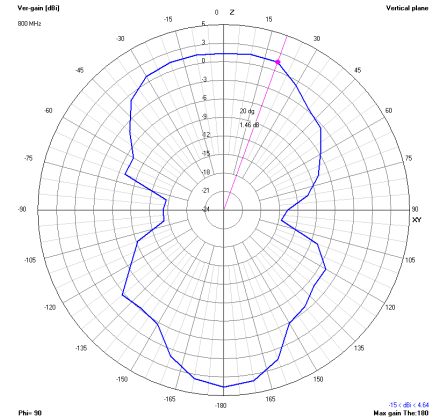
#### 800 MHz XY



#### XZ



#### YZ



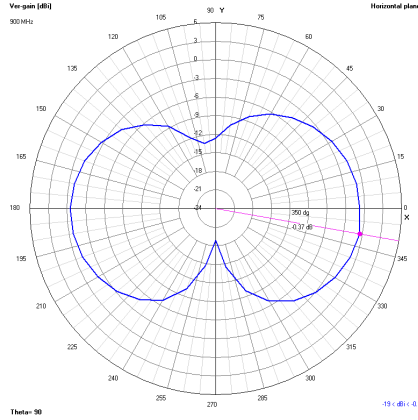


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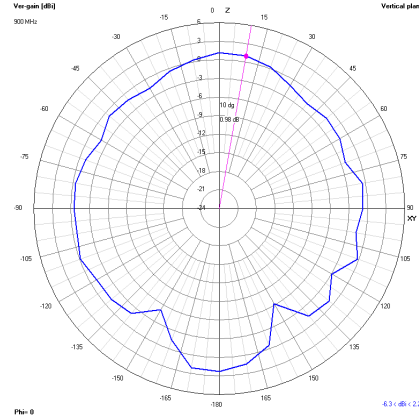
2G/3G/4G/5G/Dual Band WiFi Adhesive T-bar Antenna

### Radiation Plots tested with 1.5 m cable

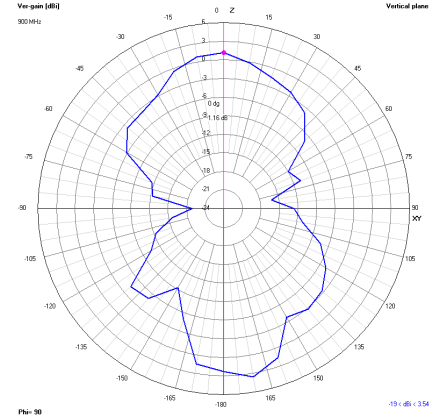
#### 900 MHz XY



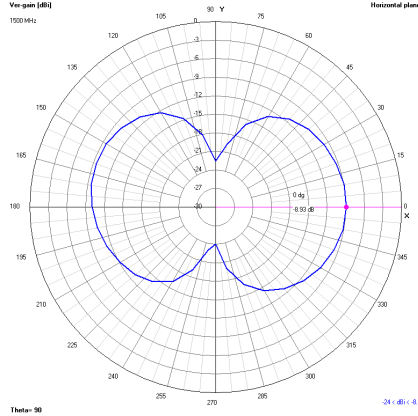
#### XZ



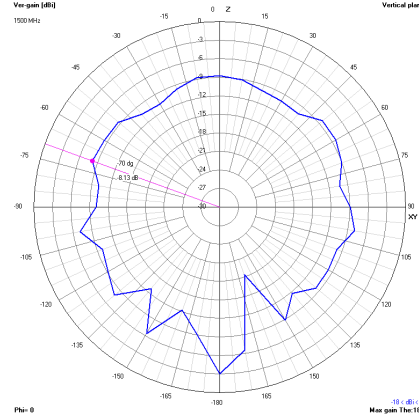
#### YZ



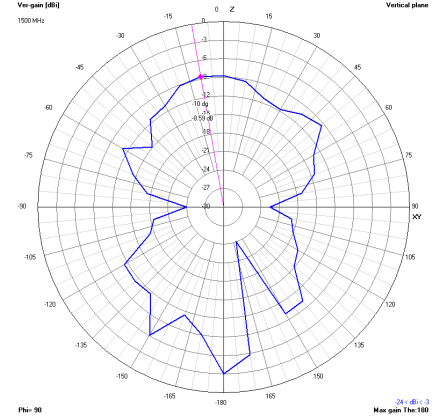
#### 1500 MHz XY



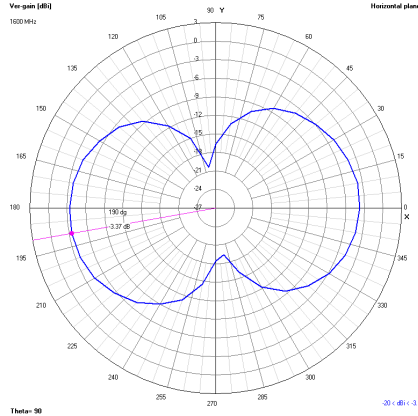
#### XZ



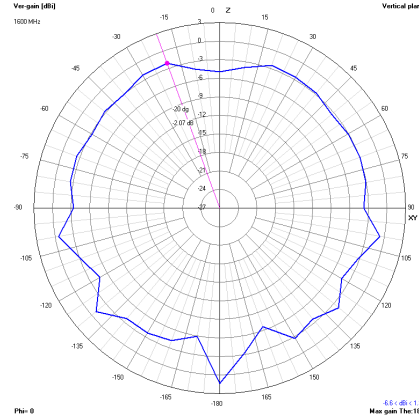
#### YZ



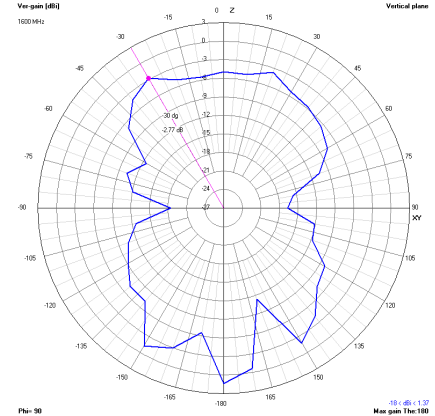
#### 1600 MHz XY



#### XZ



#### YZ



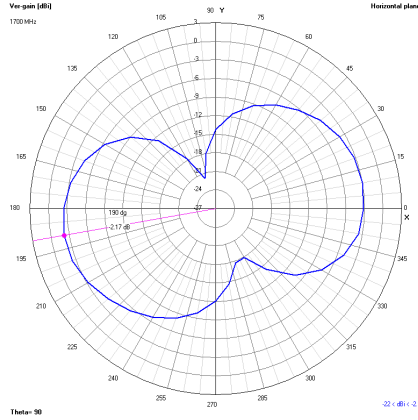


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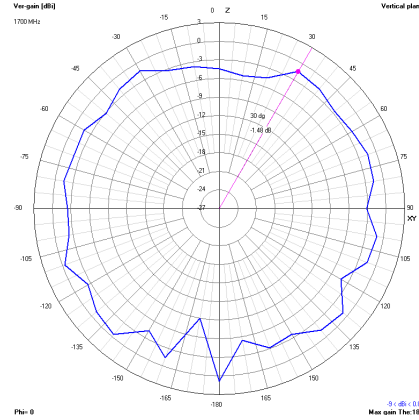
2G/3G/4G/5G/Dual Band WiFi Adhesive T-bar Antenna

### Radiation Plots tested with 1.5 m cable

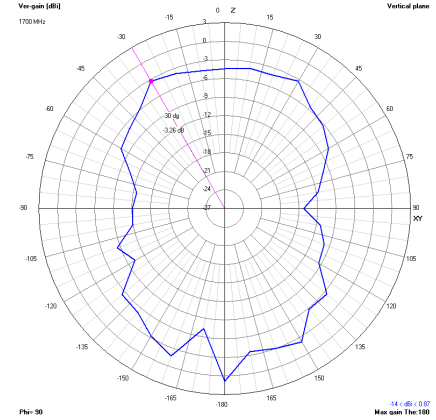
#### 1700 MHz XY



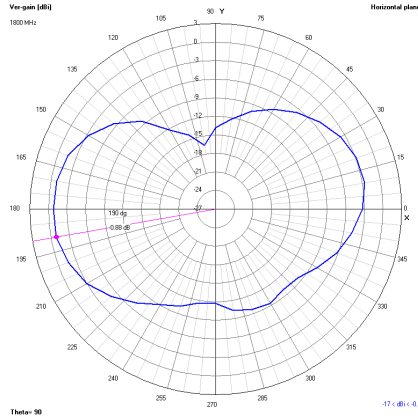
#### XZ



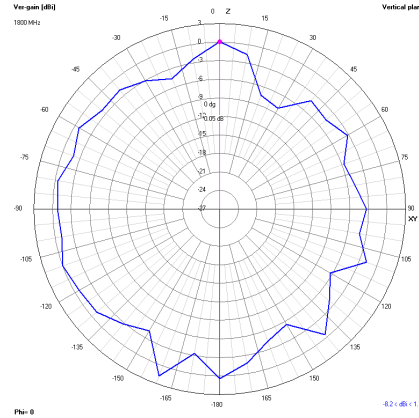
#### YZ



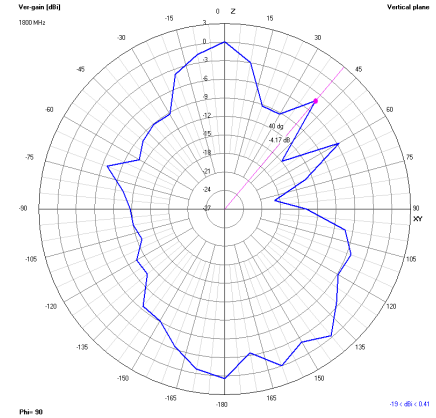
#### 1800 MHz XY



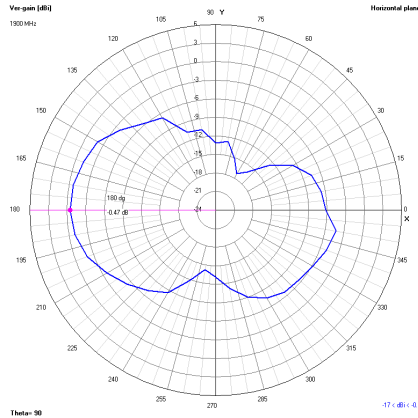
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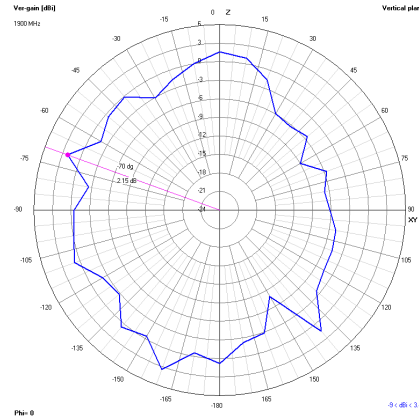
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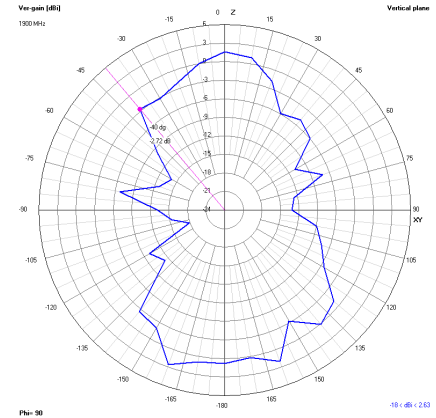
#### 1900 MHz XY



#### XZ



#### YZ





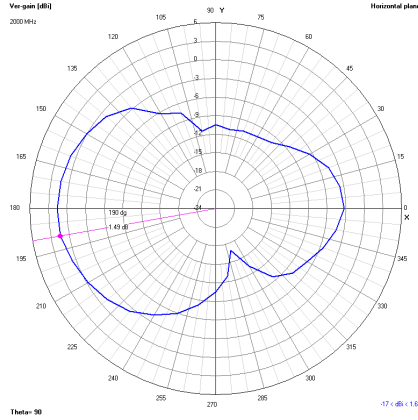


## Alpha 40

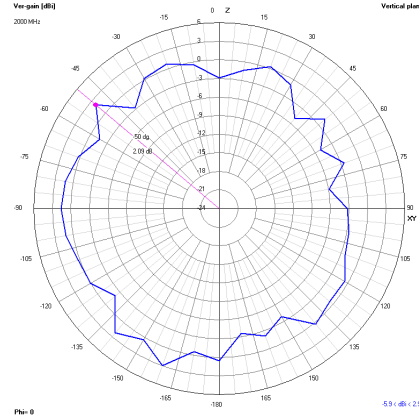
2G/3G/4G/5G/Dual Band WiFi Adhesive T-bar Antenna

### Radiation Plots tested with 1.5 m cable

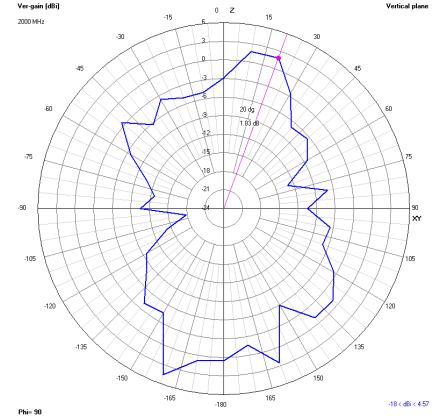
#### 2000 MHz XY



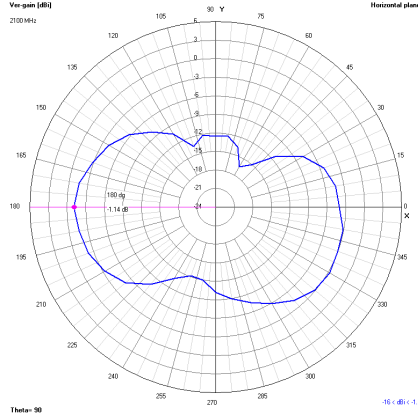
#### XZ



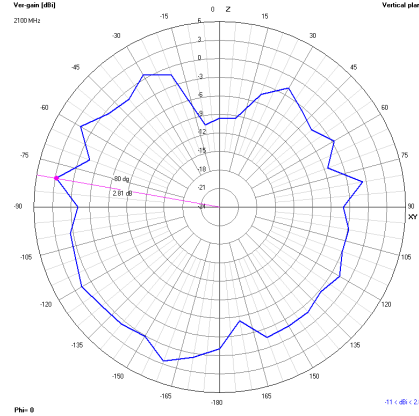
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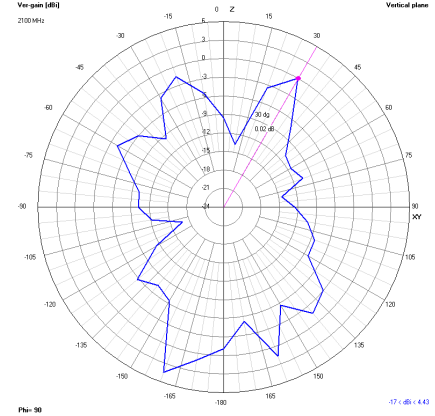
#### 2100 MHz XY



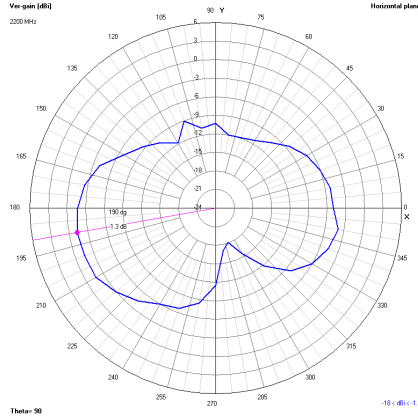
#### XZ



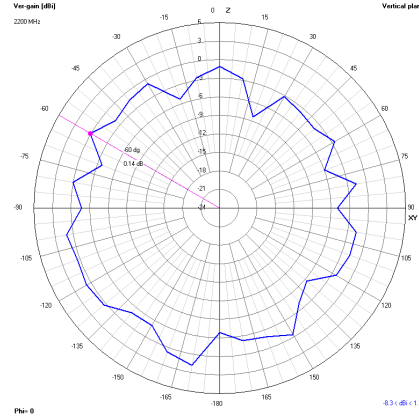
#### YZ



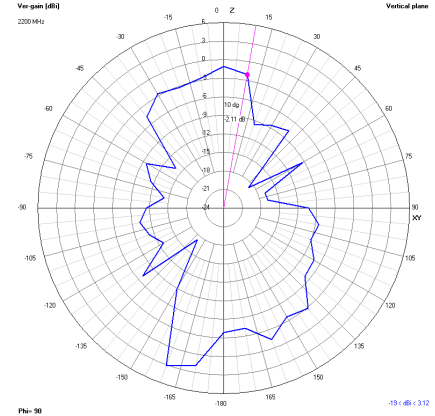
#### 2200 MHz XY



#### XZ



#### YZ



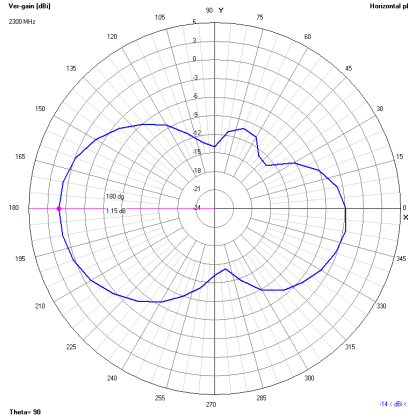


## Alpha 40

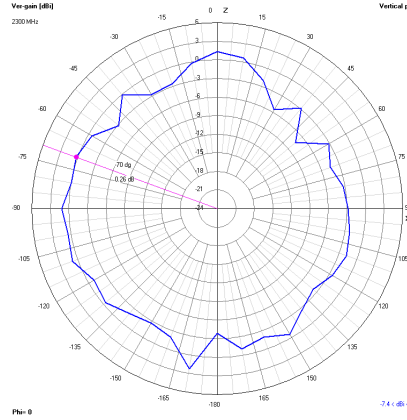
2G/3G/4G/5G/Dual Band WiFi Adhesive T-bar Antenna

### Radiation Plots tested with 1.5 m cable

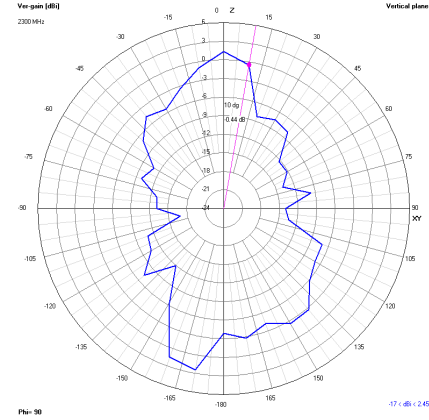
#### 2300 MHz XY



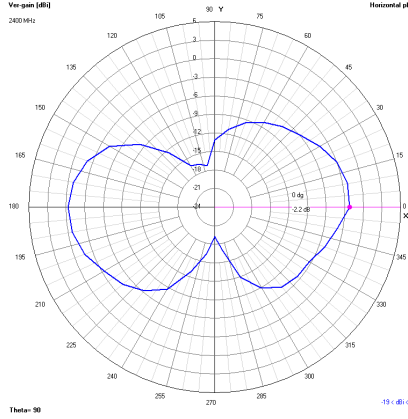
#### XZ



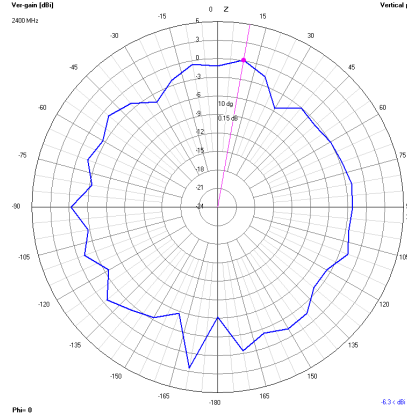
#### YZ



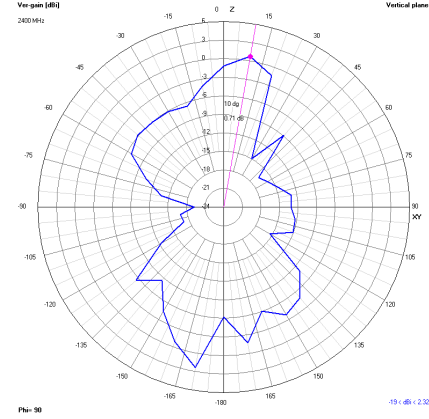
#### 2400 MHz XY



#### XZ



#### YZ



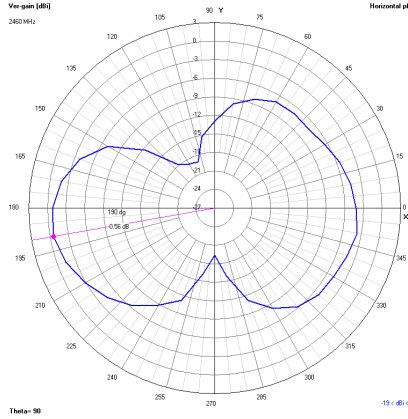
WiFi Band 2.4 GHz

Eff % 30.13

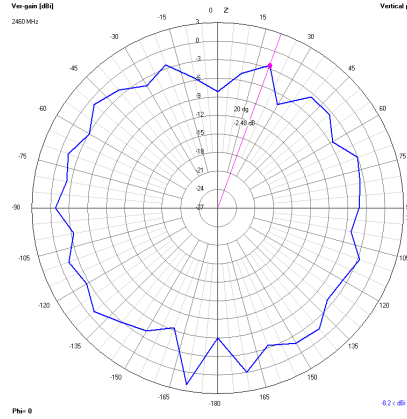
WiFi Band 2.4 GHz

Eff % 30.13

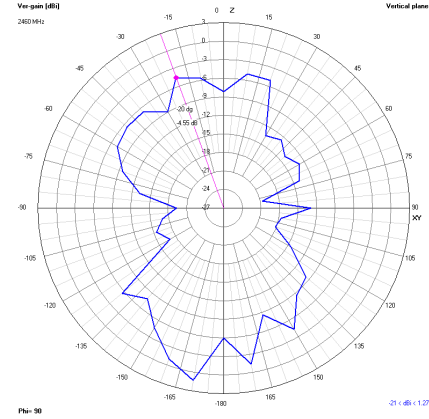
#### 2460 MHz XY



#### XZ



#### YZ



WiFi Band 2.4 GHz

Eff % 39.9

WiFi Band 2.4 GHz

Eff % 39.9

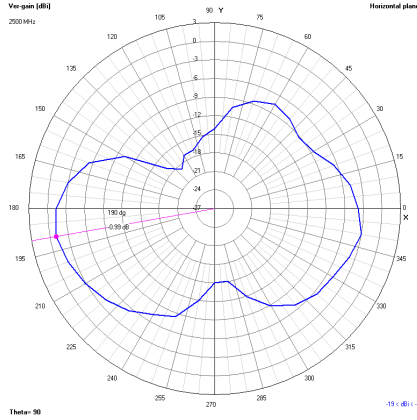


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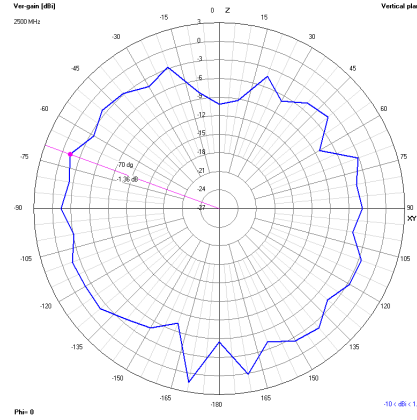
2G/3G/4G/5G/Dual Band WiFi Adhesive T-bar Antenna

### Radiation Plots tested with 1.5 m cable

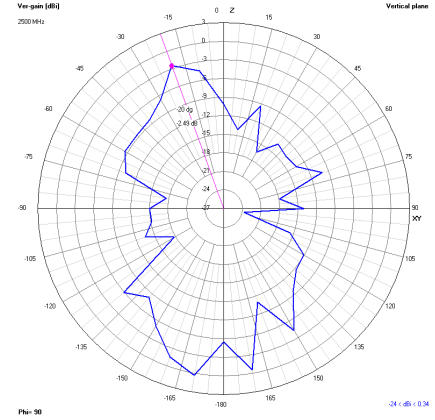
#### 2500 MHz XY



#### XZ



#### YZ



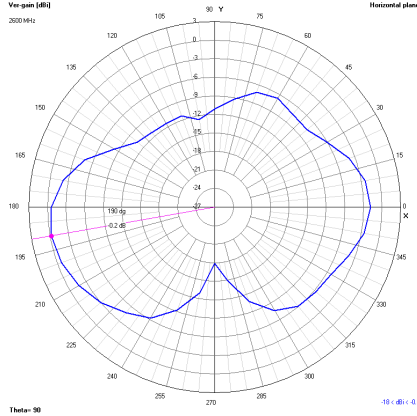
WiFi Band  
2.4  
GHz

Eff %  
27.10

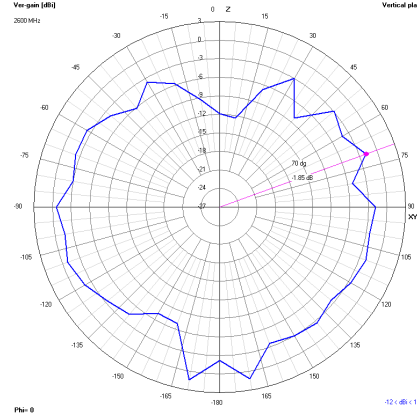
WiFi Band  
2.4  
GHz

Eff %  
27.10

#### 2600 MHz XY



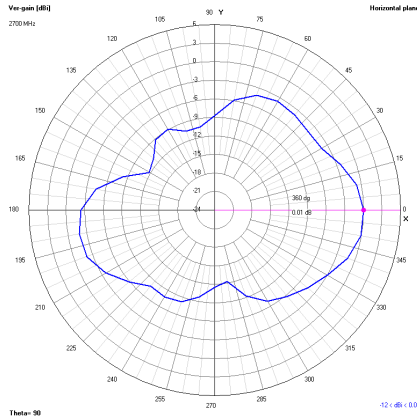
#### XZ



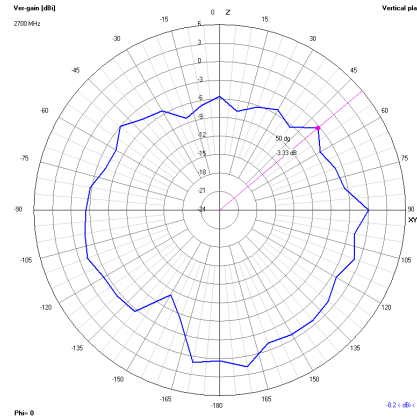
#### YZ



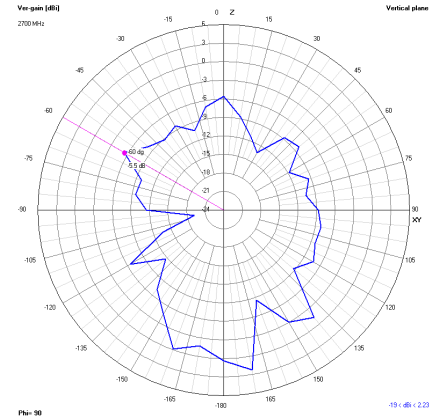
#### 2700 MHz XY



#### XZ



#### YZ



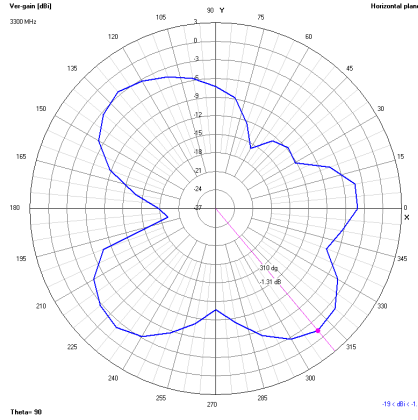


## Alpha 40

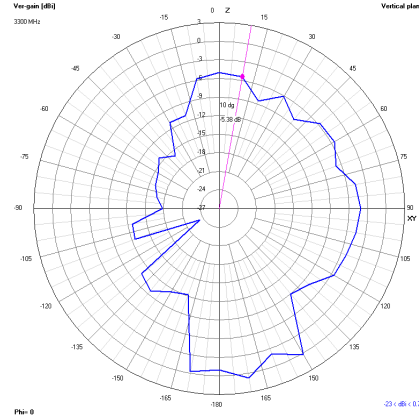
2G/3G/4G/5G/Dual Band WiFi Adhesive T-bar Antenna

### Radiation Plots tested with 1 m cable

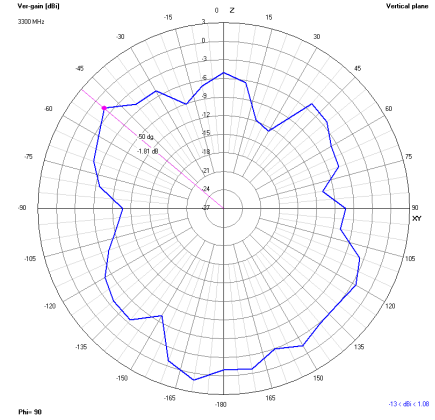
#### 3300 MHz XY



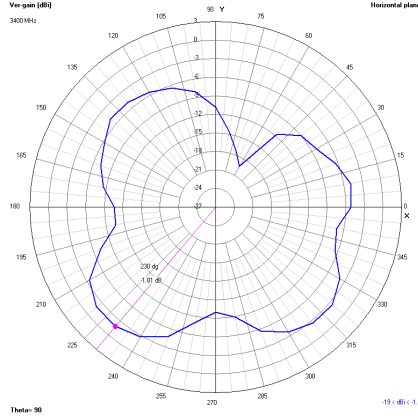
#### XZ



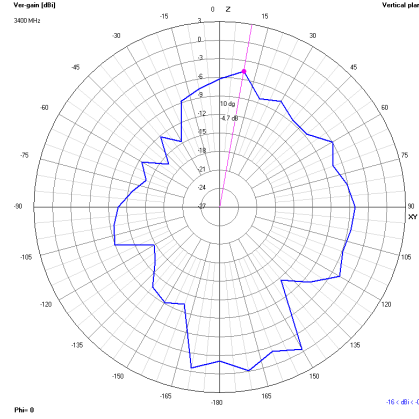
#### YZ



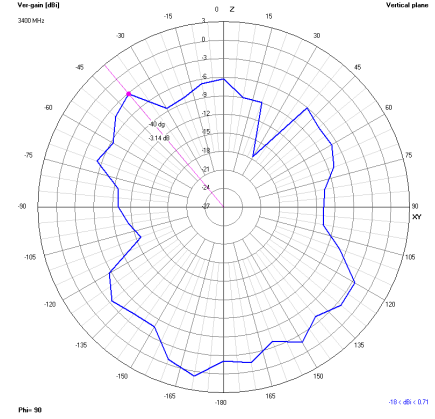
#### 3400 MHz XY



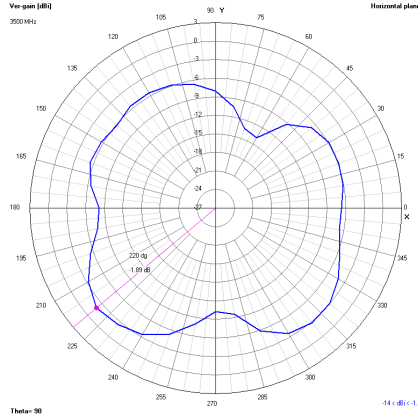
#### XZ



#### YZ



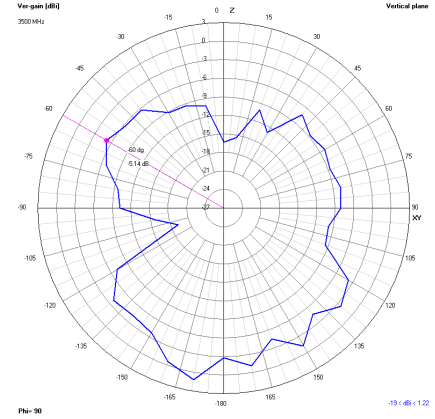
#### 3500 MHz XY



#### XZ



#### YZ



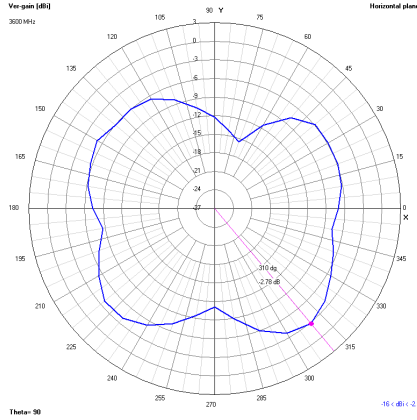


## Alpha 40

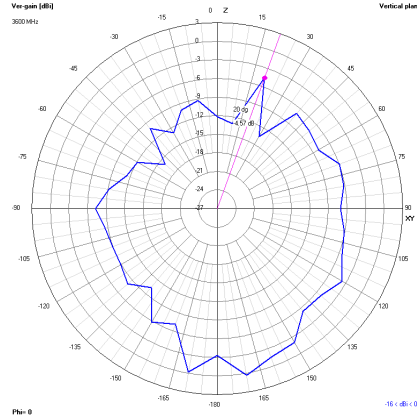
2G/3G/4G/5G/Dual Band WiFi Adhesive T-bar Antenna

### Radiation Plots tested with 1.5 m cable

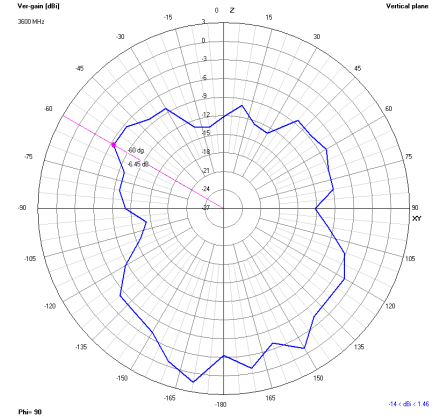
#### 3600 MHz XY



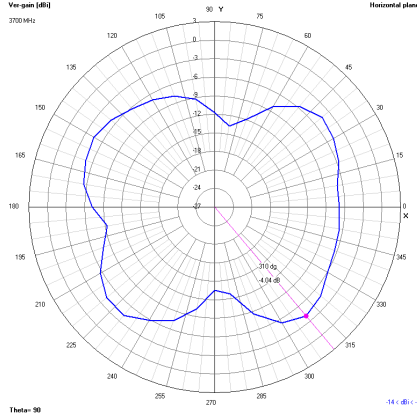
#### XZ



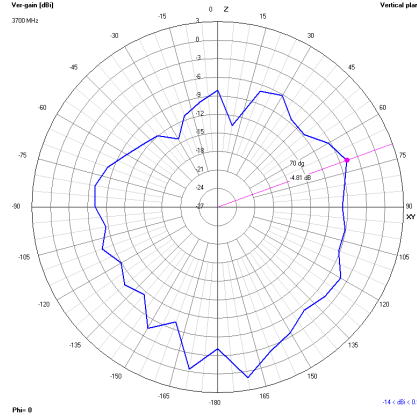
#### YZ



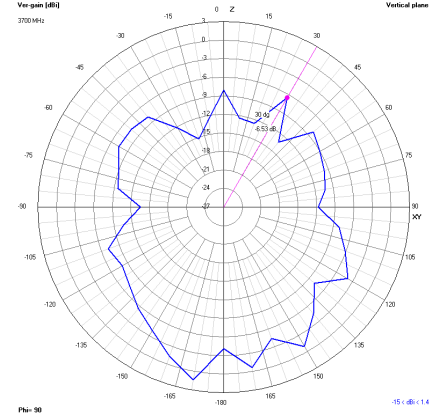
#### 3700 MHz XY



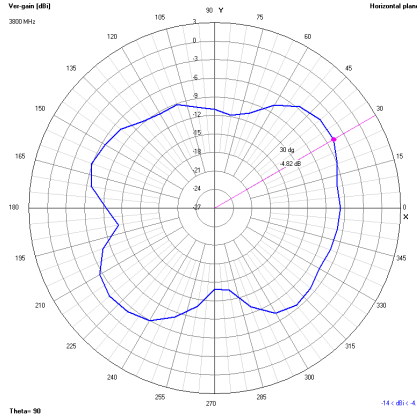
#### XZ



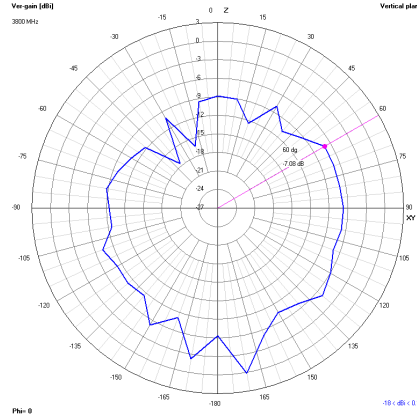
#### YZ



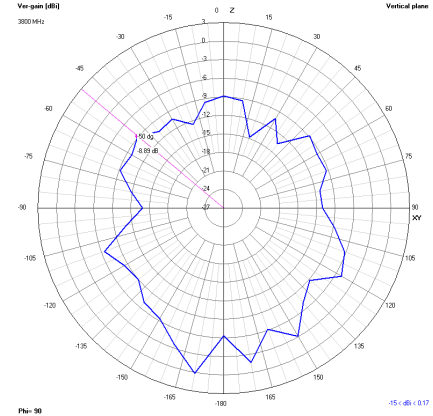
#### 3800 MHz XY



#### XZ



#### YZ



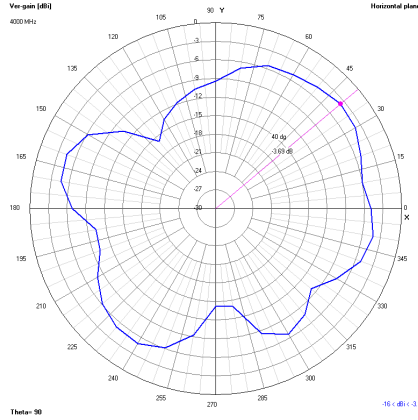


## Alpha 40

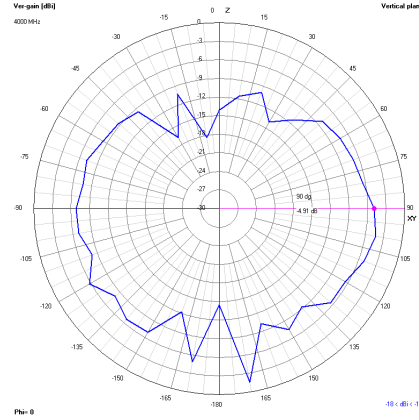
2G/3G/4G/5G/Dual Band WiFi Adhesive T-bar Antenna

### Radiation Plots tested with 1.5 m cable

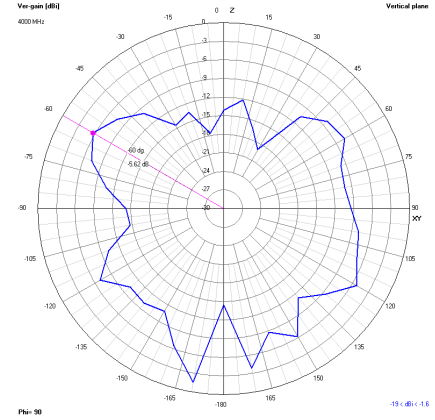
#### 4000 MHz XY



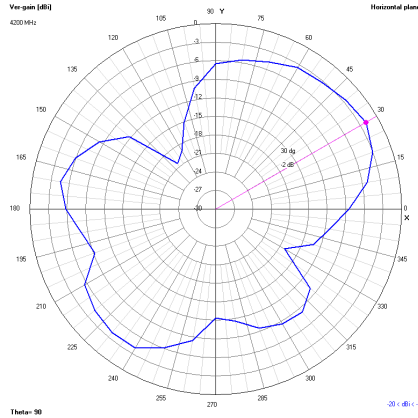
#### XZ



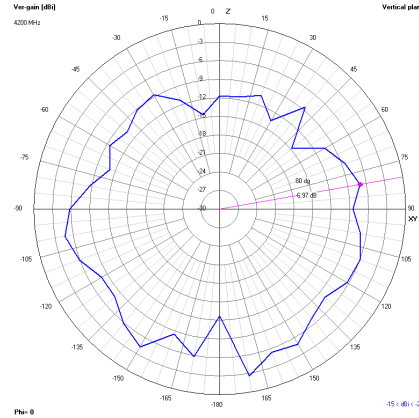
#### YZ



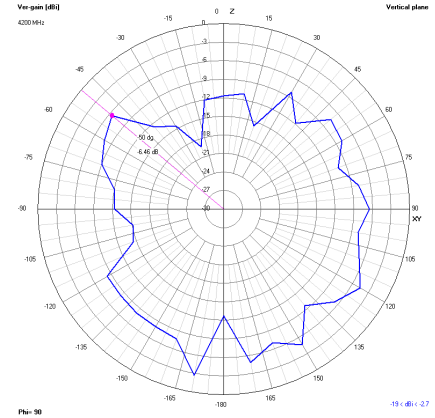
#### 4200 MHz XY



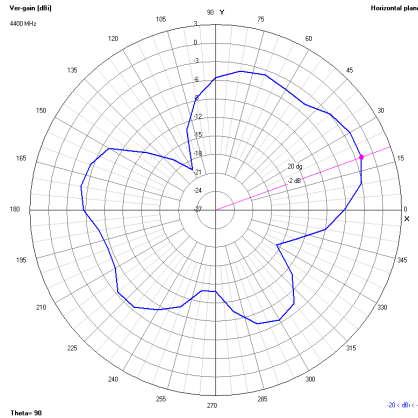
#### XZ



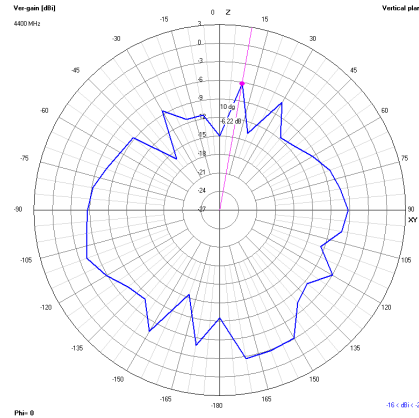
#### YZ



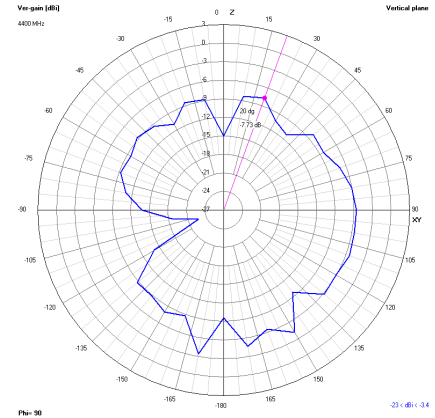
#### 4400 MHz XY



#### XZ



#### YZ



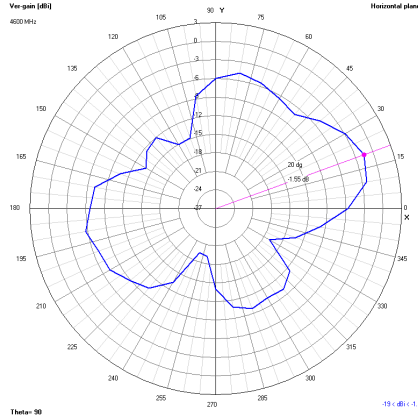


## Alpha 40

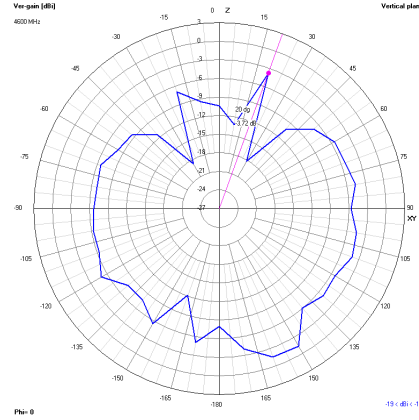
2G/3G/4G/5G/Dual Band WiFi Adhesive T-bar Antenna

### Radiation Plots tested with 1.5 m cable

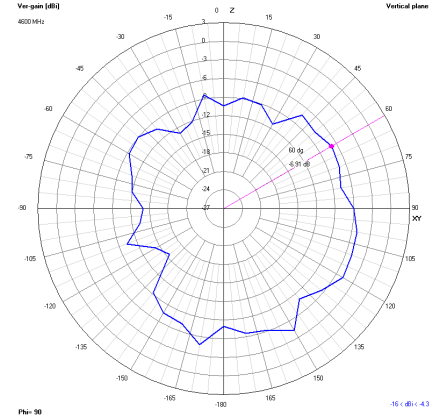
#### 4600 MHz XY



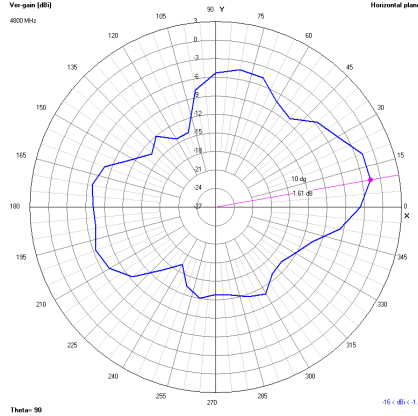
#### XZ



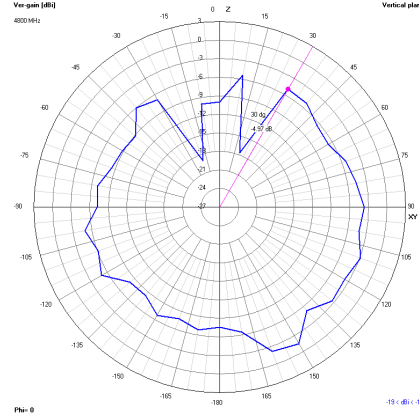
#### YZ



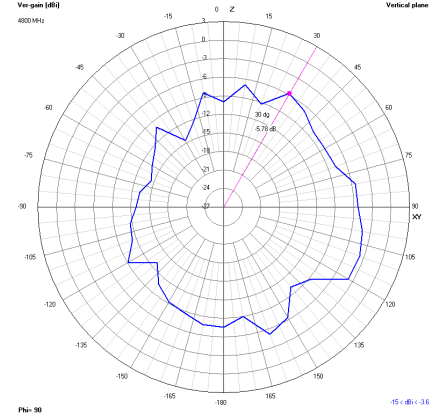
#### 4800 MHz XY



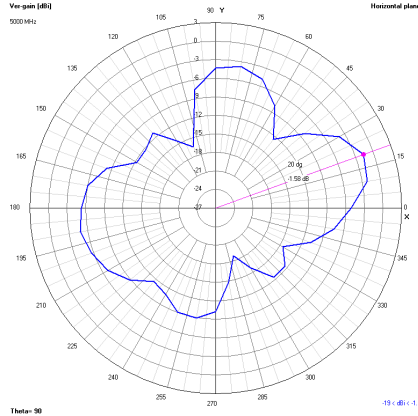
#### XZ



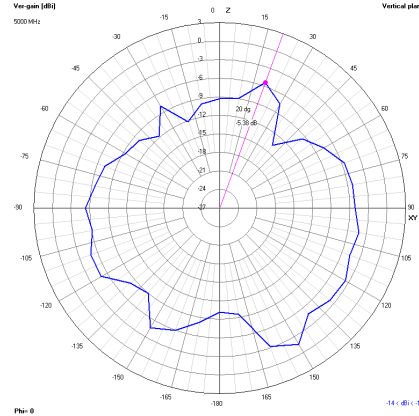
#### YZ



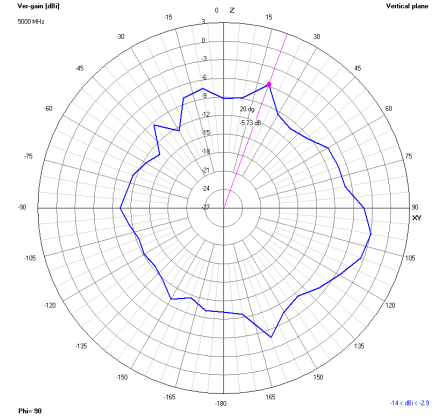
#### 5000 MHz XY



#### XZ



#### YZ



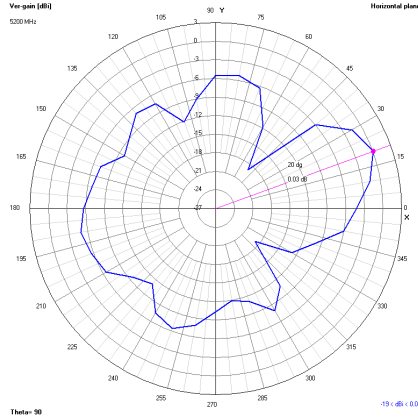


## Alpha 40

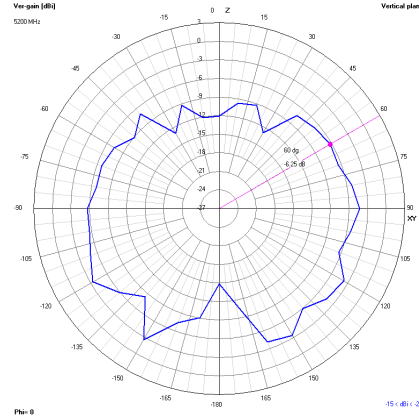
2G/3G/4G/5G/Dual Band WiFi Adhesive T-bar Antenna

### Radiation Plots tested with 1.5 m cable

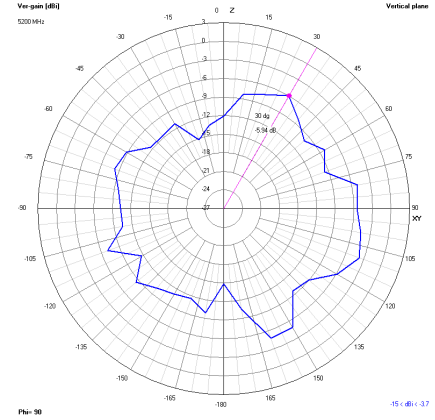
#### 5200 MHz XY



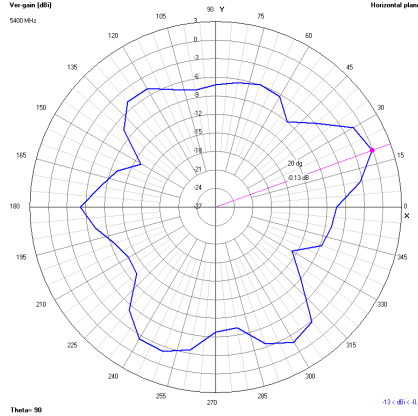
#### XZ



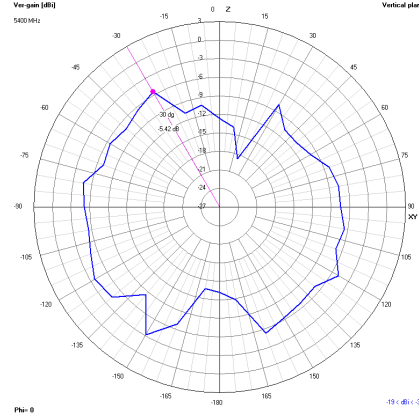
#### YZ



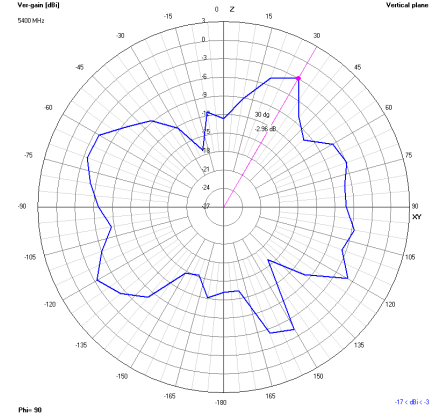
#### 5400 MHz XY



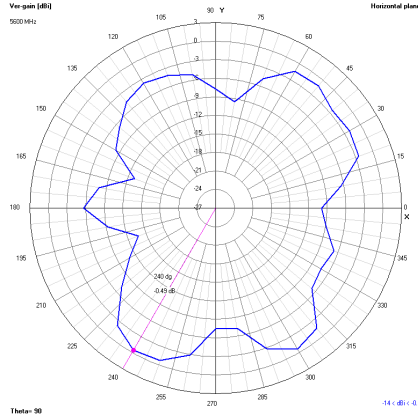
#### XZ



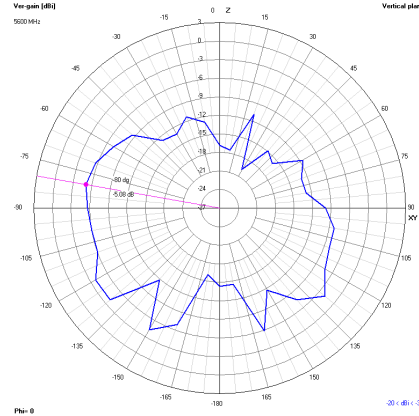
#### YZ



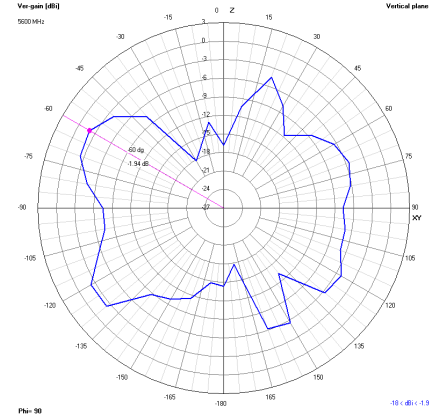
#### 5600 MHz XY



#### XZ



#### YZ





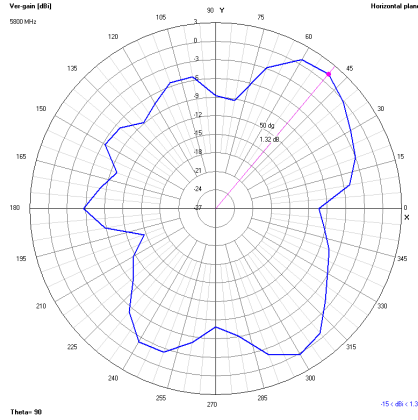


## Alpha 40

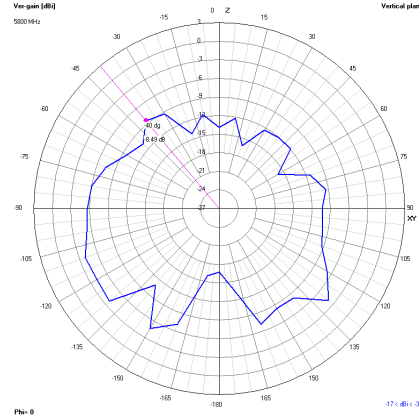
2G/3G/4G/5G/Dual Band WiFi Adhesive T-bar Antenna

### Radiation Plots tested with 1.5 m cable

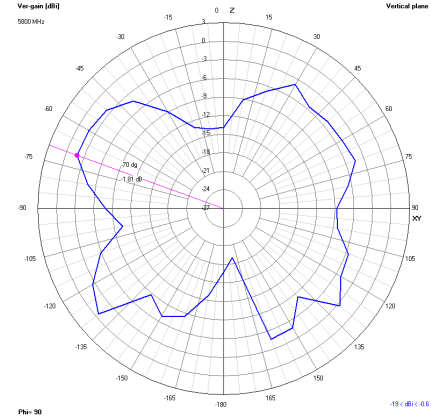
#### 5800 MHz XY



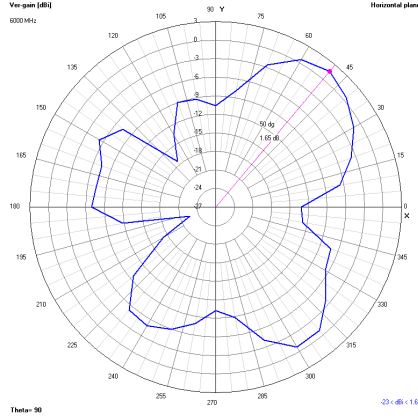
#### XZ



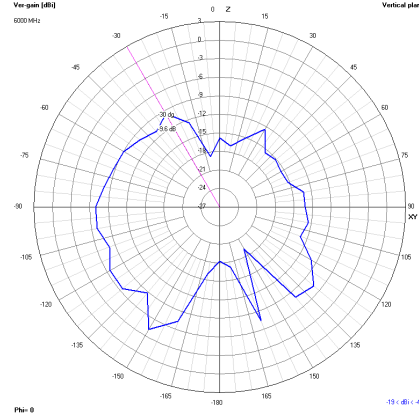
#### YZ



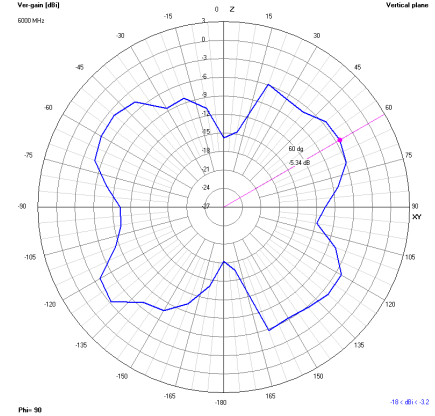
#### 6000 MHz XY



#### XZ

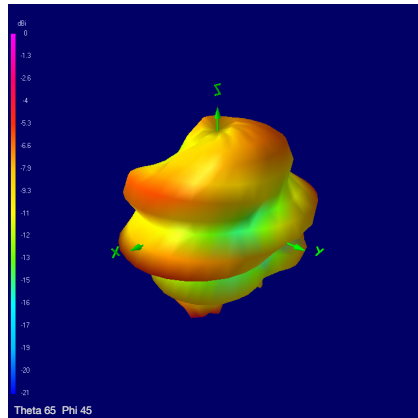


#### YZ

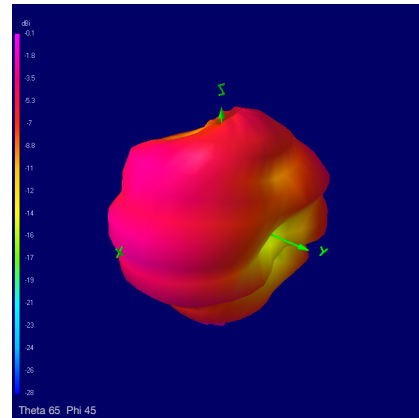


### 3D Radiation Plots tested with 1.5 m cable

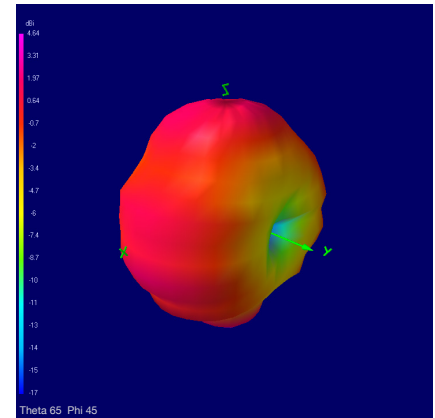
#### 600 MHz



#### 700 MHz



#### 800 MHz



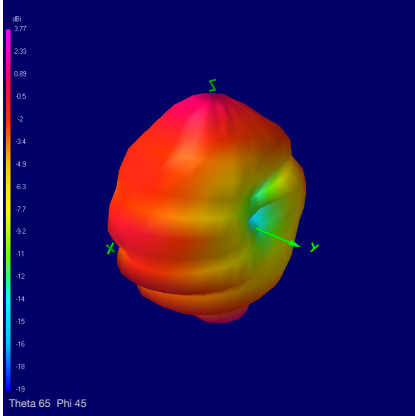


## Alpha 40

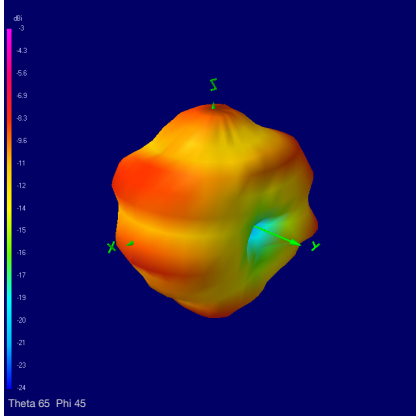
2G/3G/4G/5G/Dual Band WiFi Adhesive T-bar Antenna

### 3D Radiation Plots tested with 1.5 m cable

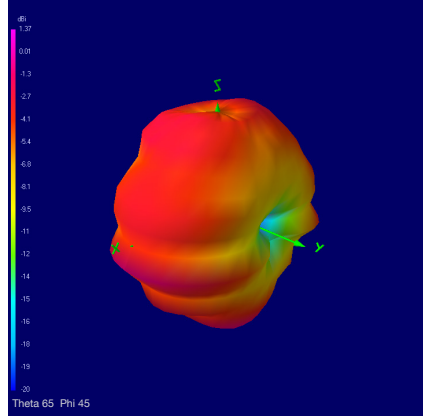
900 MHz



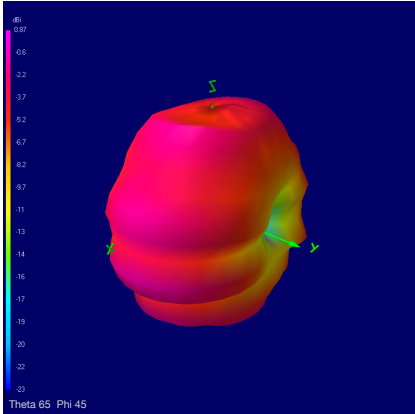
1500 MHz



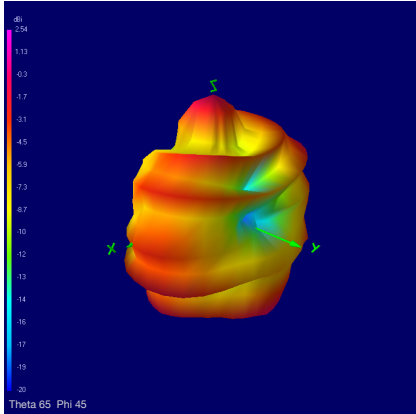
1600 MHz



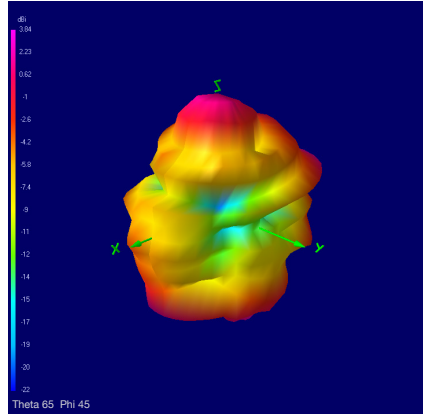
1700 MHz



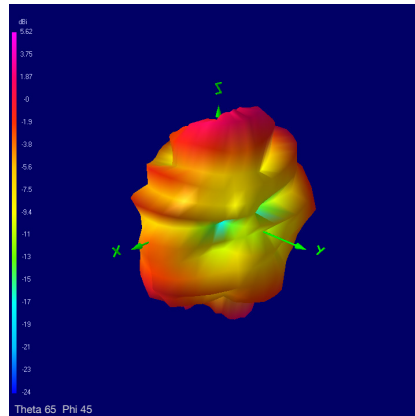
1800 MHz



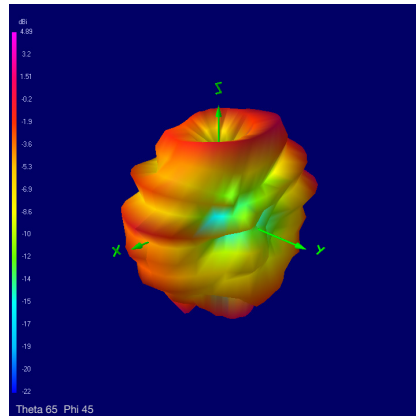
1900 MHz



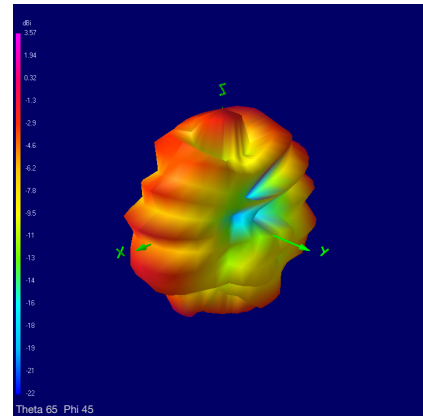
2000 MHz



2100 MHz



2200 MHz



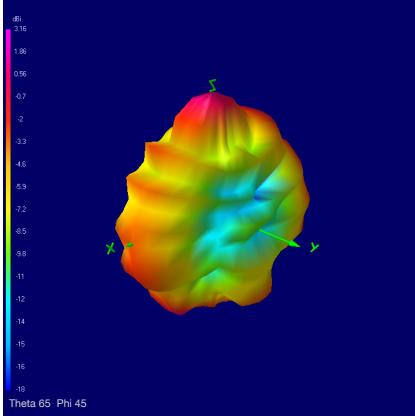


## Alpha 40

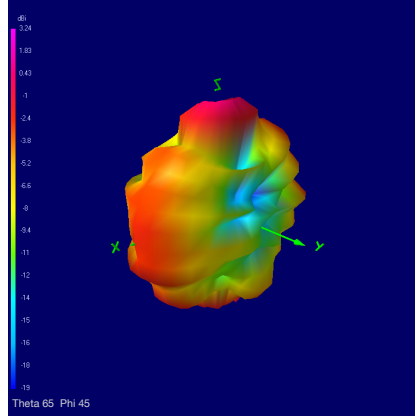
2G/3G/4G/5G/Dual Band WiFi Adhesive T-bar Antenna

### 3D Radiation Plots tested with 1.5 m cable

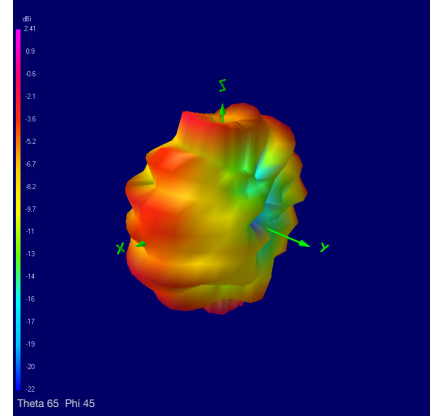
2300 MHz



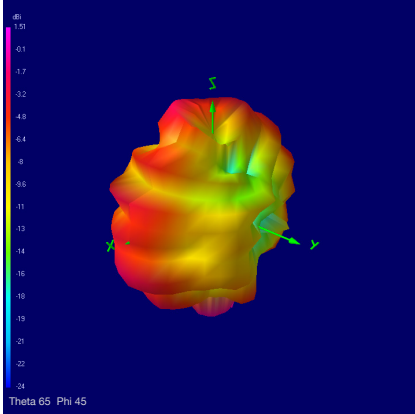
2400 MHz



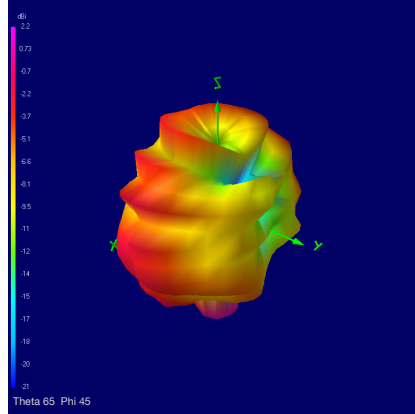
2460 MHz



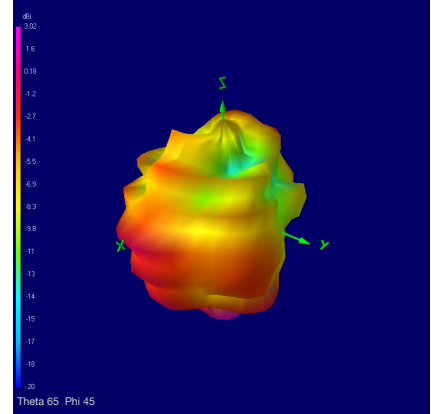
2500 MHz



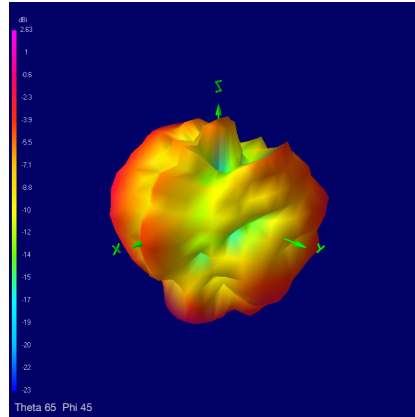
2600 MHz



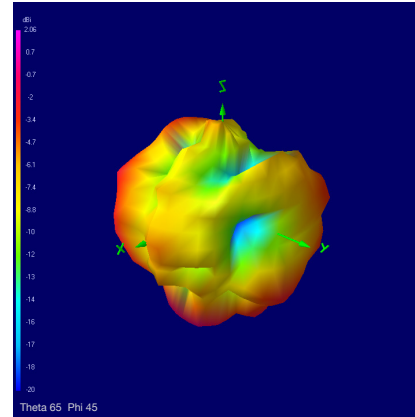
2700 MHz



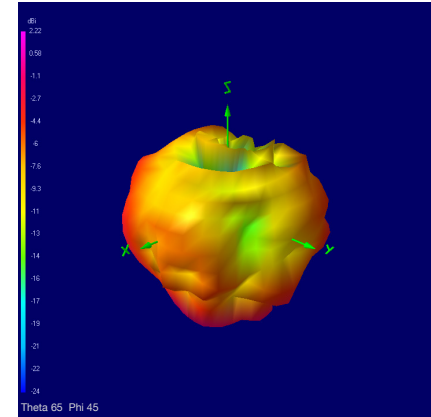
3300 MHz



3400 MHz



3500 MHz



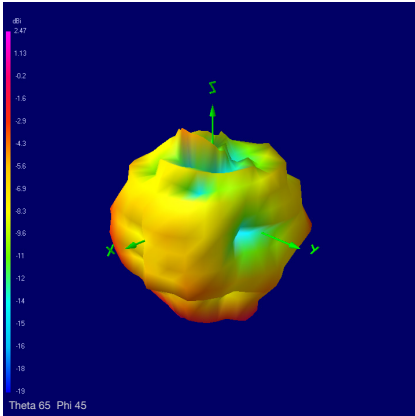


## Alpha 40

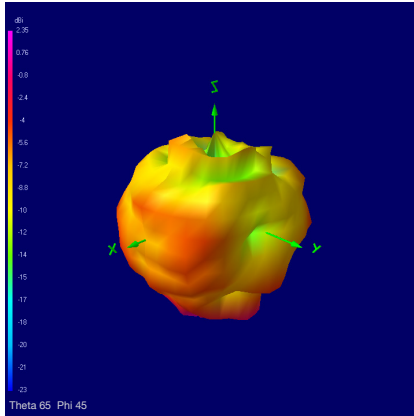
2G/3G/4G/5G/Dual Band WiFi Adhesive T-bar Antenna

### 3D Radiation Plots tested with 1.5 m cable

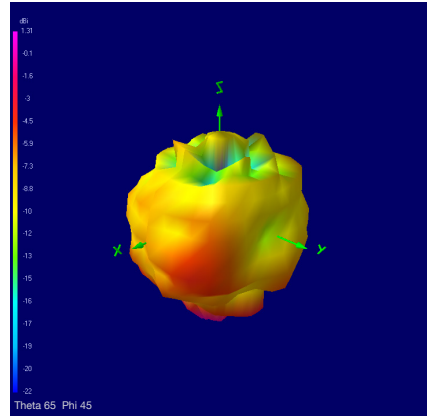
3600 MHz



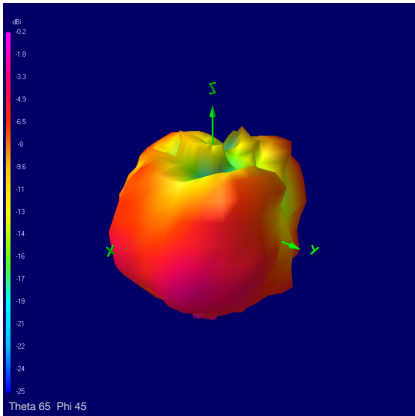
3700 MHz



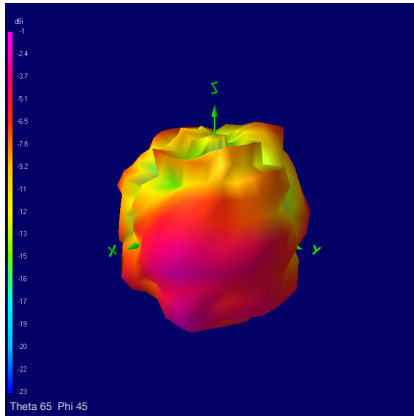
3800 MHz



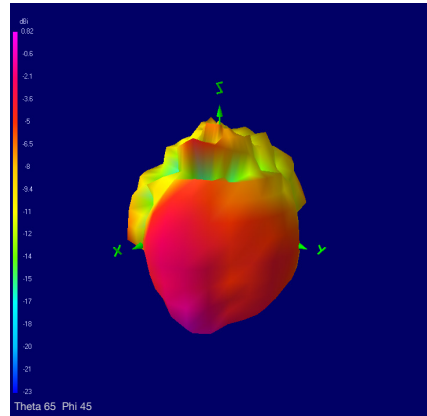
4000 MHz



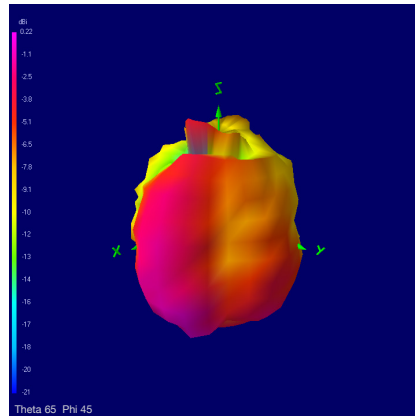
4200 MHz



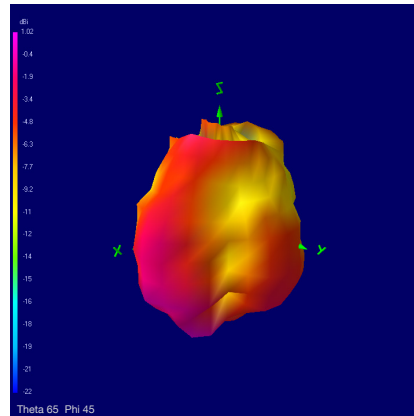
4400 MHz



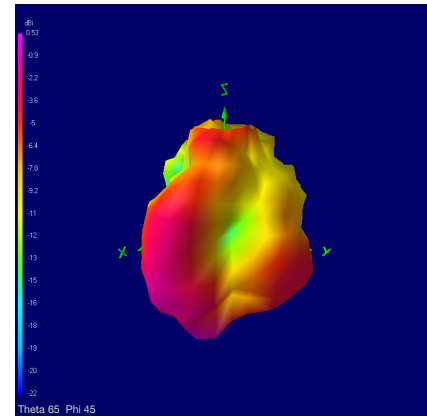
4600 MHz



4800 MHz



5000 MHz



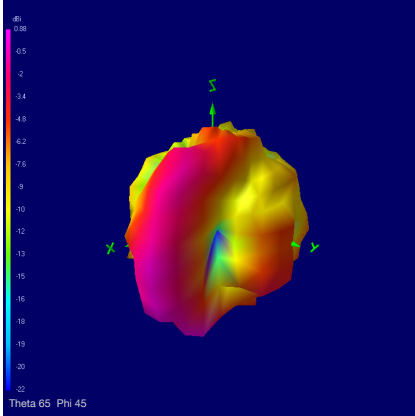


## Alpha 40

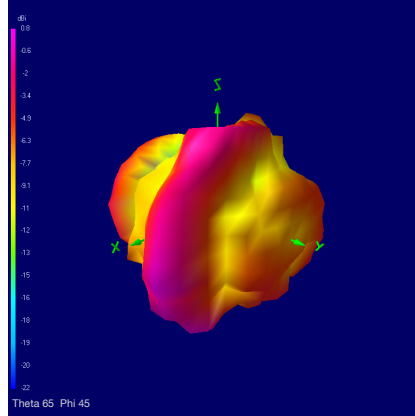
2G/3G/4G/5G/Dual Band WiFi Adhesive T-bar Antenna

### 3D Radiation Plots tested with 1.5 m cable

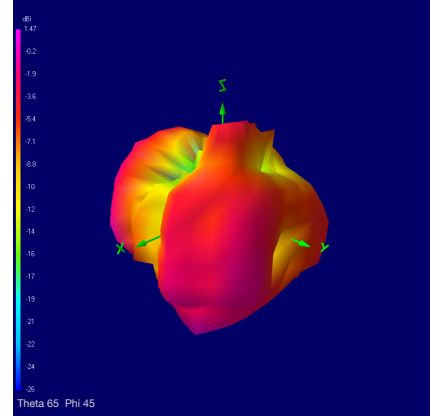
5200 MHz



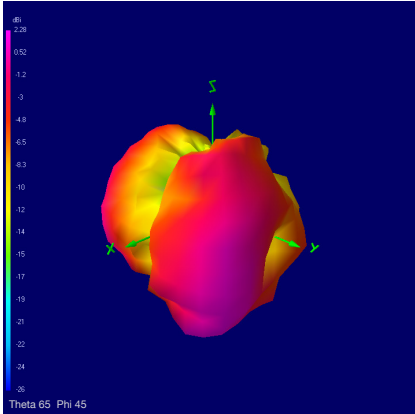
5400 MHz



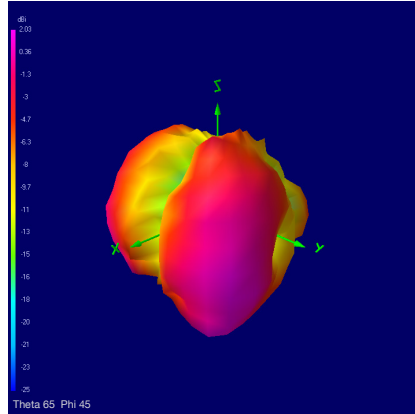
5600 MHz



5800 MHz



6000 MHz



### Ordering Details

Part Number	Description
ALPHA40/1.5M/SMAM/S/S29	2G/3G/4G/5G/DUALBAND WIFI ADHESIVE T-BAR ANTENNA SMA MALE 1.5M CABLE
ALPHA40/2.5M/SMAM/S/S29	2G/3G/4G/5G/DUALBAND WIFI ADHESIVE T-BAR ANTENNA SMA MALE 2.5M CABLE
ALPHA40/5M/SMAM/S/S29	2G/3G/4G/5G/DUALBAND WIFI ADHESIVE T-BAR ANTENNA SMA MALE 5M CABLE