



Delta 40

2G/3G/4G/(5G) & WIFI 161MM HINGED DIRECT CONNECT ANTENNA

Key Features

- 2G/3G/4G
- Some 5G band coverage
- WiFi, Bluetooth and Zigbee
- Flat Panel Swivel Knuckle Design



General Description

The Delta 40 direct connect antenna is tuned for wide band reception/transmission.

Suitable for a host of applications from cellular 2G/3G/4G/(5G) or the 2.4MHz band for WiFi/ISM/Zigbee or Bluetooth. Now with the addition of some 5G bands.

The swivel knuckle design is ideal for mounting on IoT modems/routers where the antenna can be positioned for best reception.

Additional Considerations

- Swivel knuckle allows positioning for best signal reception.
- Meets EU compliance criteria for electronic goods

D Direct	2G GSM	3G UMTS	4G LTE
5G LTE	LTE Cat M	LTE NB IoT	ISM 2450
BLE Bluetooth	WLAN 2400	ZB Zigbee	



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Electrical Specifications

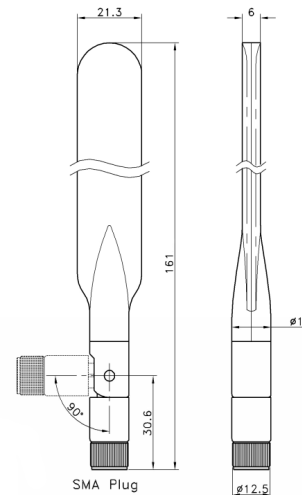
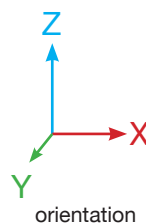
Impedance:	50 Ohm
Radiation:	Omni
Polarization:	Vertical
Ground Plane Independent:	Yes
Max Input Power:	5W

Mechanical Specifications

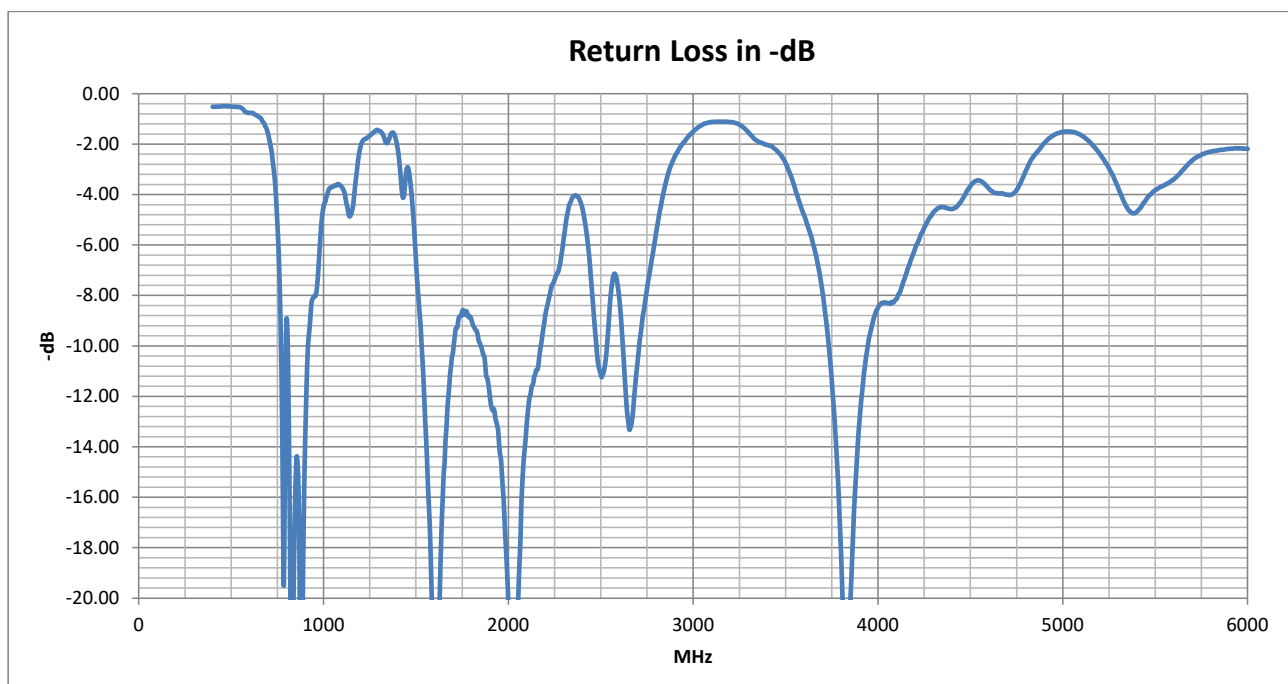
Weight:	29g
Connector:	SMA Male
Body Material:	PU/PC
Dimensions:	161 mm x 21.3 mm

Environmental Specification

Operating Temperature:	-20 - +65 °C
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Return Loss

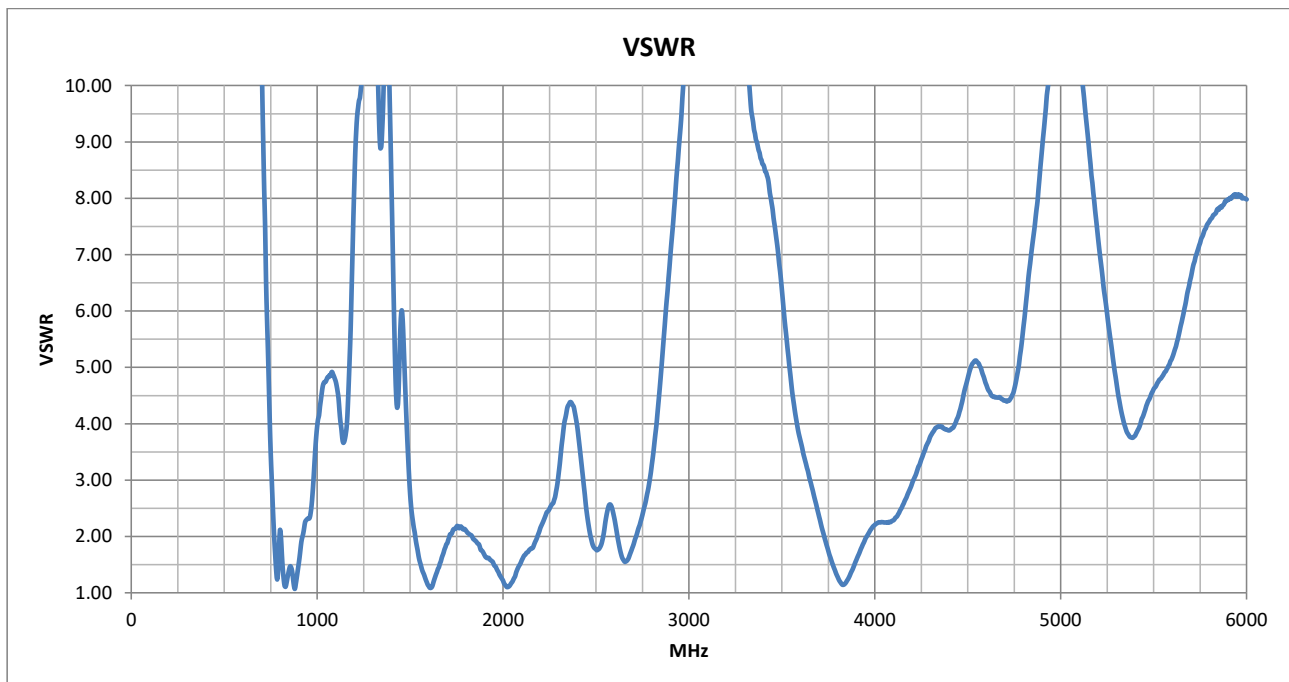




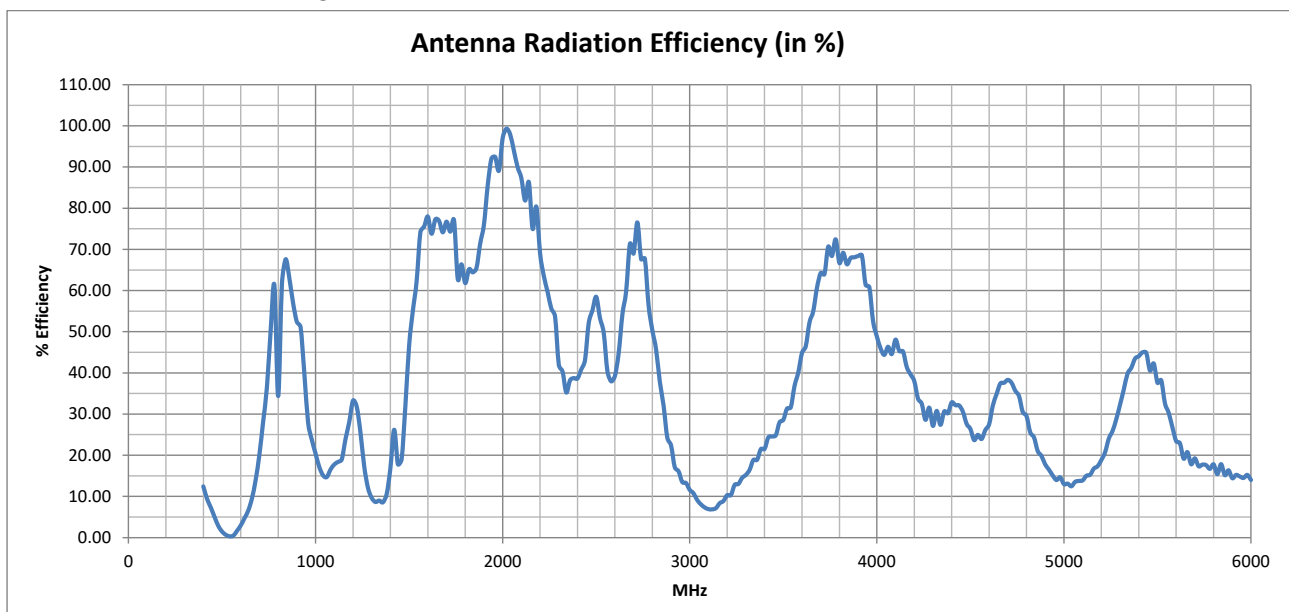
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VSWR



Radiation Efficiency





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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	88.79 / 82.16 ●	1.62 / 1.88
2/n2	B2	North America/Latin America/Caribbean	1850-1910 MHz	1930-1990 MHz	72.57 / 91.24 ●	1.93 / 1.59
3/n3	B3	Europe/Africa/Asia/Oceania	1710-1785 MHz	1805-1880 MHz	69.85 / 65.66 ●	2.19 / 2.08
4	B4	North America/Latin America/Caribbean	1710-1755 MHz	2110-2155 MHz	72.73 / 82.61 ●	2.19 / 1.79
5/n5	B5	Country Specific	824-849 MHz	869-894 MHz	64.03 / 57.40 ●	1.42 / 1.39
7/n7		Latin America/Europe/Asia +	2500-2570 MHz	2620-2690 MHz	47.98 / 59.82 ●	2.56 / 1.92
8/n8	B8	Europe / Asia +	880-915 MHz	925-960 MHz	53.43 / 39.60 ✖	1.91 / 2.34
11	B11	Country Specific	1427.9-1447.9 MHz	1475.9-1495.9 MHz	21.01 / 32.57 ☹	5.87 / 4.53
12/n12	B12	North America/Caribbean +	699-716 MHz	729-746 MHz	20.85 / 38.39 ✖	11.83 / 6.54
13/n13	B13	North America/Caribbean +	777-787 MHz	746-756 MHz	48.65 / 43.45 ●	1.64 / 4.04
14/n14	B14	Country Specific	788-798 MHz	758-768 MHz	47.80 / 49.38 ●	2.11 / 3.06
17	B17	North America/Caribbean +	704-716 MHz	734.746 MHz	24.24 / 38.39 ✖	10.91 / 5.89
18/n18	B18	Country Specific	815-830 MHz	860-875 MHz	54.49 / 59.92 ●	1.43 / 1.45
19	B19	Country Specific	830-845 MHz	875-890 MHz	64.03 / 57.40 ●	1.35 / 1.27
20/n20	B20	Europe/Africa +	832-862 MHz	791-821 MHz	62.24 / 56.18 ●	1.47 / 2.11
21		Country Specific	1447.9-1462.9 MHz	1495.9-1510.9 MHz	22.94 / 44.58 ✖	6.01 / 3.03
25/n25	B25	Country Specific	1850-1915 MHz	1525-1559 MHz	72.57 / 63.81 ●	1.93 / 2.07
26/n26	B26	Country Specific	814-849 MHz	859-894 MHz	56.61 / 59.95 ●	1.69 / 1.47
28/n28	B28	Latin America/Europe/Asia +	703-748 MHz	758-803 MHz	38.39 / 48.80 ✖	10.91 / 3.06
29/n29		Country Specific	-	717-728 MHz	28.35 ✖	8.16
30/n30		Country Specific	2305-2315 MHz	2350-2360 MHz	41.17 / 36.72 ●	3.62 / 4.38
31	B31	Country Specific	452.5-457.5 MHz	462.5-467.5 MHz	6.14 / 3.90 ✖	35.0 / 34.9
32		Country Specific	-	1452-1496 MHz	28.87 ✖	6.01
38/n38		Europe +	2570-2620 MHz		40.58 ●	2.57
39/n39		Country Specific	1880-1920 MHz		77.66 ●	1.76
40/n40		Asia +	2300-2400 MHz		38.86 ●	4.38
41/n41		Country Specific	2496-2690 MHz		52.79 ●	2.57
42		Country Specific	3400-3600 MHz		30.59 ✖	8.59
43		Country Specific	3600-3800 MHz		60.51 ●	3.70
46/n46		Country Specific	5150-5925 MHz		25.89 ✖	8.95
48/n48		Country Specific	3550-3700 MHz		48.00 ●	4.72
65/n65		Country Specific	1920-2010 MHz	2110-2200 MHz	92.58 / 79.97 ●	1.62 / 2.15
66/n66	B66	Country Specific	1710-1780 MHz	2110-2200 MHz	71.46 / 79.97 ●	2.19 / 2.15
71/n71	B71	Country Specific	663-698 MHz	617-652 MHz	14.60 / 5.91 ✖	17.89 / 22.7

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	75.99 / 63.81	1.52 / 2.07
n34		2010 – 2025 MHz		98.10	1.15
n47		5855 – 5925 MHz		15.62	8.04
n50		1432 – 1517 MHz		32.79	6.01
n51		1427 – 1432 MHz		21.98	4.49
n53		2483.5 – 2495 MHz		56.84	1.88
n67		738 – 758 MHz		38.39	5.33
n70	B70	1695 – 1710 MHz	1995 – 2020 MHz	75.06 / 95.16	1.98 / 1.24
n74		1427 – 1470 MHz	1475 – 1518 MHz	23.75 / 38.20	6.01 / 4.53
n75		1432 – 1517 MHz		32.79	6.01
n76		1427 – 1432 MHz		21.98	4.49
n77		3300 – 4200 MHz		46.06	11.29
n78		3300 – 3800 MHz		40.31	11.29
n79		4400 – 5000 MHz		27.00	11.49
n80		1710 – 1785 MHz		69.85	2.19
n81		880 – 915 MHz		53.43	1.91
n82		832 – 862 MHz		62.24	1.47
n83		703 – 748 MHz		33.85	10.91
n84		1920 – 1980 MHz		89.79	1.62
n85	B85	698 – 716 MHz	728 – 746 MHz	20.85 / 38.39	11.83 / 6.54
n86		1710 – 1780 MHz		71.46	2.19
n89		824 – 849 MHz		64.03	1.42
n90		2496 – 2690 MHz		52.79	2.57
n91		832 – 862 MHz	1427 – 1432 MHz	62.24 / 21.98	1.47 / 4.49
n92		832 – 862 MHz	1432 – 1517 MHz	62.24 / 32.79	1.47 / 6.01
n93		880 – 915 MHz	1427 – 1432 MHz	53.43 / 21.98	1.91 / 4.49
n94		880 – 915 MHz	1432 – 1517 MHz	53.43 / 32.79	1.91 / 6.01
n95		2010 – 2025 MHz		98.10	1.15
n96		5925 – 7125 MHz		unmeasured	
n97		2300 – 2400 MHz		38.86	4.38
n98		1880 – 1920 MHz		77.66	1.76
n99		1626.5 – 1660.5 MHz		75.99	1.52

Table data for bands as detailed in 3GPP TS 38.101

● Usable Band

○ Adequate in good signal area

✗ Not Usable



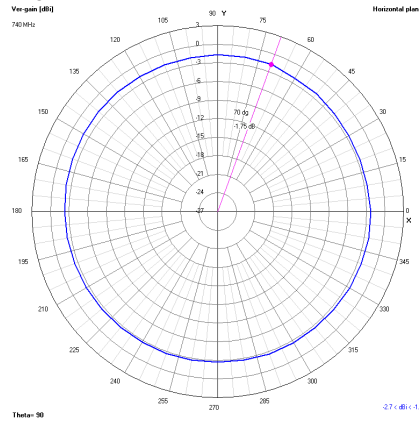


Delta 40

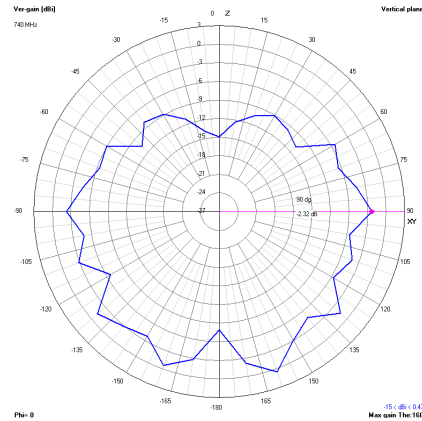
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Radiation Plots

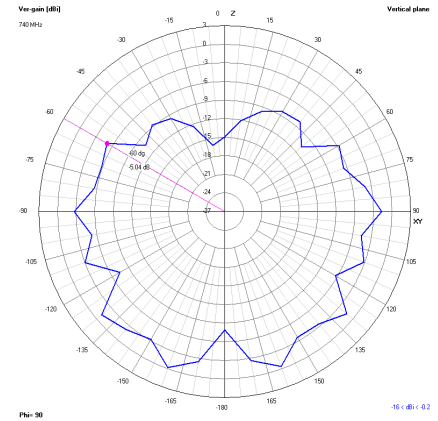
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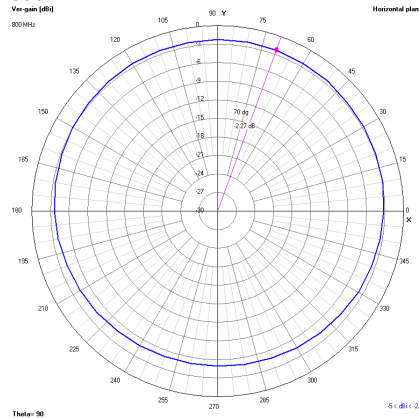
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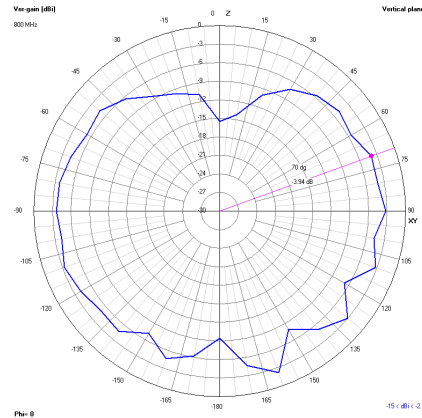
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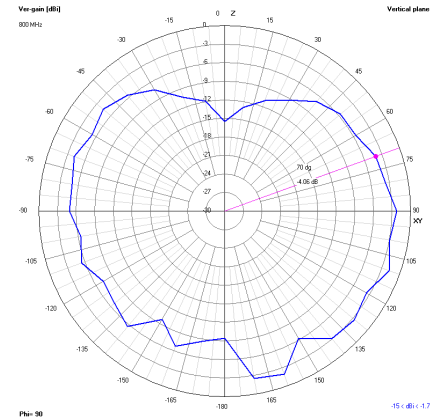
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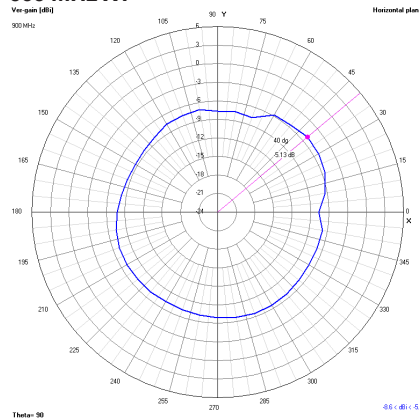
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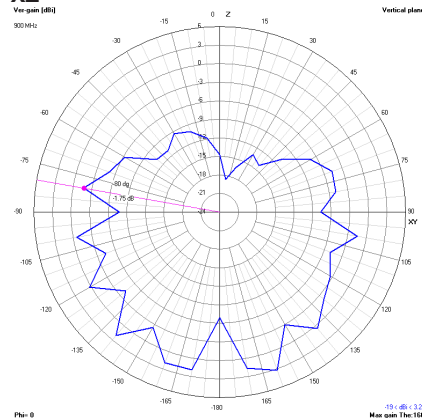
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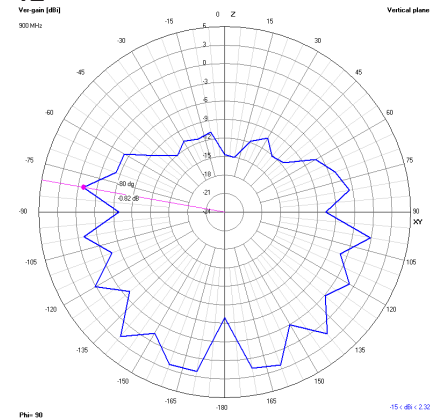
900 MHz XY



XZ



YZ



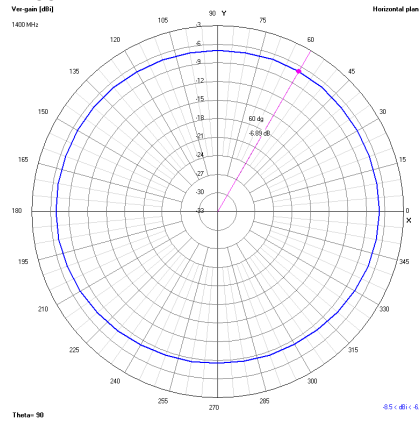


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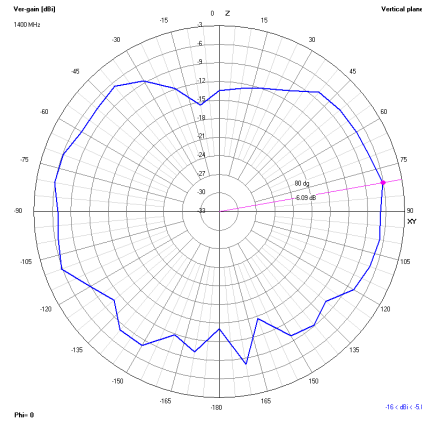
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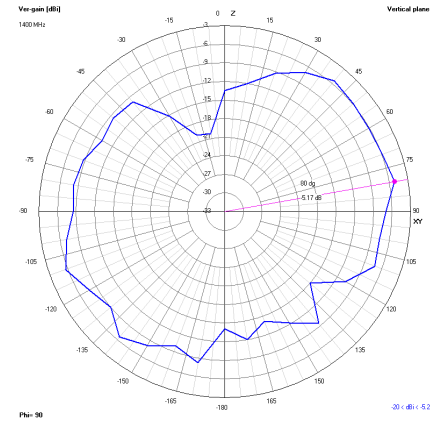
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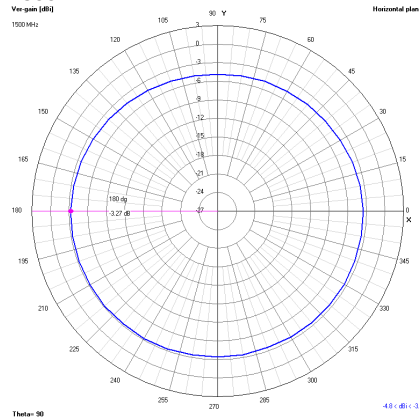
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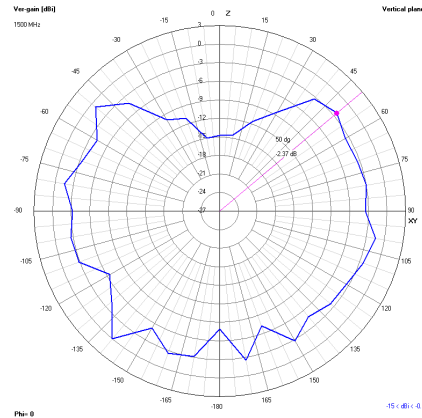
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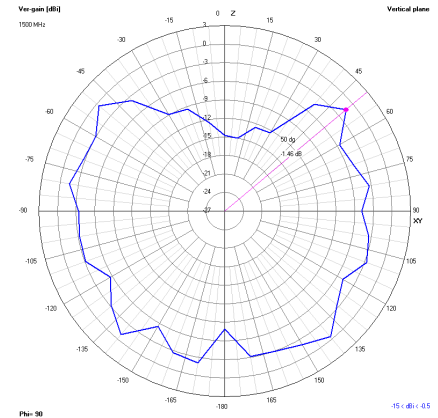
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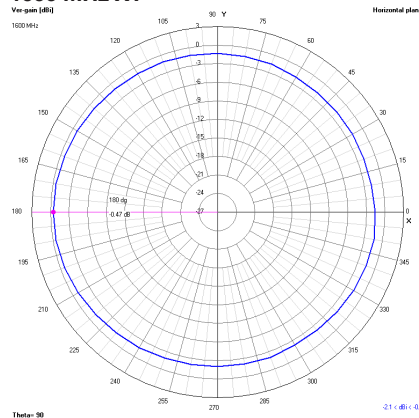
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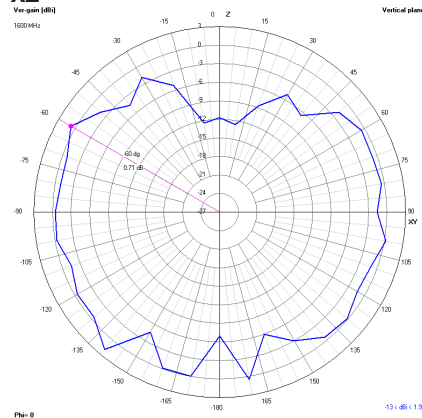
YZ



1600 MHz XY



XZ



YZ



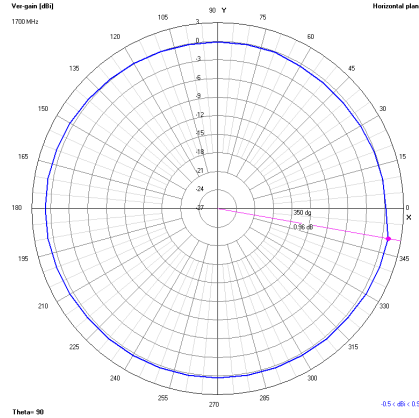


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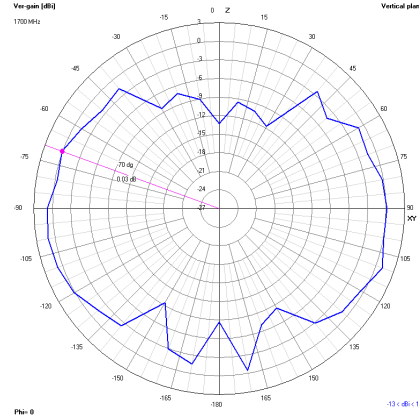
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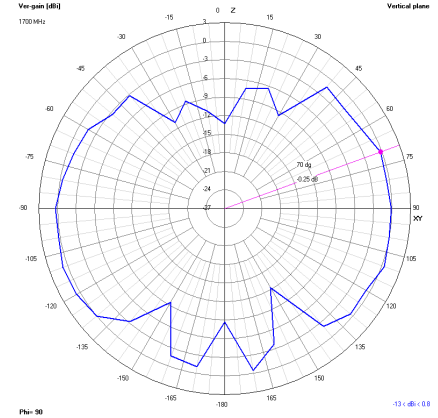
1700 MHz XY



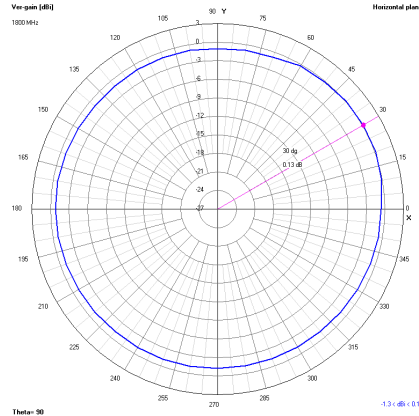
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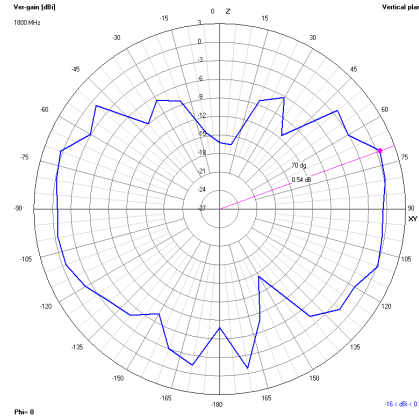
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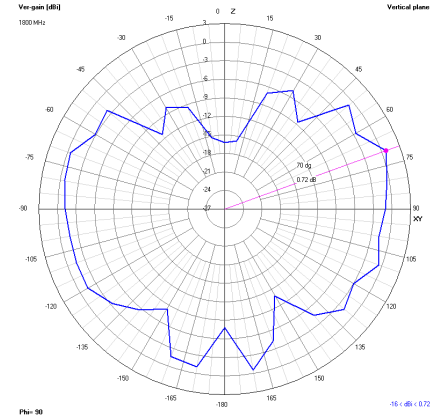
1800 MHz XY



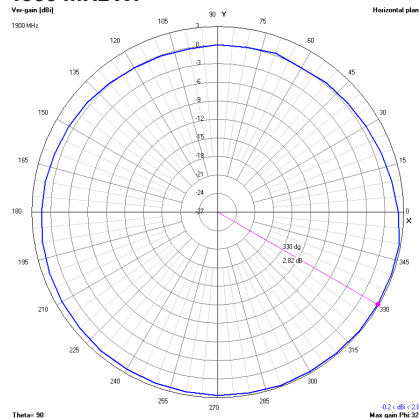
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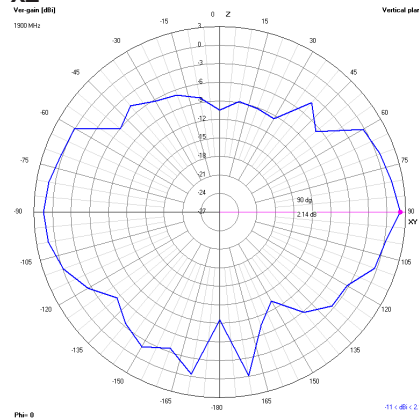
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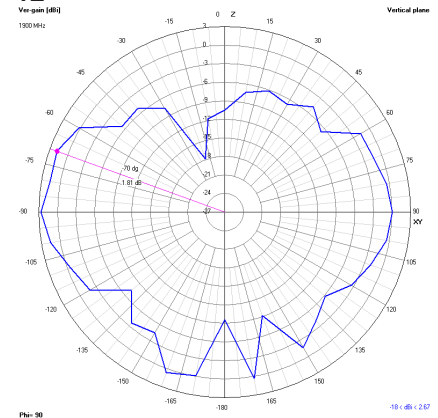
1900 MHz XY



XZ



YZ



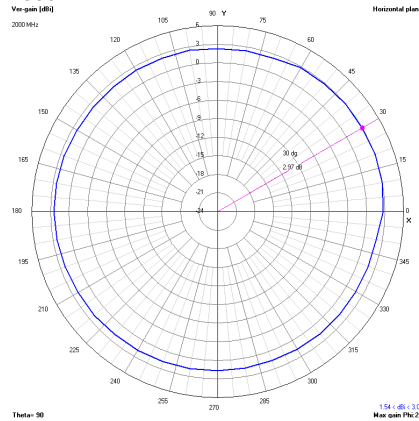


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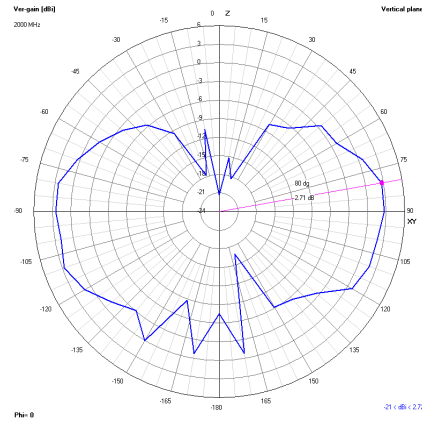
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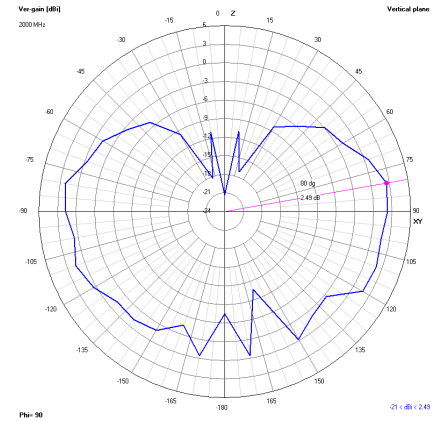
2000 MHz XY



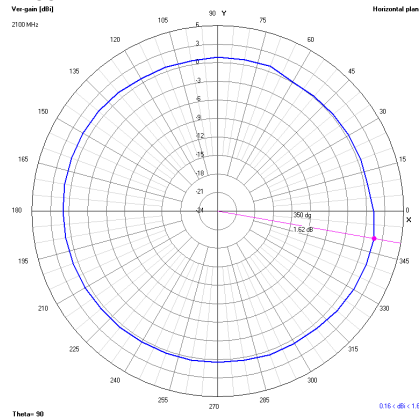
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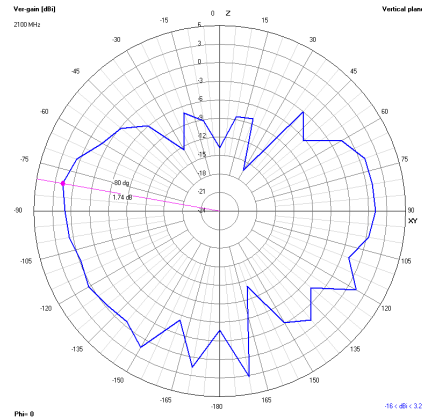
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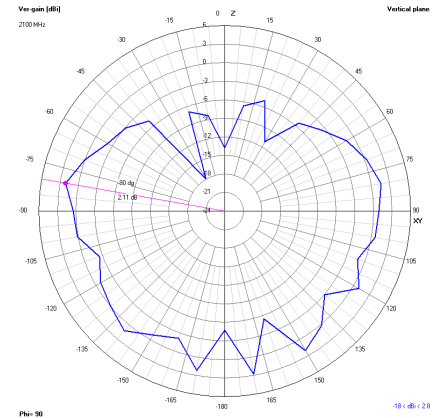
2100 MHz XY



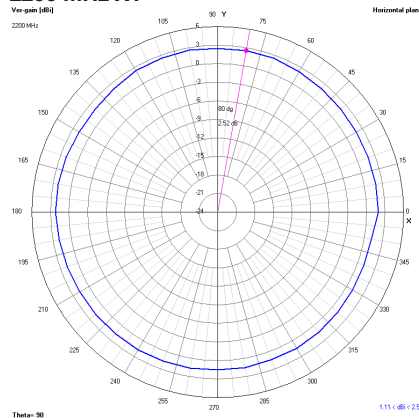
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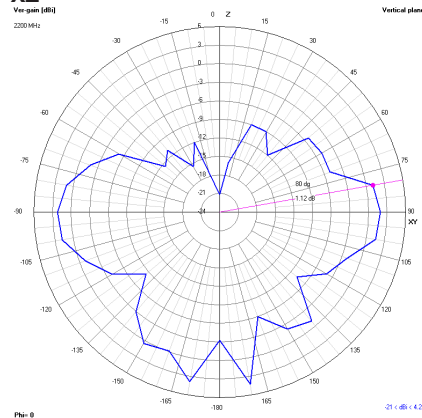
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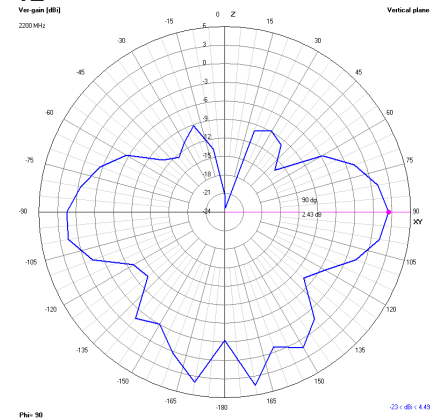
2200 MHz XY



XZ



YZ



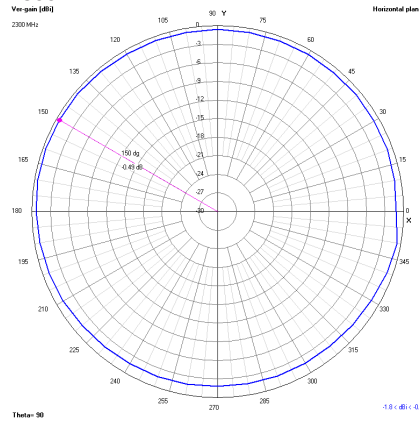


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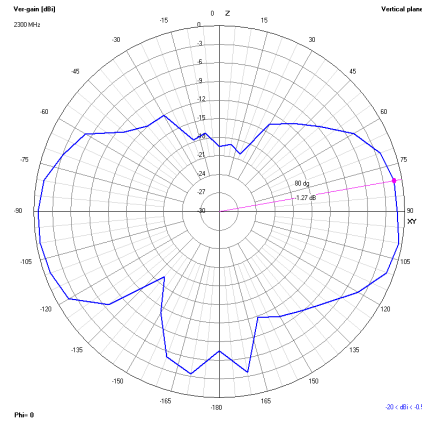
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Radiation Plots

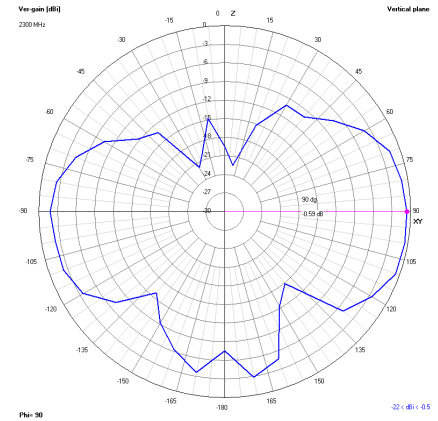
2300 MHz XY



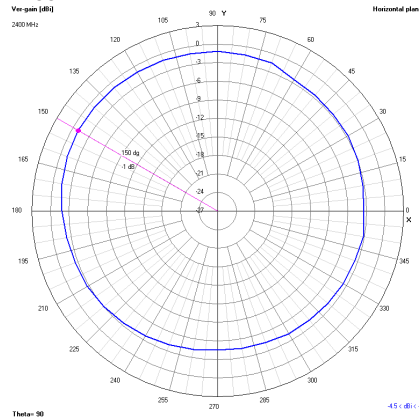
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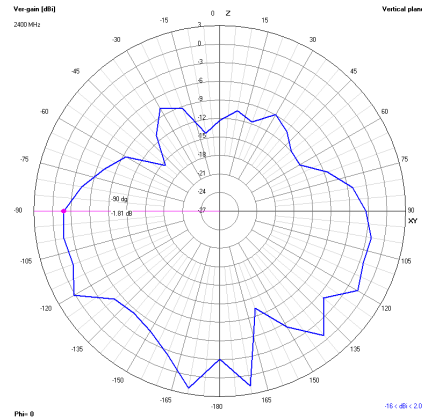
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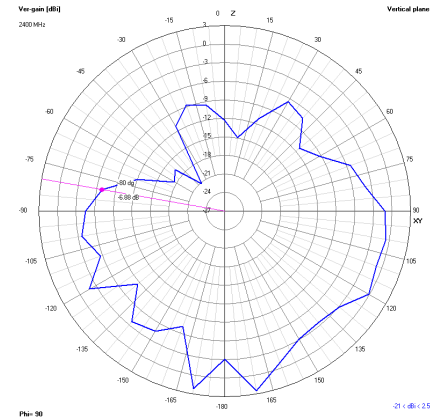
2400 MHz XY



XZ



YZ



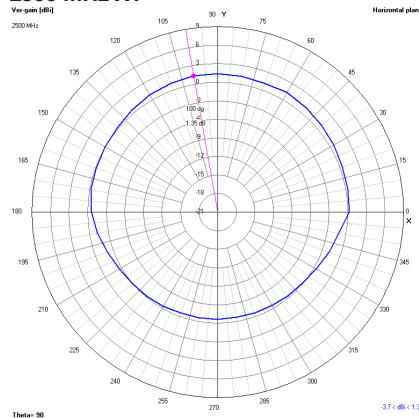
WiFi
Band
2.4
GHz

Eff %
38.64

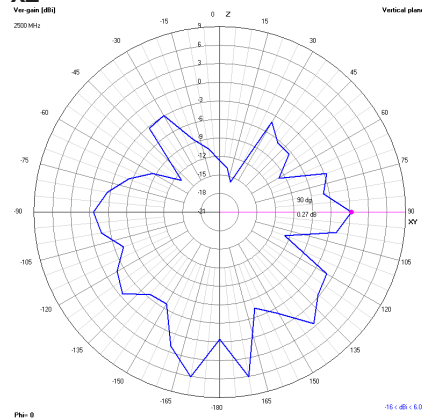
WiFi
Band
2.4
GHz

Eff %
38.64

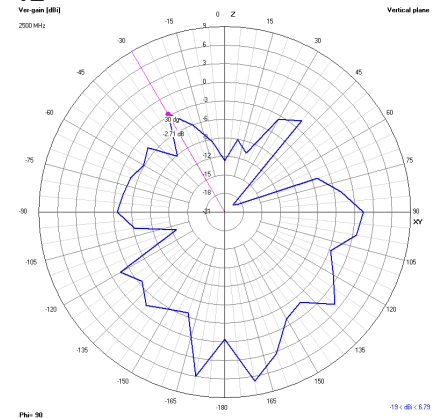
2500 MHz XY



XZ



YZ



WiFi
Band
2.4
GHz

Eff %
58.48

WiFi
Band
2.4
GHz

Eff %
58.48

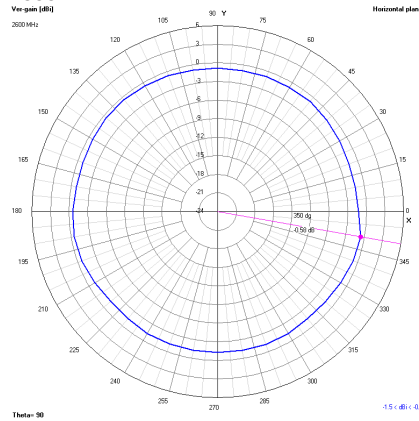


Delta 40

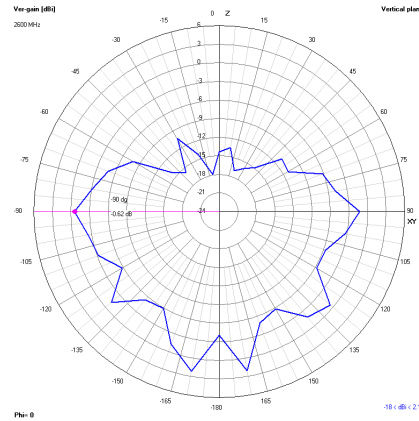
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Radiation Plots

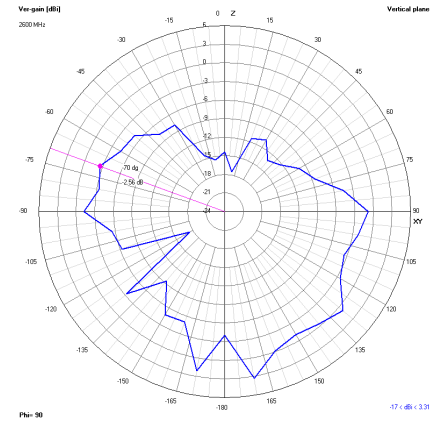
2600 MHz XY



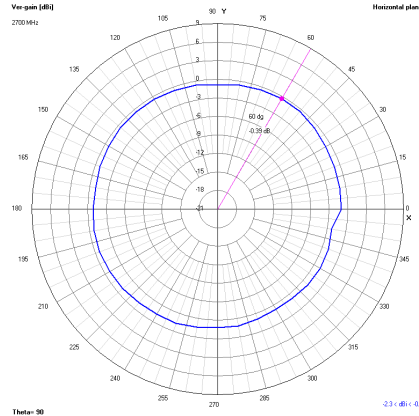
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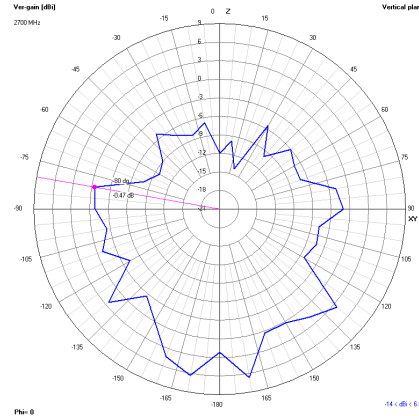
YZ



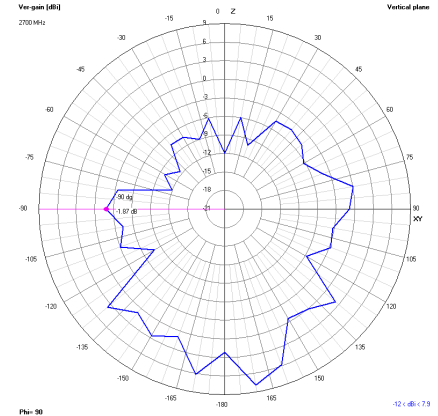
2700 MHz XY



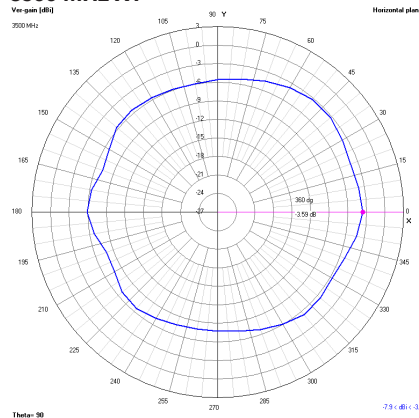
XZ



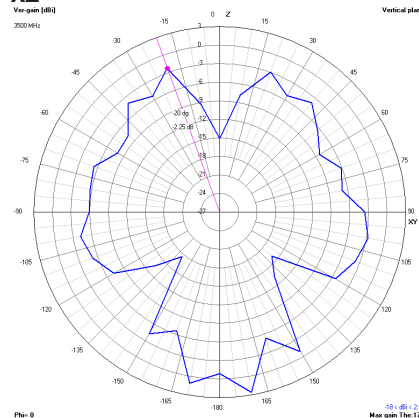
YZ



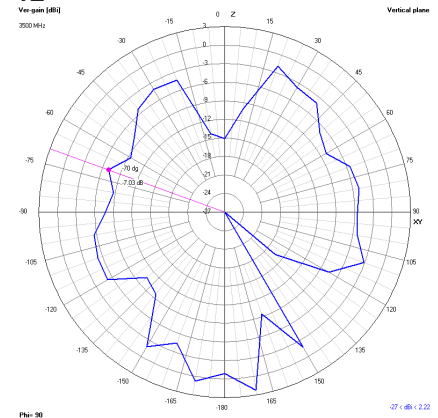
3500 MHz XY



XZ



YZ



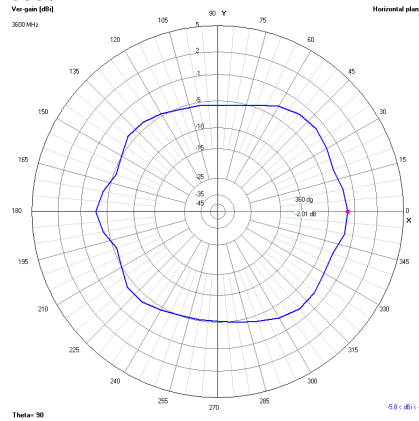


Delta 40

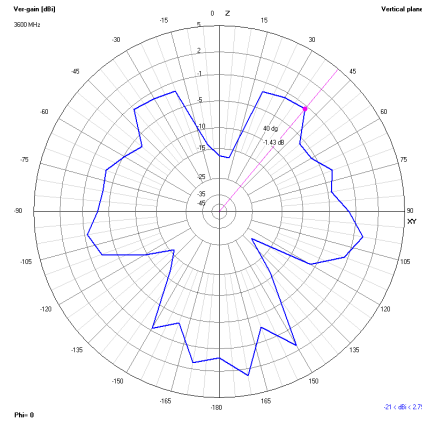
2G/3G/4G/(5G) & WIFI 161MM HINGED DIRECT CONNECT ANTENNA

Radiation Plots

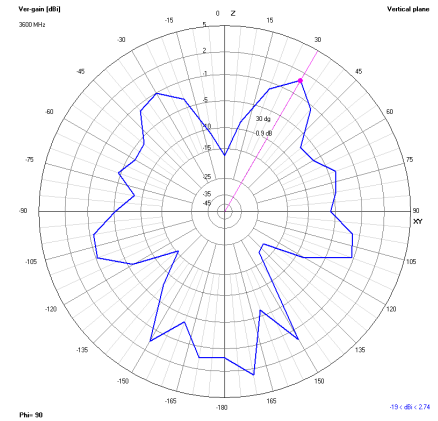
3600 MHz XY



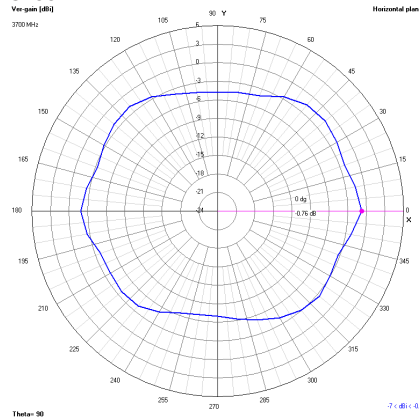
XZ



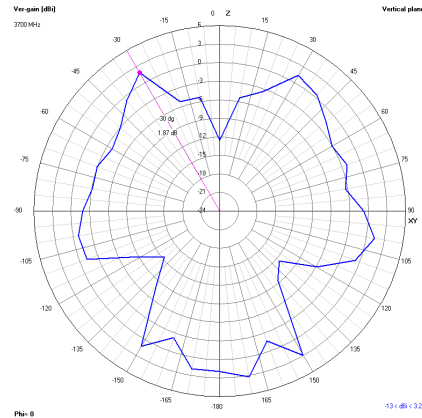
YZ



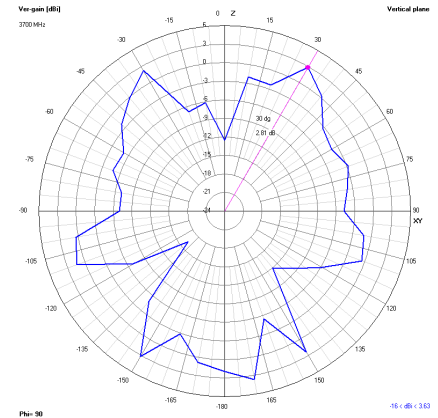
3700 MHz XY



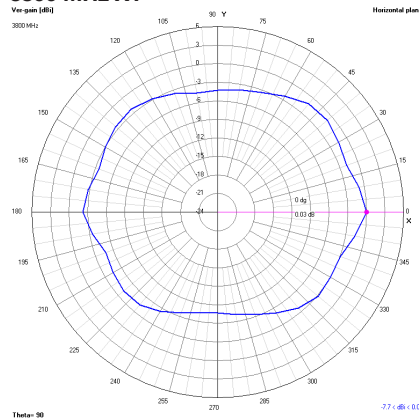
XZ



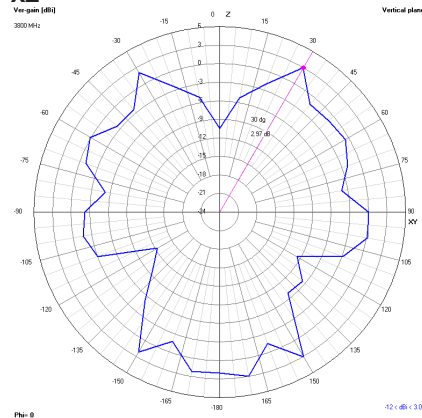
YZ



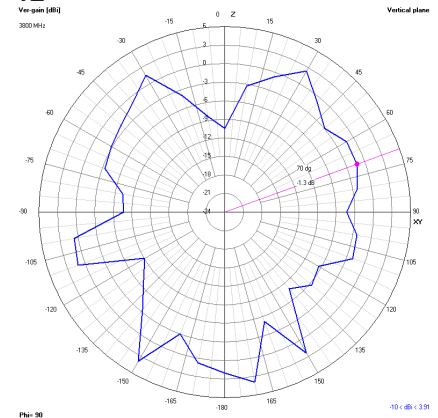
3800 MHz XY



XZ



YZ



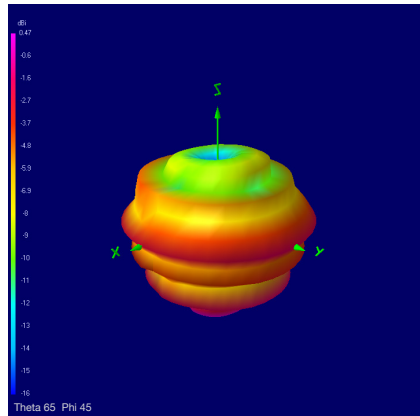


Delta 40

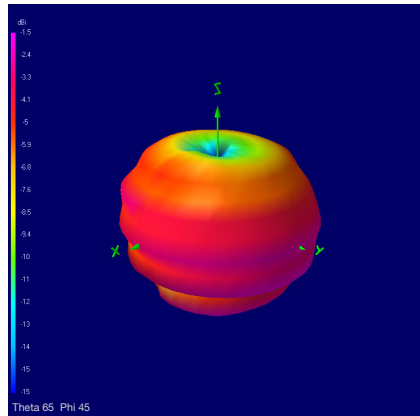
2G/3G/4G/(5G) & WIFI 161MM HINGED DIRECT CONNECT ANTENNA

3D Radiation Plots

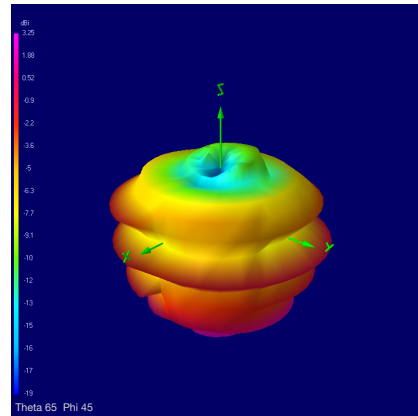
740 MHz



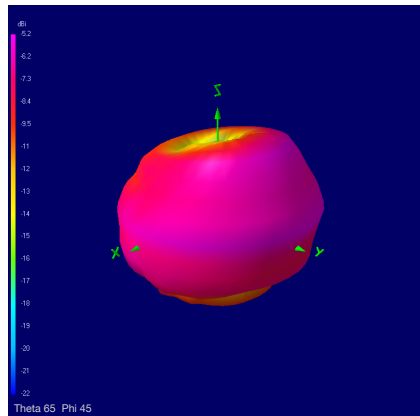
800 MHz



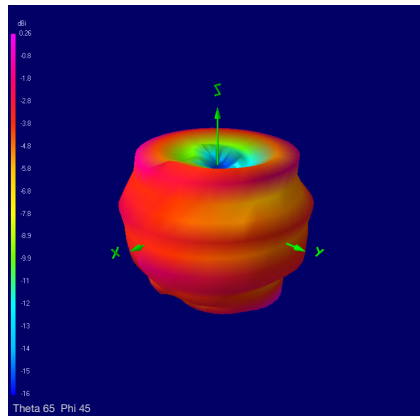
900 MHz



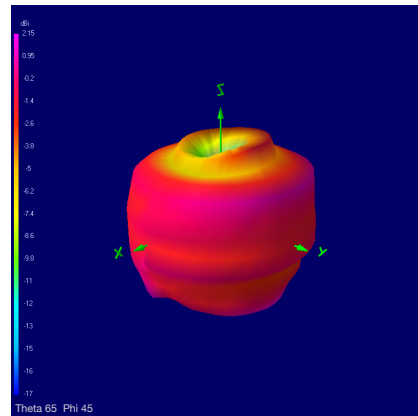
1400 MHz



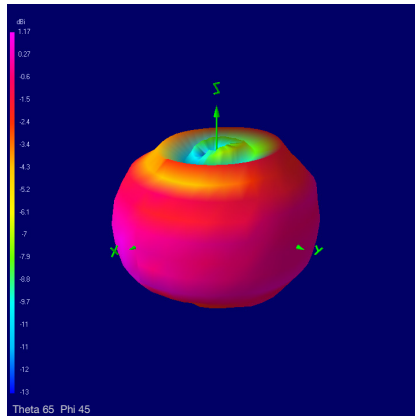
1500 MHz



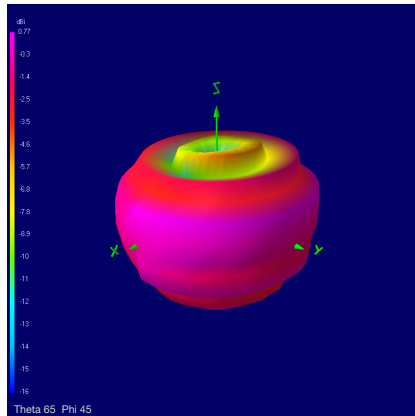
1600 MHz



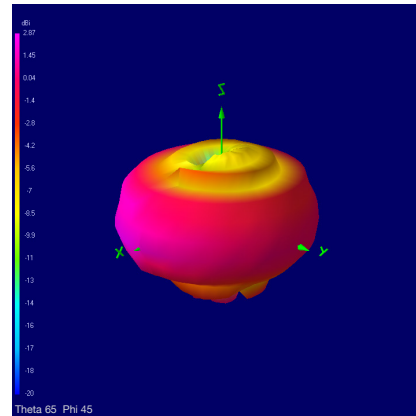
1700 MHz



1800 MHz



1900 MHz



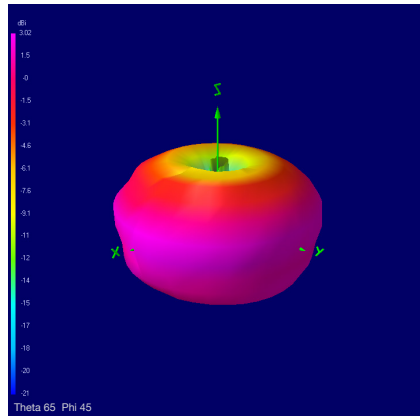


Delta 40

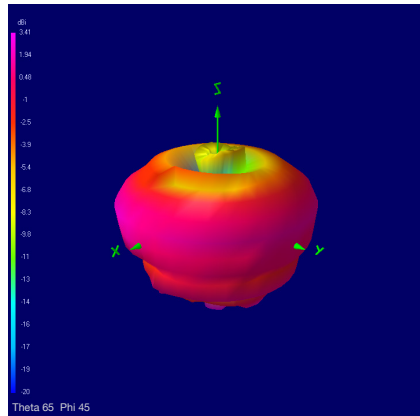
2G/3G/4G/(5G) & WIFI 161MM HINGED DIRECT CONNECT ANTENNA

3D Radiation Plots

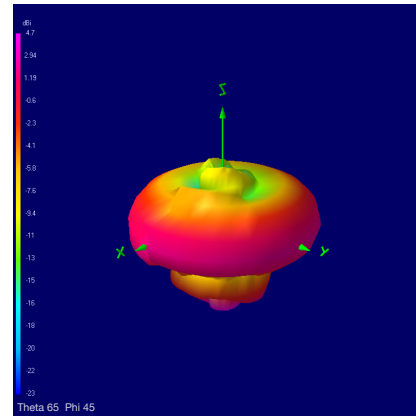
2000 MHz



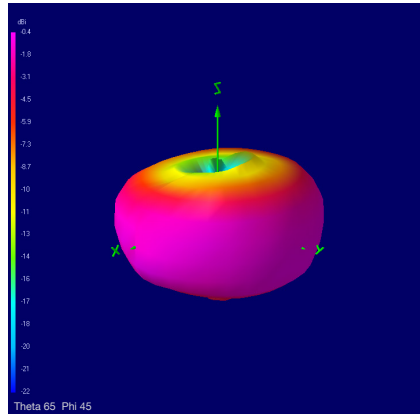
2100 MHz



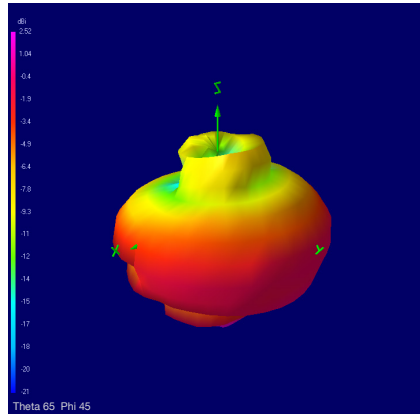
2200 MHz



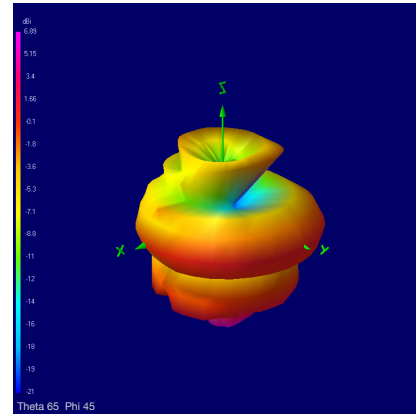
2300 MHz



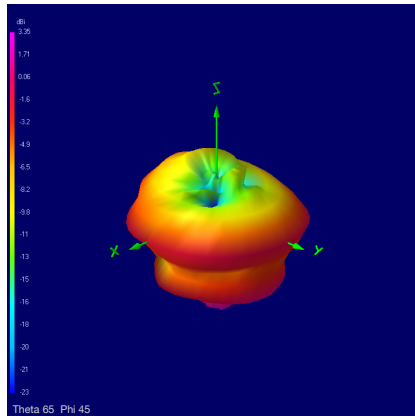
2400 MHz



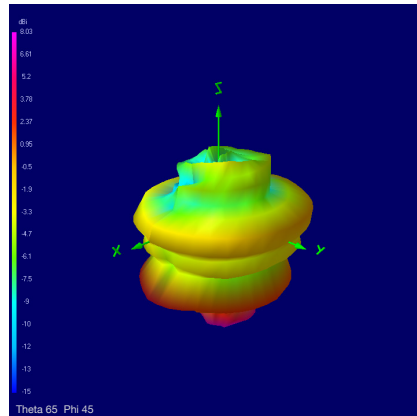
2500 MHz



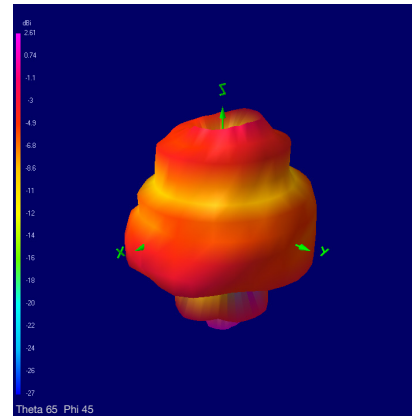
2600 MHz



2700 MHz



3500 MHz



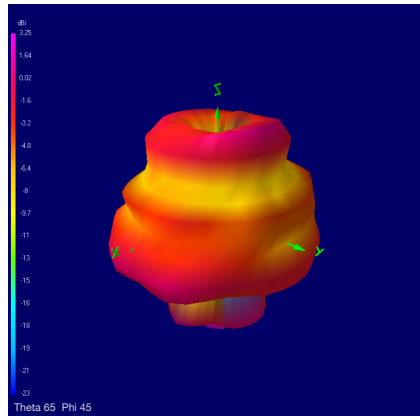


Delta 40

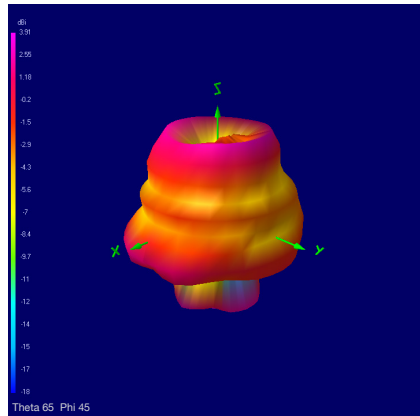
2G/3G/4G/(5G) & WIFI 161MM HINGED DIRECT CONNECT ANTENNA

3D Radiation Plots

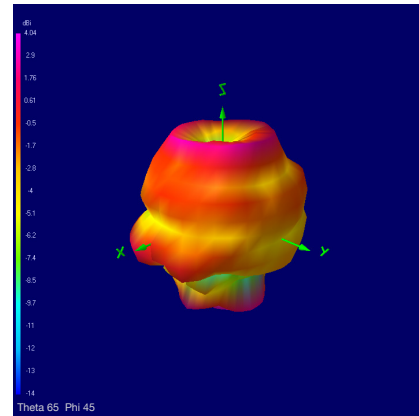
3600 MHz



3700 MHz



3800 MHz



Ordering Details

Part number	Description
DELTA40/X/SMAM/S/S/32	2G/3G/4G/(5G) & WIFI 161MM HINGED DIRECT CONNECT ANTENNA SMA MALE