



Tango 23

Dual Band 2.4/5.8GHz WiFi / (LTE) Through Hole Antenna

Key Features

- Dual Band: 2.4 GHz & 5.8 GHz
- Support for some LTE bands, 4G/5G Cat M and NB IoT



General Description

The Tango 23 is a compact, puck antenna, tuned to dual band 2.4 / 5.8 GHz - WiFi / WLAN, Bluetooth and Zigbee frequencies.

With dual band compatibility it can be used with most modern day WiFi single and dual band modems such as NetGear and TP-link thereby benefitting from the less congested upper band.

In addition to the WiFi bands some LTE bands for 4G, 5G, Cat M and NB IoT are also supported. Refer to the band coverage tables for performance details.

The Tango 23 is supplied as standard with low loss CLF100 cable and terminated with a reverse polarity SMA male connector.

Alternative cable lengths and connector types can be specified for small volume orders.

Additional Considerations

- Made with a rubber seal gasket to resist water ingress
- Supplied with a low loss cable for enhanced performance
- Omni-directional radiation

T Through	WLAN 2400	WLAN 5800	ISM 2450
BLE Bluetooth	ZB Zigbee	WiFi 4 802.11n	WiFi 5 802.11ac
WiFi 6 802.11ax	IP 67	4G LTE	5G LTE



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Electrical Specification

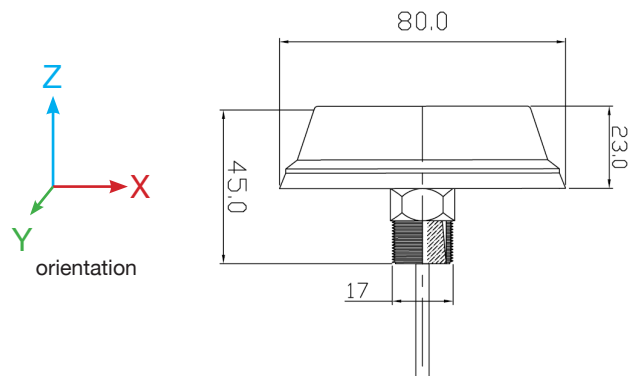
Impedance:	50 Ohms
Polarization:	Linear vertical
Max Input Power:	50 W

Mechanical Specification

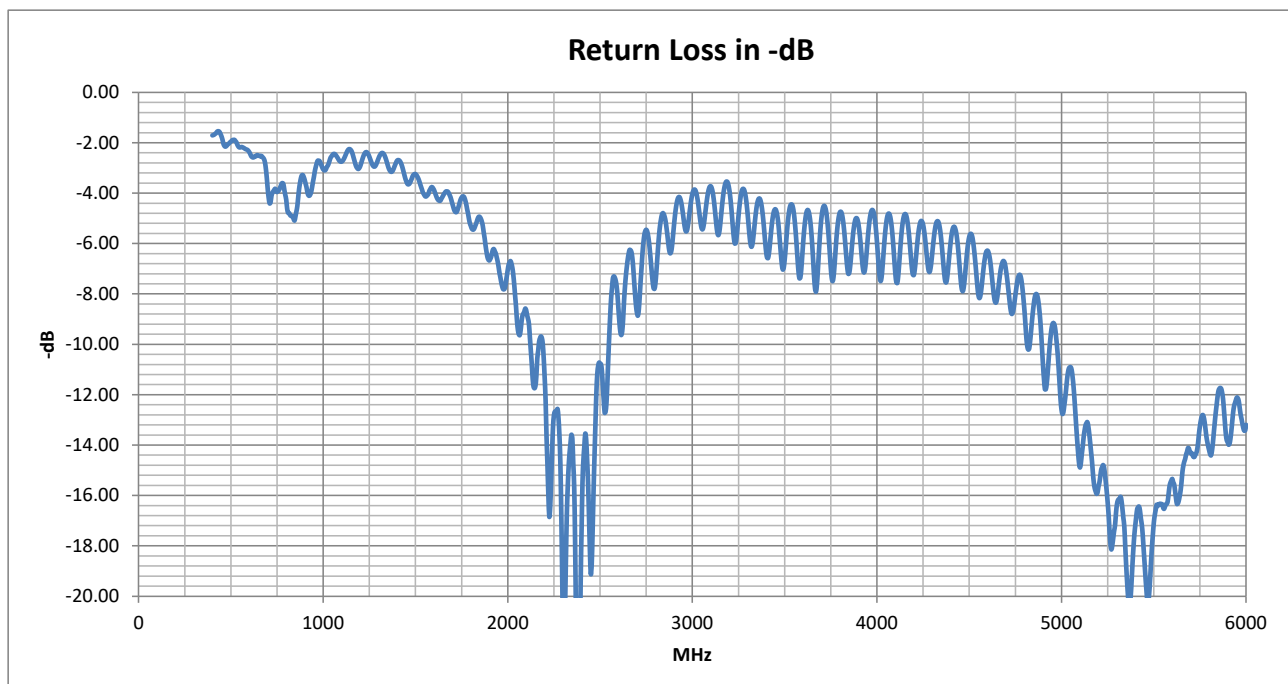
Dimensions:	Ø 80 x H23 mm
Connector:	RP SMA Male
Cable:	Low Loss CFL100

Environmental Specification

Operating Temperature:	-40 - +85 °C
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Return Loss tested with 1 m cable

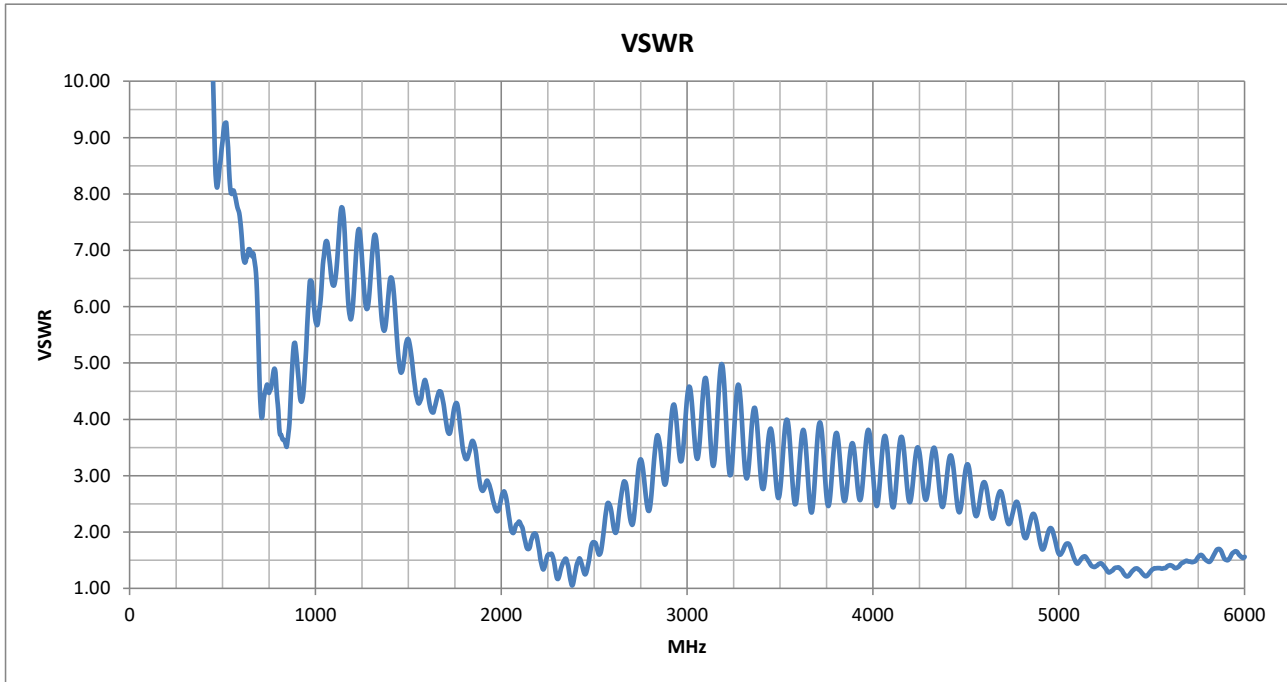




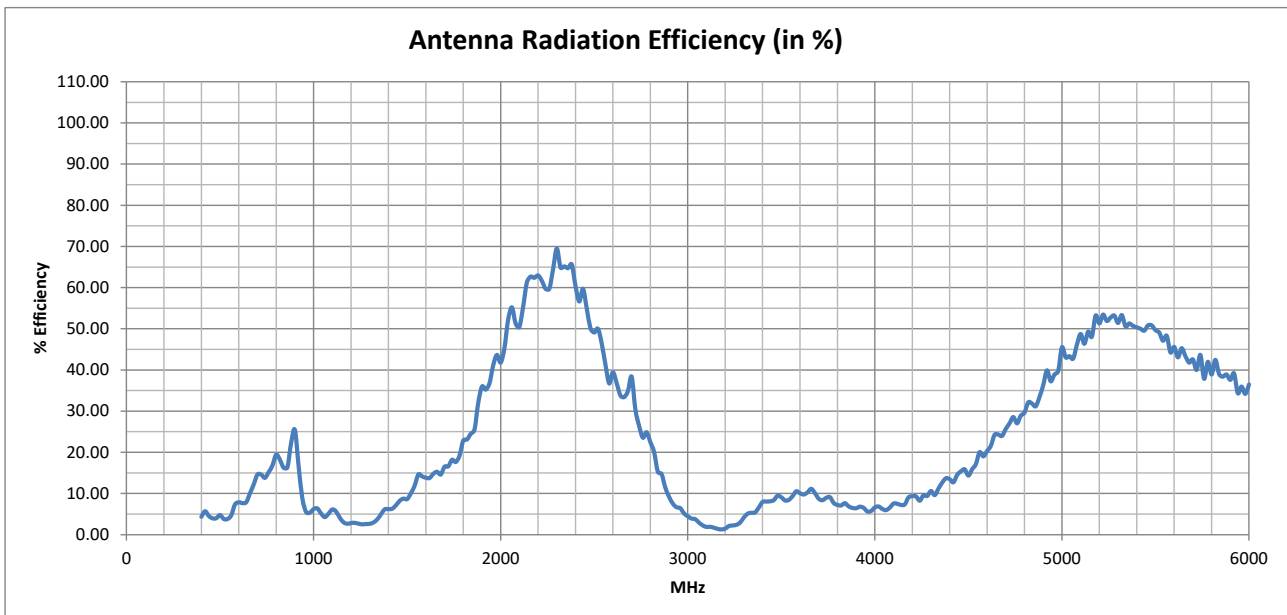
Tango 23

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VSWR tested with 1 m cable



Radiation Efficiency tested with 1 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	39.18 / 58.41	2.91 / 2.10
2/n2	B2	North America/Latin America/Caribbean	1850-1910 MHz	1930-1990 MHz	30.63 / 39.70	3.60 / 2.87
3/n3	B3	Europe/Africa/Asia/Oceania	1710-1785 MHz	1805-1880 MHz	18.50 / 25.58	4.29 / 3.62
4	B4	North America/Latin America/Caribbean	1710-1755 MHz	2110-2155 MHz	17.24 / 57.42	4.28 / 2.10
5/n5	B5	Country Specific	824-849 MHz	869-894 MHz	16.93 / 21.36	3.67 / 5.36
7/n7		Latin America/Europe/Asia +	2500-2570 MHz	2620-2690 MHz	44.72 / 35.45	2.50 / 2.90
8/n8	B8	Europe / Asia +	880-915 MHz	925-960 MHz	21.46 / 10.32	5.36 / 5.93
11	B11	Country Specific	1427.9-1447.9 MHz	1475.9-1495.9 MHz	7.22 / 8.55	6.10 / 5.42
12/n12	B12	North America/Caribbean +	699-716 MHz	729-746 MHz	13.81 / 14.53	5.15 / 4.62
13/n13	B13	North America/Caribbean +	777-787 MHz	746-756 MHz	17.15 / 14.50	4.90 / 4.54
14/n14	B14	Country Specific	788-798 MHz	758-768 MHz	18.12 / 15.27	4.83 / 4.74
17	B17	North America/Caribbean +	704-716 MHz	734.746 MHz	14.60 / 14.53	4.58 / 4.62
18/n18	B18	Country Specific	815-830 MHz	860-875 MHz	17.97 / 19.31	3.73 / 4.92
19	B19	Country Specific	830-845 MHz	875-890 MHz	16.93 / 21.36	3.64 / 5.36
20/n20	B20	Europe/Africa +	832-862 MHz	791-821 MHz	18.27 / 17.67	4.26 / 4.55
21		Country Specific	1447.9-1462.9 MHz	1495.9-1510.9 MHz	8.04 / 9.16	5.16 / 5.42
25/n25	B25	Country Specific	1850-1915 MHz	1525-1559 MHz	30.63 / 12.18	3.60 / 4.86
26/n26	B26	Country Specific	814-849 MHz	859-894 MHz	17.56 / 20.08	3.73 / 5.36
28/n28	B28	Latin America/Europe/Asia +	703-748 MHz	758-803 MHz	14.53 / 16.69	4.62 / 4.90
29/n29		Country Specific	-	717-728 MHz	14.34	4.50
30/n30		Country Specific	2305-2315 MHz	2350-2360 MHz	67.18 / 64.94	1.27 / 1.52
31	B31	Country Specific	452.5-457.5 MHz	462.5-467.5 MHz	4.26 / 3.99	9.91 / 8.55
32		Country Specific	-	1452-1496 MHz	8.19	5.42
38/n38		Europe +	2570-2620 MHz		38.57	2.52
39/n39		Country Specific	1880-1920 MHz		34.40	2.97
40/n40		Asia +	2300-2400 MHz		65.04	1.53
41/n41		Country Specific	2496-2690 MHz		40.87	2.90
42		Country Specific	3400-3600 MHz		8.89	3.99
43		Country Specific	3600-3800 MHz		9.22	3.95
46/n46		Country Specific	5150-5925 MHz		46.20	1.70
48/n48		Country Specific	3550-3700 MHz		9.83	3.81
65/n65		Country Specific	1920-2010 MHz	2110-2200 MHz	40.63 / 59.17	2.91 / 2.10
66/n66	B66	Country Specific	1710-1780 MHz	2110-2200 MHz	17.63 / 59.17	4.29 / 2.10
71/n71	B71	Country Specific	663-698 MHz	617-652 MHz	12.30 / 8.37	6.95 / 7.02

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	14.61 / 12.18	4.45 / 4.86
n34		2010 – 2025 MHz		46.44	2.72
n47		5855 – 5925 MHz		37.90	1.70
n50		1432 – 1517 MHz		8.19	5.87
n51		1427 – 1432 MHz		6.72	6.10
n53		2483.5 – 2495 MHz		49.60	1.82
n67		738 – 758 MHz		14.53	4.62
n70	B70	1695 – 1710 MHz	1995 – 2020 MHz	15.91 / 43.57	4.14 / 2.72
n74		1427 – 1470 MHz	1475 – 1518 MHz	7.61 / 8.92	6.10 / 5.42
n75		1432 – 1517 MHz		8.19	5.87
n76		1427 – 1432 MHz		6.72	6.10
n77		3300 – 4200 MHz		7.73	4.20
n78		3300 – 3800 MHz		8.30	4.20
n79		4400 – 5000 MHz		26.00	3.36
n80		1710 – 1785 MHz		18.50	4.29
n81		880 – 915 MHz		21.46	5.36
n82		832 – 862 MHz		18.27	4.26
n83		703 – 748 MHz		14.55	4.62
n84		1920 – 1980 MHz		39.18	2.91
n85	B85	698 – 716 MHz	728 – 746 MHz	13.81 / 14.53	5.15 / 4.62
n86		1710 – 1780 MHz		17.63	4.29
n89		824 – 849 MHz		16.93	3.67
n90		2496 – 2690 MHz		40.87	2.90
n91		832 – 862 MHz	1427 – 1432 MHz	18.27 / 6.72	4.26 / 6.10
n92		832 – 862 MHz	1432 – 1517 MHz	18.27 / 8.19	4.26 / 5.87
n93		880 – 915 MHz	1427 – 1432 MHz	21.46 / 6.72	5.36 / 6.10
n94		880 – 915 MHz	1432 – 1517 MHz	21.46 / 8.19	5.36 / 5.87
n95		2010 – 2025 MHz		46.44	2.72
n96		5925 – 7125 MHz		unmeasured	
n97		2300 – 2400 MHz		65.04	1.53
n98		1880 – 1920 MHz		34.40	2.97
n99		1626.5 – 1660.5 MHz		14.61	4.45

Table data for bands as detailed in 3GPP TS 38.101

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

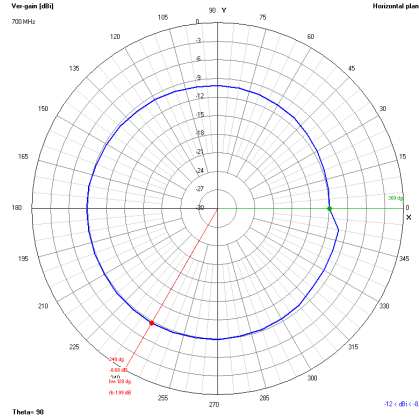


Tango 23

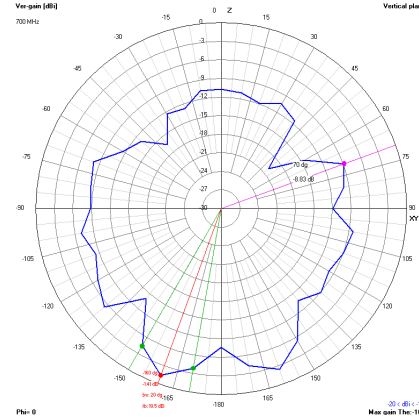
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Radiation Plots tested with 1 m cable

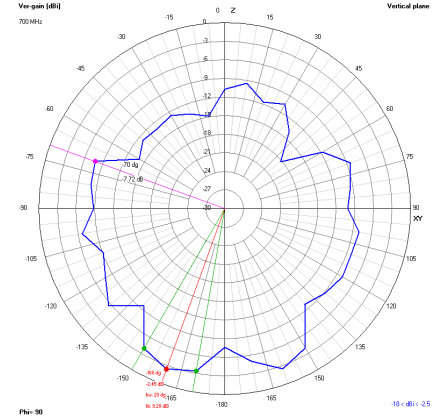
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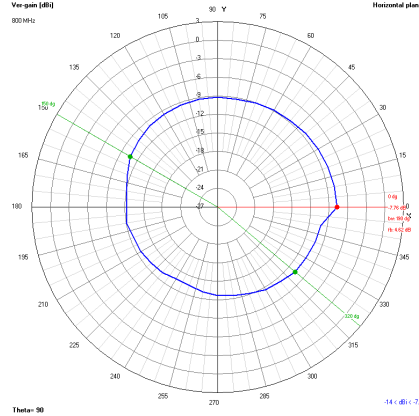
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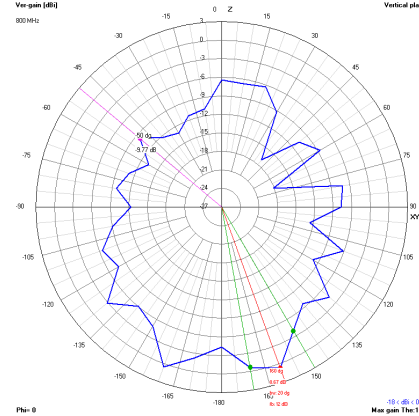
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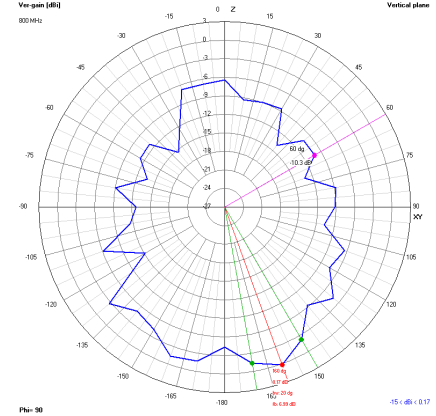
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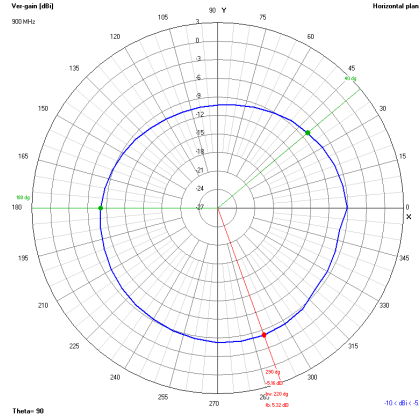
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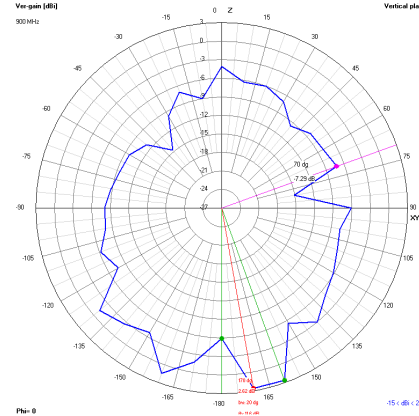
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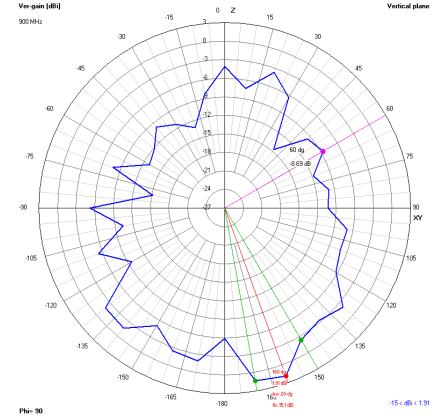
900 MHz XY



XZ



YZ



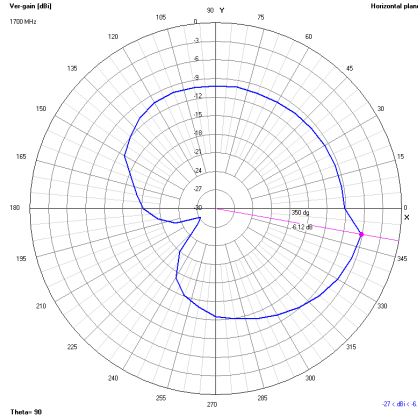


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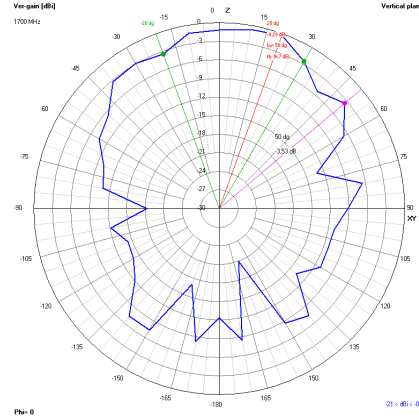
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Radiation Plots tested with 1 m cable

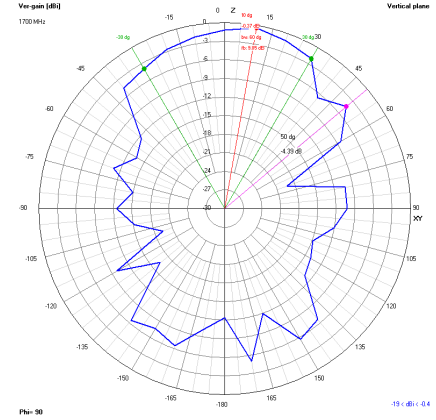
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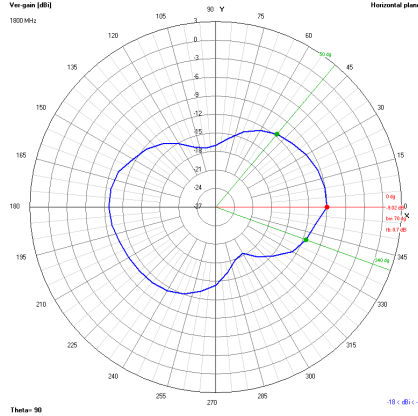
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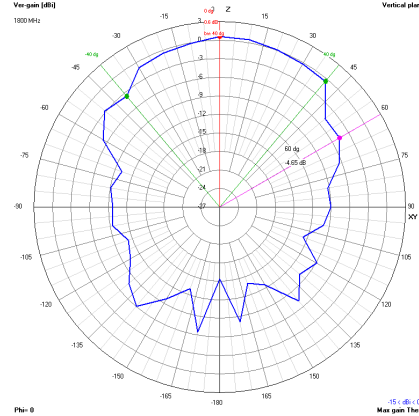
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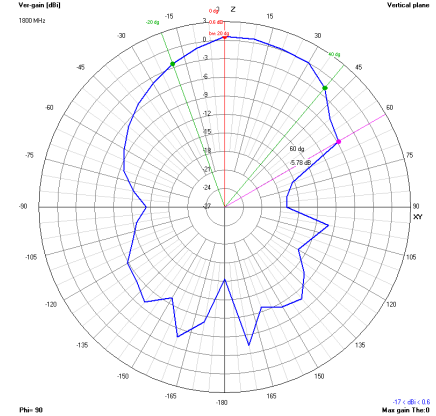
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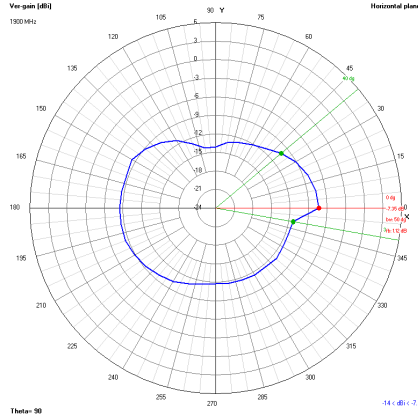
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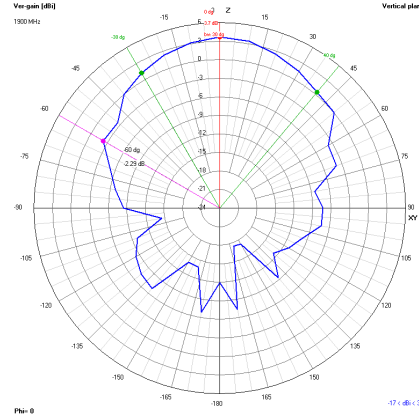
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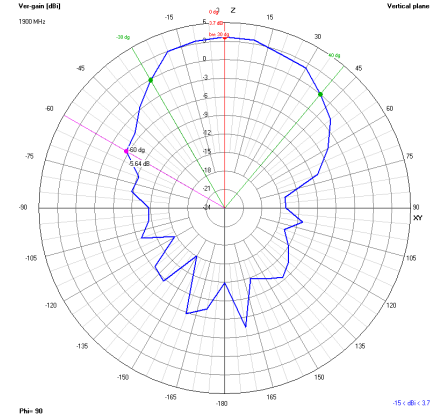
1900 MHz XY



XZ

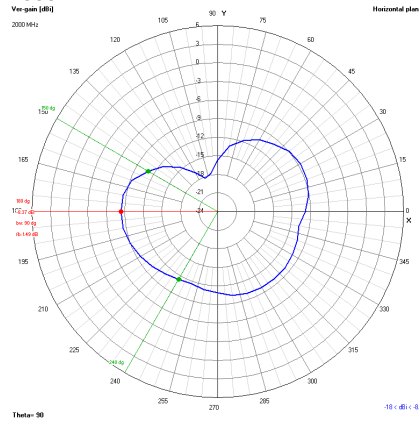


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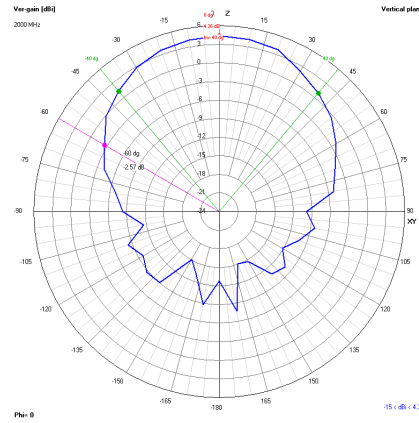


Radiation Plots tested with 1 m cable

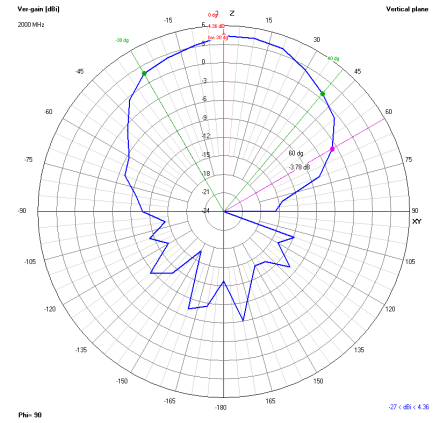
2000 MHz XY



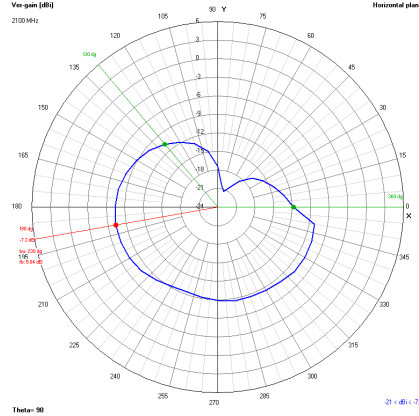
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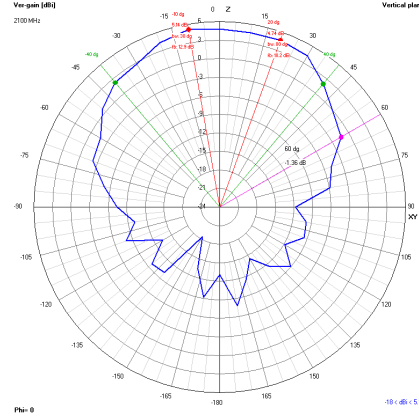
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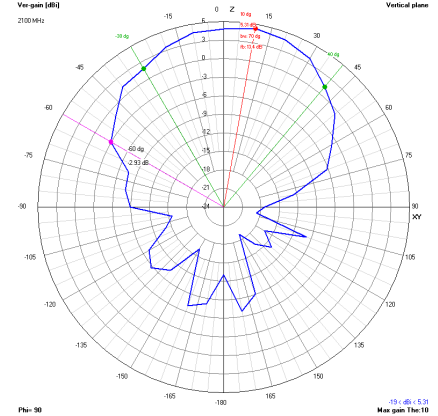
2100 MHz XY



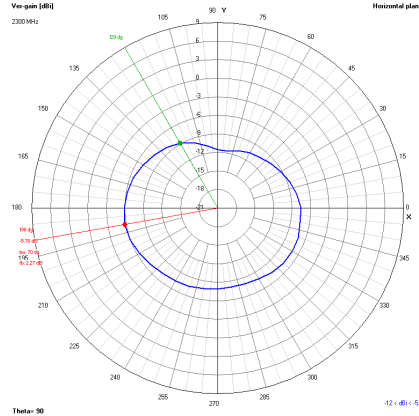
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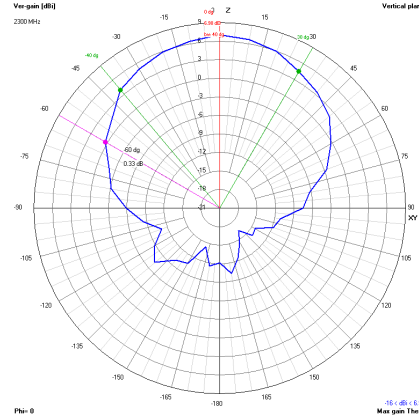
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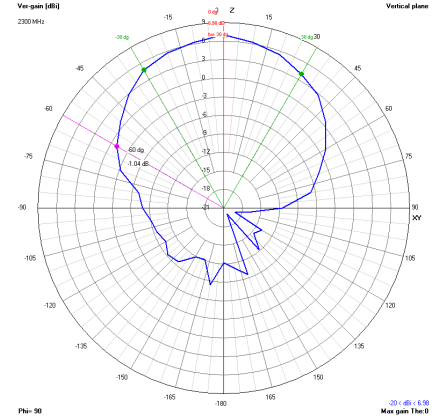
2300 MHz XY



XZ



YZ



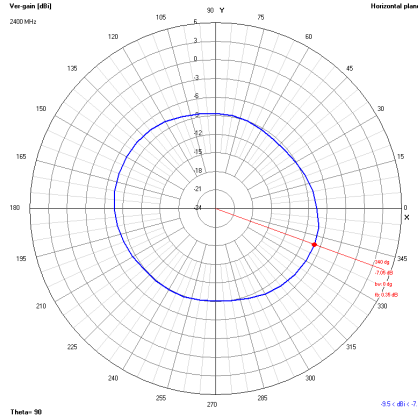


Tango 23

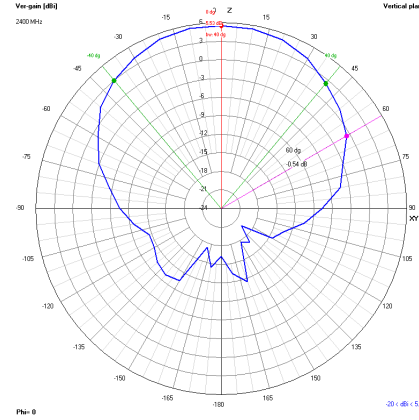
Dual Band 2.4/5.8GHz WiFi / (LTE) Through Hole Antenna

Radiation Plots tested with 1 m cable

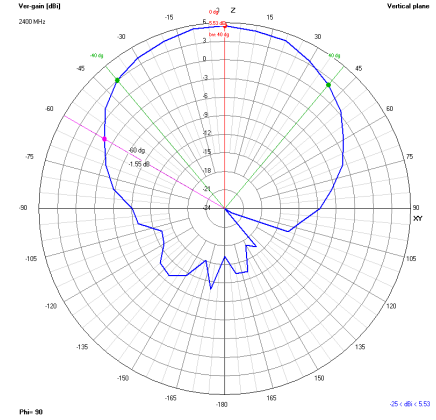
2400 MHz XY



XZ



YZ



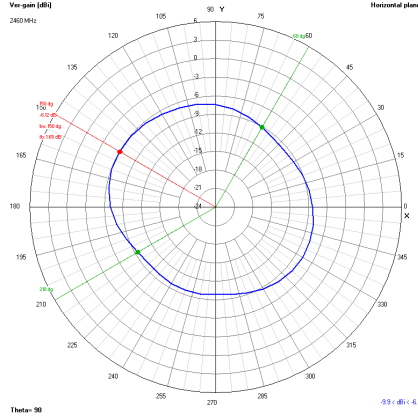
WiFi Band 2.4 GHz

Eff % 60.39

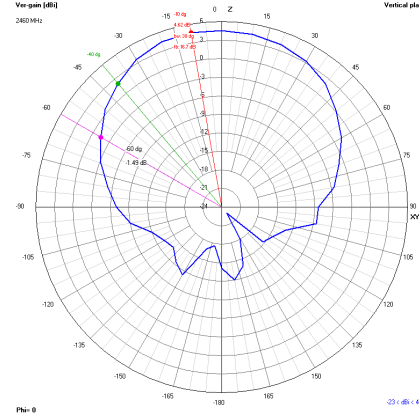
WiFi Band 2.4 GHz

Eff % 60.39

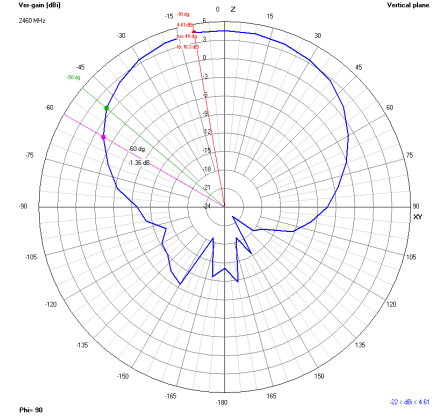
2460 MHz XY



XZ



YZ



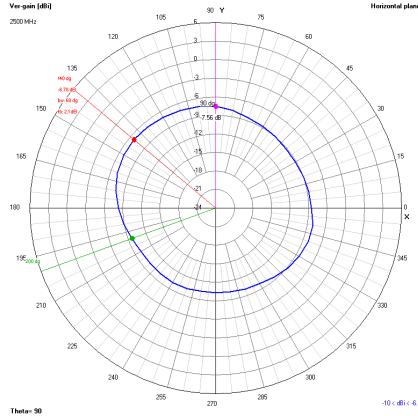
WiFi Band 2.4 GHz

Eff % 54.95

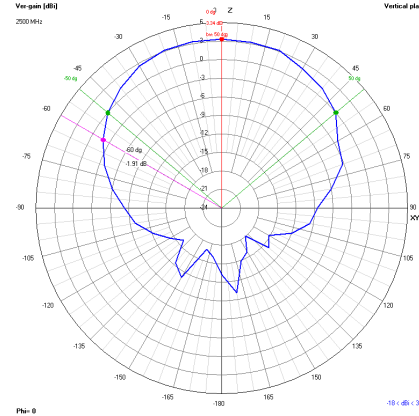
WiFi Band 2.4 GHz

Eff % 54.95

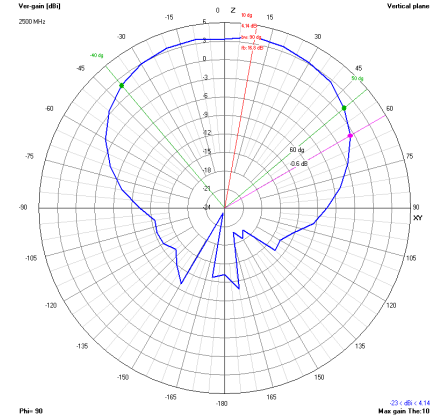
2500 MHz XY



XZ



YZ



WiFi Band 2.4 GHz

Eff % 49.09

WiFi Band 2.4 GHz

Eff % 49.09

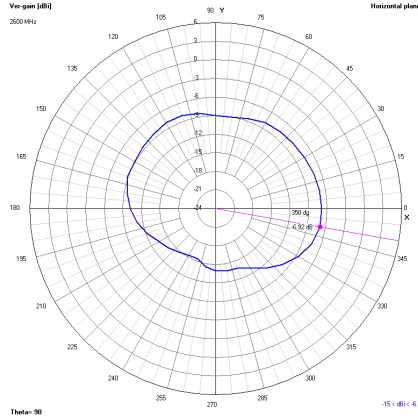


Tango 23

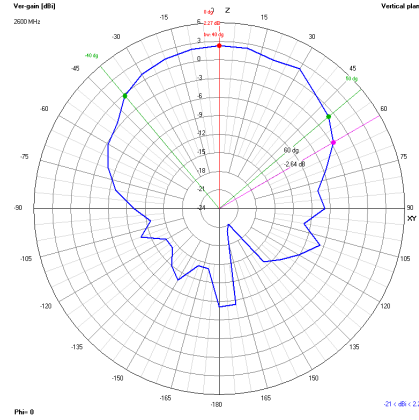
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Radiation Plots tested with 1 m cable

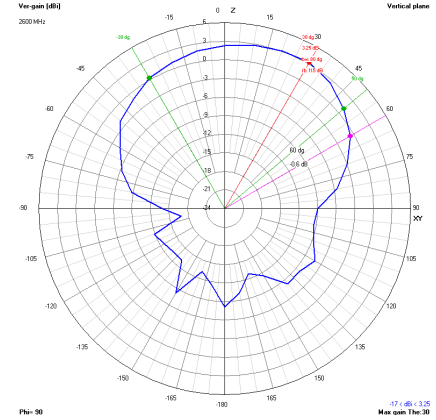
2600 MHz XY



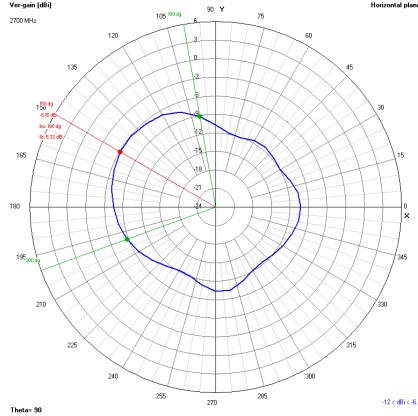
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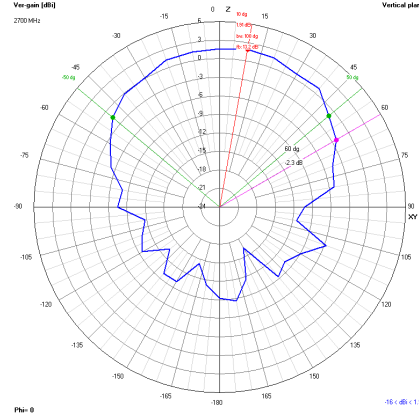
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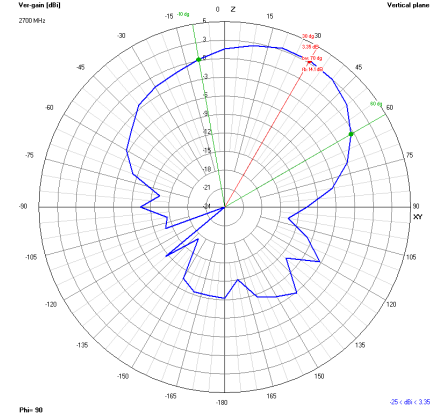
2700 MHz XY



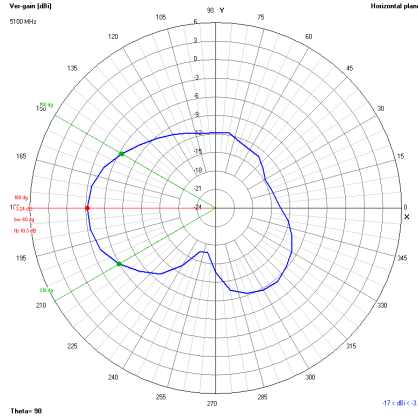
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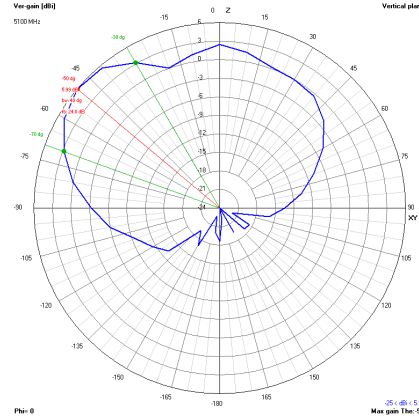
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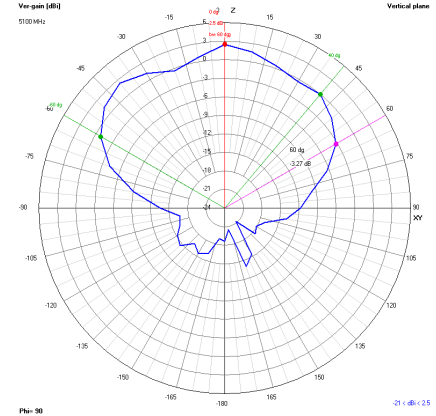
5100 MHz XY



XZ



YZ



WiFi
Band
5.0
GHz

Eff %
45.50

WiFi
Band
5.0
GHz

Eff %
45.50

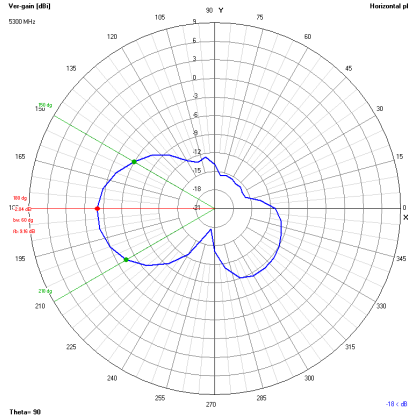


Tango 23

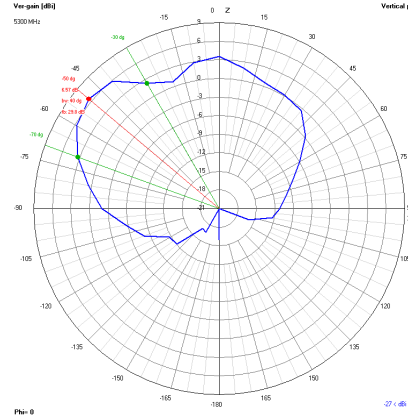
Dual Band 2.4/5.8GHz WiFi / (LTE) Through Hole Antenna

Radiation Plots tested with 1 m cable

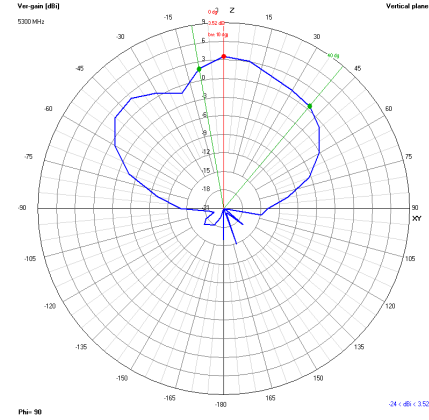
5300 MHz XY



XZ



YZ



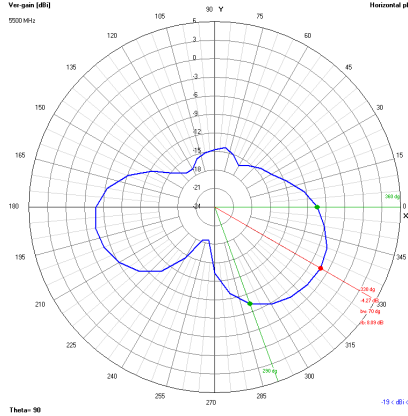
WiFi Band 5.0 GHz

Eff % 51.40

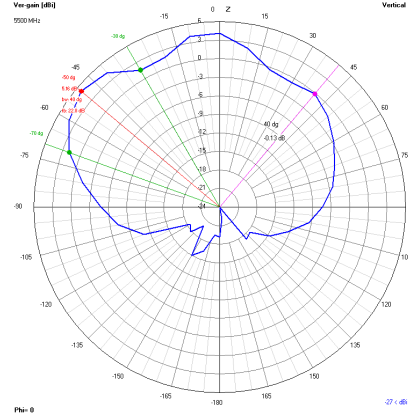
WiFi Band 5.0 GHz

Eff % 51.40

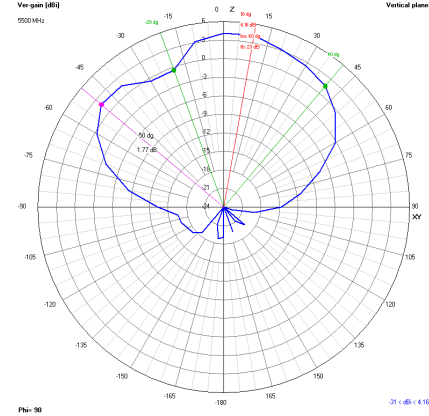
5500 MHz XY



XZ



YZ



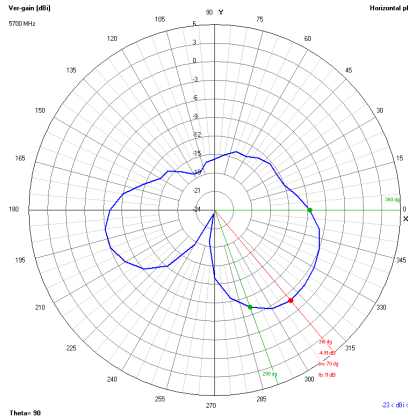
WiFi Band 5.0 GHz

Eff % 49.66

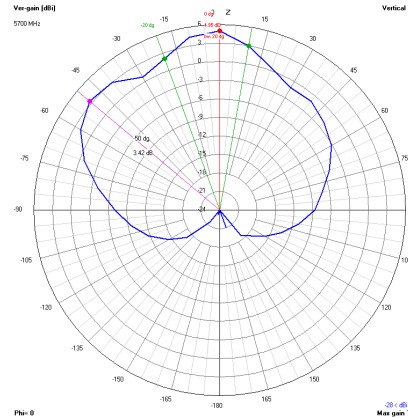
WiFi Band 5.0 GHz

Eff % 49.66

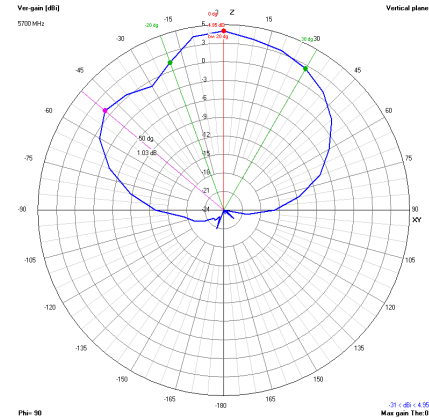
5700 MHz XY



XZ



YZ



WiFi Band 5.0 GHz

Eff % 42.56

WiFi Band 5.0 GHz

Eff % 42.56

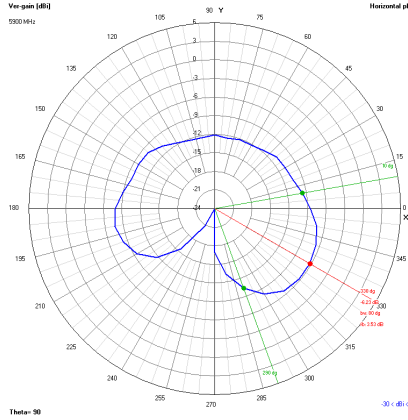


Tango 23

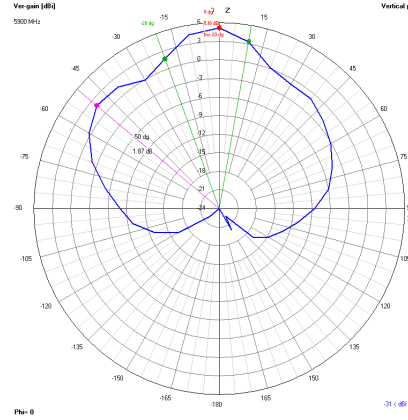
Dual Band 2.4/5.8GHz WiFi / (LTE) Through Hole Antenna

Radiation Plots tested with 1 m cable

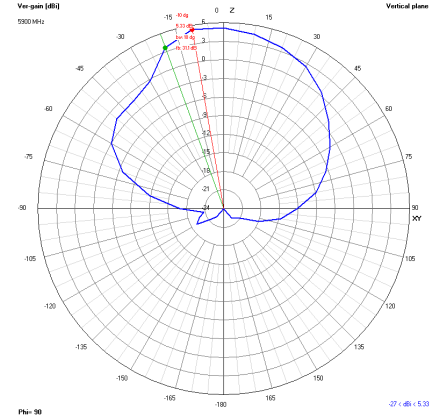
5900 MHz XY



XZ



YZ



WiFi Band 5.0 GHz

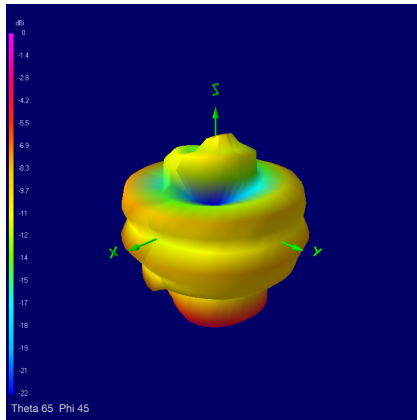
Eff % 37.58

WiFi Band 5.0 GHz

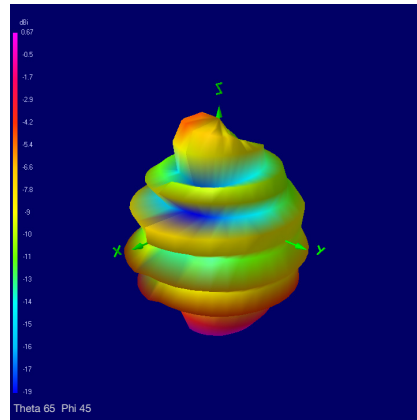
Eff % 37.58

3D Radiation Plots tested with 1 m cable

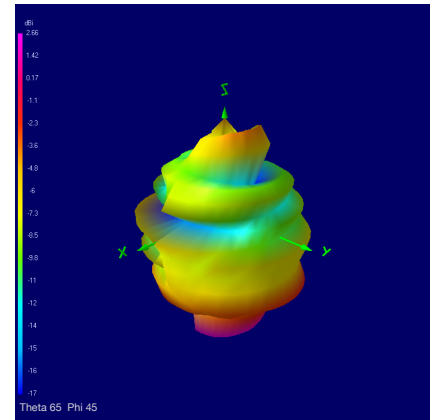
700 MHz



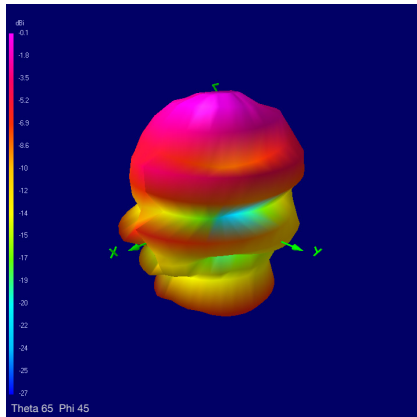
800 MHz



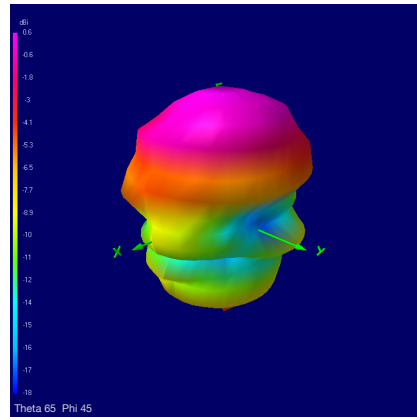
900 MHz



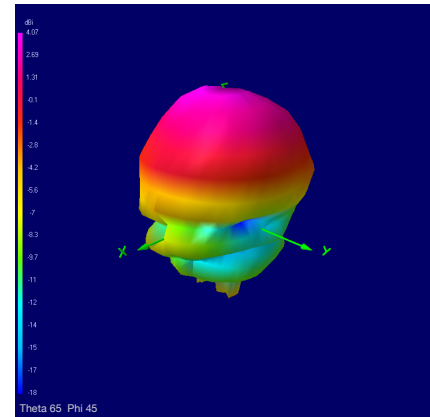
1700 MHz



1800 MHz



1900 MHz



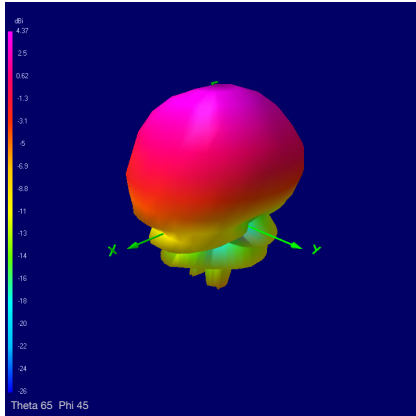


Tango 23

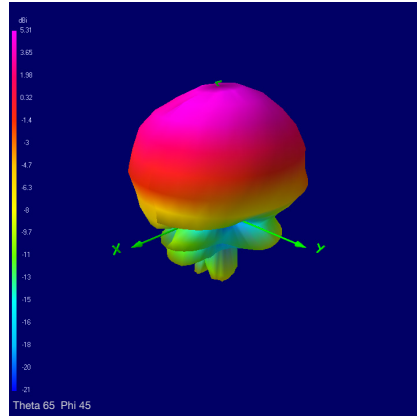
Dual Band 2.4/5.8GHz WiFi / (LTE) Through Hole Antenna

3D Radiation Plots tested with 1 m cable

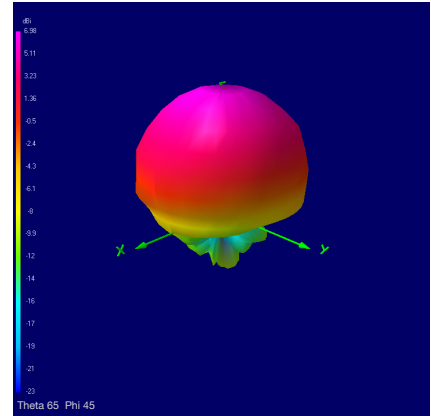
2000 MHz



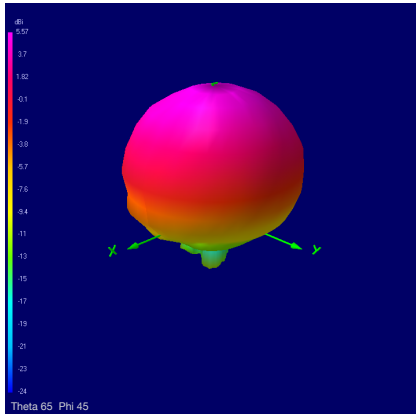
2100 MHz



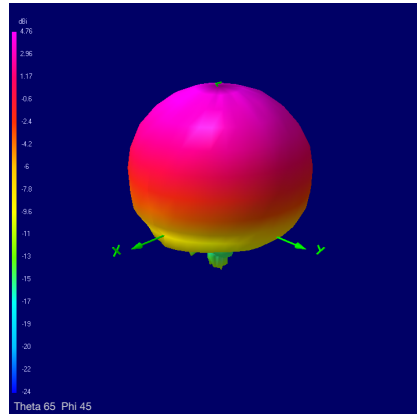
2300 MHz



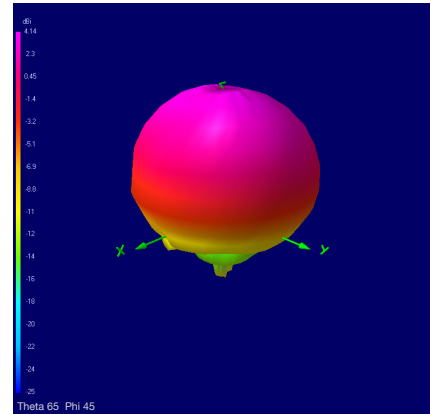
2400 MHz



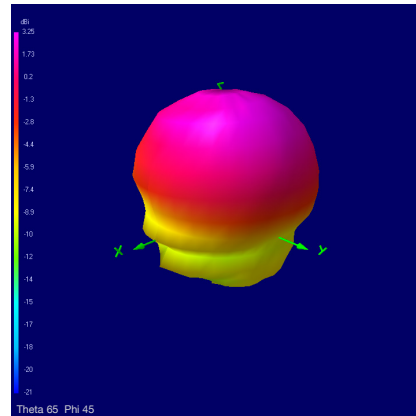
2460 MHz



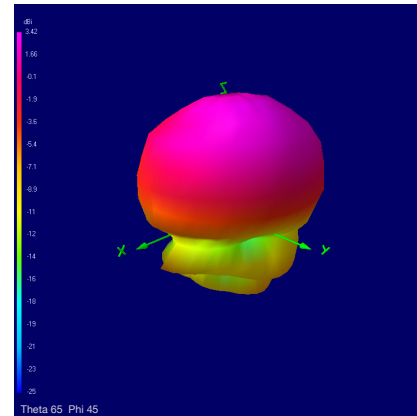
2500 MHz



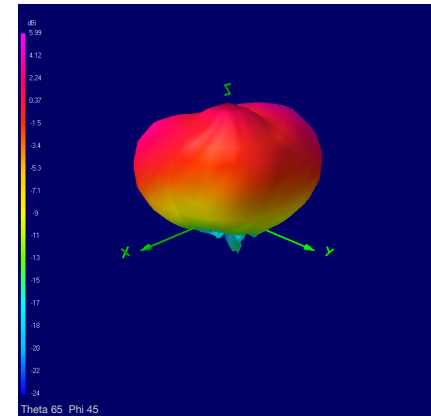
2600 MHz



2700 MHz



5100 MHz



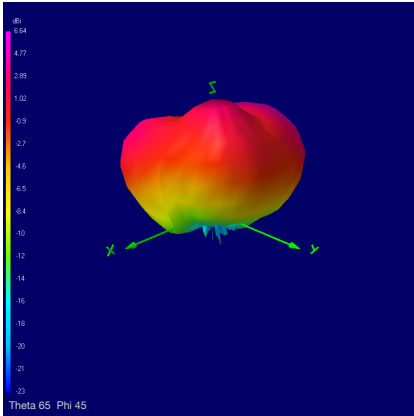


Tango 23

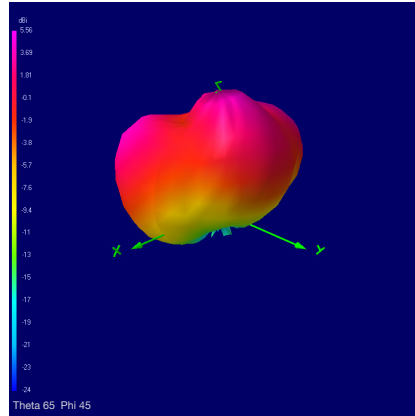
Dual Band 2.4/5.8GHz WiFi / (LTE) Through Hole Antenna

3D Radiation Plots tested with 1 m cable

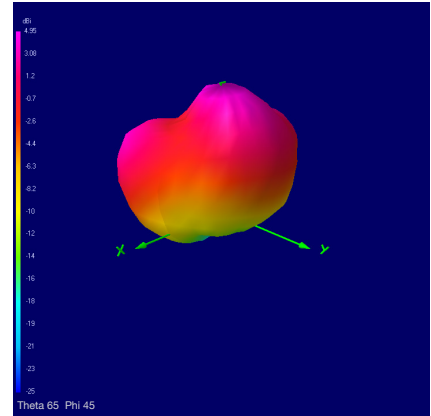
5300 MHz



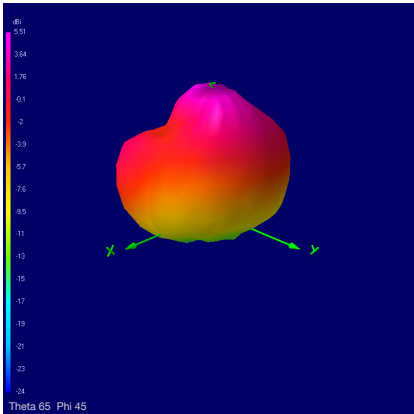
5500 MHz



5700 MHz



5900 MHz



Ordering Details

Part number	Description
TANGO23/0.5M/SMAM/S/RP/19	DUAL BAND WIFI 2.4/5.8GHz / (LTE) THROUGH HOLE ANTENNA SMA MALE RP CONNECTOR 0.5m CABLE
TANGO23/1M/SMAM/S/RP/19	DUAL BAND WIFI 2.4/5.8GHz / (LTE) THROUGH HOLE ANTENNA SMA MALE RP CONNECTOR 1m CABLE
TANGO23/2.5M/SMAM/S/RP/19	DUAL BAND WIFI 2.4/5.8GHz / (LTE) THROUGH HOLE ANTENNA SMA MALE RP CONNECTOR 2.5m CABLE