



Tango 29

Wireless LAN and Bluetooth Covert Panel Mount Antenna

Key Features

- Wi-Fi, Bluetooth and ZigBee compatible
- Supports IEEE 802.15.4 / ISM 2.4 GHz / ISM 5.8 GHz
- Compact size



General Description

The Tango 29 is a compact exterior mounted panel antenna with an omnidirectional radiation pattern.

Covert in nature due to its size and shape; it could be mistaken for a bolt/nut cover and would be hard to grip; providing a good anti-vandal solution.

This antenna is supplied as standard with 1 meter of cable and an SMA male reverse polarity connector.

I-PEX MHF1 (U.FL) and MHF4 connector options are also available with 100 mm of 1.13 mini-coax cable.

Alternative connectors and cable lengths can be specified for volume orders.

Additional Considerations

- Omnidirectional monopole
- Covert Anti-Vandal Design





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Electrical Specifications

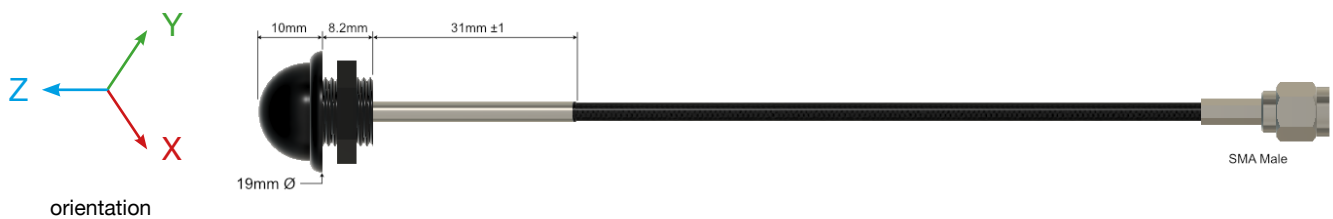
Impedance:	50 Ohm
Polarization:	Linear
Max Input Power:	5 W
Ground plane independent:	Yes

Environmental Specifications

Operating Temperature range:	-20 °C to +60 °C
Storage Temperature range:	-30 °C to +75 °C

Mechanical Specifications

Dimensions:	10 mm Length, 19 mm Ø
Weight:	22 g
Connector:	RP-SMAM MHF1 MHF4
Mounting method:	8 mm stud length with max panel thickness 3.5 mm
Housing materials:	ABS Black

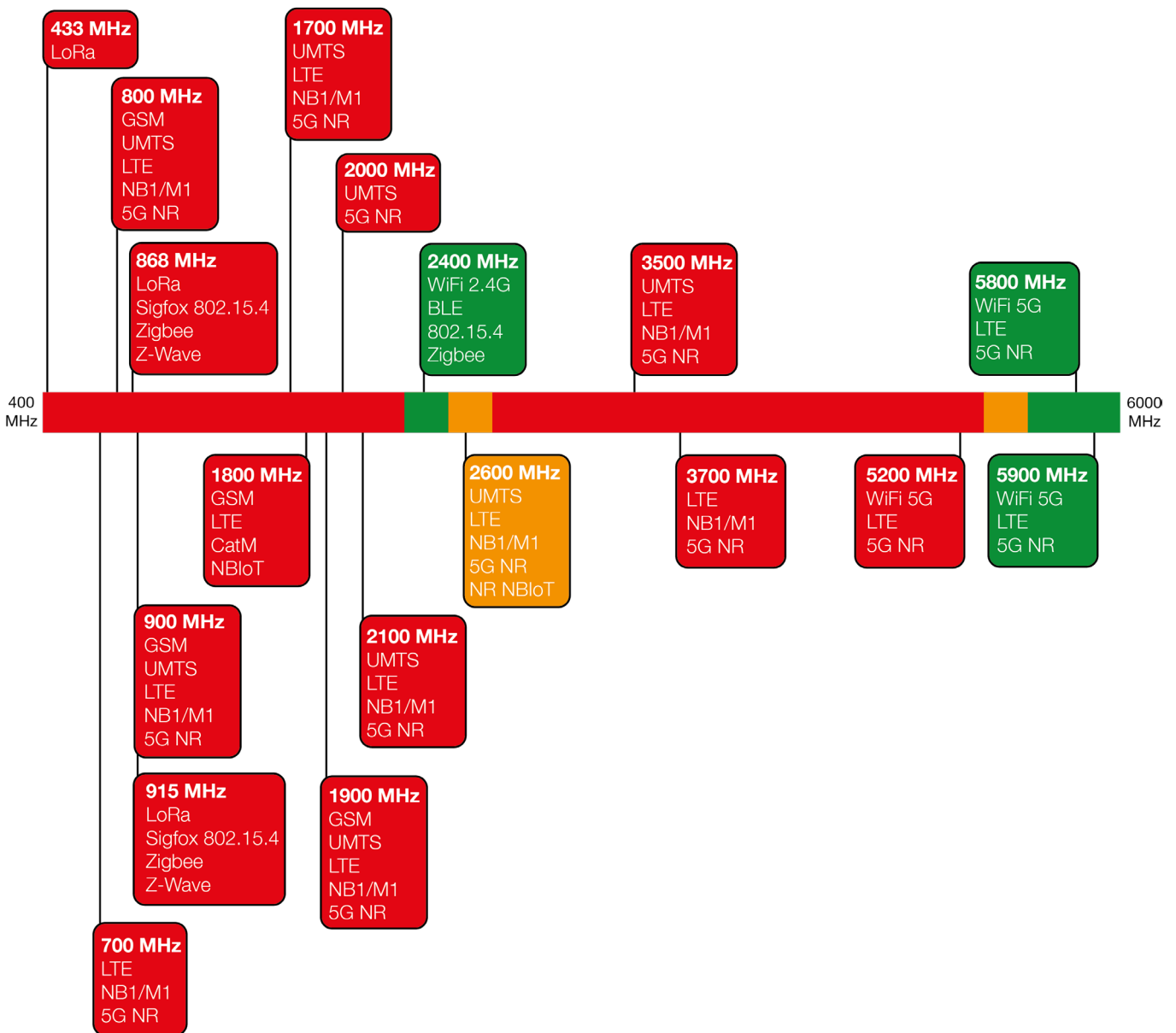




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Spectrum Coverage



● Suitable band

● Adequate band in good signal conditions

● Likely to be unsuitable



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Usable Cellular Frequency Support (2000 MHz – 5900 MHz)

	2000	2100	2300	2400	2500	2600	3300	3500	3700	4700	5200	5900
GSM Bands:												
UMTS Bands:												
LTE Bands:			●	●								●
LTE Cat M Bands:			●									
LTE Cat NB Bands:												
5G NR Bands:			●	●								●
NR Cat NB Bands:												

Usable ISM Frequency Support (433 MHz - 5800 MHz)

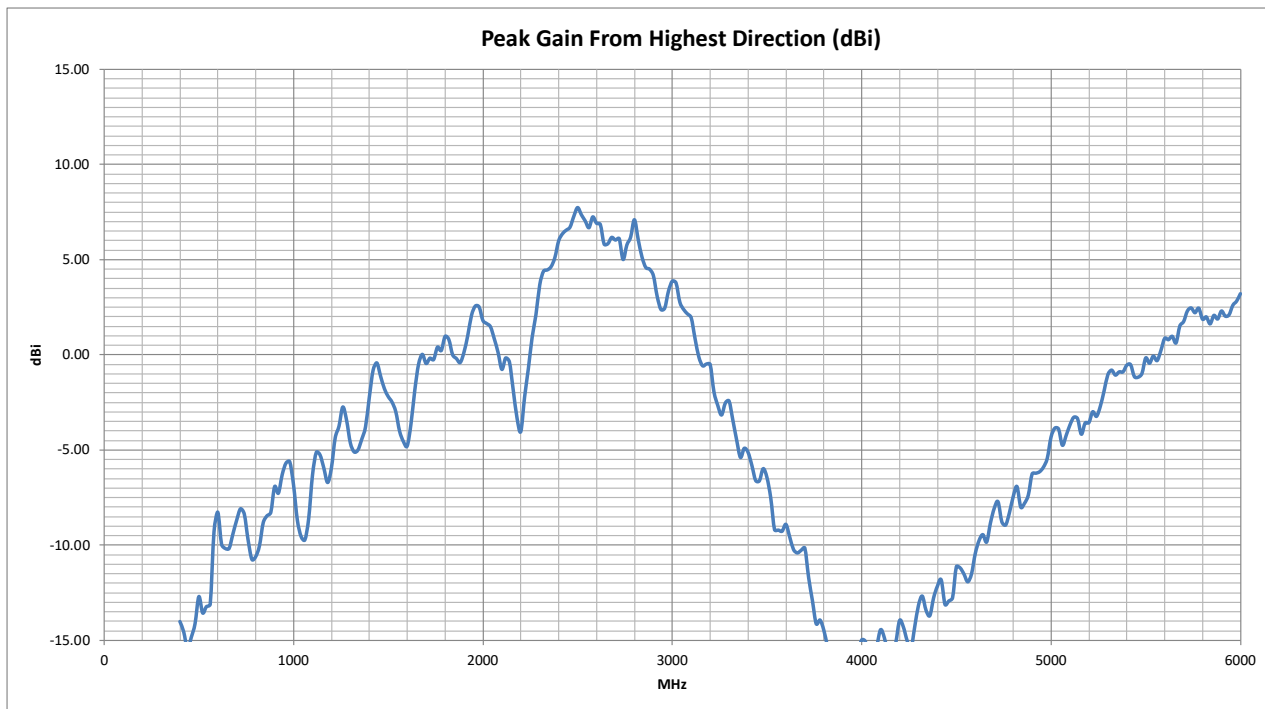
	433	868	915	2450	5800
Bluetooth				●	
Helium					
IEEE 802.15.4				●	
ISM 433					
ISM 868					
ISM 915					
ISM 2.4G				●	
ISM 5.8G					●
LoRa					
SigFox					
Weightless					
Wi-Fi 2.4G				●	
Wi-Fi 5G					
Wi-Fi 6E					
Zigbee				●	
Z-Wave					



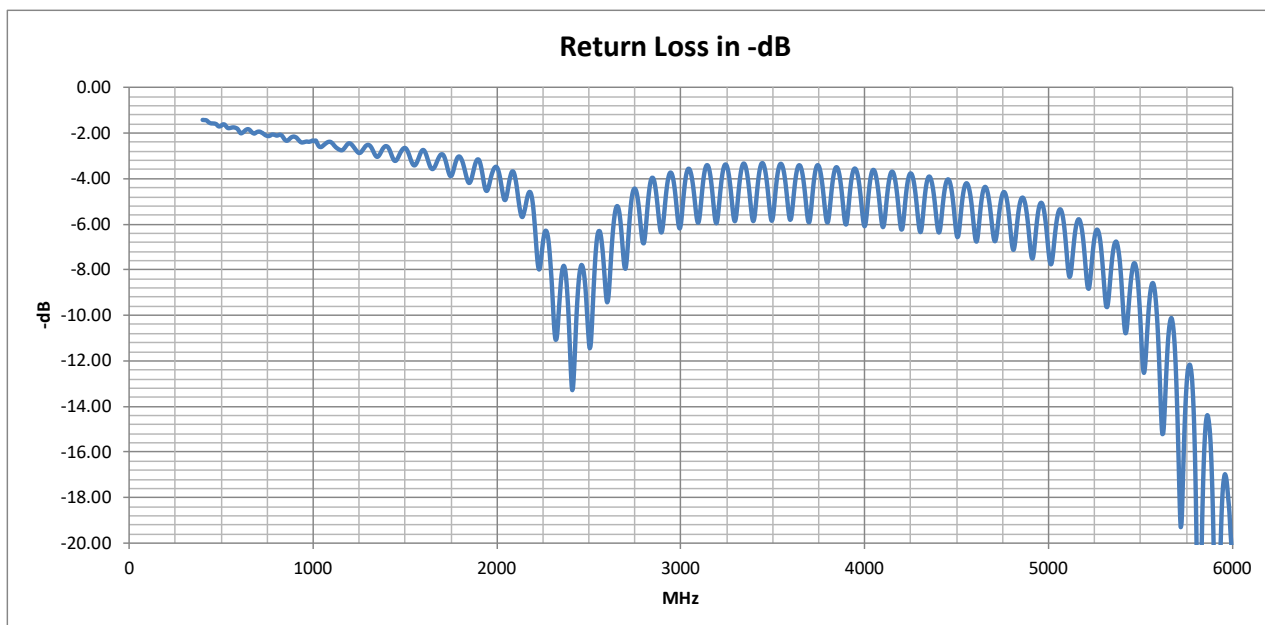
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Peak Gain vs. Frequency



Return Loss

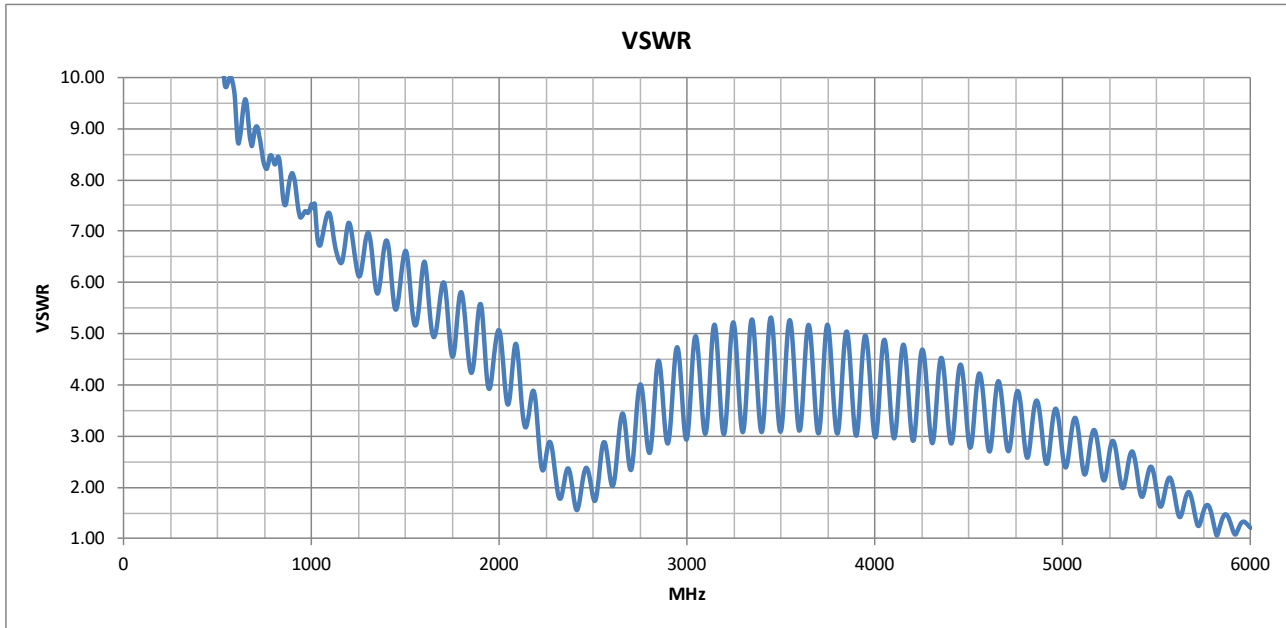




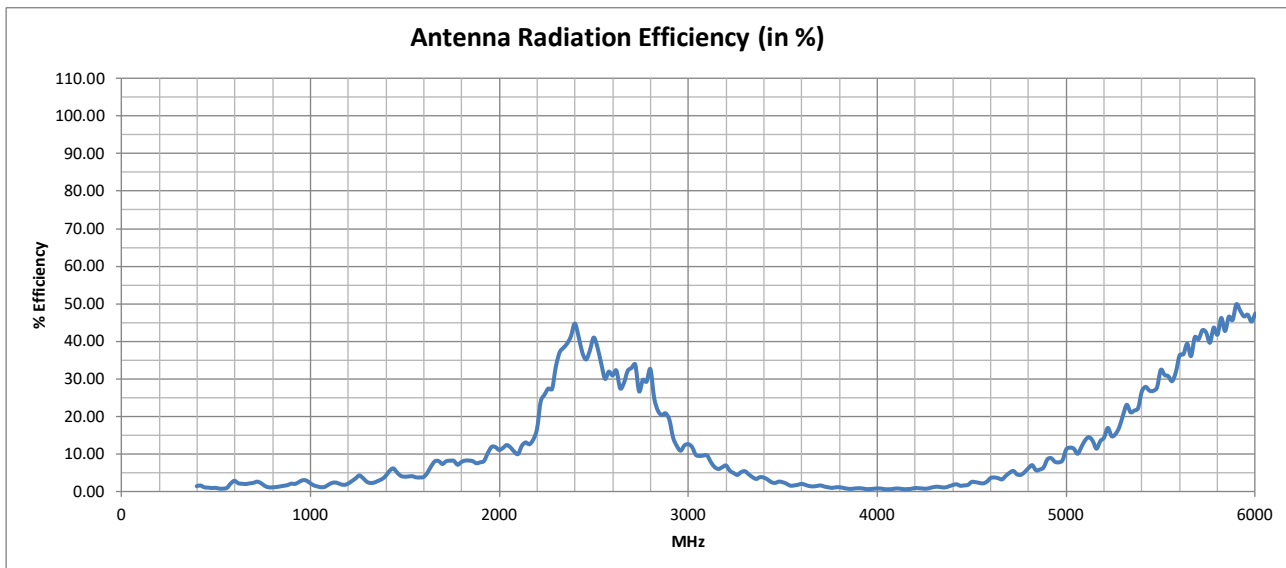
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VSWR



Radiation Efficiency





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Cellular Standards Band Support

GSM (2G) Band	UMTS (3G) Band	E-UTRA (4G) Band	Cat M E-UTRA Band	Cat NB E-UTRA Band	NR (5G) Band	Cat NB NR (5G) Band	Uplink	Downlink	Average Upload Efficiency (%)	Average Download Efficiency (%)	Maximum Upload VSWR	Maximum Download VSWR	Use Indicator
	1	1	1	1	n1	n1	1920 - 1980 MHz	2110 - 2170 MHz	10.63	12.50	4.85	4.00	●
PCS-1900	2	2	2	2	n2	n2	1850 - 1910 MHz	1930 - 1990 MHz	7.75	11.13	5.57	5.04	●
DCS-1800	3	3	3	3	n3	n3	1710 - 1785 MHz	1805 - 1880 MHz	7.85	8.00	5.91	5.67	●
	4	4	4	4			1710 - 1755 MHz	2110 - 2155 MHz	8.02	12.42	5.91	4.00	●
GSM-850	5	5	5	5	n5	n5	824 - 849 MHz	869 - 894 MHz	1.26	1.69	8.43	8.13	●
	6						830 - 840 MHz	875 - 885 MHz	1.24	1.65	8.32	8.05	●
	7	7	7	7	n7	n7	2500 - 2570 MHz	2620 - 2690 MHz	35.11	29.86	2.88	3.44	●
E-GSM-900	8	8	8	8	n8	n8	880 - 915 MHz	925 - 960 MHz	1.90	2.50	8.13	7.51	●
	9	9					1749.9 - 1784.9 MHz	1844.9 - 1879.9 MHz	7.67	7.88	5.68	5.13	●
	10	10					1710 - 1770 MHz	2110 - 2170 MHz	8.00	12.50	5.91	4.00	●
	11	11	11	11			1427.9 - 1447.9 MHz	1475.9 - 1495.9 MHz	5.88	4.04	5.92	6.60	●
	12	12	12	12	n12	n12	699 - 716 MHz	729 - 746 MHz	2.36	2.19	9.05	8.67	●
	13	13	13	13	n13		777 - 787 MHz	746 - 756 MHz	1.06	1.75	8.48	8.31	●
	14	14	14	14	n14	n14	788 - 798 MHz	758 - 768 MHz	1.05	1.37	8.45	8.31	●
		17		17			704 - 716 MHz	734 - 746 MHz	2.40	2.13	9.05	8.55	●
		18	18	18	n18	n18	815 - 830 MHz	860 - 875 MHz	1.15	1.52	8.45	7.83	●
	19	19	19	19			830 - 845 MHz	875 - 890 MHz	1.26	1.69	8.32	8.10	●
	20	20	20	20	n20	n20	832 - 862 MHz	791 - 821 MHz	1.35	1.08	8.25	8.45	●
	21	21	21	21			1447.9 - 1462.9 MHz	1495.9 - 1510.9 MHz	5.24	3.89	5.72	6.62	●
	22	22					3410 - 3490 MHz	3510 - 3590 MHz	2.60	1.71	5.31	5.26	●
		24	24	24	n24	n24	1626.5 - 1660.5 MHz	1525 - 1559 MHz	6.83	3.92	5.48	5.86	●
	25	25	25	25	n25	n25	1850 - 1915 MHz	1930 - 1995 MHz	7.76	11.14	5.57	5.07	●
	26	26	26	26	n26	n26	814 - 849 MHz	859 - 894 MHz	1.22	1.63	8.45	8.13	●
		27	27				807 - 824 MHz	852 - 869 MHz	1.11	1.46	8.45	7.68	●
		28	28	28	n28	n28	703 - 748 MHz	758 - 803 MHz	2.32	1.15	9.05	8.48	●

● Suitable band

● Adequate band in good signal conditions

● Likely to be unsuitable



Tango 29

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Cellular Standards Band Support

GSM (2G) Band	UMTS (3G) Band	E-UTRA (4G) Band	Cat M E-UTRA Band	Cat NB E-UTRA Band	NR (5G) Band	Cat NB NR (5G) Band	Uplink	Downlink	Average Upload Efficiency (%)	Average Download Efficiency (%)	Maximum Upload VSWR	Maximum Download VSWR	Use Indicator
		28A					703 - 733 MHz	758 - 788 MHz	2.42	1.20	9.05	8.48	●
		29			n29		N/A	717 - 728 MHz	N/A	2.49	N/A	8.92	●
		30			n30		2305 - 2315 MHz	2350 - 2360 MHz	35.09	39.06	2.01	2.36	●
		31	31	31			452.5 - 457.5 MHz	462.5 - 467.5 MHz	0.99	0.94	11.09	11.06	●
	32	32					N/A	1452 - 1496 MHz	N/A	4.46	N/A	6.60	●
		33					1900 - 1920 MHz	1900 - 1920 MHz	7.89	7.89	5.57	5.57	●
		34			n34		2010 - 2025 MHz	2010 - 2025 MHz	11.48	11.48	4.79	4.79	●
		35					1850 - 1910 MHz	1850 - 1910 MHz	7.75	7.75	5.57	5.57	●
		36					1930 - 1990 MHz	1930 - 1990 MHz	11.13	11.13	5.04	5.04	●
		37					1910 - 1930 MHz	1910 - 1930 MHz	8.29	8.29	5.29	5.29	●
		38			n38		2570 - 2620 MHz	2570 - 2620 MHz	31.40	31.40	2.71	2.71	●
		39	39		n39		1880 - 1920 MHz	1880 - 1920 MHz	7.73	7.73	5.57	5.57	●
		40	40		n40		2300 - 2400 MHz	2300 - 2400 MHz	38.95	38.95	2.37	2.37	●
		41	41	41	n41	n41	2496 - 2690 MHz	2496 - 2690 MHz	32.37	32.37	3.44	3.44	●
		42	42	42			3400 - 3600 MHz	3400 - 3600 MHz	2.23	2.23	5.31	5.31	●
		43	43	43			3600 - 3800 MHz	3600 - 3800 MHz	1.31	1.31	5.17	5.17	●
		44					703 - 803 MHz	703 - 803 MHz	1.73	1.73	9.05	9.05	●
		45					1447 - 1467 MHz	1447 - 1467 MHz	5.16	5.16	5.85	5.85	●
		46			n46		5150 - 5925 MHz	5150 - 5925 MHz	31.15	31.15	3.12	3.12	●
		47			n47		5855 - 5925 MHz	5855 - 5925 MHz	47.46	47.46	1.47	1.47	●
		48	48	48	n48		3550 - 3700 MHz	3550 - 3700 MHz	1.57	1.57	5.21	5.21	●
		49					3550 - 3700 MHz	3550 - 3700 MHz	1.57	1.57	5.21	5.21	●
		50			n50		1432 - 1517 MHz	1432 - 1517 MHz	4.65	4.65	6.62	6.62	●
		51			n51		1427 - 1432 MHz	1427 - 1432 MHz	5.74	5.74	5.96	5.96	●
		52					3300 - 3400 MHz	3300 - 3400 MHz	3.96	3.96	5.28	5.28	●

● Suitable band

● Adequate band in good signal conditions

● Likely to be unsuitable



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Cellular Standards Band Support

GSM (2G) Band	UMTS (3G) Band	E-UTRA (4G) Band	Cat M E-UTRA Band	Cat NB E-UTRA Band	NR (5G) Band	Cat NB NR (5G) Band	Uplink	Downlink	Average Upload Efficiency (%)	Average Download Efficiency (%)	Maximum Upload VSWR	Maximum Download VSWR	Use Indicator
		53			n53		2483.5 - 2495 MHz	2483.5 - 2495 MHz	39.08	39.08	2.11	2.11	●
		54	54	54	n54	n54	1670 - 1675 MHz	1670 - 1675 MHz	8.01	8.01	5.42	5.42	●
		65		65	n65	n65	1920 - 2010 MHz	2110 - 2200 MHz	10.85	13.19	5.07	4.00	●
		66	66	66	n66	n66	1710 - 1780 MHz	2110 - 2200 MHz	7.90	13.19	5.91	4.00	●
		67			n67		N/A	738 - 758 MHz	N/A	1.86	N/A	8.45	●
		68					698 - 728 MHz	753 - 783 MHz	2.41	1.29	9.05	8.48	●
		69					N/A	2570 - 2620 MHz	N/A	31.40	N/A	2.71	●
		70		70	n70	n70	1695 - 1710 MHz	1995 - 2020 MHz	7.42	11.23	6.00	5.07	●
		71	71	71	n71	n71	663 - 698 MHz	617 - 652 MHz	2.10	2.04	9.10	9.57	●
		72	72	72			451 - 456 MHz	461 - 466 MHz	1.00	0.95	11.10	11.06	●
		73	73	73			450 - 455 MHz	460 - 465 MHz	1.00	0.96	11.10	11.06	●
		74	74	74	n74	n74	1427 - 1470 MHz	1475 - 1518 MHz	5.46	3.97	5.96	6.62	●
		75			n75		N/A	1432 - 1517 MHz	N/A	4.65	N/A	6.62	●
		76			n76		N/A	1427 - 1432 MHz	N/A	5.74	N/A	5.96	●
					n77		3300 - 4200 MHz	3300 - 4200 MHz	1.53	1.53	5.31	5.31	●
					n78		3300 - 3800 MHz	3300 - 3800 MHz	2.21	2.21	5.31	5.31	●
					n79		4400 - 5000 MHz	4400 - 5000 MHz	4.63	4.63	4.40	4.40	●
					n80		1710 - 1785 MHz	N/A	7.85	N/A	5.91	N/A	●
					n81		880 - 915 MHz	N/A	1.90	N/A	8.13	N/A	●
					n82		832 - 862 MHz	N/A	1.35	N/A	8.25	N/A	●
					n83		703 - 748 MHz	N/A	2.32	N/A	9.05	N/A	●
					n84		1920 - 1980 MHz	N/A	10.63	N/A	4.85	N/A	●
		85	85	85	n85		698 - 716 MHz	728 - 746 MHz	2.35	2.20	9.05	8.70	●
					n86		1710 - 1780 MHz	N/A	7.90	N/A	5.91	N/A	●
		87	87	87			410 - 415 MHz	420 - 425 MHz	1.47	1.47	12.24	12.15	●

● Suitable band

● Adequate band in good signal conditions

● Likely to be unsuitable



Cellular Standards Band Support

GSM (2G) Band	UMTS (3G) Band	E-UTRA (4G) Band	Cat M E-UTRA Band	Cat NB E-UTRA Band	NR (5G) Band	Cat NB NR (5G) Band	Uplink	Downlink	Average Upload Efficiency (%)	Average Download Efficiency (%)	Maximum Upload VSWR	Maximum Download VSWR	Use Indicator
		88	88	88			412 - 417 MHz	422 - 427 MHz	1.48	1.43	12.23	12.05	●
					n89		824 - 849 MHz	N/A	1.26	N/A	8.43	N/A	●
					n90	n90	2496 - 2690 MHz	2496 - 2690 MHz	32.37	32.37	3.44	3.44	●
					n91		832 - 862 MHz	1427 - 1432 MHz	1.35	5.74	8.25	5.96	●
					n92		832 - 862 MHz	1432 - 1517 MHz	1.35	4.65	8.25	6.62	●
					n93		880 - 915 MHz	1427 - 1432 MHz	1.90	5.74	8.13	5.96	●
					n94		880 - 915 MHz	1432 - 1517 MHz	1.90	4.65	8.13	6.62	●
					n95		2010 - 2025 MHz	N/A	11.48	N/A	4.79	N/A	●
					n97		2300 - 2400 MHz	N/A	38.95	N/A	2.37	N/A	●
					n98		1880 - 1920 MHz	N/A	7.73	N/A	5.57	N/A	●
					n99		1626.5 - 1660.5 MHz	N/A	6.83	N/A	5.48	N/A	●
1900					n101		1900 - 1910 MHz	1900 - 1910 MHz	7.80	7.80	5.57	5.57	●
				103			787 - 788 MHz	757 - 758 MHz	1.05	1.51	8.46	8.22	●
					n105		663 - 703 MHz	612 - 652 MHz	2.12	2.07	9.10	9.57	●

● Suitable band

● Adequate band in good signal conditions

● Likely to be unsuitable

NOTE: For each frequency band, Siretta provides a traffic light indication to show the suitability of the antenna for use at that frequency band. Determination of exactly what makes an antenna good or bad at any frequency is subjective.

The view presented is that of Siretta's engineering team having taken into account the efficiency and VSWR measurements. The end user is advised to use their own criteria and/or testing to confirm suitability.



ISM Standards Frequency Support

Application	Frequency Range	Efficiency (%)	Maximum VSWR	Peak Gain from highest direction (dBi)	Use Indicator
ISM 433 MHz	433.05 - 434.79 MHz	1.20	11.47	-15.15	●
ISM 868 MHz	863 - 870 MHz	1.52	7.70	-8.37	●
ISM 915 MHz	902 - 928 MHz	2.01	8.08	-6.88	●
ISM 2.4 GHz	2400 - 2500 MHz	38.70	2.38	7.75	●
Wi-Fi 2.4G	2401 - 2483 MHz	38.47	2.38	7.36	●
Wi-Fi 2.4G (USA)	2401 - 2473 MHz	38.63	2.38	7.09	●
Wi-Fi 2.4G (Japan)	2401 - 2495 MHz	38.54	2.38	7.64	●
Wi-Fi 5G (all channels)	5150 - 5990 MHz	32.34	3.12	3.03	●
Wi-Fi 5G (Ch 32-48)	5150 - 5250 MHz	14.16	3.12	-2.97	●
Wi-Fi 5G (Ch 32-64)	5150 - 5330 MHz	16.21	3.12	-0.80	●
Wi-Fi 5G (Ch 32-161)	5150 - 5815 MHz	28.64	3.12	2.47	●
Wi-Fi 5G (Ch 32-173)	5150 - 5875 MHz	29.99	3.12	2.47	●
ISM 5.8 GHz	5725 - 5875 MHz	43.25	1.65	2.47	●
UWB band 1	3168 - 3696 MHz	3.24	5.31	-0.48	●
UWB band 2	3696 - 4224 MHz	0.78	5.17	-10.16	●
UWB band 3	4224 - 4752 MHz	2.33	4.69	-7.72	●
UWB band 4	4752 - 5280 MHz	10.31	3.88	-1.90	●
UWB band 5	5280 - 5808 MHz	31.90	2.76	2.47	●

● Suitable band

● Adequate band in good signal conditions

● Likely to be unsuitable

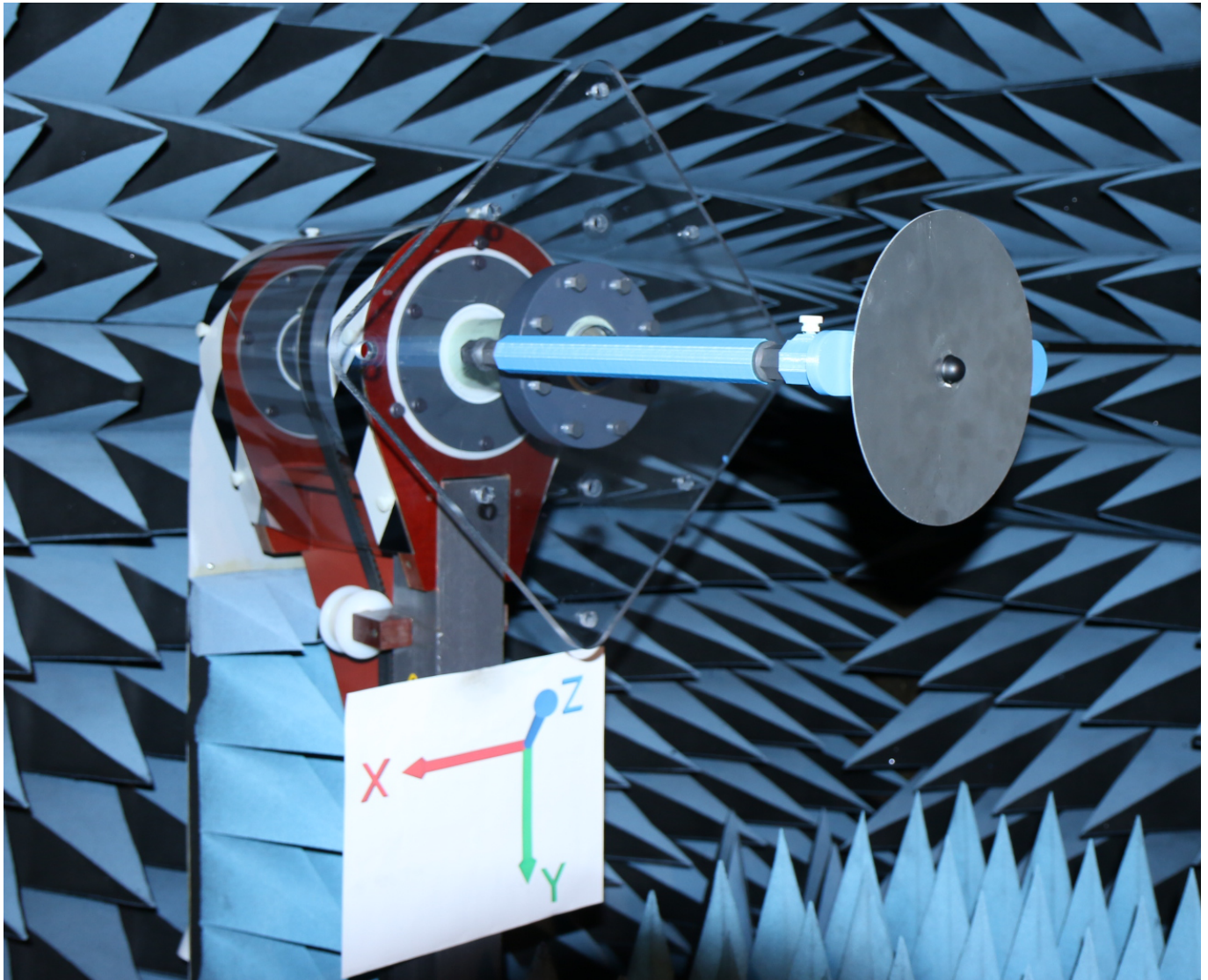
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Test Setup (200mm Ø Groundplane)



NOTE: The Tango 29 is Groundplane independent, however, for best results (as shown on this datasheet) we recommend mounting on a metallic surface at least 200mm in diameter.

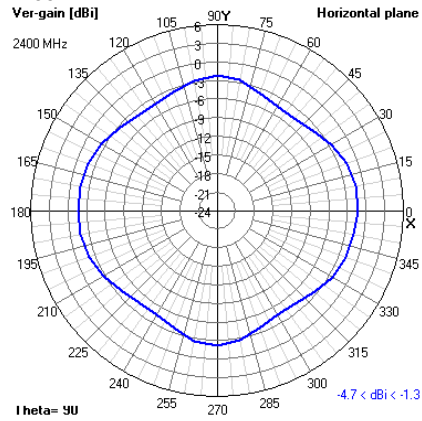


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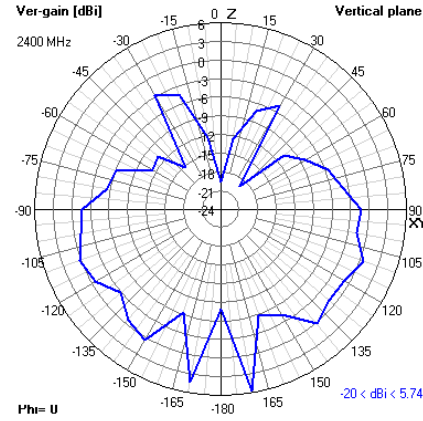
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2D Radiation Plots

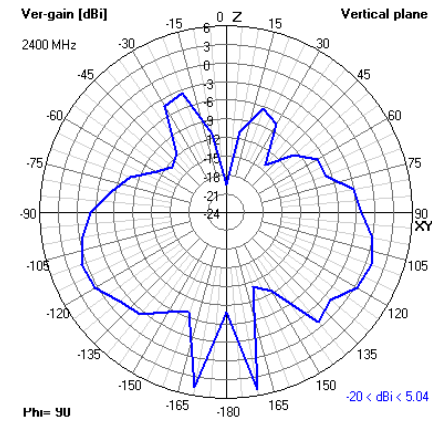
2400 MHz XY



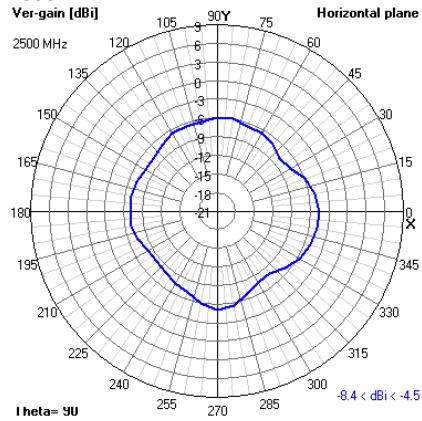
XZ



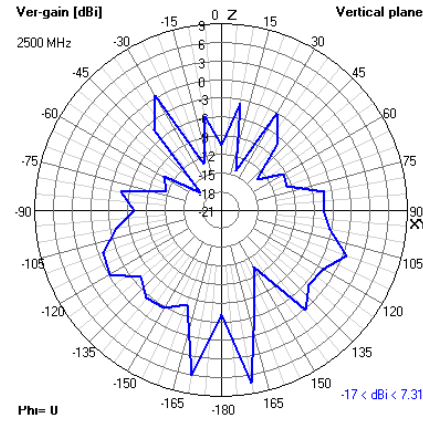
YZ



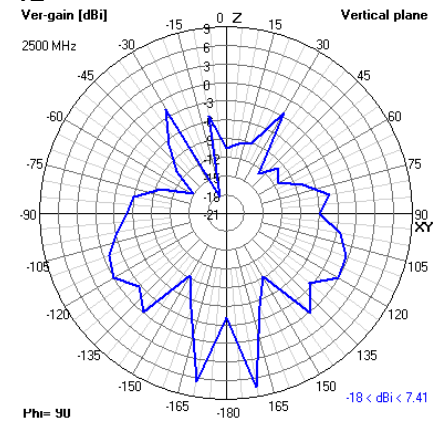
2500 MHz XY



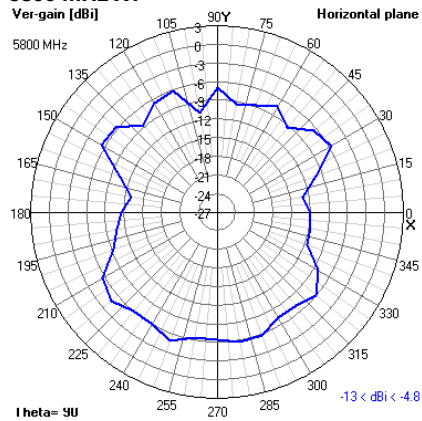
XZ



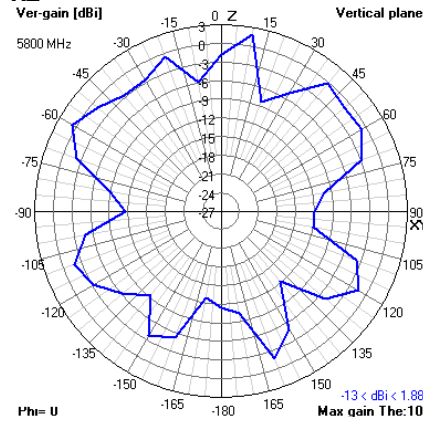
YZ



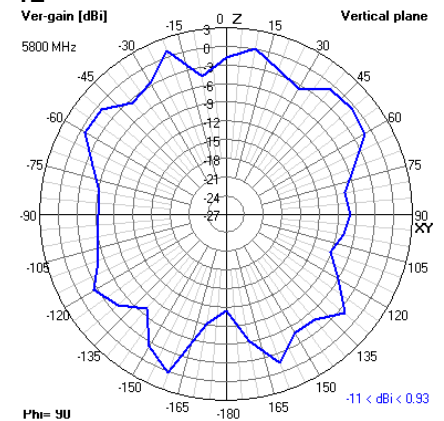
5800 MHz XY



XZ



YZ



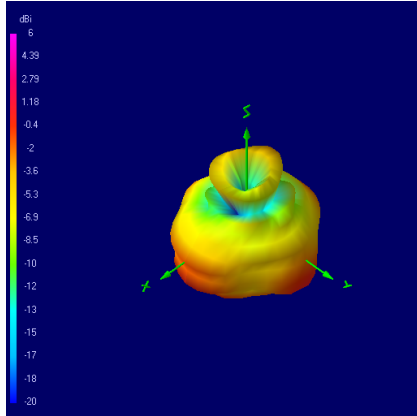


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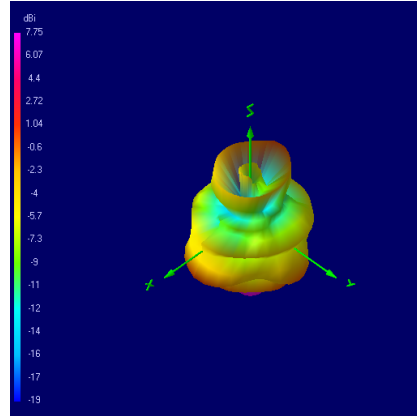
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3D Radiation Plots

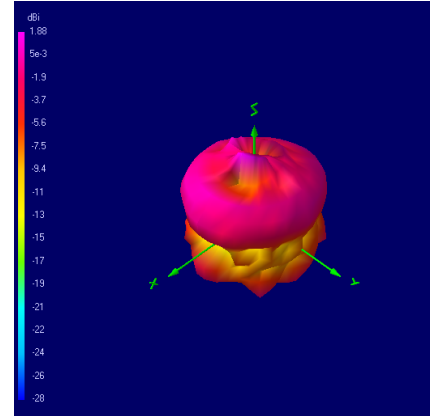
2400 MHz



2500 MHz



5800 MHz



NOTE: All 3D radiation plots are shown with Theta = 45 and Phi = 45.

Ordering Details:

Part Number	Description
TANGO29/1M/SMAM/RP/S/35	Wireless LAN and Bluetooth Covert Panel Mount Antenna 1m RG174 Cable RP-SMA Male Connector
TANGO29/0.1M/UFL/S/35	Wireless LAN and Bluetooth Covert Panel Mount Antenna 0.1m 1.13 Cable I-PEX MHF1 Connector
TANGO29/0.1M/IPEXMHF4/S/35	Wireless LAN and Bluetooth Covert Panel Mount Antenna 0.1m 1.13 Cable I-PEX MHF4 Connector

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VAT Registration No. GB163 04 0349



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