



Delta 1A

5G/4G & ISM 868 MHz 56MM Stubby Antenna

Key Features

- Supports 5G NR / 4G LTE / 3G UMTS / 2G GSM
- Supports LTE Cat M, LTE Cat NB, NR Cat NB bands
- Supports Wi-Fi 5GHz spectrum
- Supports LoRa, Sigfox, IMT 868 MHz, IEEE 802.15.4
- Groundplane independent



General Description

The Delta 1A Multiband antenna combines good performance with a small size, enabling its use with many of today's GSM / GPRS (2G), UMTS (3G), LTE (4G/5G) and ISM 868 MHz band applications.

The omni-directional, radiating element is capped with a black high-grade rubber mould which allows flexibility and provides a rugged stylish finish.

Typical applications are Point of Sale Terminals, metering and alarm panel equipment.

Additional Considerations

- Antenna can be discretely mounted
- Fits to many popular LTE (4G) and New Radio (5G) terminal equipment

D Direct	5G New Radio	4G LTE	3G UMTS	2G GSM
LTE Cat M	LTE NB IoT	NR NB IoT	WiFi 5G	ISM 868
ISM 5.8G	WiFi 4 802.11n	WiFi 5 802.11ac	WiFi 6 802.11ax	LoRa Wireless
SF Sigfox	HNT Helium	Z Wave		



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Electrical Specifications

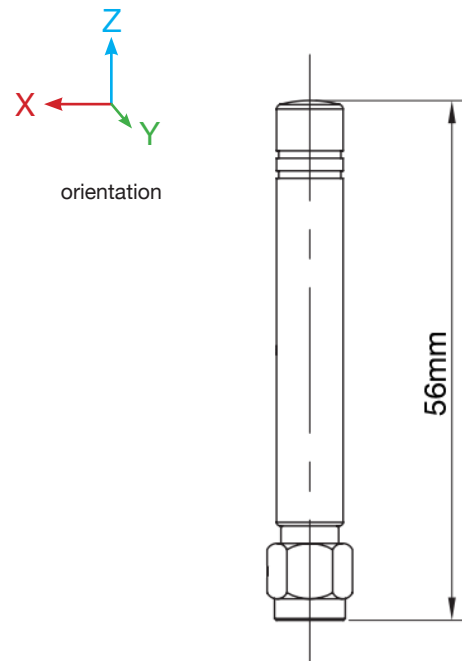
Impedance:	50 Ohm
Polarization:	Vertical
Max Input Power:	50 W
Ground plane independent:	Yes

Environmental Specifications

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

Mechanical Specifications

Dimensions:	56 mm x 7.3 mm diameter
Weight:	5.1 g
Connector:	SMA male
Mounting method:	Direct connect
Housing materials:	TPR

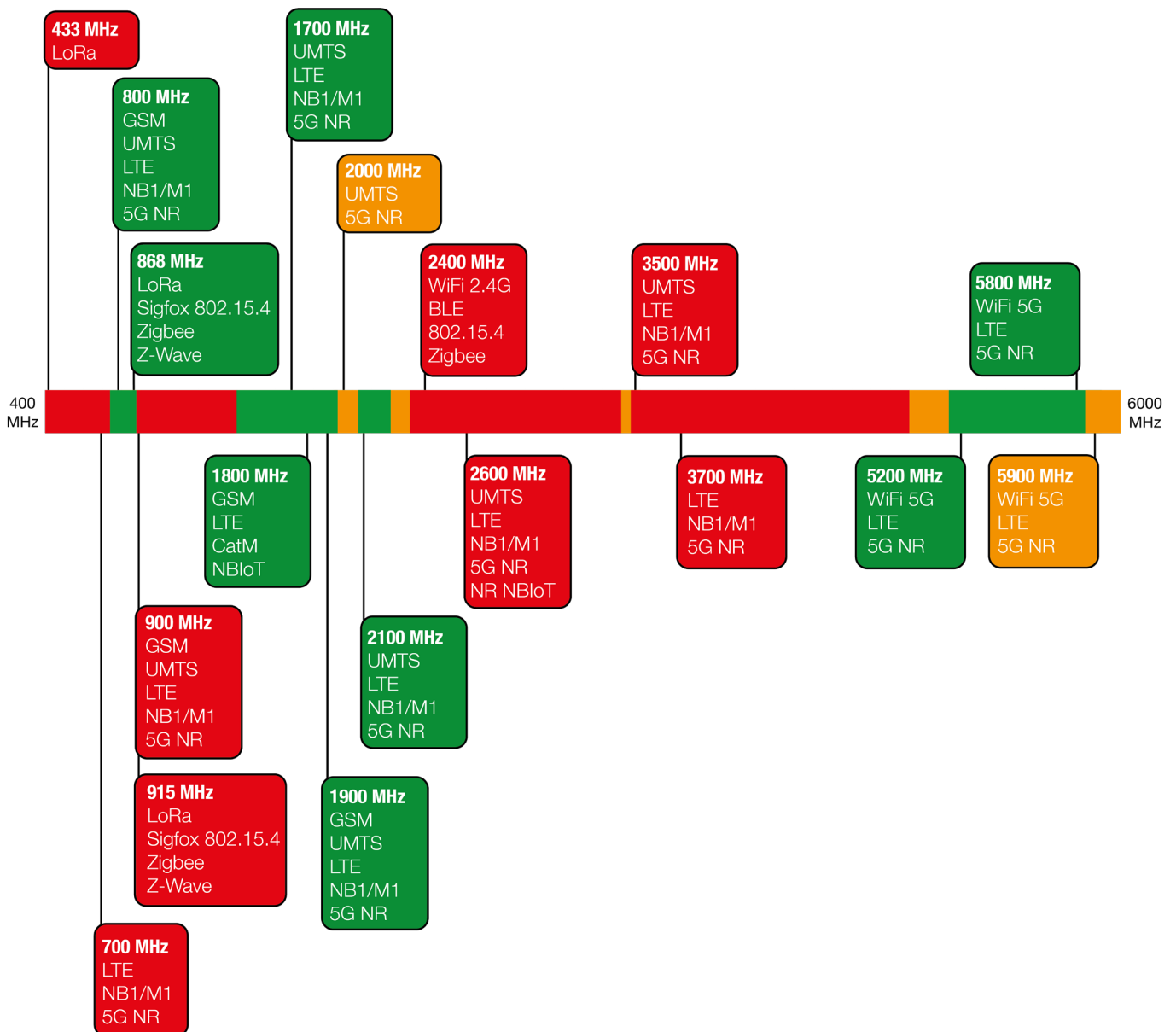




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Spectrum Coverage



● Suitable band

● Adequate band in good signal conditions

● Likely to be unsuitable



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Usable Cellular Frequency Support (410 MHz – 1900 MHz)

	410	450	600	700	800	850	900	1500	1600	1700	1800	1900
GSM Bands:						●					●	●
UMTS Bands:					●	●		●		●	●	●
LTE Bands:					●	●		●	●	●	●	●
LTE Cat M Bands:					●	●		●	●	●	●	●
LTE Cat NB Bands:					●	●		●	●	●	●	●
5G NR Bands:					●	●		●	●	●	●	●
NR Cat NB Bands:						●				●	●	●

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)

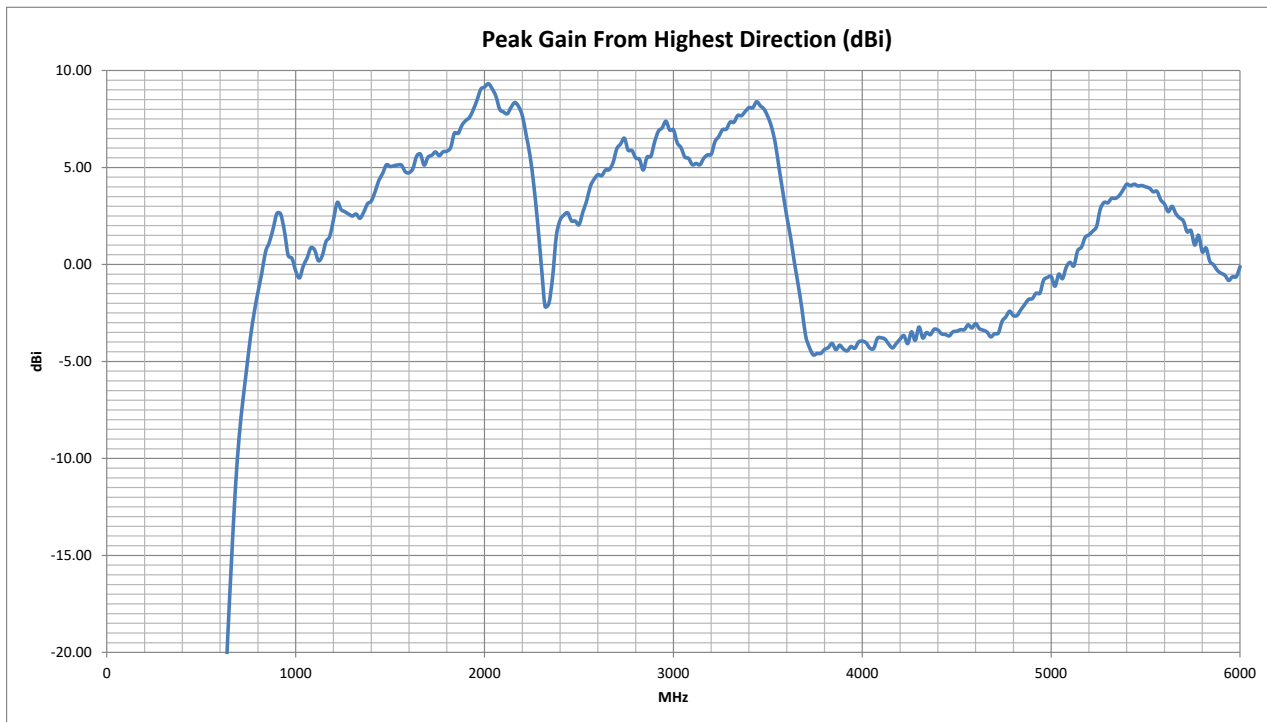
	433	868	915	2450	5800
Bluetooth					
IEEE 802.15.4		●			
LoRa		●			
Sigfox		●			
WiFi 2.4G					
WiFi 5G					●
Zigbee		●			
Z-Wave		●			



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Peak Gain vs. Frequency



Return Loss

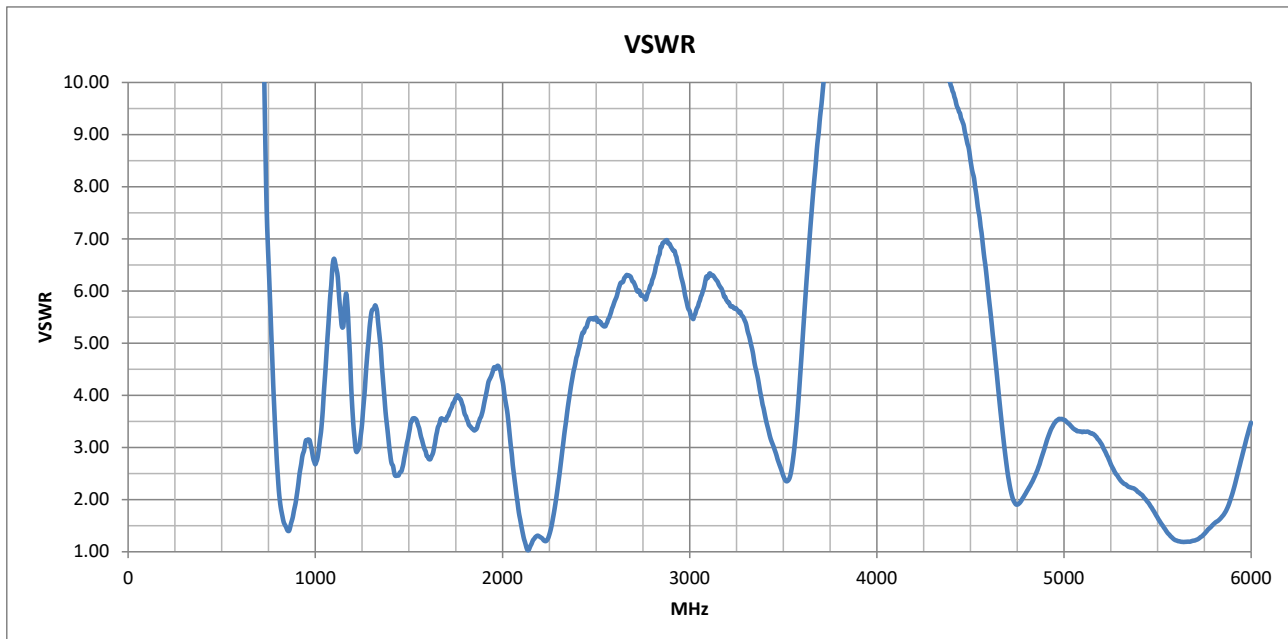




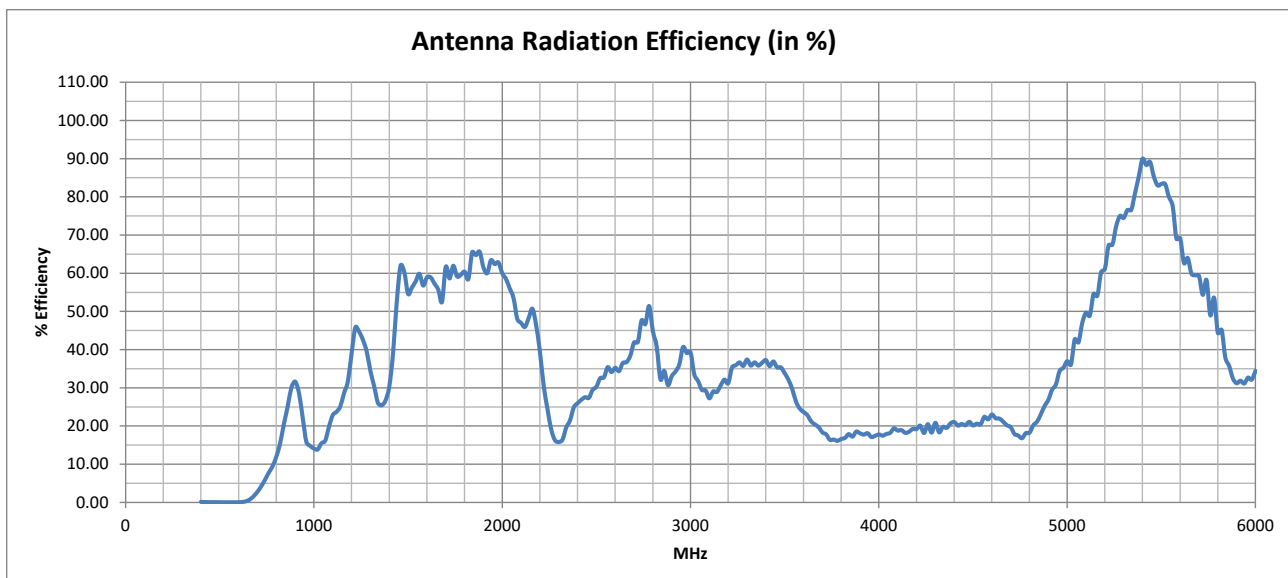
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VSWR



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	62.38	48.13	4.57	1.33	●
PCS-1900	2	2	2	2	n2	n2	1850 - 1910 MHz	1930 - 1990 MHz	63.91	62.59	3.98	4.57	●
DCS-1800	3	3	3	3	n3	n3	1710 - 1785 MHz	1805 - 1880 MHz	59.95	63.10	4.00	3.60	●
	4	4	4	4			1710 - 1755 MHz	2110 - 2155 MHz	60.28	47.56	3.97	1.33	●
GSM-850	5	5	5	5	n5	n5	824 - 849 MHz	869 - 894 MHz	19.49	29.70	1.68	1.92	●
	6						830 - 840 MHz	875 - 885 MHz	19.15	29.78	1.58	1.77	●
	7	7	7	7	n7	n7	2500 - 2570 MHz	2620 - 2690 MHz	33.03	36.91	5.49	6.31	●
E-GSM-900	8	8	8	8	n8	n8	880 - 915 MHz	925 - 960 MHz	30.70	21.47	2.48	3.15	●
	9	9					1749.9 - 1784.9 MHz	1844.9 - 1879.9 MHz	59.55	65.09	4.00	3.55	●
	10	10					1710 - 1770 MHz	2110 - 2170 MHz	60.05	48.13	4.00	1.33	●
	11	11	11	11			1427.9 - 1447.9 MHz	1475.9 - 1495.9 MHz	50.84	58.49	2.49	3.18	●
	12	12	12	12	n12	n12	699 - 716 MHz	729 - 746 MHz	3.31	5.70	17.79	9.68	●
	13	13	13	13	n13	n13	777 - 787 MHz	746 - 756 MHz	9.69	6.93	4.04	6.91	●
	14	14	14	14	n14		788 - 798 MHz	758 - 768 MHz	11.06	8.01	3.19	5.83	●
		17		17			704 - 716 MHz	734 - 746 MHz	3.49	5.91	16.27	8.62	●
		18	18	18	n18	n18	815 - 830 MHz	860 - 875 MHz	16.05	26.84	1.85	1.60	●
	19	19	19	19			830 - 845 MHz	875 - 890 MHz	19.76	30.05	1.58	1.86	●
	20	20	20	20	n20	n20	832 - 862 MHz	791 - 821 MHz	21.97	13.02	1.56	2.98	●
	21	21	21	21			1447.9 - 1462.9 MHz	1495.9 - 1510.9 MHz	59.64	55.07	2.58	3.48	●
	22	22					3410 - 3490 MHz	3510 - 3590 MHz	35.80	28.18	3.49	4.34	●
		24	24	24	n24		1626.5 - 1660.5 MHz	1525 - 1559 MHz	57.01	58.09	3.43	3.56	●
	25	25	25	25	n25	n25	1850 - 1915 MHz	1930 - 1995 MHz	63.66	62.47	4.07	4.57	●
	26	26	26	26	n26		814 - 849 MHz	859 - 894 MHz	18.27	28.63	1.88	1.92	●
		27	27				807 - 824 MHz	852 - 869 MHz	14.62	25.12	2.10	1.52	●
		28	28	28	n28	n28	703 - 748 MHz	758 - 803 MHz	4.72	9.72	16.57	5.83	●

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		28A					703 - 733 MHz	758 - 788 MHz	4.10	8.88	16.57	5.83	●
		29			n29		N/A	717 - 728 MHz	N/A	4.42	N/A	12.61	●
		30			n30		2305 - 2315 MHz	2350 - 2360 MHz	16.11	21.02	2.79	4.03	●
		31	31	31			452.5 - 457.5 MHz	462.5 - 467.5 MHz	0.05	0.05	221.24	217.24	●
	32	32					N/A	1452 - 1496 MHz	N/A	59.77	N/A	3.18	●
		33					1900 - 1920 MHz	1900 - 1920 MHz	60.75	60.75	4.16	4.16	●
		34			n34		2010 - 2025 MHz	2010 - 2025 MHz	58.62	58.62	4.02	4.02	●
		35					1850 - 1910 MHz	1850 - 1910 MHz	63.91	63.91	3.98	3.98	●
		36					1930 - 1990 MHz	1930 - 1990 MHz	62.59	62.59	4.57	4.57	●
		37					1910 - 1930 MHz	1910 - 1930 MHz	60.60	60.60	4.30	4.30	●
		38			n38		2570 - 2620 MHz	2570 - 2620 MHz	34.68	34.68	6.04	6.04	●
		39	39		n39		1880 - 1920 MHz	1880 - 1920 MHz	62.16	62.16	4.16	4.16	●
		40	40		n40		2300 - 2400 MHz	2300 - 2400 MHz	20.66	20.66	4.77	4.77	●
		41	41	41	n41	n41	2496 - 2690 MHz	2496 - 2690 MHz	34.80	34.80	6.31	6.31	●
		42	42	42			3400 - 3600 MHz	3400 - 3600 MHz	32.00	32.00	4.86	4.86	●
		43	43	43			3600 - 3800 MHz	3600 - 3800 MHz	18.93	18.93	11.95	11.95	●
		44					703 - 803 MHz	703 - 803 MHz	7.21	7.21	16.57	16.57	●
		45					1447 - 1467 MHz	1447 - 1467 MHz	59.86	59.86	2.64	2.64	●
		46			n46		5150 - 5925 MHz	5150 - 5925 MHz	65.04	65.04	3.26	3.26	●
		47			n47		5855 - 5925 MHz	5855 - 5925 MHz	32.67	32.67	2.45	2.45	●
		48			n48		3550 - 3700 MHz	3550 - 3700 MHz	22.44	22.44	9.43	9.43	●
		49					3550 - 3700 MHz	3550 - 3700 MHz	22.44	22.44	9.43	9.43	●
		50			n50		1432 - 1517 MHz	1432 - 1517 MHz	57.11	57.11	3.52	3.52	●
		51			n51		1427 - 1432 MHz	1427 - 1432 MHz	45.46	45.46	2.46	2.46	●
		52					3300 - 3400 MHz	3300 - 3400 MHz	36.43	36.43	5.39	5.39	●

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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	29.83	29.83	5.48	5.48	●
		65		65	n65	n65	1920 - 2010 MHz	2110 - 2200 MHz	61.85	46.89	4.57	1.33	●
		66	66	66	n66	n66	1710 - 1780 MHz	2110 - 2200 MHz	59.96	46.89	4.00	1.33	●
		67			n67		N/A	738 - 758 MHz	N/A	6.65	N/A	7.89	●
		68					698 - 728 MHz	753 - 783 MHz	3.72	8.42	18.09	6.29	●
		69					N/A	2570 - 2620 MHz	N/A	34.68	N/A	6.04	●
		70		70	n70	n70	1695 - 1710 MHz	1995 - 2020 MHz	60.76	59.45	3.61	4.36	●
		71	71	71	n71		663 - 698 MHz	617 - 652 MHz	1.72	0.28	30.58	55.39	●
		72	72	72			451 - 456 MHz	461 - 466 MHz	0.05	0.05	222.62	219.69	●
		73	73	73			450 - 455 MHz	460 - 465 MHz	0.05	0.05	223.54	221.32	●
		74	74	74	n74		1427 - 1470 MHz	1475 - 1518 MHz	55.50	56.90	2.68	3.53	●
		75			n75		N/A	1432 - 1517 MHz	N/A	57.11	N/A	3.52	●
		76			n76		N/A	1427 - 1432 MHz	N/A	45.46	N/A	2.46	●
					n77		3300 - 4200 MHz	3300 - 4200 MHz	23.39	23.39	13.07	13.07	●
					n78		3300 - 3800 MHz	3300 - 3800 MHz	27.66	27.66	11.95	11.95	●
					n79		4400 - 5000 MHz	4400 - 5000 MHz	22.64	22.64	9.91	9.91	●
					n80		1710 - 1785 MHz	N/A	59.95	N/A	4.00	N/A	●
					n81		880 - 915 MHz	N/A	30.70	N/A	2.48	N/A	●
					n82		832 - 862 MHz	N/A	21.97	N/A	1.56	N/A	●
					n83		703 - 748 MHz	N/A	4.72	N/A	16.57	N/A	●
					n84		1920 - 1980 MHz	N/A	62.38	N/A	4.57	N/A	●
		85	85	85	n85		698 - 716 MHz	728 - 746 MHz	3.27	5.66	18.09	9.90	●
					n86		1710 - 1780 MHz	N/A	59.96	N/A	4.00	N/A	●
		87	87	87			410 - 415 MHz	420 - 425 MHz	0.10	0.08	235.49	218.62	●
		88	88	88			412 - 417 MHz	422 - 427 MHz	0.10	0.08	228.00	218.62	●

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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
					n89		824 - 849 MHz	N/A	19.49	N/A	1.68	N/A	●
					n90	n90	2496 - 2690 MHz	2496 - 2690 MHz	34.80	34.80	6.31	6.31	●
					n91		832 - 862 MHz	1427 - 1432 MHz	21.97	45.46	1.56	2.46	●
					n92		832 - 862 MHz	1432 - 1517 MHz	21.97	57.11	1.56	3.52	●
					n93		880 - 915 MHz	1427 - 1432 MHz	30.70	45.46	2.48	2.46	●
					n94		880 - 915 MHz	1432 - 1517 MHz	30.70	57.11	2.48	3.52	●
					n95		2010 - 2025 MHz	N/A	58.62	N/A	4.02	N/A	●
					n97		2300 - 2400 MHz	N/A	20.66	N/A	4.77	N/A	●
					n98		1880 - 1920 MHz	N/A	62.16	N/A	4.16	N/A	●
					n99		1626.5 - 1660.5 MHz	N/A	57.01	N/A	3.43	N/A	●
					n101		1900 - 1910 MHz	1900 - 1910 MHz	61.13	61.13	3.98	3.98	●
				103			787 - 788 MHz	757 - 758 MHz	10.36	7.53	3.26	5.92	●

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● 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.



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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	0.07	209.42	-26.212	●
IMT 868 MHz	863 - 870 MHz	26.59	1.54	1.49	●
ISM 915 MHz	902 - 928 MHz	29.26	2.77	2.627	●
ISM 2.4 GHz	2400 - 2500 MHz	27.86	5.49	2.66	●
Wi-Fi 2.4G	2401 - 2483 MHz	27.46	5.48	2.66	●
Wi-Fi 2.4G (USA)	2401 - 2473 MHz	27.21	5.47	2.66	●
Wi-Fi 2.4G (Japan)	2401 - 2495 MHz	27.76	5.48	2.66	●
Wi-Fi 5G (all channels)	5150 - 5990 MHz	62.49	3.35	4.14	●
Wi-Fi 5G (Ch 32-48)	5150 - 5250 MHz	62.17	3.26	2.405	●
Wi-Fi 5G (Ch 32-64)	5150 - 5330 MHz	67.61	3.26	3.41	●
Wi-Fi 5G (Ch 32-161)	5150 - 5815 MHz	69.94	3.26	4.14	●
Wi-Fi 5G (Ch 32-173)	5150 - 5875 MHz	67.33	3.26	4.14	●
ISM 5.8 GHz	5725 - 5875 MHz	46.05	1.85	1.75	●

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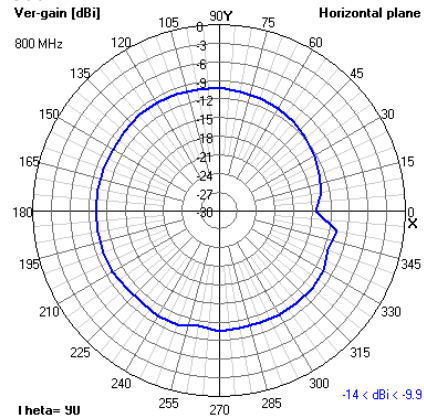


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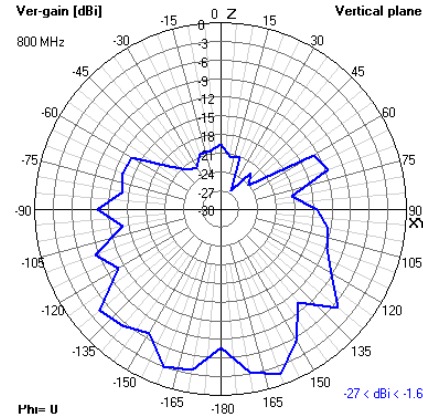
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2D Radiation Plots

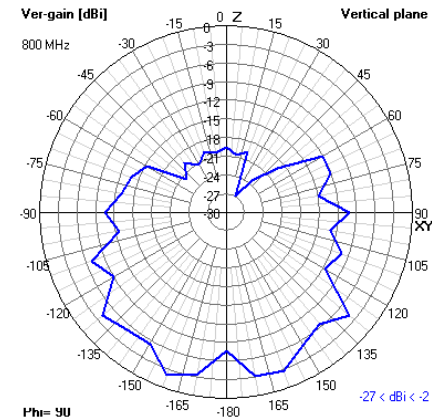
800 MHz XY



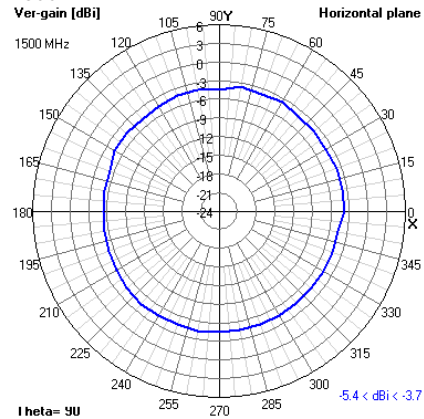
XZ



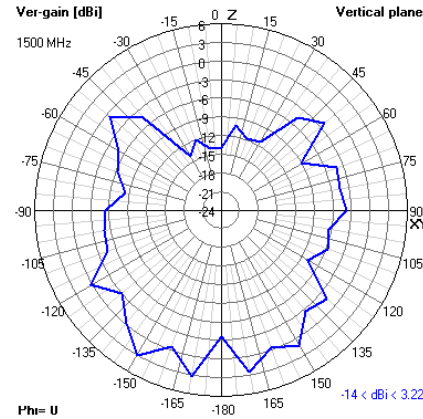
YZ



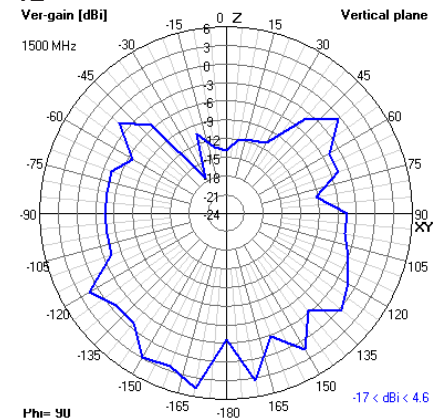
1500 MHz XY



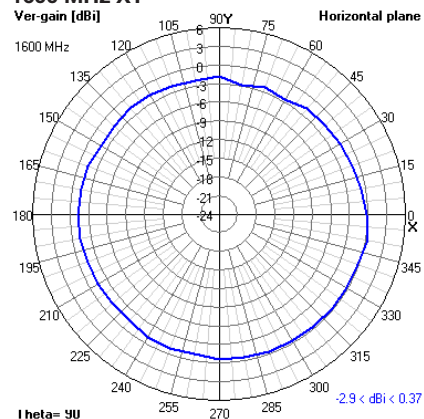
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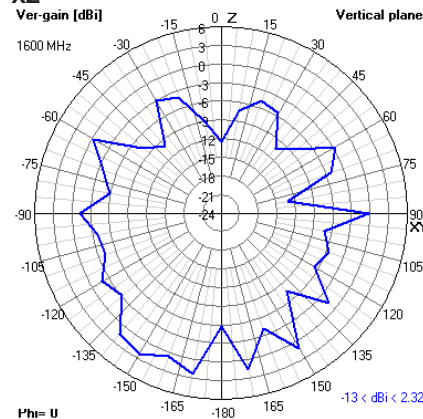
YZ



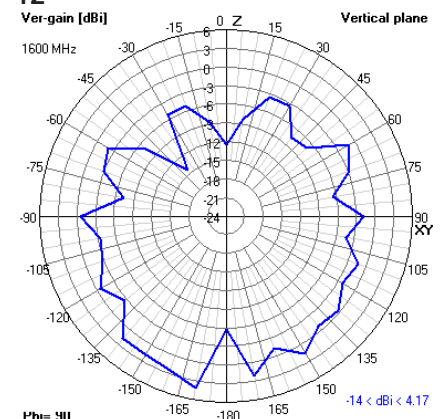
1600 MHz XY



XZ



YZ



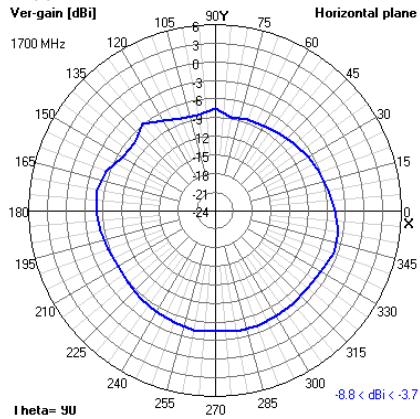


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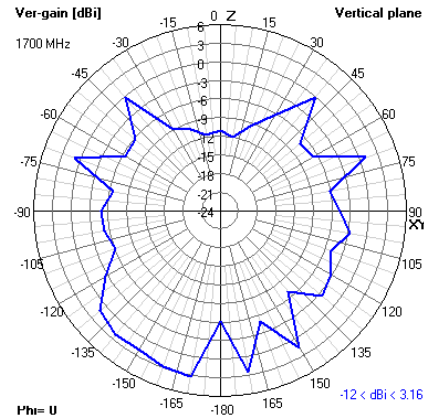
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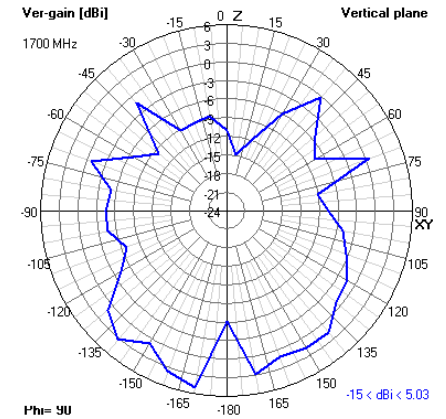
1700 MHz XY



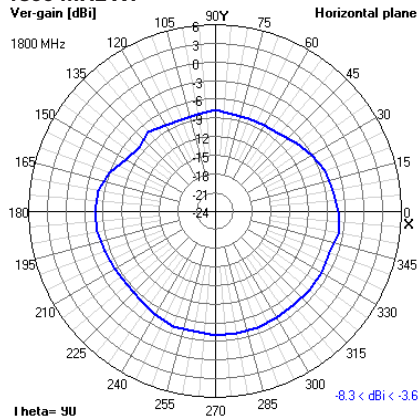
XZ



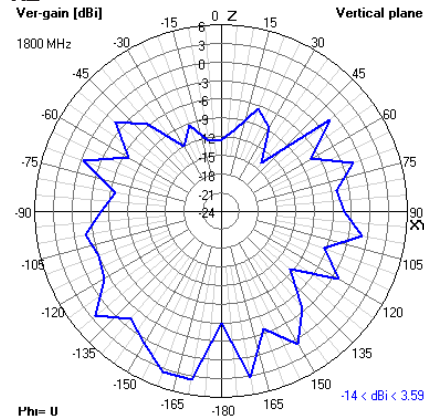
YZ



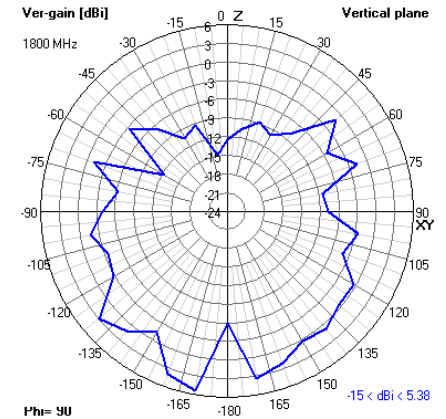
1800 MHz XY



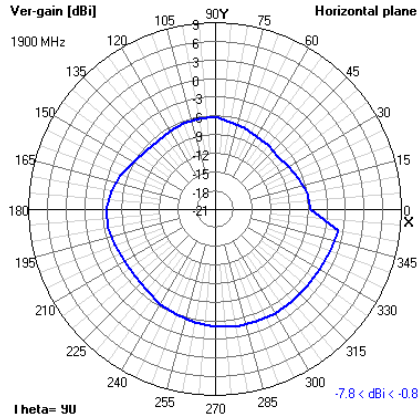
XZ



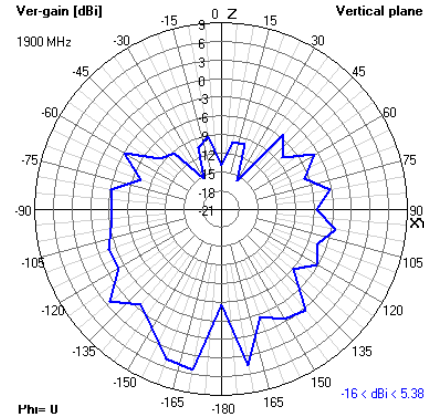
YZ



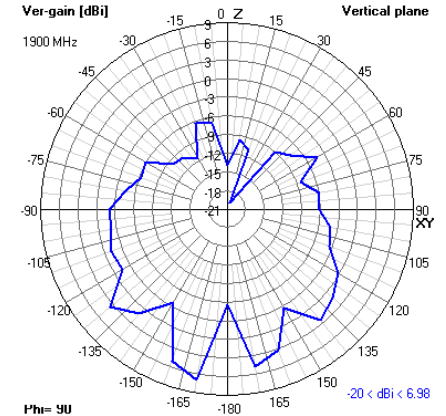
1900 MHz XY



XZ



YZ



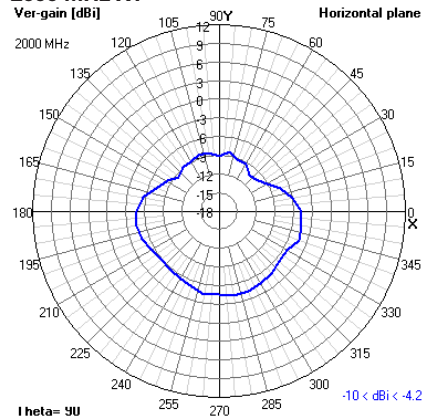


Delta 1A

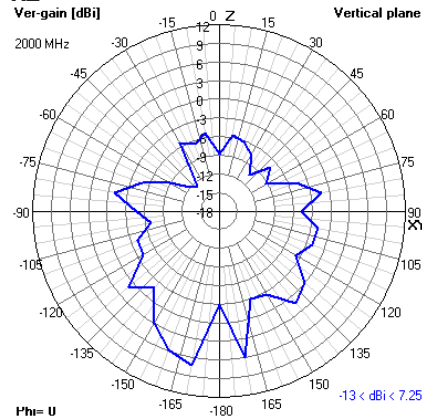
5G/4G & ISM 868 MHz 56MM Stubby Antenna

2D Radiation Plots

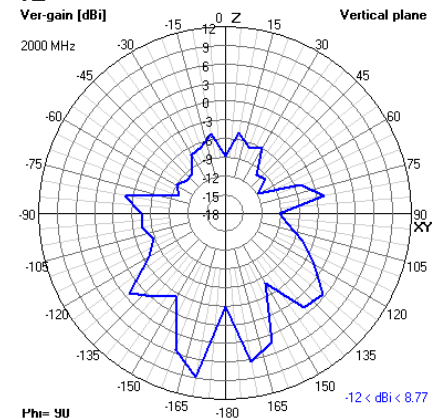
2000 MHz XY



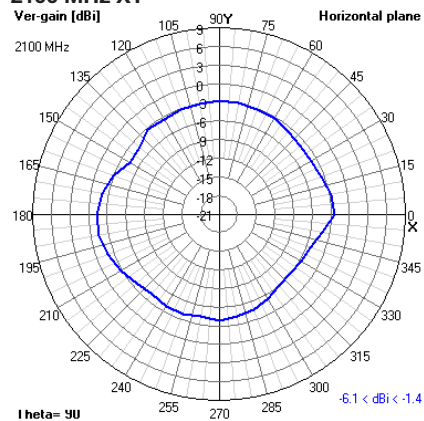
XZ



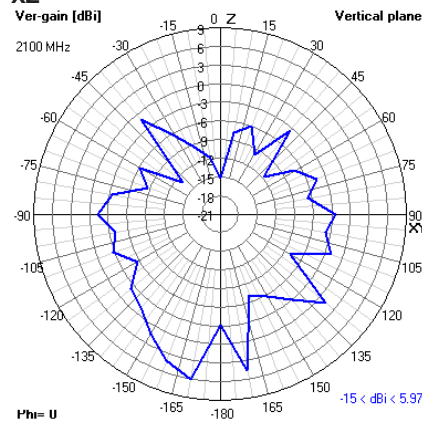
YZ



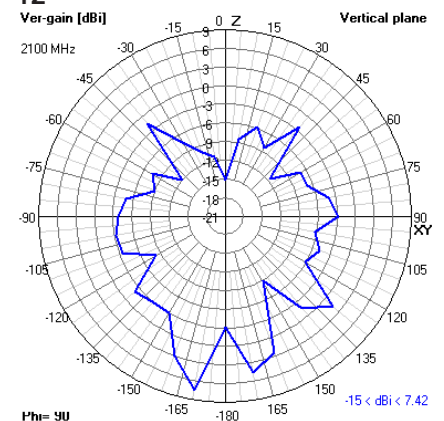
2100 MHz XY



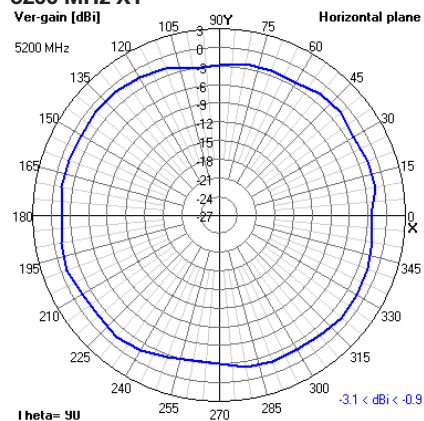
XZ



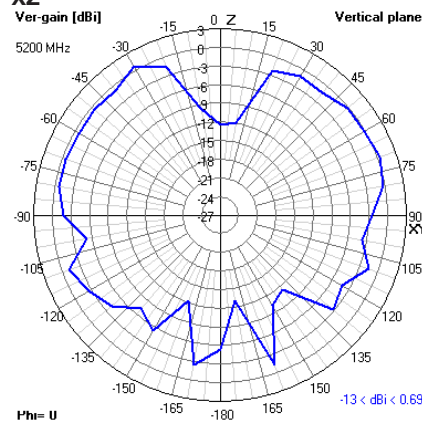
YZ



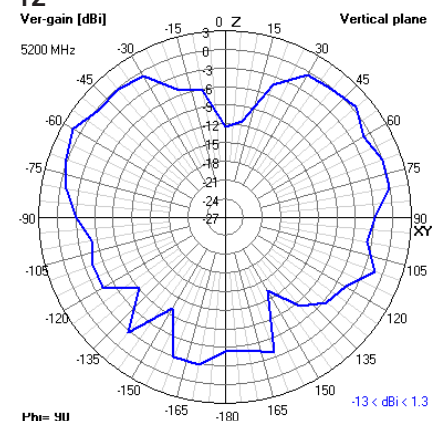
5200 MHz XY



XZ



YZ





Delta 1A

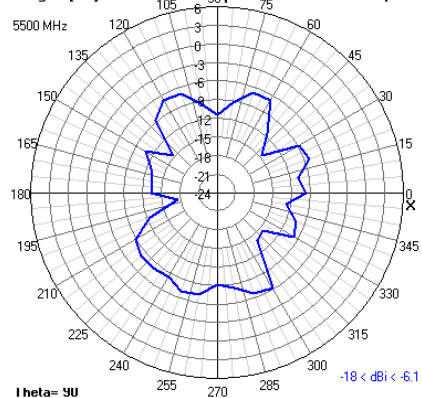
5G/4G & ISM 868 MHz 56MM Stubby Antenna

2D Radiation Plots

5500 MHz XY

Ver-gain [dBi]

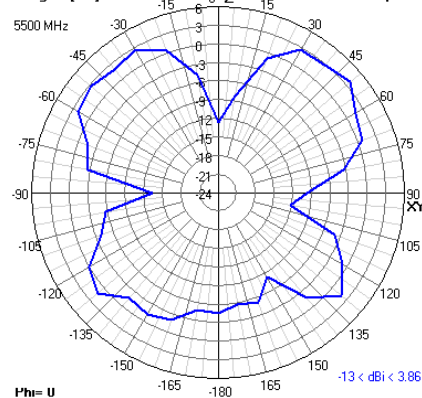
Ver-gain [dBi]	10°	90°	75°	Horizontal plane
----------------	-----	-----	-----	------------------



XZ

Ver-gain [dBi]

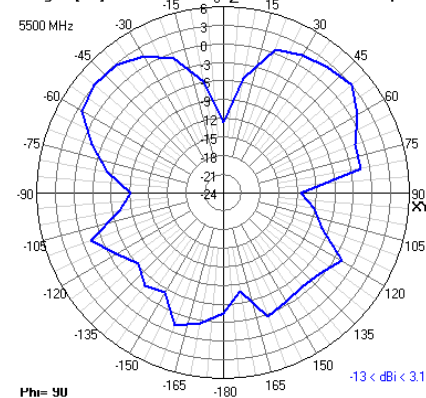
Ver-gain [dBi]	-15	0	15	Vertical plane
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YZ

Ver-gain [dBi]

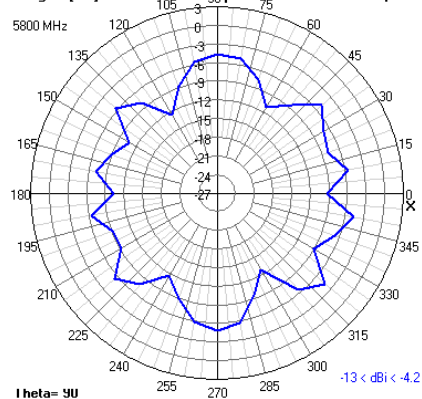
Ver-gain [dBi]	15	0	15	Vertical plane
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5800 MHz XY

Ver-gain [dBi]

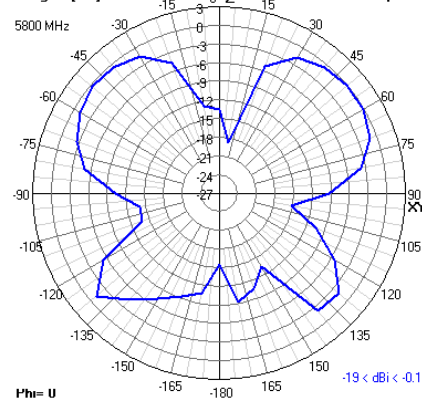
Ver-gain [dBi]	105	90Y	75	Horizontal plane
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XZ

Ver-gain [dBi]

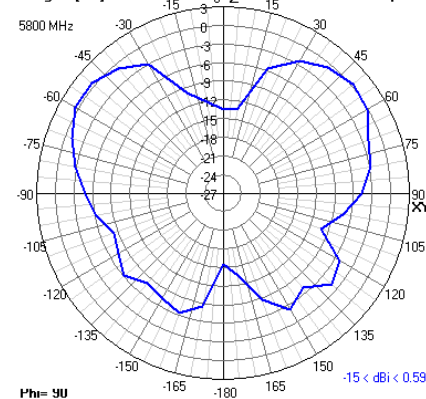
Ver-gain [dBi]	-15	0	15	Vertical plane
----------------	-----	---	----	----------------



YZ

Ver-gain [dBi]

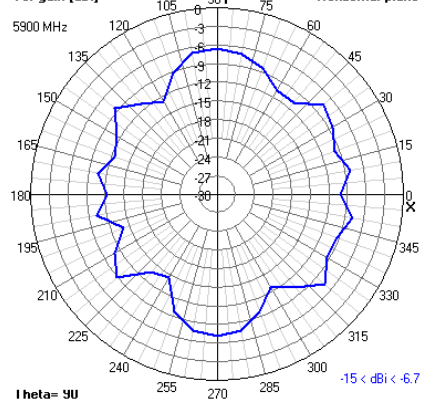
Ver-gain [dBi]	15	0	15	Vertical plane
----------------	----	---	----	----------------



5900 MHz XY

Ver-gain [dBi]

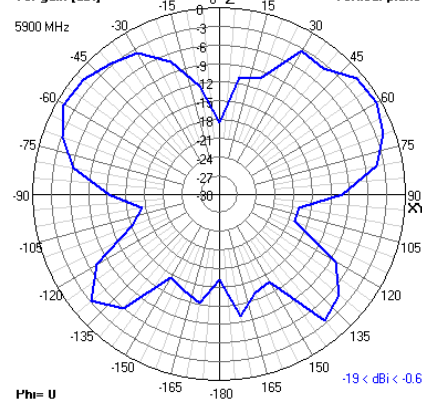
Ver-gain [dBi]	105	90Y	75	Horizontal plane
----------------	-----	-----	----	------------------



XZ

Ver-gain [dBi]

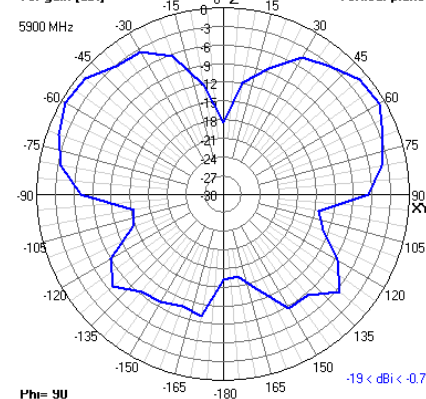
Ver-gain [dBi] 15 0 7 15 Vertical plane



YZ

Ver-gain [dBi]

Ver-gain [dBi] 15 0 7 15 Vertical plane



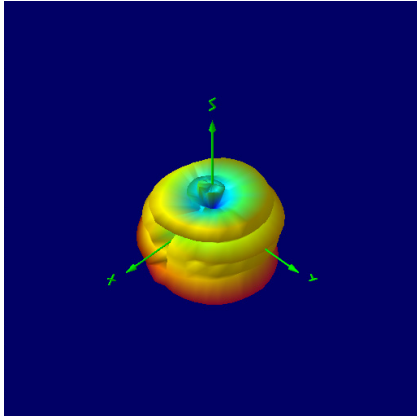


Delta 1A

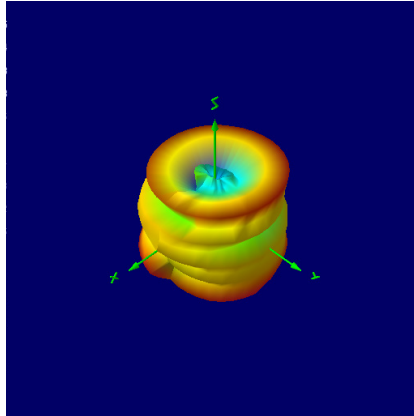
5G/4G & ISM 868 MHz 56MM Stubby Antenna

3D Radiation Plots

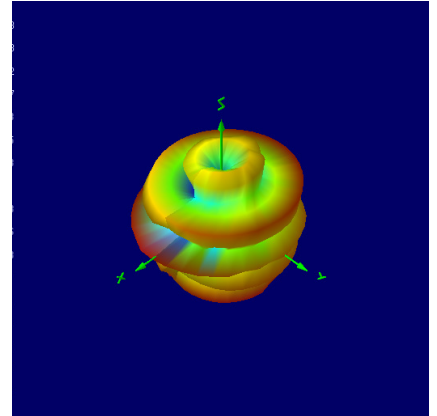
800 MHz



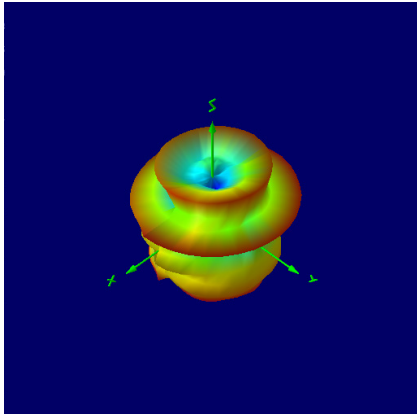
1500 MHz



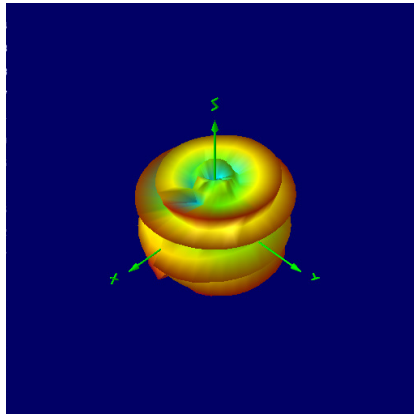
1600 MHz



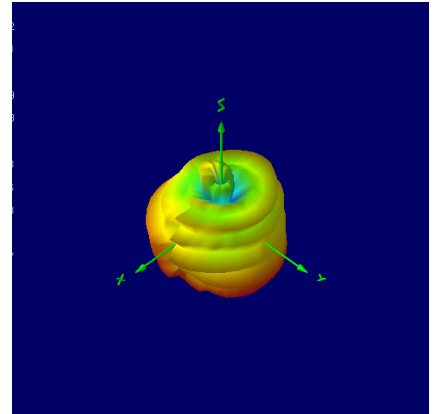
1700 MHz



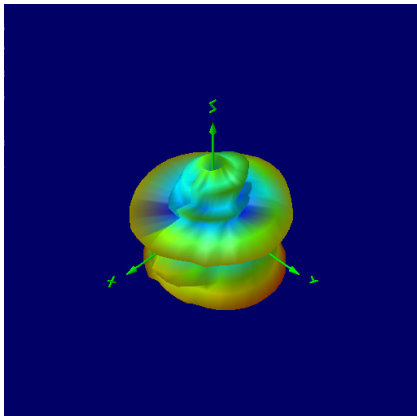
1800 MHz



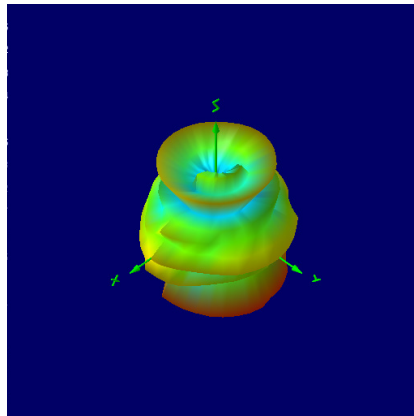
1900 MHz



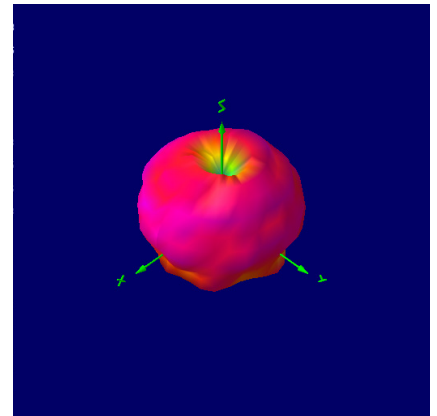
2000 MHz



2100 MHz



5200 MHz



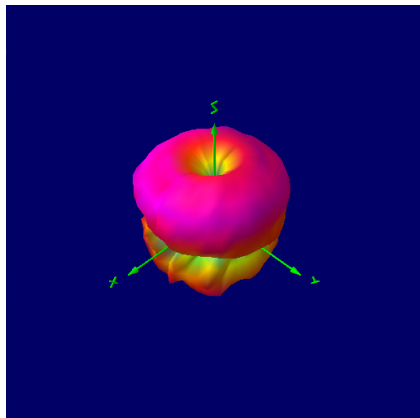


Delta 1A

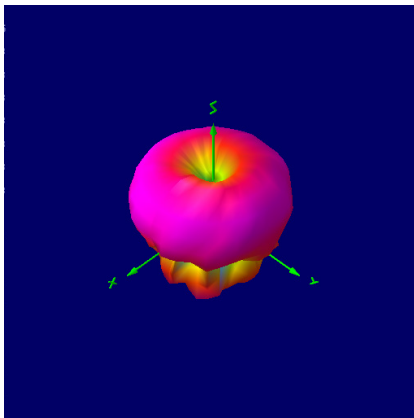
5G/4G & ISM 868 MHz 56MM Stubby Antenna

3D Radiation Plots

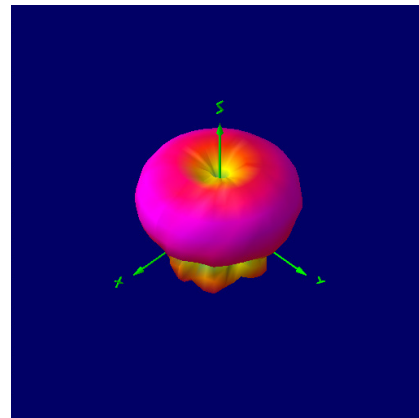
5500 MHz



5800 MHz



5900 MHz



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

Ordering Details:

Part Number	Description
DELTA1A/X/SMAM/S/S/11	5G/4G & ISM 868 MHz 56MM Stubby Antenna SMA Male
DELTA1A/X/SMAF/S/S/11	5G/4G & ISM 868 MHz 56MM Stubby Antenna SMA Female

Mouser Electronics

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