



Delta 5A

ISM 868/915 MHz LoRa, SigFox, Helium, Weightless Flexi Antenna



Key Features

- Supports 5G NR / 4G LTE / 3G UMTS / 2G GSM & GPRS
- Supports LTE Cat M, LTE Cat NB & NR Cat NB
- Supports LoRa, Sigfox, Zigbee, Z-Wave & IEEE 802.15.4 Bands
- Supports ISM 5.8G
- Overmoulded, flexible whip
- ¼ Wave Helical Omni Antenna

General Description

The Delta 5A is a ¼ wave, helically wound, omni-directional antenna providing superior performance at 868 MHz, 915 MHz and 5.8 GHz.

Typical applications are low power short range systems such as wireless sensor monitoring, street lighting control, smart energy meters and security systems.

The Delta 5A is supplied with either an SMA male or for volume orders a reverse polarity SMA male connector.

Additional Considerations

- Rugged construction for portable equipment
- Ideal for many popular radio modules and equipment

D Direct	5G New Radio	4G LTE	3G UMTS	2G GSM
LoRa Wireless	SF Sigfox	HNT Helium	W Weightless	Z Wave
ISM 5.8G	IEEE 802.15.4	WLAN 5800	LTE Cat M	LTE NB IoT
WiFi 4 802.11n	WiFi 5 802.11ac	WiFi 6 802.11ax		



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Electrical Specifications

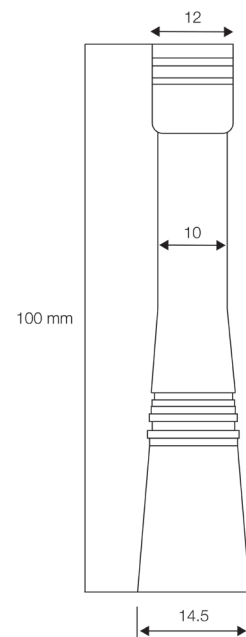
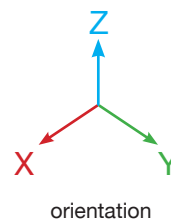
Impedance:	50 Ohm
Polarization:	Vertical
Max Input Power:	50 W
Ground plane independent:	No

Environmental Specifications

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

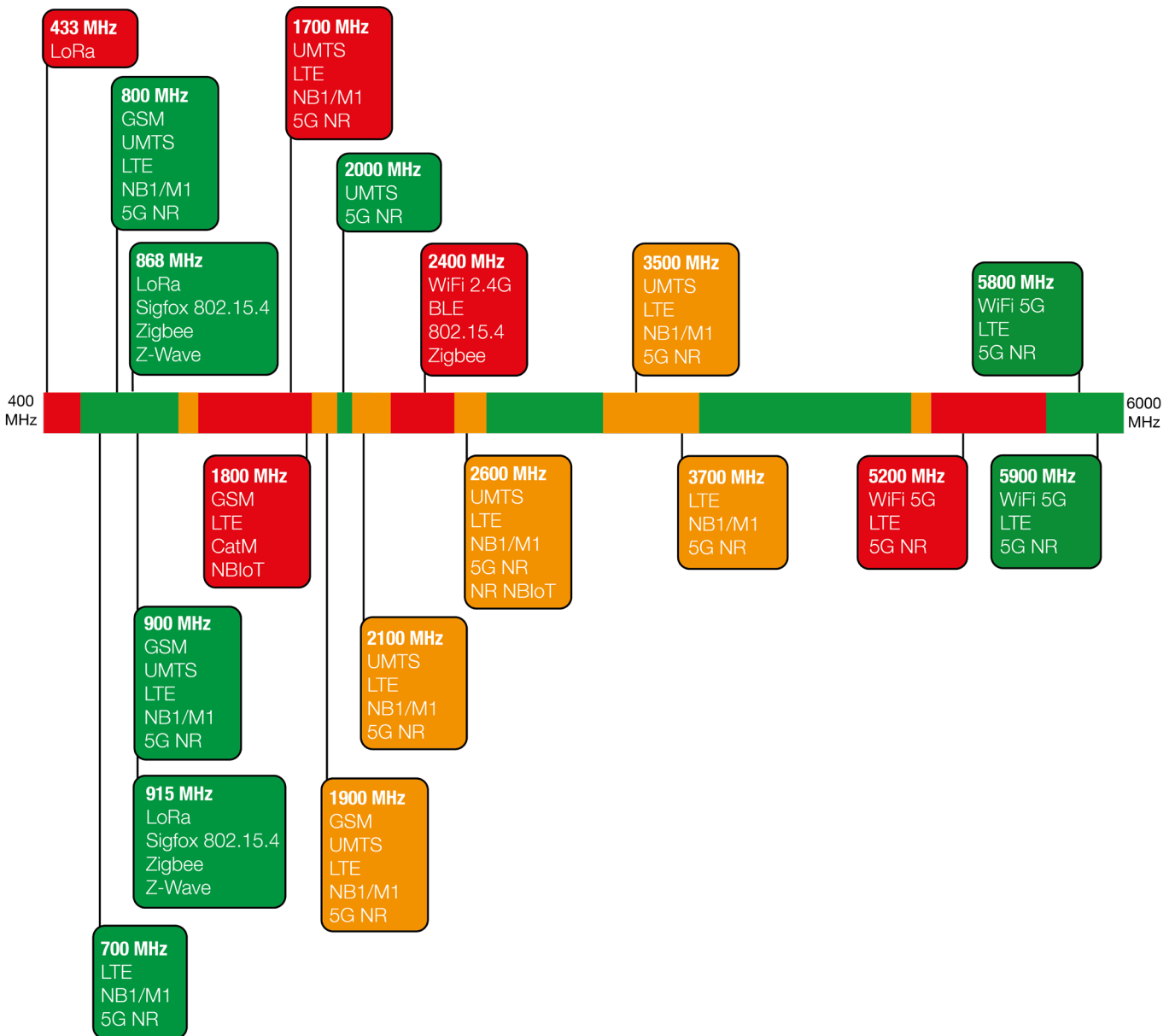
Mechanical Specifications

Dimensions:	L100 mm
Weight:	28 g
Connector:	SMA Male
Mounting method:	Direct Connect
Housing materials:	TPE





Spectrum Coverage



● Suitable band ● Adequate band in good signal conditions ● Likely to be unsuitable



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)

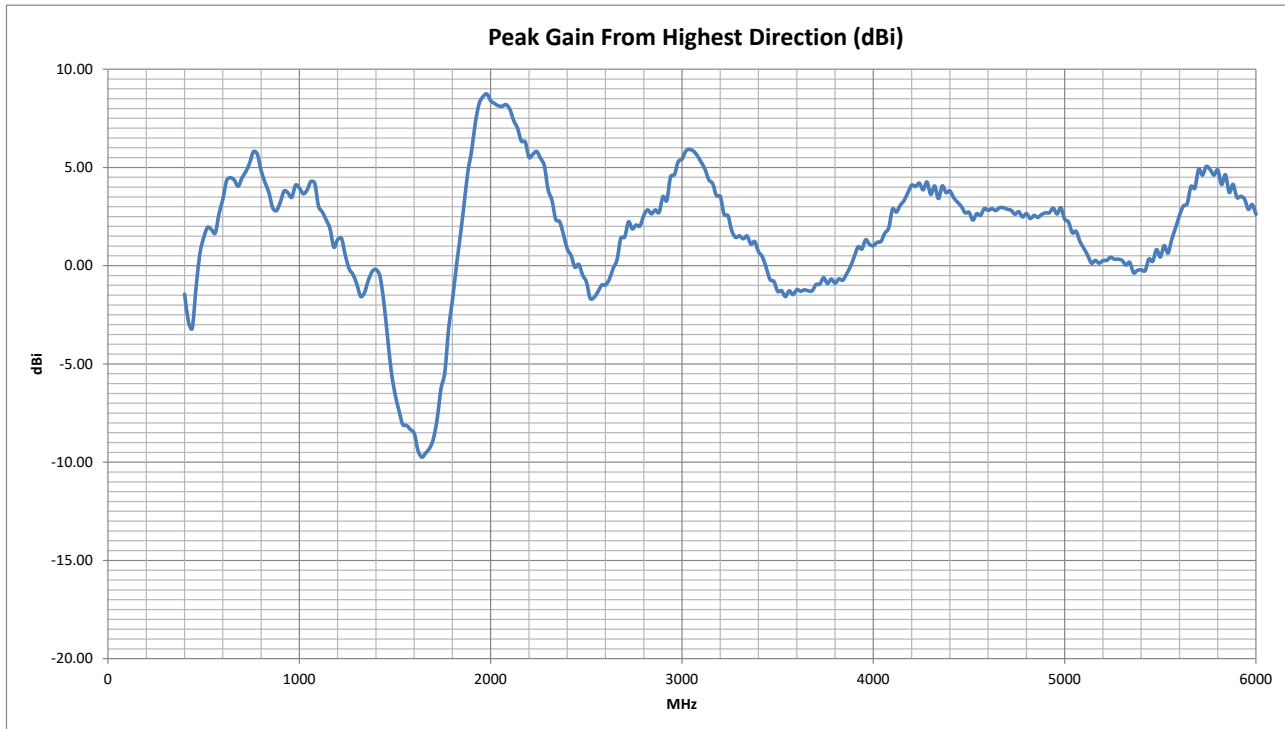
	433	868	915	2450	5800
Bluetooth					
IEEE 802.15.4		●	●		
LoRa		●	●		
Sigfox		●	●		
WiFi 2.4G					
WiFi 5G					
Zigbee		●	●		
Z-Wave		●	●		



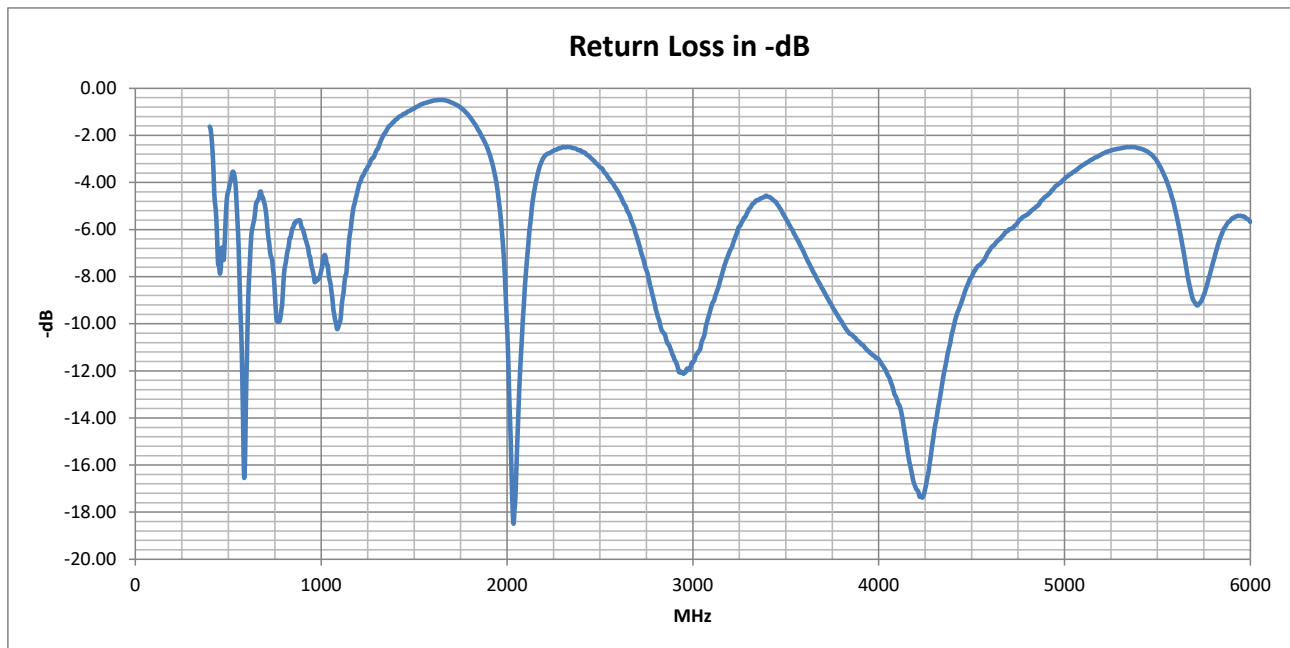
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Peak Gain vs. Frequency



Return Loss

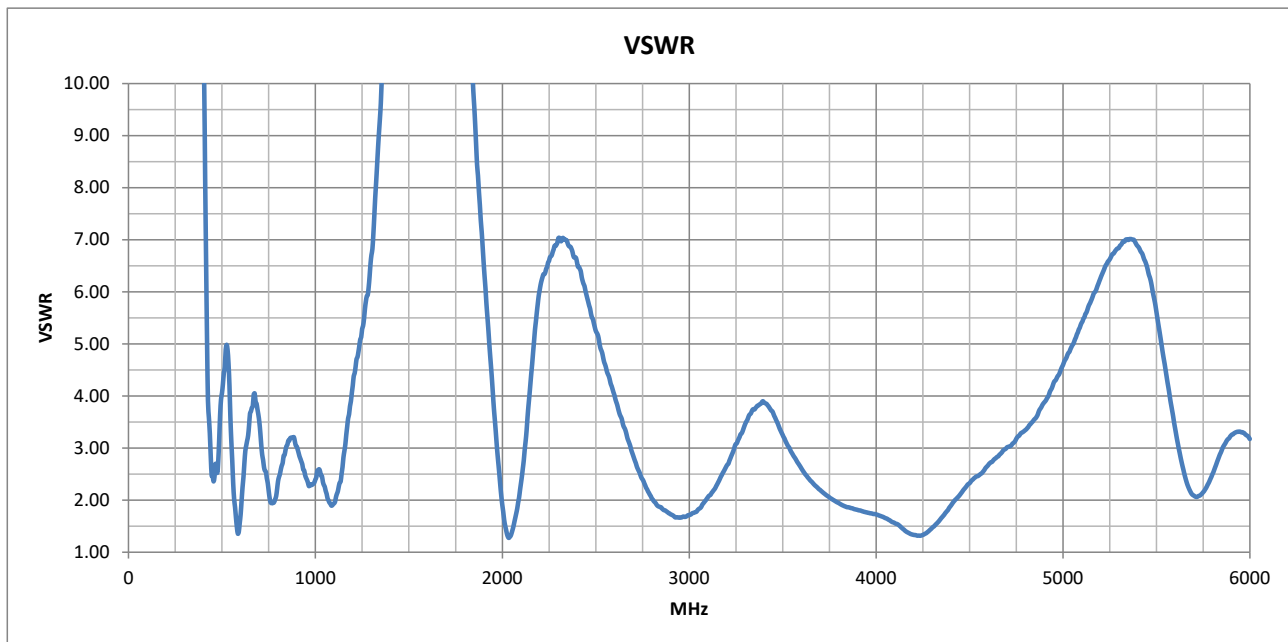




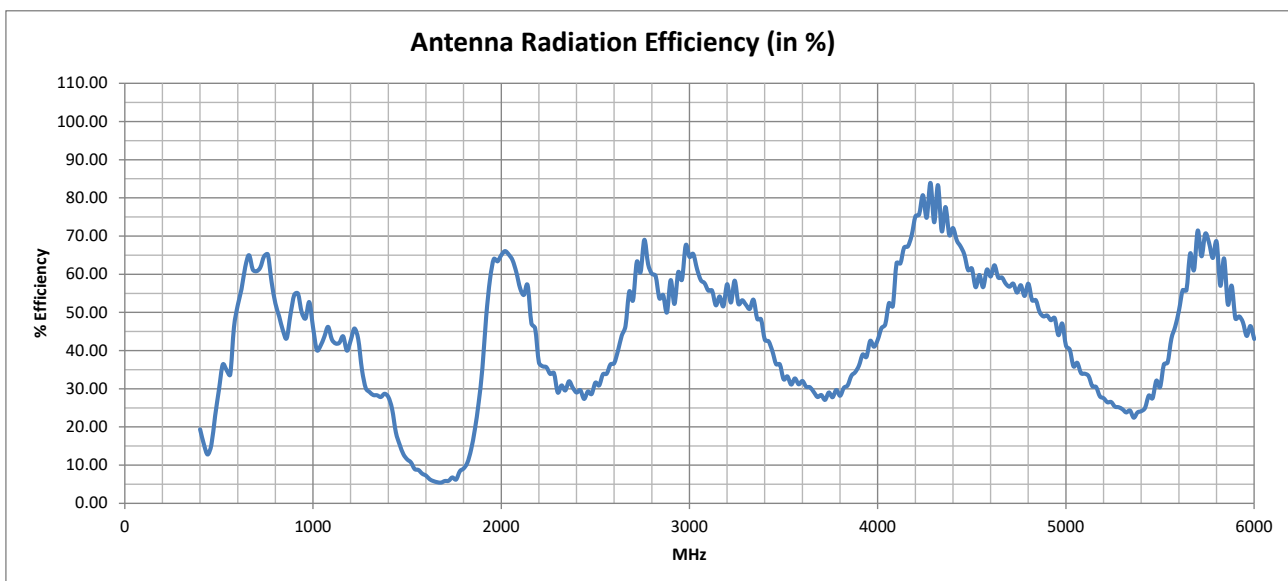
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VSWR



Radiation Efficiency





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	59.58	52.99	5.54	5.05	●
PCS-1900	2	2	2	2	n2	n2	1850 - 1910 MHz	1930 - 1990 MHz	27.49	61.65	9.56	5.03	●
DCS-1800	3	3	3	3	n3	n3	1710 - 1785 MHz	1805 - 1880 MHz	6.74	15.93	27.51	13.67	●
	4	4	4	4			1710 - 1755 MHz	2110 - 2155 MHz	6.33	54.86	27.51	4.42	●
GSM-850	5	5	5	5	n5	n5	824 - 849 MHz	869 - 894 MHz	46.07	49.69	3.05	3.20	●
	6						830 - 840 MHz	875 - 885 MHz	46.21	49.37	2.96	3.20	●
	7	7	7	7	n7	n7	2500 - 2570 MHz	2620 - 2690 MHz	32.80	47.31	5.25	3.75	●
E-GSM-900	8	8	8	8	n8	n8	880 - 915 MHz	925 - 960 MHz	53.16	50.35	3.20	2.73	●
	9	9					1749.9 - 1784.9 MHz	1844.9 - 1879.9 MHz	7.23	20.56	21.24	9.86	●
	10	10					1710 - 1770 MHz	2110 - 2170 MHz	6.41	52.99	27.51	5.05	●
	11	11	11	11			1427.9 - 1447.9 MHz	1475.9 - 1495.9 MHz	19.49	12.51	16.16	20.02	●
	12	12	12	12	n12	n12	699 - 716 MHz	729 - 746 MHz	61.19	64.22	3.52	2.57	●
	13	13	13	13	n13	n13	777 - 787 MHz	746 - 756 MHz	57.42	64.96	2.04	2.29	●
	14	14	14	14	n14		788 - 798 MHz	758 - 768 MHz	54.31	64.00	2.30	1.99	●
		17		17			704 - 716 MHz	734 - 746 MHz	61.31	64.53	3.34	2.54	●
		18	18	18	n18	n18	815 - 830 MHz	860 - 875 MHz	48.50	45.57	2.85	3.20	●
	19	19	19	19			830 - 845 MHz	875 - 890 MHz	45.82	50.03	3.03	3.20	●
	20	20	20	20	n20	n20	832 - 862 MHz	791 - 821 MHz	44.69	51.49	3.16	2.67	●
	21	21	21	21			1447.9 - 1462.9 MHz	1495.9 - 1510.9 MHz	16.16	11.42	17.28	21.84	●
	22	22					3410 - 3490 MHz	3510 - 3590 MHz	38.70	32.08	3.85	3.18	●
		24	24	24	n24		1626.5 - 1660.5 MHz	1525 - 1559 MHz	5.81	9.22	35.17	27.82	●
	25	25	25	25	n25	n25	1850 - 1915 MHz	1930 - 1995 MHz	28.76	61.86	9.56	5.03	●
	26	26	26	26	n26		814 - 849 MHz	859 - 894 MHz	46.95	48.21	3.05	3.20	●
		27	27				807 - 824 MHz	852 - 869 MHz	49.73	44.18	2.70	3.19	●
		28	28	28	n28	n28	703 - 748 MHz	758 - 803 MHz	62.82	58.24	3.38	2.41	●

● 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
		28A					703 - 733 MHz	758 - 788 MHz	61.98	60.53	3.38	2.05	●
		29			n29		N/A	717 - 728 MHz	N/A	62.21	N/A	2.83	●
		30			n30		2305 - 2315 MHz	2350 - 2360 MHz	29.97	31.39	7.04	6.93	●
		31	31	31			452.5 - 457.5 MHz	462.5 - 467.5 MHz	14.71	17.25	2.41	2.69	●
	32	32					N/A	1452 - 1496 MHz	N/A	13.84	N/A	20.02	●
		33					1900 - 1920 MHz	1900 - 1920 MHz	42.27	42.27	6.57	6.57	●
		34			n34		2010 - 2025 MHz	2010 - 2025 MHz	65.85	65.85	1.62	1.62	●
		35					1850 - 1910 MHz	1850 - 1910 MHz	27.49	27.49	9.56	9.56	●
		36					1930 - 1990 MHz	1930 - 1990 MHz	61.65	61.65	5.03	5.03	●
		37					1910 - 1930 MHz	1910 - 1930 MHz	48.50	48.50	6.07	6.07	●
		38			n38		2570 - 2620 MHz	2570 - 2620 MHz	37.13	37.13	4.38	4.38	●
		39	39		n39		1880 - 1920 MHz	1880 - 1920 MHz	36.63	36.63	7.67	7.67	●
		40	40		n40		2300 - 2400 MHz	2300 - 2400 MHz	30.35	30.35	7.04	7.04	●
		41	41	41	n41	n41	2496 - 2690 MHz	2496 - 2690 MHz	39.12	39.12	5.30	5.30	●
		42	42	42			3400 - 3600 MHz	3400 - 3600 MHz	35.35	35.35	3.87	3.87	●
		43	43	43			3600 - 3800 MHz	3600 - 3800 MHz	29.02	29.02	2.61	2.61	●
		44					703 - 803 MHz	703 - 803 MHz	60.97	60.97	3.38	3.38	●
		45					1447 - 1467 MHz	1447 - 1467 MHz	15.94	15.94	17.66	17.66	●
		46			n46		5150 - 5925 MHz	5150 - 5925 MHz	42.60	42.60	7.01	7.01	●
		47			n47		5855 - 5925 MHz	5855 - 5925 MHz	51.88	51.88	3.30	3.30	●
		48			n48		3550 - 3700 MHz	3550 - 3700 MHz	30.40	30.40	2.90	2.90	●
		49					3550 - 3700 MHz	3550 - 3700 MHz	30.40	30.40	2.90	2.90	●
		50			n50		1432 - 1517 MHz	1432 - 1517 MHz	14.32	14.32	22.43	22.43	●
		51			n51		1427 - 1432 MHz	1427 - 1432 MHz	21.82	21.82	14.98	14.98	●
		52					3300 - 3400 MHz	3300 - 3400 MHz	49.64	49.64	3.90	3.90	●

● 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
		53			n53		2483.5 - 2495 MHz	2483.5 - 2495 MHz	30.02	30.02	5.48	5.48	●
		65		65	n65	n65	1920 - 2010 MHz	2110 - 2200 MHz	61.24	49.64	5.54	6.03	●
		66	66	66	n66	n66	1710 - 1780 MHz	2110 - 2200 MHz	6.62	49.64	27.51	6.03	●
		67			n67		N/A	738 - 758 MHz	N/A	64.88	N/A	2.47	●
		68					698 - 728 MHz	753 - 783 MHz	61.56	61.97	3.55	2.09	●
		69					N/A	2570 - 2620 MHz	N/A	37.13	N/A	4.38	●
		70		70	n70	n70	1695 - 1710 MHz	1995 - 2020 MHz	5.85	65.39	29.80	2.07	●
		71	71	71	n71		663 - 698 MHz	617 - 652 MHz	61.92	60.06	4.05	3.68	●
		72	72	72			451 - 456 MHz	461 - 466 MHz	14.52	16.68	2.44	2.69	●
		73	73	73			450 - 455 MHz	460 - 465 MHz	14.39	16.30	2.46	2.69	●
		74	74	74	n74		1427 - 1470 MHz	1475 - 1518 MHz	17.58	11.89	17.81	22.50	●
		75			n75		N/A	1432 - 1517 MHz	N/A	14.32	N/A	22.43	●
		76			n76		N/A	1427 - 1432 MHz	N/A	21.82	N/A	14.98	●
					n77		3300 - 4200 MHz	3300 - 4200 MHz	40.88	40.88	3.90	3.90	●
					n78		3300 - 3800 MHz	3300 - 3800 MHz	35.67	35.67	3.90	3.90	●
					n79		4400 - 5000 MHz	4400 - 5000 MHz	56.45	56.45	4.59	4.59	●
					n80		1710 - 1785 MHz	N/A	6.74	N/A	27.51	N/A	●
					n81		880 - 915 MHz	N/A	53.16	N/A	3.20	N/A	●
					n82		832 - 862 MHz	N/A	44.69	N/A	3.16	N/A	●
					n83		703 - 748 MHz	N/A	62.82	N/A	3.38	N/A	●
					n84		1920 - 1980 MHz	N/A	59.58	N/A	5.54	N/A	●
		85	85	85	n85		698 - 716 MHz	728 - 746 MHz	61.17	64.15	3.55	2.59	●
					n86		1710 - 1780 MHz	N/A	6.62	N/A	27.51	N/A	●
		87	87	87			410 - 415 MHz	420 - 425 MHz	16.96	15.15	8.18	5.09	●
		88	88	88			412 - 417 MHz	422 - 427 MHz	16.57	14.88	7.54	4.61	●

● 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
					n89		824 - 849 MHz	N/A	46.07	N/A	3.05	N/A	●
					n90	n90	2496 - 2690 MHz	2496 - 2690 MHz	39.12	39.12	5.30	5.30	●
					n91		832 - 862 MHz	1427 - 1432 MHz	44.69	21.82	3.16	14.98	●
					n92		832 - 862 MHz	1432 - 1517 MHz	44.69	14.32	3.16	22.43	●
					n93		880 - 915 MHz	1427 - 1432 MHz	53.16	21.82	3.20	14.98	●
					n94		880 - 915 MHz	1432 - 1517 MHz	53.16	14.32	3.20	22.43	●
					n95		2010 - 2025 MHz	N/A	65.85	N/A	1.62	N/A	●
					n97		2300 - 2400 MHz	N/A	30.35	N/A	7.04	N/A	●
					n98		1880 - 1920 MHz	N/A	36.63	N/A	7.67	N/A	●
					n99		1626.5 - 1660.5 MHz	N/A	5.81	N/A	35.17	N/A	●
					n101		1900 - 1910 MHz	1900 - 1910 MHz	38.92	38.92	6.57	6.57	●
				103			787 - 788 MHz	757 - 758 MHz	55.85	65.11	2.05	2.00	●

● 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	13.62	3.40	-3.0645	●
ISM 868 MHz	863 - 870 MHz	45.26	3.19	2.9275	●
ISM 915 MHz	902 - 928 MHz	54.53	3.01	3.8	●
ISM 2.4 GHz	2400 - 2500 MHz	29.06	6.56	0.85	●
Wi-Fi 2.4G	2401 - 2483 MHz	28.79	6.54	0.8335	●
Wi-Fi 2.4G (USA)	2401 - 2473 MHz	28.79	6.54	0.8335	●
Wi-Fi 2.4G (Japan)	2401 - 2495 MHz	28.94	6.54	0.8335	●
Wi-Fi 5G (all channels)	5150 - 5990 MHz	42.87	7.01	5.05	●
Wi-Fi 5G (Ch 32-48)	5150 - 5250 MHz	27.80	6.62	0.43	●
Wi-Fi 5G (Ch 32-64)	5150 - 5330 MHz	26.47	6.97	0.43	●
Wi-Fi 5G (Ch 32-161)	5150 - 5815 MHz	40.59	7.01	5.05	●
Wi-Fi 5G (Ch 32-173)	5150 - 5875 MHz	42.02	7.01	5.05	●
ISM 5.8 GHz	5725 - 5875 MHz	63.38	3.13	5.05	●

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● Adequate band in good signal conditions

● Likely to be unsuitable

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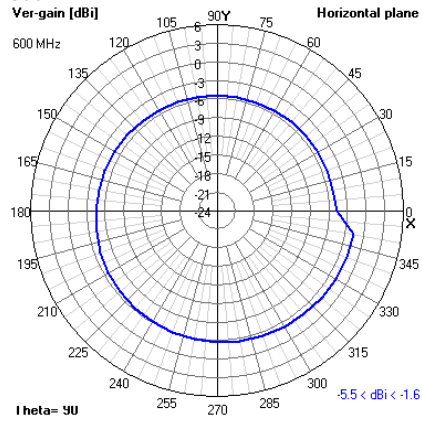


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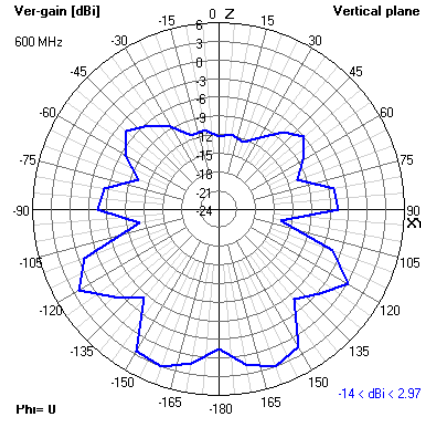
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2D Radiation Plots

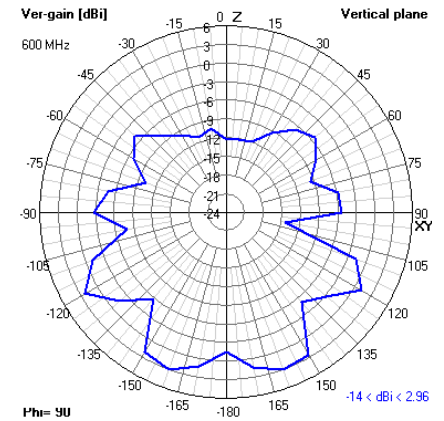
600 MHz XY



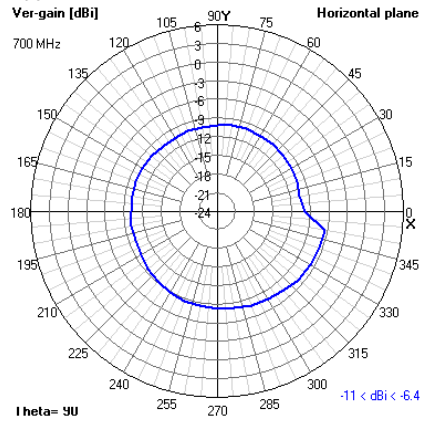
XZ



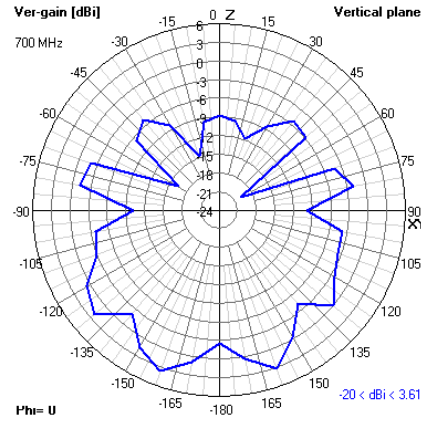
YZ



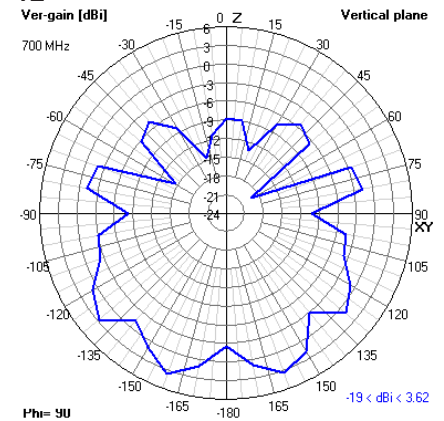
700 MHz XY



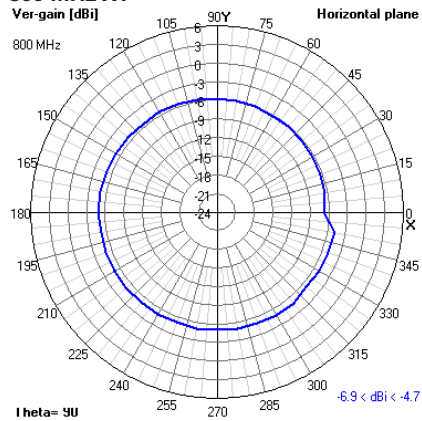
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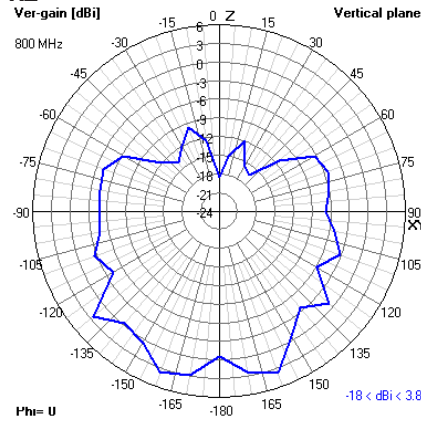
YZ



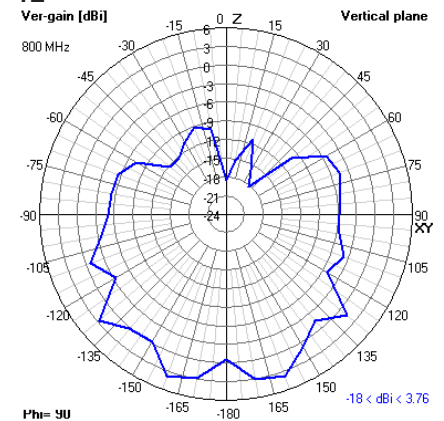
800 MHz XY



XZ



YZ



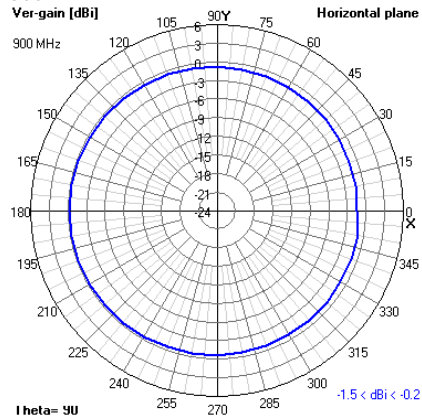


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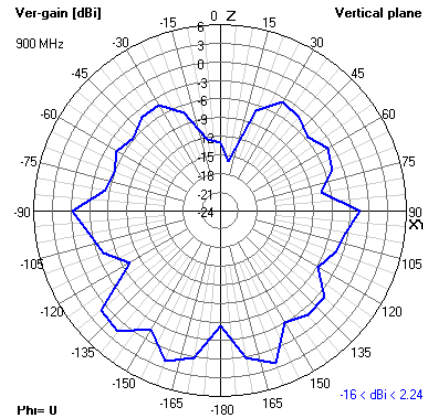
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2D Radiation Plots

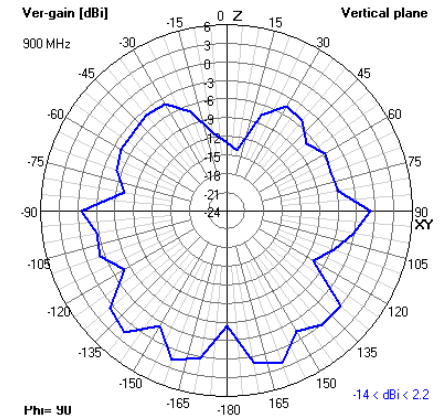
900 MHz XY



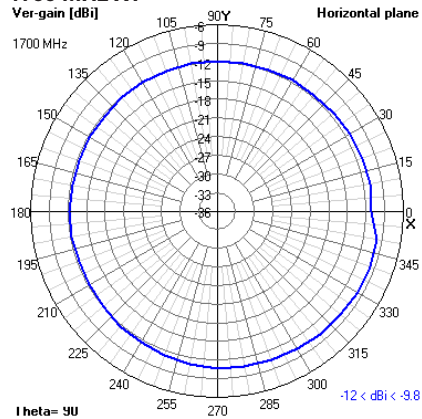
XZ



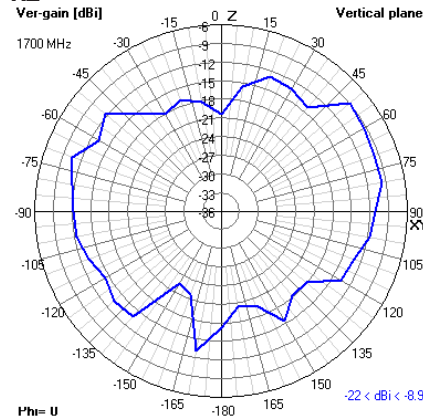
YZ



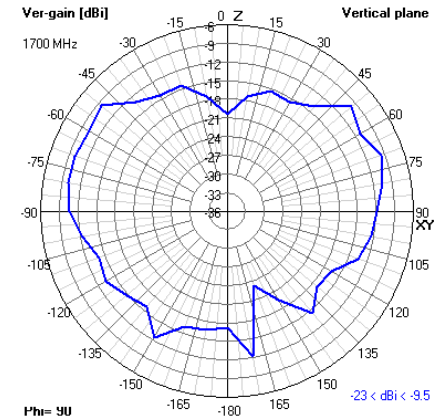
1700 MHz XY



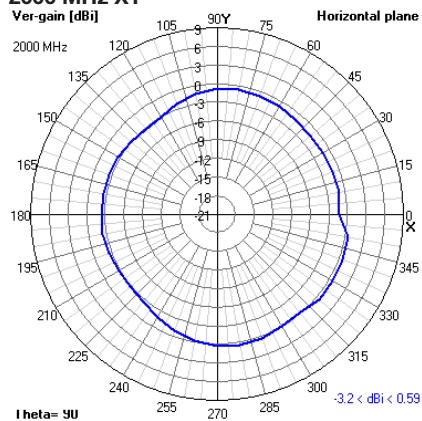
XZ



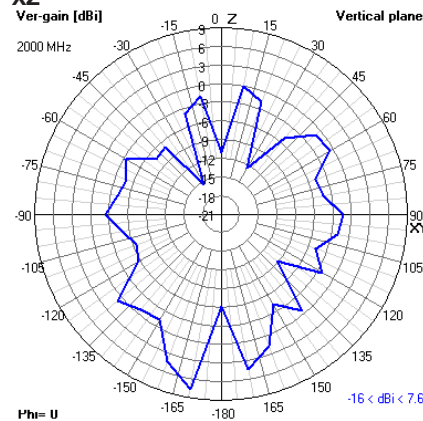
YZ



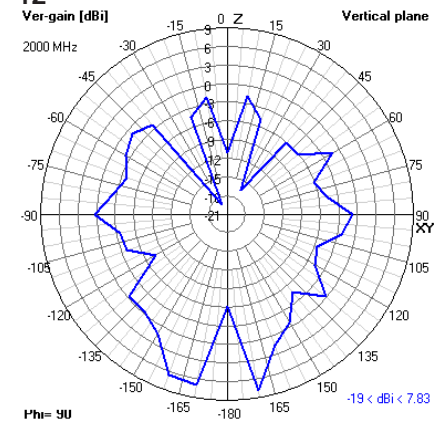
2000 MHz XY



XZ



YZ



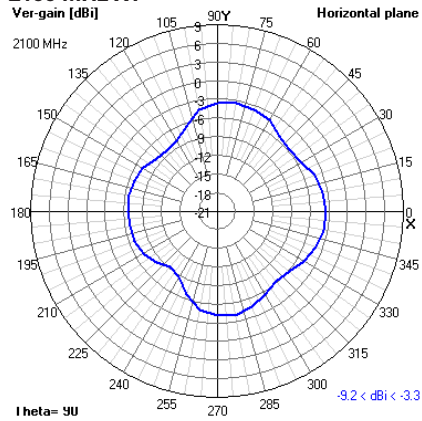


Delta 5A

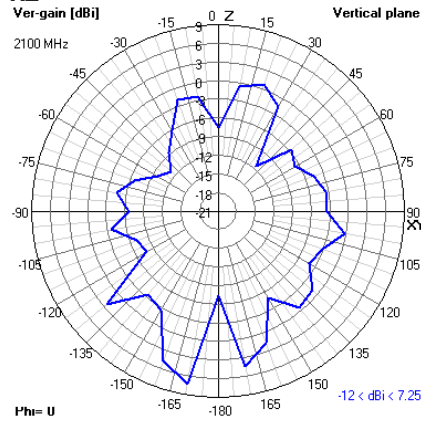
ISM 868/915 MHz LoRa, SigFox, Helium, Weightless Flexi Antenna

2D Radiation Plots

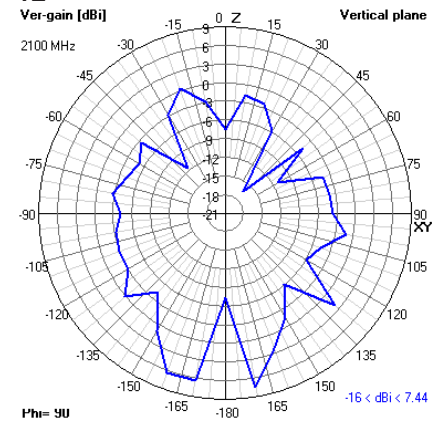
2100 MHz XY



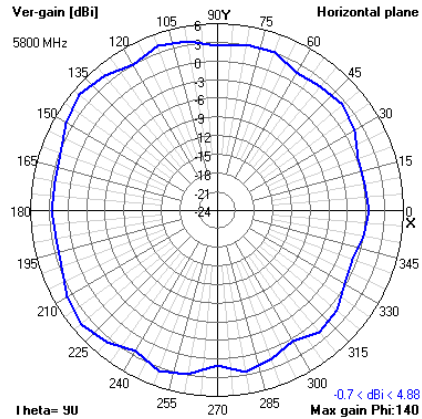
XZ



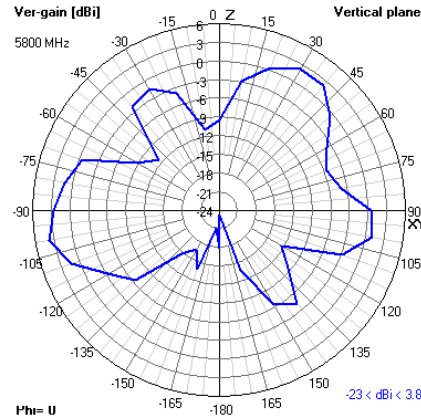
YZ



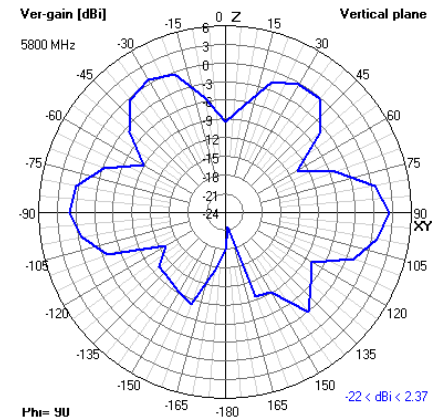
5800 MHz XY



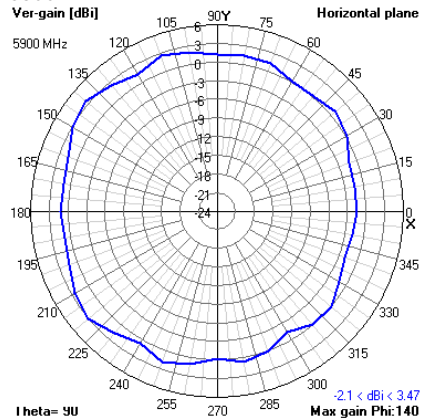
XZ



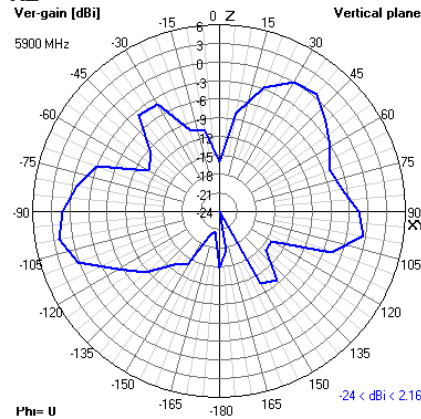
YZ



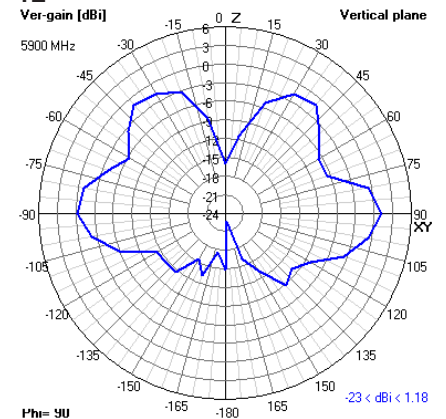
5900 MHz XY



XZ



YZ



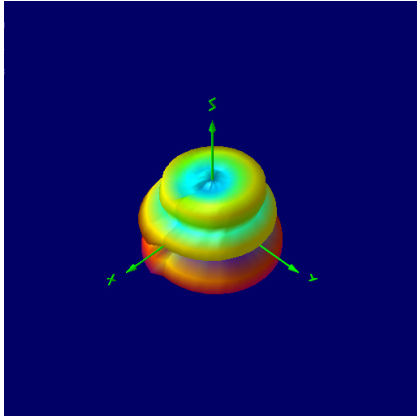


Delta 5A

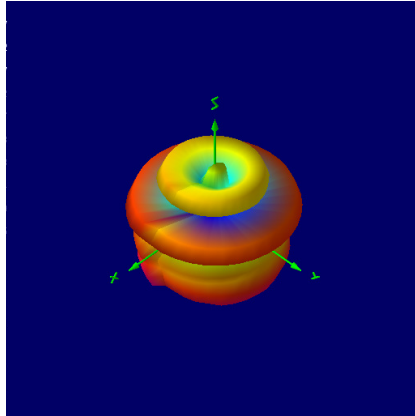
ISM 868/915 MHz LoRa, SigFox, Helium, Weightless Flexi Antenna

3D Radiation Plots

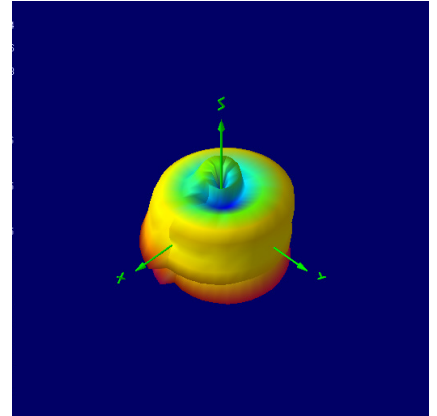
600 MHz



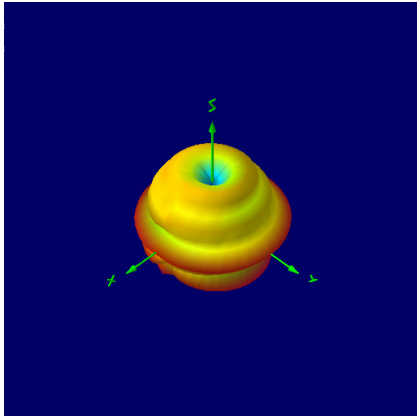
700 MHz



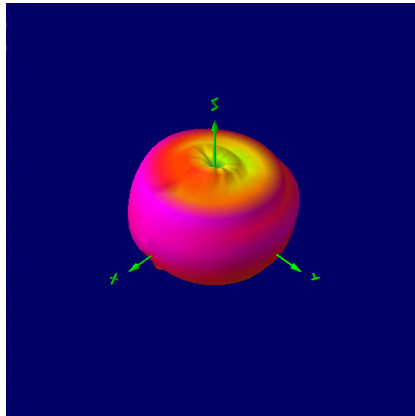
800 MHz



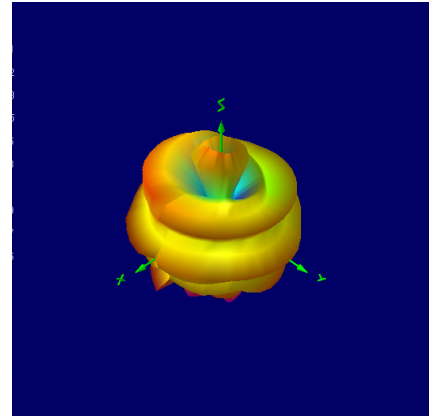
900 MHz



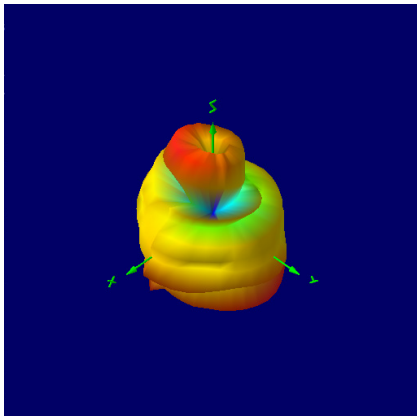
1700 MHz



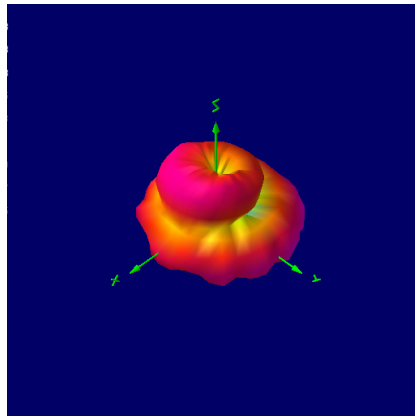
2000 MHz



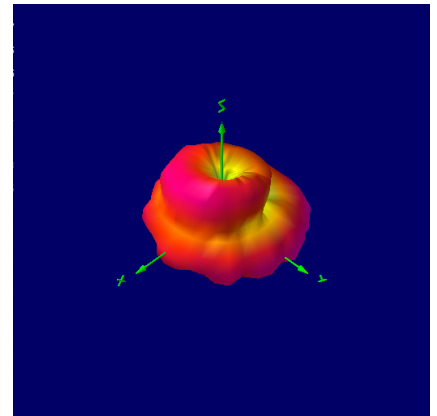
2100 MHz



5800 MHz



5900 MHz



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

**Delta 5A**

ISM 868/915 MHz LoRa, SigFox, Helium, Weightless Flexi Antenna

Ordering Details:

Part Number	Description
DELTA5A/X/SMAM/S/S/17	ISM 868/915 MHz LoRa, SigFox, Helium, Weightless Flexi Antenna SMA Male
DELTA5A/X/BNCM/S/S/17	ISM 868/915 MHz LoRa, SigFox, Helium, Weightless Flexi Antenna BNC Male
DELTA5A/X/TNCM/S/S/17	ISM 868/915 MHz LoRa, SigFox, Helium, Weightless Flexi Antenna TNC Male
DELTA5A/x/SMAM/RP/S/17	ISM 868/915 MHz LoRa, SigFox, Helium, Weightless Flexi Antenna Reverse Polarity SMA Male