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Enabling Industrial IoT

Delta 19

High Gain 8.5 dBi 2.4 GHz 19mm Stubby Wi-Fi Bluetooth Antenna

Key Features

- Supports 2.4 GHz Wi-Fi 4/5/6
- Supports Bluetooth / Zigbee / ISM 2450 / IEEE 802.15.4 Bands
- Miniature Covert 19 mm length
- 5/8 wave design
- High gain of 8.5 dBi at 2.4 GHz frequency

General Description

The Delta 19 is the smallest available, direct connect 2.4 GHz stubby antenna. The antenna is ideally suited for covert situations where limiting antenna size is a critical consideration.

Despite its small size, the Delta 19 achieves a high gain of 8.5 dBi, providing a stronger and more reliable Wi-Fi signal, particularly in areas with weaker signals. Its compact size makes it a convenient option for portable devices and where space is limited, without compromising on signal strength.

The antenna is available with the SMA male and the Reverse Polarity (RP) SMA male connectors. The Delta 19 is commonly used with Wi-Fi, Bluetooth and Zigbee applications.

Additional Considerations

- Omni-directional Radiation

D Direct | ISM 2.4G | WLAN 2400 | WiFi 4 802.11n | WiFi 5 802.11ac

WiFi 6 802.11ax | ZB Zigbee | IEEE 802.15.4 | BLE Bluetooth | AoA Bluetooth

AoD Bluetooth

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Electrical Specifications

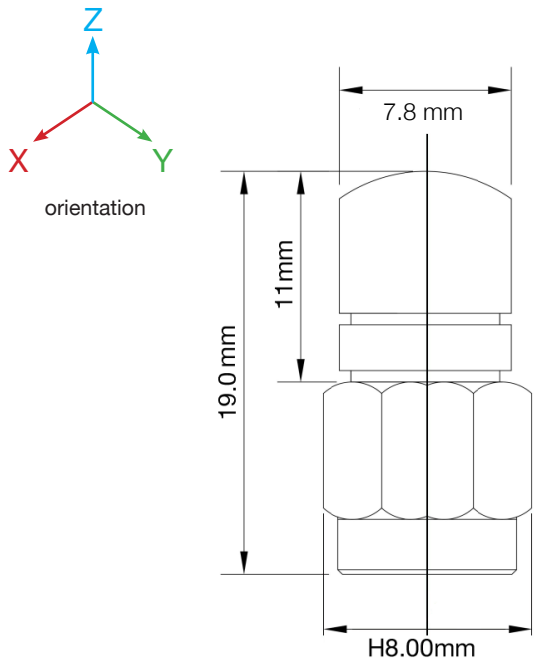
Impedance:	50 Ohm
Polarization:	Linear
Max Input Power:	1 W
Ground plane independent:	Yes

Environmental Specifications

Operating Temperature range:	-25 to +75 °C
Storage Temperature range:	-30 to +75 °C

Mechanical Specifications

Dimensions:	L19 x 7.8 mm base diameter
Weight:	3 g
Connector:	SMA Male / RP-SMA Male
Mounting method:	Direct Connect
Housing materials:	TPU



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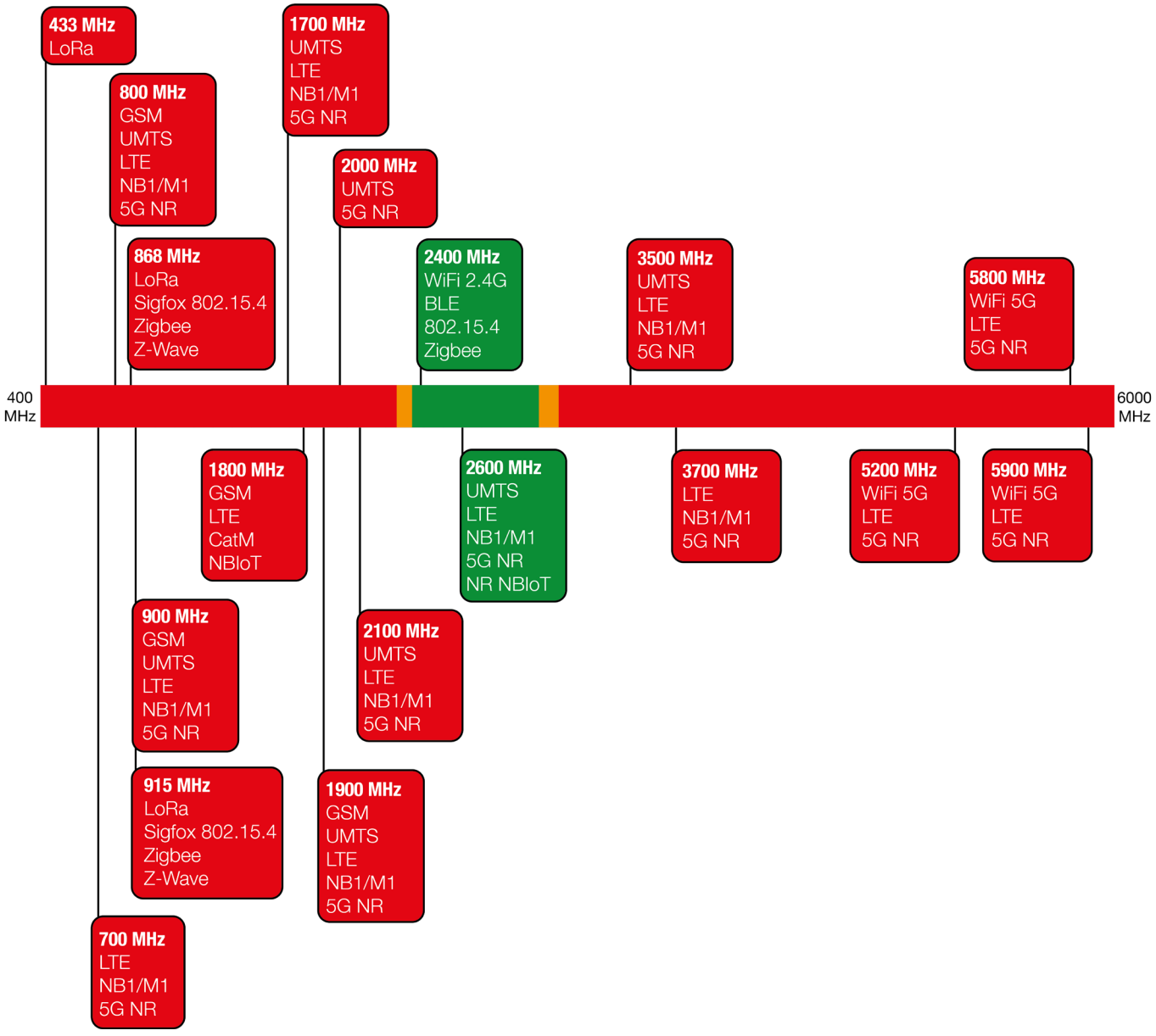
Spectrum Coverage



● 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				●	
IEEE 802.15.4				●	
LoRa					
Sigfox					
WiFi 2.4G				●	
WiFi 5G					
Zigbee				●	
Z-Wave					

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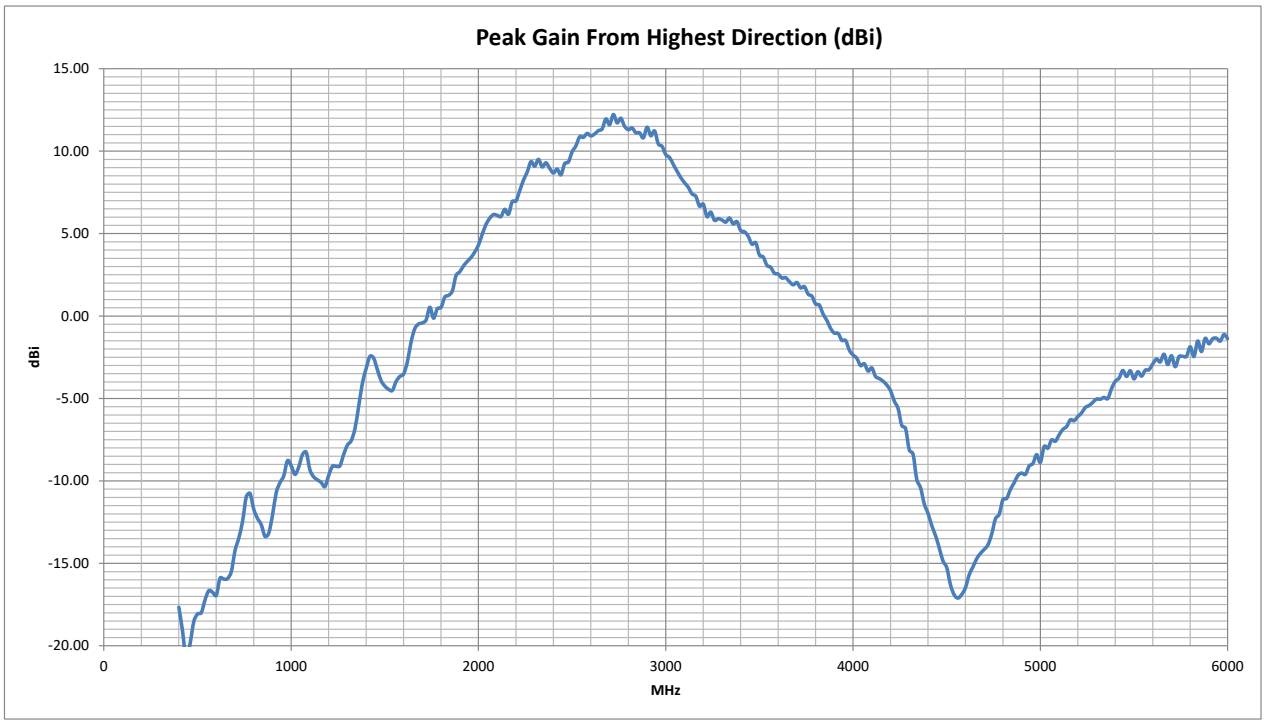
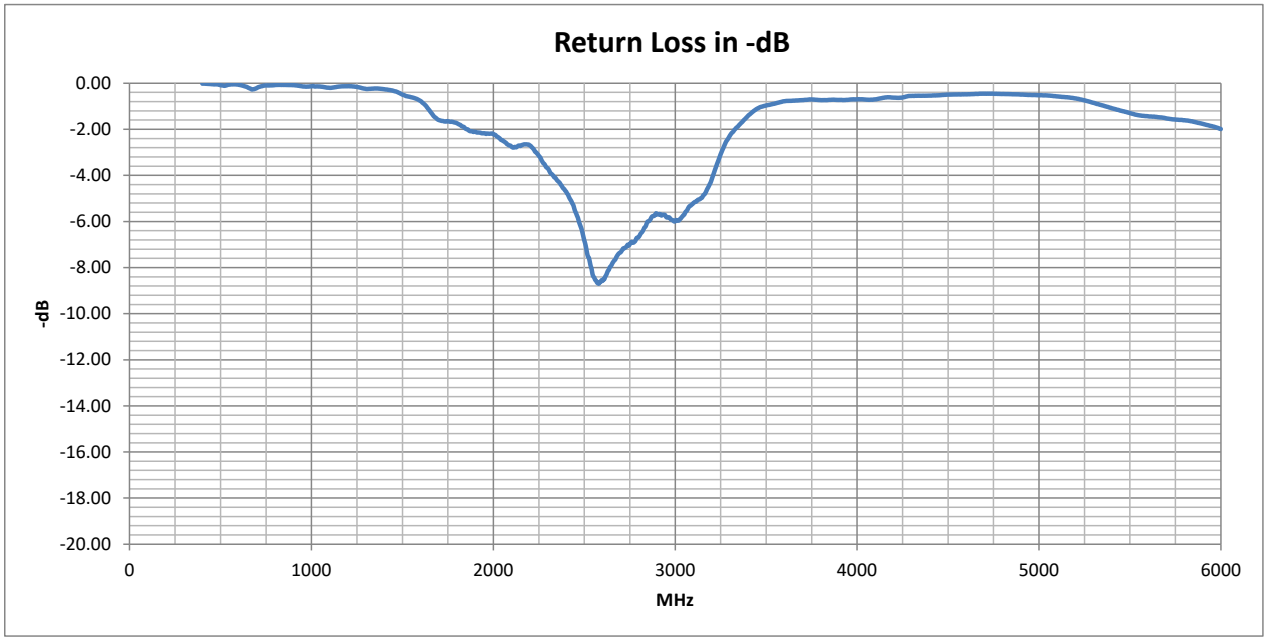
Peak Gain vs. Frequency



Return Loss



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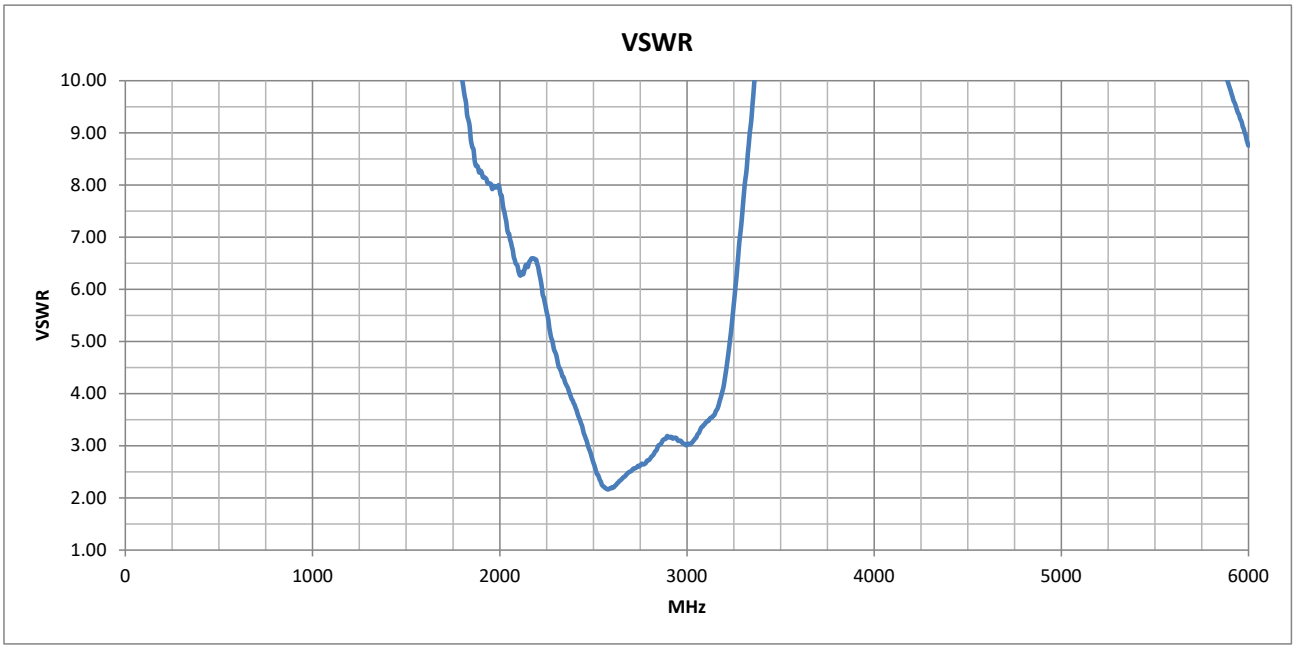
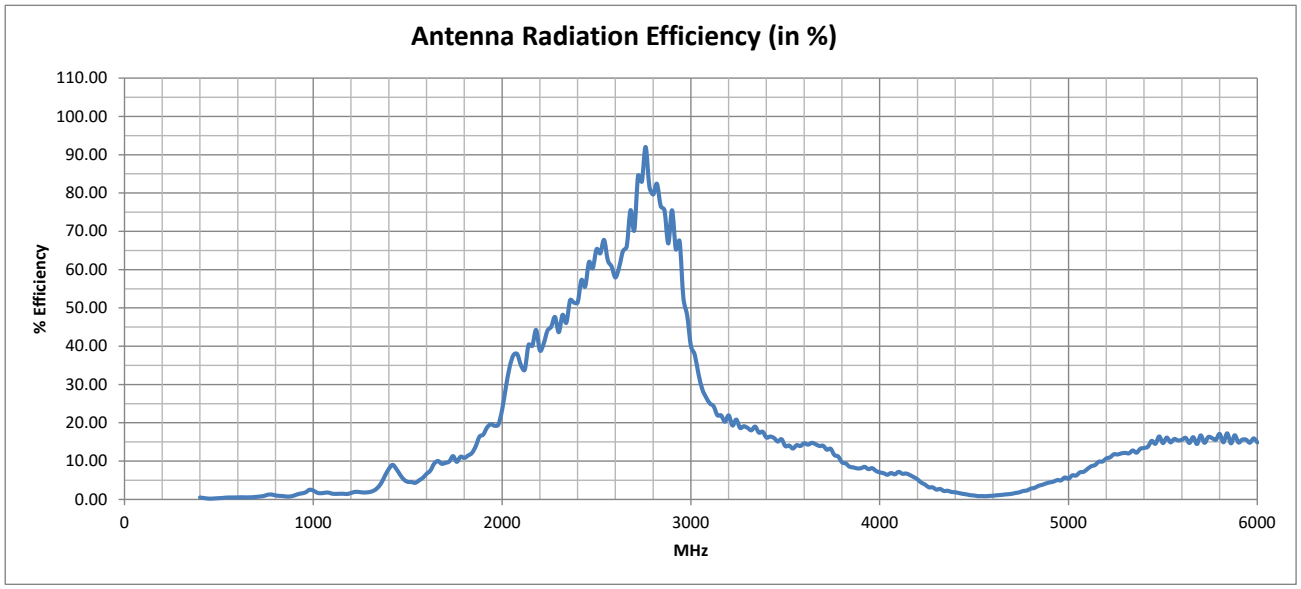
VSWR



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	19.33	38.33	8.14	6.59	🔴
PCS-1900	2	2	2	2	n2	n2	1850 - 1910 MHz	1930 - 1990 MHz	15.71	19.58	8.78	8.10	🔴
DCS-1800	3	3	3	3	n3	n3	1710 - 1785 MHz	1805 - 1880 MHz	10.47	12.87	10.72	9.89	🔴
	4	4	4	4			1710 - 1755 MHz	2110 - 2155 MHz	10.46	37.51	10.72	6.50	🔴
GSM-850	5	5	5	5	n5	n5	824 - 849 MHz	869 - 894 MHz	0.86	0.82	223.16	207.87	🔴
	6						830 - 840 MHz	875 - 885 MHz	0.87	0.79	223.16	204.48	🔴
	7	7	7	7	n7	n7	2500 - 2570 MHz	2620 - 2690 MHz	64.82	67.46	2.68	2.49	🟢
E-GSM-900	8	8	8	8	n8	n8	880 - 915 MHz	925 - 960 MHz	1.01	1.62	204.48	155.02	🔴
	9	9					1749.9 - 1784.9 MHz	1844.9 - 1879.9 MHz	10.47	14.27	10.51	8.89	🔴
	10	10					1710 - 1770 MHz	2110 - 2170 MHz	10.37	38.33	10.72	6.59	🔴
	11	11	11	11			1427.9 - 1447.9 MHz	1475.9 - 1495.9 MHz	8.01	5.00	58.14	43.25	🔴
	12	12	12	12	n12	n12	699 - 716 MHz	729 - 746 MHz	0.70	0.90	109.79	166.90	🔴
	13	13	13	13	n13	n13	777 - 787 MHz	746 - 756 MHz	1.22	1.08	178.90	173.10	🔴
	14	14	14	14	n14		788 - 798 MHz	758 - 768 MHz	1.11	1.22	198.13	169.20	🔴
		17		17			704 - 716 MHz	734 - 746 MHz	0.71	0.93	109.79	166.90	🔴
		18	18	18	n18	n18	815 - 830 MHz	860 - 875 MHz	0.91	0.74	222.90	212.50	🔴
	19	19	19	19			830 - 845 MHz	875 - 890 MHz	0.86	0.81	223.16	204.48	🔴
	20	20	20	20	n20	n20	832 - 862 MHz	791 - 821 MHz	0.81	1.00	223.16	221.40	🔴
	21	21	21	21			1447.9 - 1462.9 MHz	1495.9 - 1510.9 MHz	6.75	4.58	52.71	36.06	🔴
	22	22					3410 - 3490 MHz	3510 - 3590 MHz	15.75	13.87	17.56	21.75	🔴
		24	24	24	n24		1626.5 - 1660.5 MHz	1525 - 1559 MHz	9.29	4.52	18.07	30.50	🔴
	25	25	25	25	n25	n25	1850 - 1915 MHz	1930 - 1995 MHz	15.89	19.76	8.78	8.10	🔴
	26	26	26	26	n26		814 - 849 MHz	859 - 894 MHz	0.88	0.79	223.16	213.59	🔴
		27	27				807 - 824 MHz	852 - 869 MHz	0.94	0.75	222.00	217.95	🔴
		28	28	28	n28	n28	703 - 748 MHz	758 - 803 MHz	0.81	1.18	170.00	209.00	🔴

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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
		28A					703 - 733 MHz	758 - 788 MHz	0.75	1.23	142.03	179.93	🔴
		29			n29		N/A	717 - 728 MHz	N/A	0.77	N/A	129.24	🔴
		30			n30		2305 - 2315 MHz	2350 - 2360 MHz	45.92	50.53	4.69	4.21	🟠
		31	31	31			452.5 - 457.5 MHz	462.5 - 467.5 MHz	0.19	0.20	362.61	318.93	🔴
	32	32					N/A	1452 - 1496 MHz	N/A	5.64	N/A	51.05	🔴
		33					1900 - 1920 MHz	1900 - 1920 MHz	17.83	17.83	8.26	8.26	🔴
		34			n34		2010 - 2025 MHz	2010 - 2025 MHz	28.54	28.54	7.80	7.80	🔴
		35					1850 - 1910 MHz	1850 - 1910 MHz	15.71	15.71	8.78	8.78	🔴
		36					1930 - 1990 MHz	1930 - 1990 MHz	19.58	19.58	8.10	8.10	🔴
		37					1910 - 1930 MHz	1910 - 1930 MHz	18.63	18.63	8.15	8.15	🔴
		38			n38		2570 - 2620 MHz	2570 - 2620 MHz	59.72	59.72	2.24	2.24	🟢
		39	39		n39		1880 - 1920 MHz	1880 - 1920 MHz	17.23	17.23	8.37	8.37	🔴
		40	40		n40		2300 - 2400 MHz	2300 - 2400 MHz	49.05	49.05	4.76	4.76	🟠
		41	41	41	n41	n41	2496 - 2690 MHz	2496 - 2690 MHz	64.46	64.46	2.73	2.73	🟢
		42	42	42			3400 - 3600 MHz	3400 - 3600 MHz	14.80	14.80	22.10	22.10	🔴
		43	43	43			3600 - 3800 MHz	3600 - 3800 MHz	13.25	13.25	24.58	24.58	🔴
		44					703 - 803 MHz	703 - 803 MHz	1.01	1.01	209.00	209.00	🔴
		45					1447 - 1467 MHz	1447 - 1467 MHz	6.64	6.64	53.16	53.16	🔴
		46			n46		5150 - 5925 MHz	5150 - 5925 MHz	14.27	14.27	28.37	28.37	🔴
		47			n47		5855 - 5925 MHz	5855 - 5925 MHz	15.53	15.53	10.36	10.36	🔴
		48			n48		3550 - 3700 MHz	3550 - 3700 MHz	14.27	14.27	23.54	23.54	🔴
		49					3550 - 3700 MHz	3550 - 3700 MHz	14.27	14.27	23.54	23.54	🔴
		50			n50		1432 - 1517 MHz	1432 - 1517 MHz	5.87	5.87	57.21	57.21	🔴
		51			n51		1427 - 1432 MHz	1427 - 1432 MHz	8.50	8.50	58.37	58.37	🔴
		52					3300 - 3400 MHz	3300 - 3400 MHz	17.90	17.90	12.23	12.23	🔴

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		53			n53		2483.5 - 2495 MHz	2483.5 - 2495 MHz	62.67	62.67	2.88	2.88	●
		65		65	n65	n65	1920 - 2010 MHz	2110 - 2200 MHz	20.42	39.59	8.14	6.59	●
		66	66	66	n66	n66	1710 - 1780 MHz	2110 - 2200 MHz	10.43	39.59	10.72	6.59	●
		67			n67		N/A	738 - 758 MHz	N/A	1.04	N/A	173.10	●
		68					698 - 728 MHz	753 - 783 MHz	0.73	1.22	129.24	175.77	●
		69					N/A	2570 - 2620 MHz	N/A	59.72	N/A	2.24	●
		70		70	n70	n70	1695 - 1710 MHz	1995 - 2020 MHz	9.58	25.66	11.01	7.99	●
		71	71	71	n71		663 - 698 MHz	617 - 652 MHz	0.58	0.53	78.97	170.09	●
		72	72	72			451 - 456 MHz	461 - 466 MHz	0.20	0.20	363.96	323.58	●
		73	73	73			450 - 455 MHz	460 - 465 MHz	0.20	0.19	364.86	326.67	●
		74	74	74	n74		1427 - 1470 MHz	1475 - 1518 MHz	7.25	4.79	58.37	43.66	●
		75			n75		N/A	1432 - 1517 MHz	N/A	5.87	N/A	57.21	●
		76			n76		N/A	1427 - 1432 MHz	N/A	8.50	N/A	58.37	●
					n77		3300 - 4200 MHz	3300 - 4200 MHz	11.52	11.52	28.33	28.33	●
					n78		3300 - 3800 MHz	3300 - 3800 MHz	14.80	14.80	24.58	24.58	●
					n79		4400 - 5000 MHz	4400 - 5000 MHz	2.36	2.36	37.87	37.87	●
					n80		1710 - 1785 MHz	N/A	10.47	N/A	10.72	N/A	●
					n81		880 - 915 MHz	N/A	1.01	N/A	204.48	N/A	●
					n82		832 - 862 MHz	N/A	0.81	N/A	223.16	N/A	●
					n83		703 - 748 MHz	N/A	0.81	N/A	170.00	N/A	●
					n84		1920 - 1980 MHz	N/A	19.33	N/A	8.14	N/A	●
		85	85	85	n85		698 - 716 MHz	728 - 746 MHz	0.69	0.90	109.79	166.90	●
					n86		1710 - 1780 MHz	N/A	10.43	N/A	10.72	N/A	●
		87	87	87			410 - 415 MHz	420 - 425 MHz	0.40	0.33	687.50	566.25	●
		88	88	88			412 - 417 MHz	422 - 427 MHz	0.39	0.32	687.50	561.40	●

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					n89		824 - 849 MHz	N/A	0.86	N/A	223.16	N/A	🔴
					n90	n90	2496 - 2690 MHz	2496 - 2690 MHz	64.46	64.46	2.73	2.73	🟢
					n91		832 - 862 MHz	1427 - 1432 MHz	0.81	8.50	223.16	58.37	🔴
					n92		832 - 862 MHz	1432 - 1517 MHz	0.81	5.87	223.16	57.21	🔴
					n93		880 - 915 MHz	1427 - 1432 MHz	1.01	8.50	204.48	58.37	🔴
					n94		880 - 915 MHz	1432 - 1517 MHz	1.01	5.87	204.48	57.21	🔴
					n95		2010 - 2025 MHz	N/A	28.54	N/A	7.80	N/A	🔴
					n97		2300 - 2400 MHz	N/A	49.05	N/A	4.76	N/A	🟠
					n98		1880 - 1920 MHz	N/A	17.23	N/A	8.37	N/A	🔴
					n99		1626.5 - 1660.5 MHz	N/A	9.29	N/A	18.07	N/A	🔴
					n101		1900 - 1910 MHz	1900 - 1910 MHz	17.37	17.37	8.26	8.26	🔴
				103			787 - 788 MHz	757 - 758 MHz	1.17	1.18	179.93	169.71	🔴

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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	0.26	474.94	-20.3425	🔴
ISM 868 MHz	863 - 870 MHz	0.74	210.56	-13.275	🔴
ISM 915 MHz	902 - 928 MHz	1.28	192.29	-10.47	🔴
ISM 2.4 GHz	2400 - 2500 MHz	58.71	3.78	9.96	🟢
Wi-Fi 2.4G	2401 - 2483 MHz	57.86	3.77	9.433	🟢
Wi-Fi 2.4G (USA)	2401 - 2473 MHz	57.47	3.77	9.305	🟢
Wi-Fi 2.4G (Japan)	2401 - 2495 MHz	58.47	3.77	9.805	🟢
Wi-Fi 5G (all channels)	5150 - 5990 MHz	14.36	28.37	-1.13	🔴
Wi-Fi 5G (Ch 32-48)	5150 - 5250 MHz	10.61	28.37	-5.49	🔴
Wi-Fi 5G (Ch 32-64)	5150 - 5330 MHz	11.23	28.37	-4.995	🔴
Wi-Fi 5G (Ch 32-161)	5150 - 5815 MHz	14.03	28.37	-1.87	🔴
Wi-Fi 5G (Ch 32-173)	5150 - 5875 MHz	14.18	28.37	-1.52	🔴
ISM 5.8 GHz	5725 - 5875 MHz	15.95	11.18	-1.52	🔴

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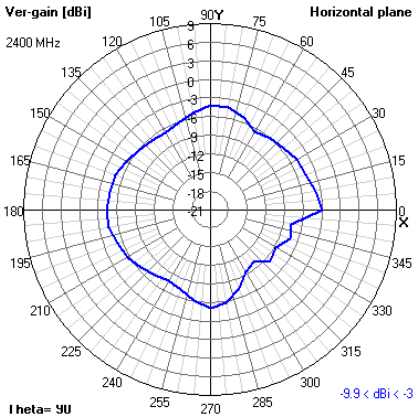
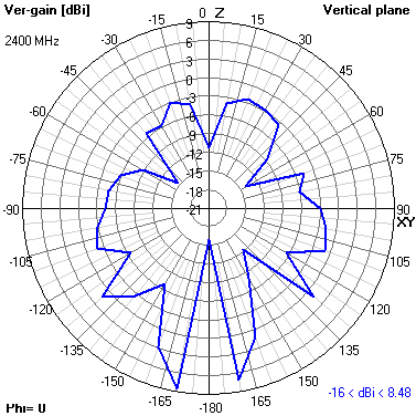
2D Radiation Plots

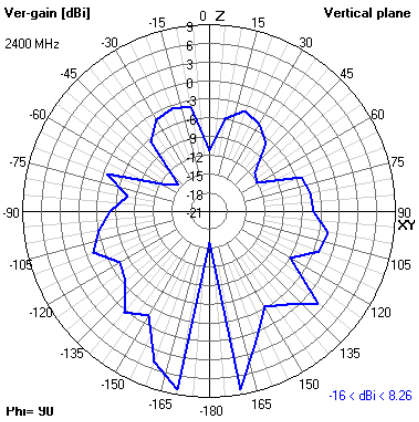
2400 MHz XY



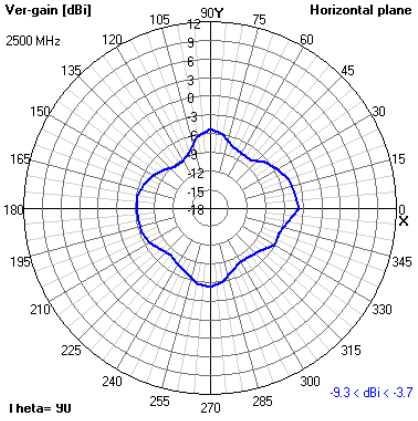
XZ



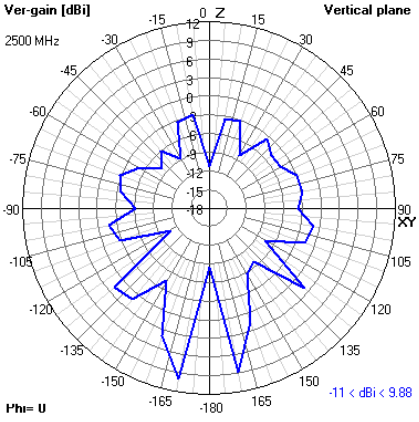
YZ



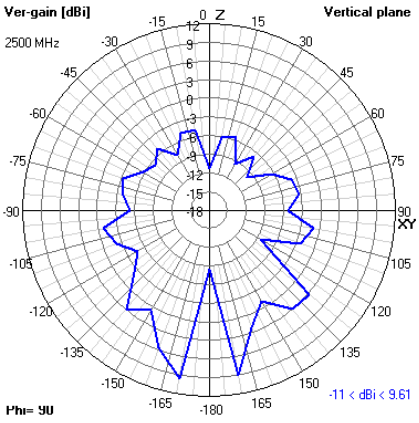
2500 MHz XY



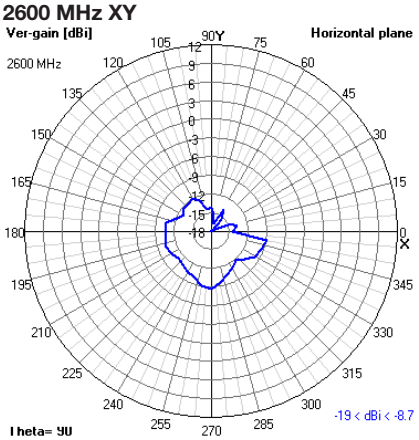
XZ



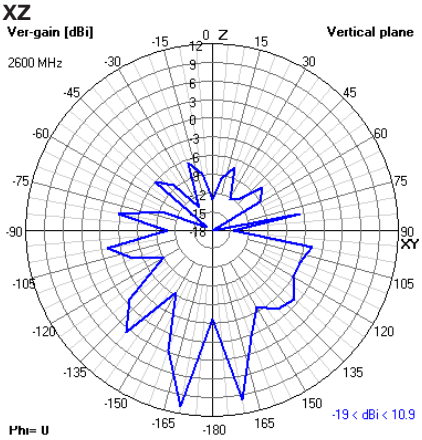
YZ



2600 MHz XY



XZ



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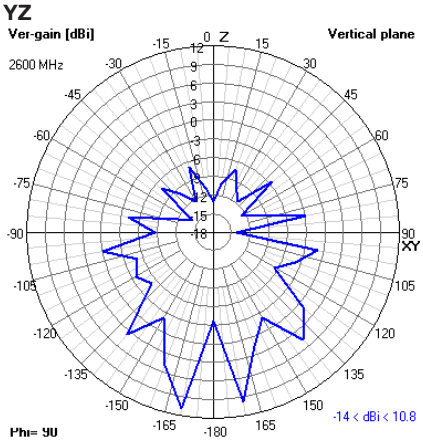

Siretta

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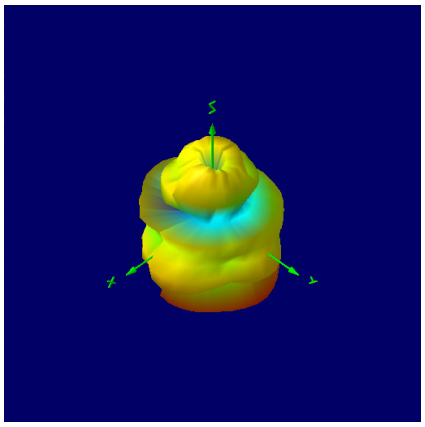
Delta 19

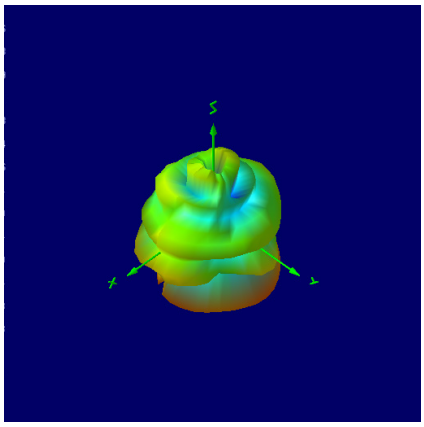
High Gain 8.5 dBi 2.4 GHz 19mm Stubby Wi-Fi Bluetooth Antenna

3D Radiation Plots

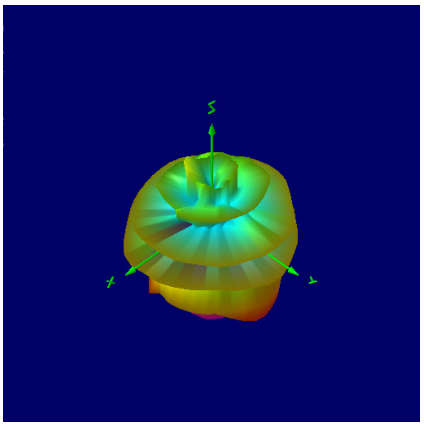
2400 MHz



2500 MHz



2600 MHz



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

Ordering Details:

Part Number	Description
DELTA19/X/SMAM/RP/S/35	High Gain 8.5 dBi 2.4 GHz 19mm Stubby Wi-Fi Bluetooth Antenna Reverse Polarity SMA Male Connector
DELTA19/X/SMAM/S/S/35	High Gain 8.5 dBi 2.4 GHz 19mm Stubby Wi-Fi Bluetooth Antenna SMA Male Connector

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