

Delta 22A

868 MHz ISM Direct Connect 95mm Hinged Antenna



Key Features

- Dedicated ISM antenna for 868 MHz band
- Supports some bands of 5G NR, 4G LTE, 3G UMTS, 2G GSM
- Supports some bands of LTE Cat M, LTE Cat NB and NR Cat NB
- Supports Wi-Fi 5G bands
- Small antenna size with 3 dBi gain

General Description

The Delta 22A is a dedicated 868 MHz European ISM band antenna which combines good performance with a small size, enabling its use for Short Range Devices and RFID.

Terminated with an SMA male connector, it is ideally suited to applications requiring a simple, cable free set up for RFID readers or Short Range Devices within Europe.

The knuckle design allows the antenna to be positioned to take best advantage of the incoming signal. Allowing straight, 45° and 90° positions along with 360° rotation. The omni directional, radiating element is capped with a black high-grade rubber mould.

Additional Considerations

- Ideal for RFID or Short Range Devices
- Does not rely on mounting on a metallic surface

D Direct	ISM 868	ISM 915	5G New Radio	4G LTE
3G UMTS	2G GSM	LTE Cat M	LTE NB IoT	NR NB IoT
ISM 5.8G	WLAN 5800	WiFi 5G	WiFi 4 802.11n	WiFi 5 802.11ac
WiFi 6 802.11ax	LoRa Wireless	SF Sigfox	ZB Zigbee	Z Wave
IEEE 802.15.4	HNT Helium	W Weightless		



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Electrical Specifications

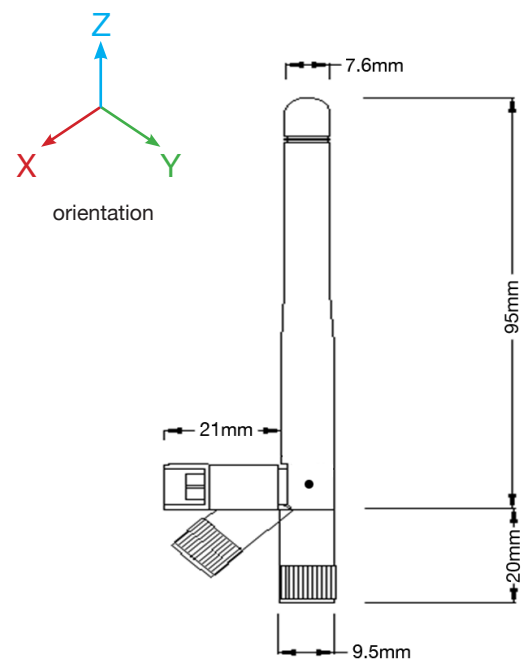
Impedance:	50 Ohm
Polarization:	Vertical
Max Input Power:	50 W
Ground plane independent:	Yes

Environmental Specifications

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

Mechanical Specifications

Dimensions:	L115 x 9.5 mm base diameter
Weight:	12 g
Connector:	SMA Male
Mounting method:	Direct Connect
Housing materials:	TPE

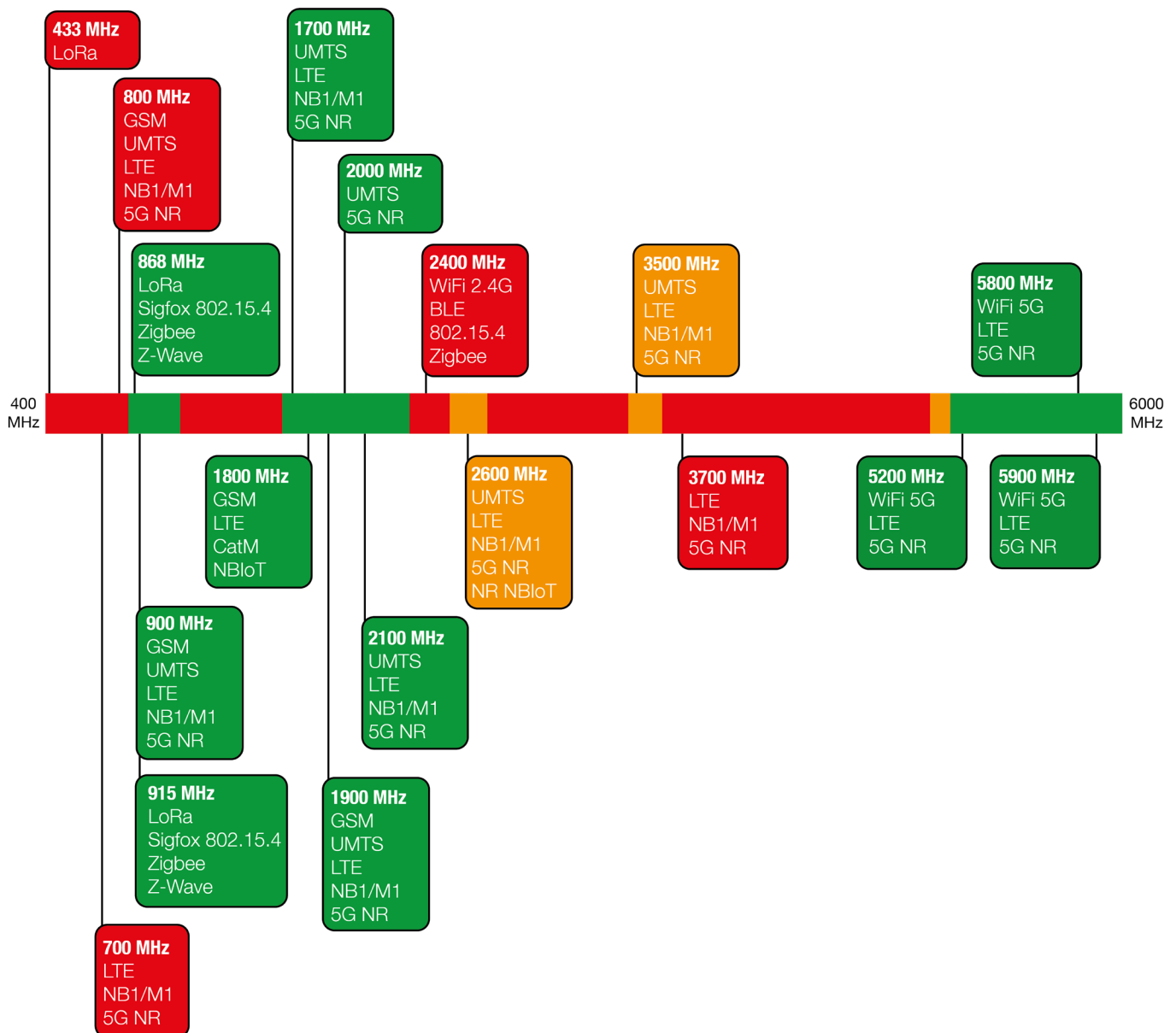




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Spectrum Coverage



● 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)

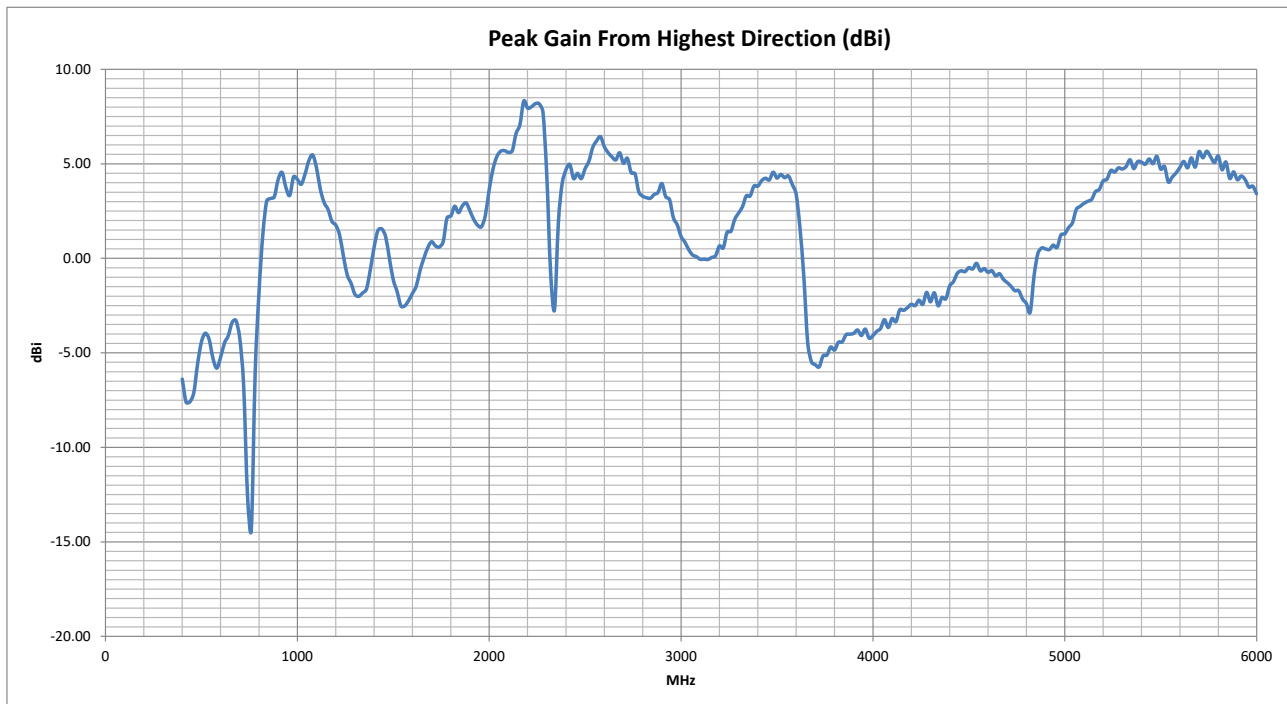
	433	868	915	2450	5800
Bluetooth					
IEEE 802.15.4		●	●		
LoRa		●	●		
Sigfox		●	●		
WiFi 2.4G					
WiFi 5G					●
Zigbee		●	●		
Z-Wave		●	●		



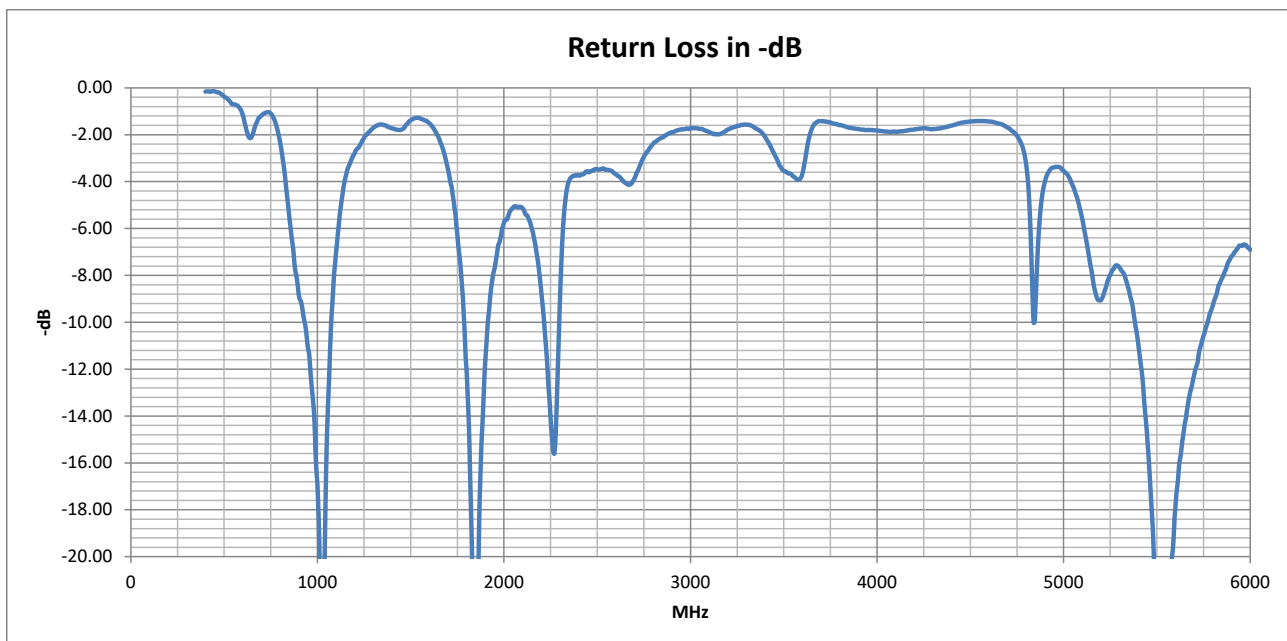
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Peak Gain vs. Frequency



Return Loss

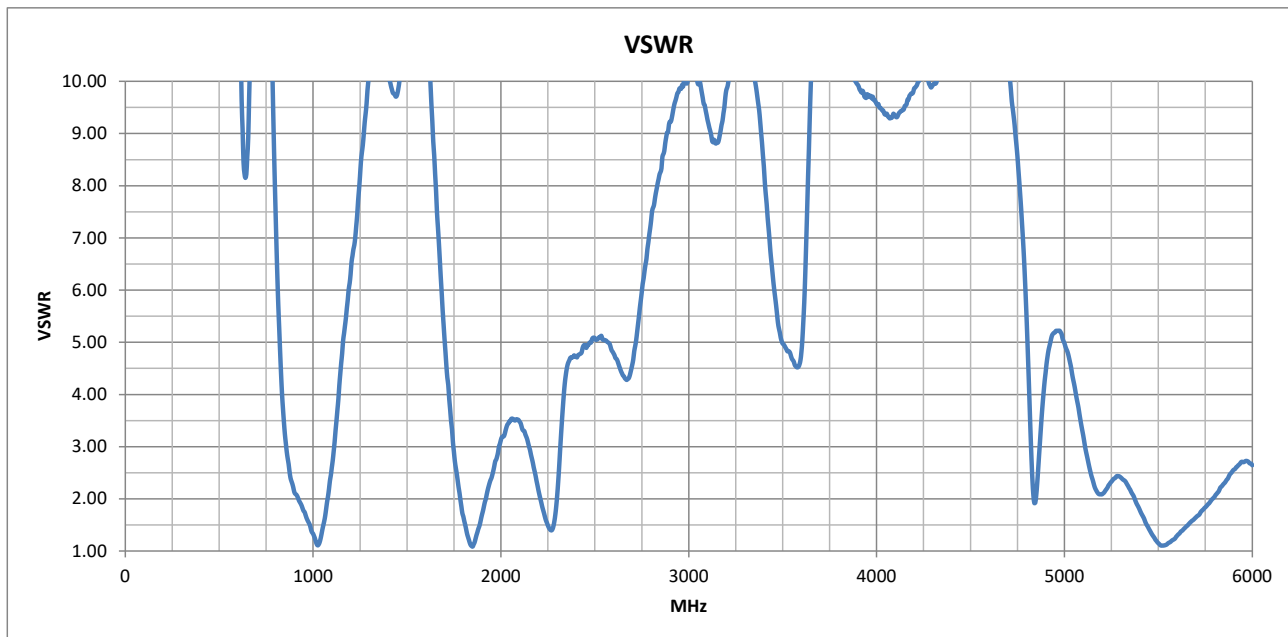




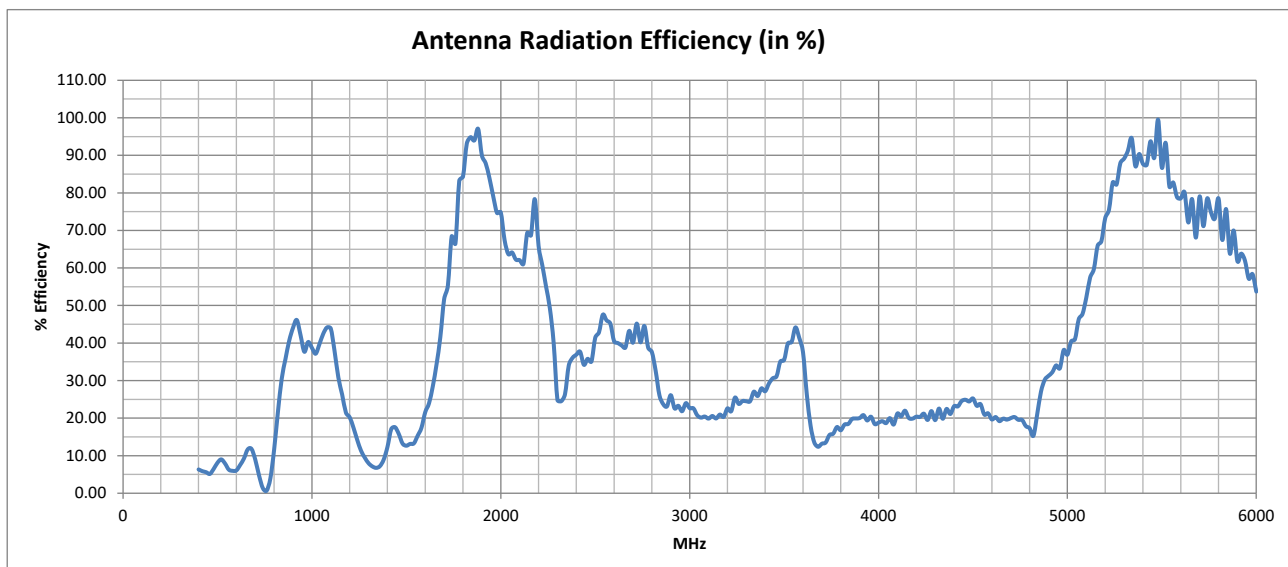
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VSWR



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	81.43	66.83	2.81	3.39	●
PCS-1900	2	2	2	2	n2	n2	1850 - 1910 MHz	1930 - 1990 MHz	93.61	79.39	1.86	3.01	●
DCS-1800	3	3	3	3	n3	n3	1710 - 1785 MHz	1805 - 1880 MHz	67.26	93.67	4.55	1.58	●
	4	4	4	4			1710 - 1755 MHz	2110 - 2155 MHz	62.15	65.65	4.55	3.39	●
GSM-850	5	5	5	5	n5	n5	824 - 849 MHz	869 - 894 MHz	28.58	40.72	4.90	2.69	●
	6						830 - 840 MHz	875 - 885 MHz	28.20	40.55	4.38	2.52	●
	7	7	7	7	n7	n7	2500 - 2570 MHz	2620 - 2690 MHz	44.86	40.29	5.13	4.65	●
E-GSM-900	8	8	8	8	n8	n8	880 - 915 MHz	925 - 960 MHz	43.41	41.47	2.40	1.97	●
	9	9					1749.9 - 1784.9 MHz	1844.9 - 1879.9 MHz	73.78	94.99	2.91	1.42	●
	10	10					1710 - 1770 MHz	2110 - 2170 MHz	63.96	66.83	4.55	3.39	●
	11	11	11	11			1427.9 - 1447.9 MHz	1475.9 - 1495.9 MHz	17.34	13.09	9.77	12.38	●
	12	12	12	12	n12	n12	699 - 716 MHz	729 - 746 MHz	7.39	1.93	16.07	16.84	●
	13	13	13	13	n13	n13	777 - 787 MHz	746 - 756 MHz	4.77	0.97	11.40	16.34	●
	14	14	14	14	n14		788 - 798 MHz	758 - 768 MHz	8.90	1.17	9.43	14.82	●
		17		17			704 - 716 MHz	734 - 746 MHz	6.86	1.57	16.07	16.84	●
		18	18	18	n18	n18	815 - 830 MHz	860 - 875 MHz	22.63	37.57	5.72	2.91	●
	19	19	19	19			830 - 845 MHz	875 - 890 MHz	29.16	41.01	4.38	2.52	●
	20	20	20	20	n20	n20	832 - 862 MHz	791 - 821 MHz	32.08	14.74	4.23	8.93	●
	21	21	21	21			1447.9 - 1462.9 MHz	1495.9 - 1510.9 MHz	16.18	12.76	10.13	13.12	●
	22	22					3410 - 3490 MHz	3510 - 3590 MHz	31.46	41.17	7.85	4.93	●
		24	24	24	n24		1626.5 - 1660.5 MHz	1525 - 1559 MHz	29.67	13.79	9.86	13.72	●
	25	25	25	25	n25	n25	1850 - 1915 MHz	1930 - 1995 MHz	93.23	79.04	1.94	3.06	●
	26	26	26	26	n26		814 - 849 MHz	859 - 894 MHz	26.42	39.57	5.83	2.94	●
		27	27				807 - 824 MHz	852 - 869 MHz	19.30	35.81	6.66	3.18	●
		28	28	28	n28	n28	703 - 748 MHz	758 - 803 MHz	4.05	5.31	16.84	14.82	●

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● Adequate band in good signal conditions

● Likely to be unsuitable



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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	5.29	3.01	16.80	14.82	●
		29			n29		N/A	717 - 728 MHz	N/A	4.35	N/A	16.70	●
		30			n30		2305 - 2315 MHz	2350 - 2360 MHz	24.66	32.12	2.91	4.62	●
		31	31	31			452.5 - 457.5 MHz	462.5 - 467.5 MHz	5.24	5.46	112.10	93.44	●
	32	32					N/A	1452 - 1496 MHz	N/A	14.25	N/A	12.38	●
		33					1900 - 1920 MHz	1900 - 1920 MHz	88.93	88.93	2.00	2.00	●
		34			n34		2010 - 2025 MHz	2010 - 2025 MHz	68.52	68.52	3.31	3.31	●
		35					1850 - 1910 MHz	1850 - 1910 MHz	93.61	93.61	1.86	1.86	●
		36					1930 - 1990 MHz	1930 - 1990 MHz	79.39	79.39	3.01	3.01	●
		37					1910 - 1930 MHz	1910 - 1930 MHz	87.66	87.66	2.17	2.17	●
		38			n38		2570 - 2620 MHz	2570 - 2620 MHz	42.30	42.30	5.00	5.00	●
		39	39		n39		1880 - 1920 MHz	1880 - 1920 MHz	91.22	91.22	2.00	2.00	●
		40	40		n40		2300 - 2400 MHz	2300 - 2400 MHz	30.36	30.36	4.75	4.75	●
		41	41	41	n41	n41	2496 - 2690 MHz	2496 - 2690 MHz	42.47	42.47	5.13	5.13	●
		42	42	42			3400 - 3600 MHz	3400 - 3600 MHz	35.96	35.96	8.37	8.37	●
		43	43	43			3600 - 3800 MHz	3600 - 3800 MHz	17.31	17.31	12.31	12.31	●
		44					703 - 803 MHz	703 - 803 MHz	4.30	4.30	16.84	16.84	●
		45					1447 - 1467 MHz	1447 - 1467 MHz	16.00	16.00	10.36	10.36	●
		46			n46		5150 - 5925 MHz	5150 - 5925 MHz	79.65	79.65	2.64	2.64	●
		47			n47		5855 - 5925 MHz	5855 - 5925 MHz	65.10	65.10	2.64	2.64	●
		48			n48		3550 - 3700 MHz	3550 - 3700 MHz	26.61	26.61	12.31	12.31	●
		49					3550 - 3700 MHz	3550 - 3700 MHz	26.61	26.61	12.31	12.31	●
		50			n50		1432 - 1517 MHz	1432 - 1517 MHz	14.59	14.59	13.35	13.35	●
		51			n51		1427 - 1432 MHz	1427 - 1432 MHz	17.31	17.31	9.78	9.78	●
		52					3300 - 3400 MHz	3300 - 3400 MHz	26.23	26.23	11.10	11.10	●

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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	38.00	38.00	5.09	5.09	●
		65		65	n65	n65	1920 - 2010 MHz	2110 - 2200 MHz	79.00	69.01	3.19	3.39	●
		66	66	66	n66	n66	1710 - 1780 MHz	2110 - 2200 MHz	66.11	69.01	4.55	3.39	●
		67			n67		N/A	738 - 758 MHz	N/A	1.09	N/A	16.78	●
		68					698 - 728 MHz	753 - 783 MHz	6.27	2.14	16.70	15.56	●
		69					N/A	2570 - 2620 MHz	N/A	42.30	N/A	5.00	●
		70		70	n70	n70	1695 - 1710 MHz	1995 - 2020 MHz	51.83	71.86	5.35	3.24	●
		71	71	71	n71		663 - 698 MHz	617 - 652 MHz	11.11	8.81	14.58	10.27	●
		72	72	72			451 - 456 MHz	461 - 466 MHz	5.28	5.36	115.32	94.00	●
		73	73	73			450 - 455 MHz	460 - 465 MHz	5.30	5.30	117.47	94.38	●
		74	74	74	n74		1427 - 1470 MHz	1475 - 1518 MHz	16.54	12.97	10.59	13.38	●
		75			n75		N/A	1432 - 1517 MHz	N/A	14.59	N/A	13.35	●
		76			n76		N/A	1427 - 1432 MHz	N/A	17.31	N/A	9.78	●
					n77		3300 - 4200 MHz	3300 - 4200 MHz	23.47	23.47	12.31	12.31	●
					n78		3300 - 3800 MHz	3300 - 3800 MHz	26.55	26.55	12.31	12.31	●
					n79		4400 - 5000 MHz	4400 - 5000 MHz	23.90	23.90	12.35	12.35	●
					n80		1710 - 1785 MHz	N/A	67.26	N/A	4.55	N/A	●
					n81		880 - 915 MHz	N/A	43.41	N/A	2.40	N/A	●
					n82		832 - 862 MHz	N/A	32.08	N/A	4.23	N/A	●
					n83		703 - 748 MHz	N/A	4.05	N/A	16.84	N/A	●
					n84		1920 - 1980 MHz	N/A	81.43	N/A	2.81	N/A	●
		85	85	85	n85		698 - 716 MHz	728 - 746 MHz	7.49	2.01	16.07	16.84	●
					n86		1710 - 1780 MHz	N/A	66.11	N/A	4.55	N/A	●
		87	87	87			410 - 415 MHz	420 - 425 MHz	6.03	5.83	122.28	116.23	●
		88	88	88			412 - 417 MHz	422 - 427 MHz	5.99	5.80	119.91	112.26	●

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● 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
					n89		824 - 849 MHz	N/A	28.58	N/A	4.90	N/A	●
					n90	n90	2496 - 2690 MHz	2496 - 2690 MHz	42.47	42.47	5.13	5.13	●
					n91		832 - 862 MHz	1427 - 1432 MHz	32.08	17.31	4.23	9.78	●
					n92		832 - 862 MHz	1432 - 1517 MHz	32.08	14.59	4.23	13.35	●
					n93		880 - 915 MHz	1427 - 1432 MHz	43.41	17.31	2.40	9.78	●
					n94		880 - 915 MHz	1432 - 1517 MHz	43.41	14.59	2.40	13.35	●
					n95		2010 - 2025 MHz	N/A	68.52	N/A	3.31	N/A	●
					n97		2300 - 2400 MHz	N/A	30.36	N/A	4.75	N/A	●
					n98		1880 - 1920 MHz	N/A	91.22	N/A	2.00	N/A	●
					n99		1626.5 - 1660.5 MHz	N/A	29.67	N/A	9.86	N/A	●
					n101		1900 - 1910 MHz	1900 - 1910 MHz	89.44	89.44	1.86	1.86	●
				103			787 - 788 MHz	757 - 758 MHz	6.78	0.73	9.61	14.98	●

● 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.



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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	5.67	121.88	-7.5952	●
ISM 868 MHz	863 - 870 MHz	37.33	2.83	3.215	●
ISM 915 MHz	902 - 928 MHz	45.23	2.12	4.55	●
ISM 2.4 GHz	2400 - 2500 MHz	36.38	5.09	4.97	●
Wi-Fi 2.4G	2401 - 2483 MHz	35.89	5.03	4.97	●
Wi-Fi 2.4G (USA)	2401 - 2473 MHz	35.97	4.99	4.97	●
Wi-Fi 2.4G (Japan)	2401 - 2495 MHz	36.15	5.09	4.97	●
Wi-Fi 5G (all channels)	5150 - 5990 MHz	78.08	2.73	5.67	●
Wi-Fi 5G (Ch 32-48)	5150 - 5250 MHz	72.76	2.37	4.65	●
Wi-Fi 5G (Ch 32-64)	5150 - 5330 MHz	79.42	2.44	5.04	●
Wi-Fi 5G (Ch 32-161)	5150 - 5815 MHz	81.70	2.44	5.67	●
Wi-Fi 5G (Ch 32-173)	5150 - 5875 MHz	80.68	2.44	5.67	●
ISM 5.8 GHz	5725 - 5875 MHz	72.96	2.43	5.67	●

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● Adequate band in good signal conditions

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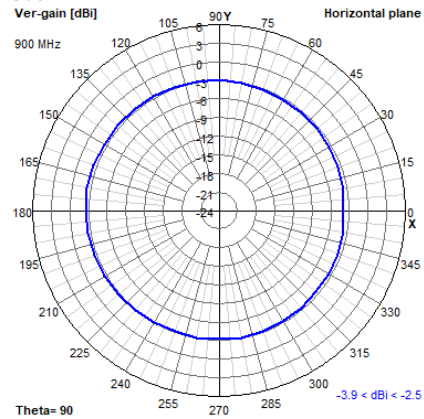


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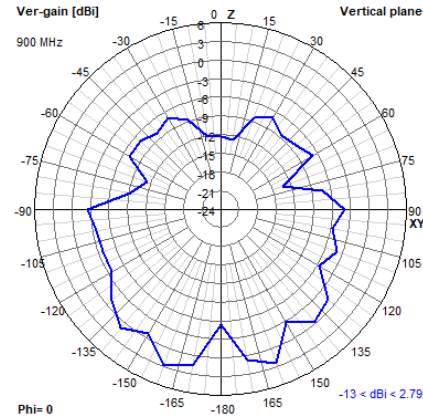
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2D Radiation Plots

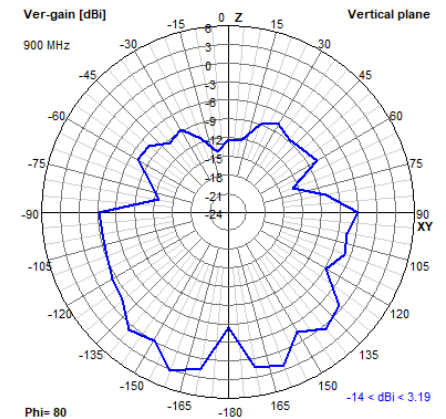
900 MHz XY



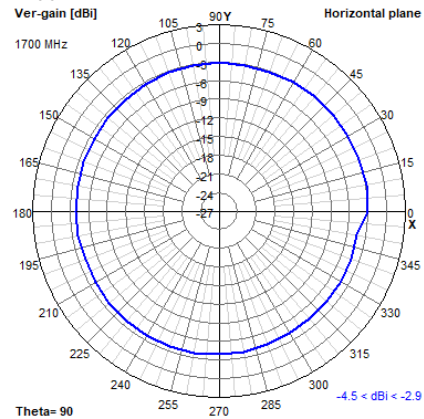
XZ



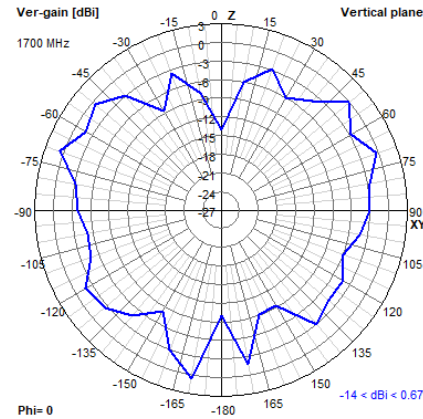
YZ



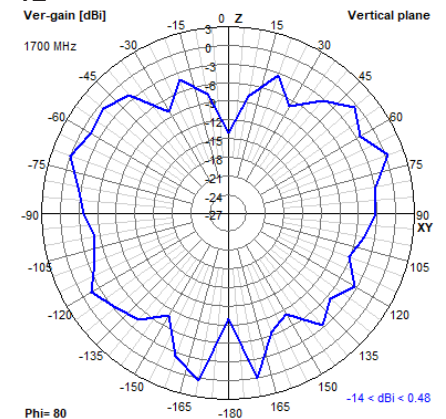
1700 MHz XY



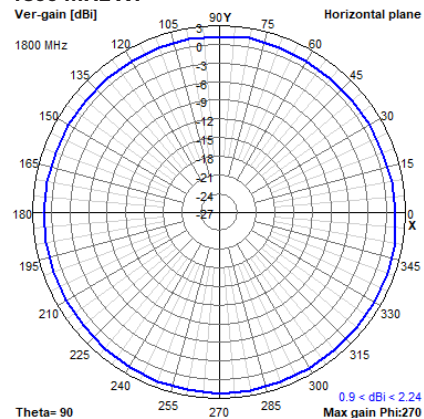
XZ



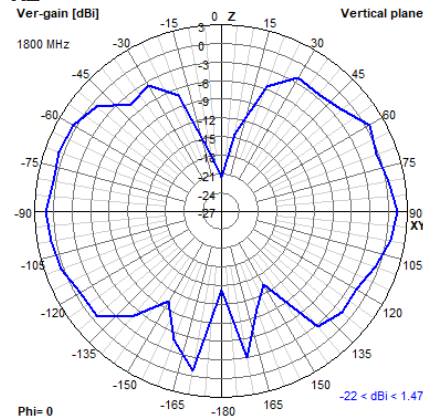
YZ



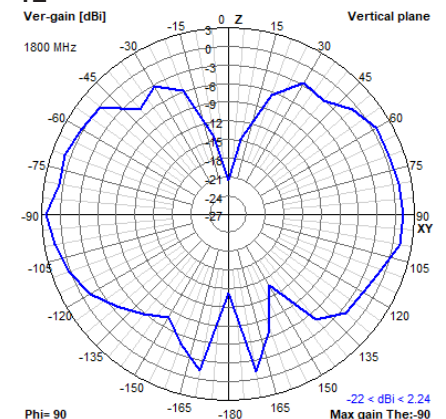
1800 MHz XY



XZ



YZ



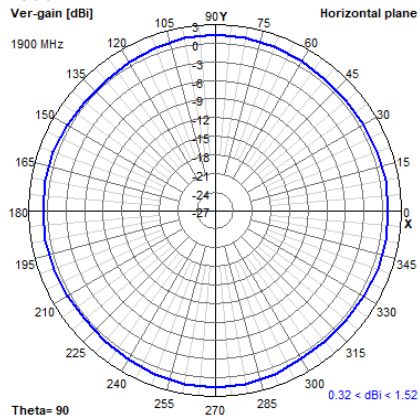


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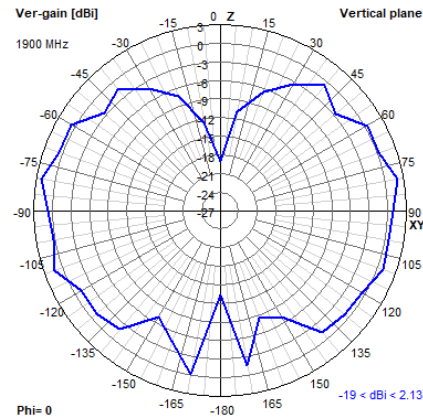
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2D Radiation Plots

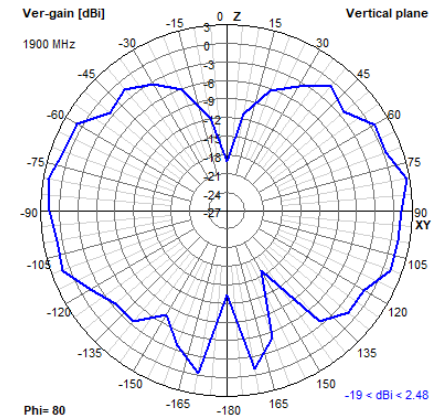
1900 MHz XY



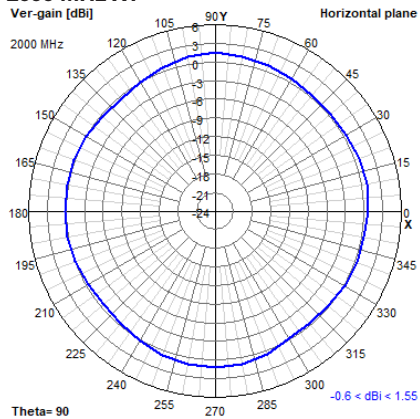
XZ



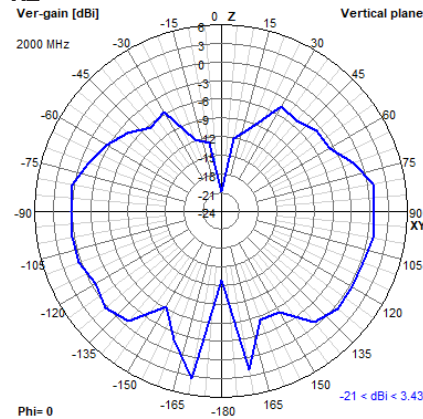
YZ



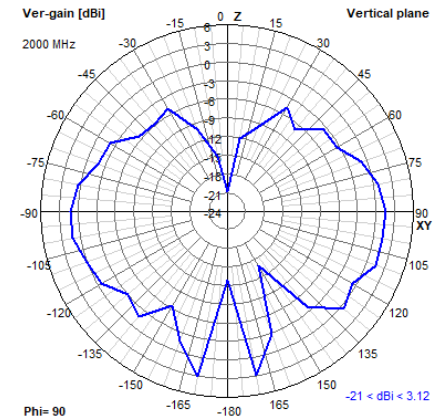
2000 MHz XY



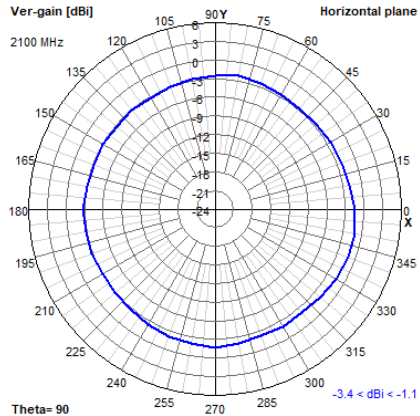
XZ



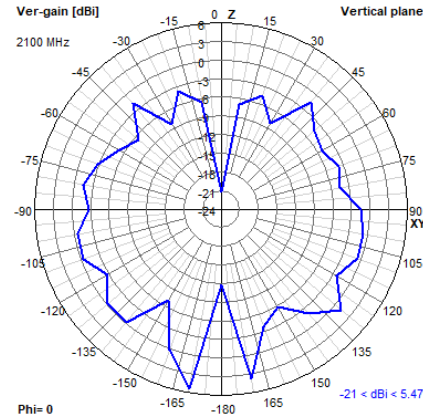
YZ



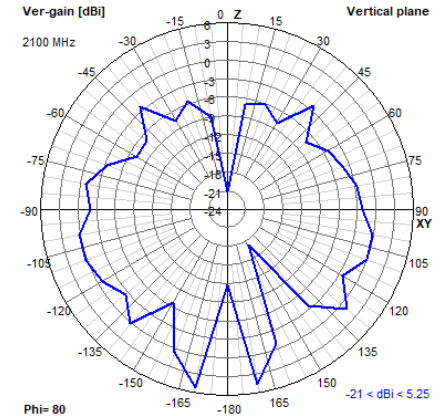
2100 MHz XY



XZ



YZ



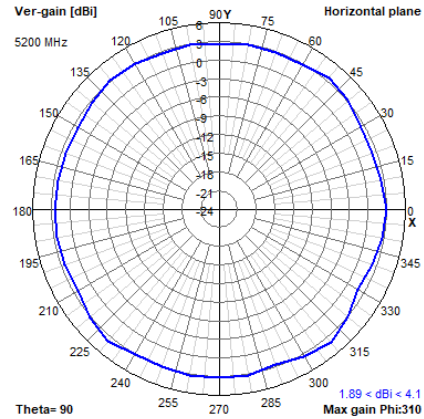


Delta 22A

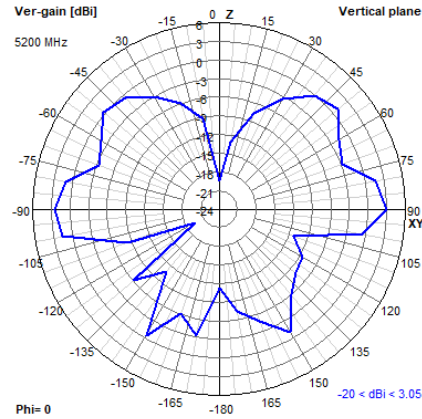
868 MHz ISM Direct Connect 95mm Hinged Antenna

2D Radiation Plots

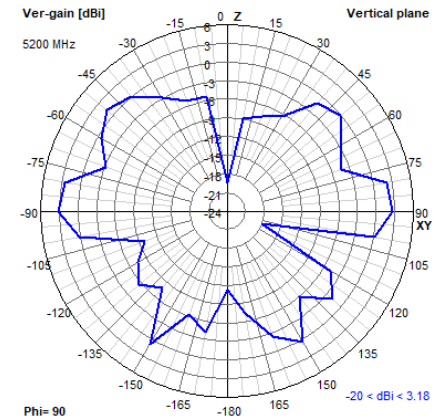
5200 MHz XY



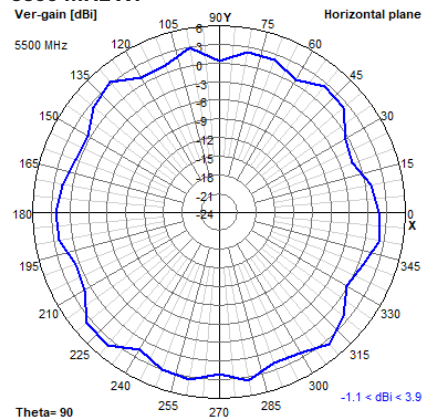
XZ



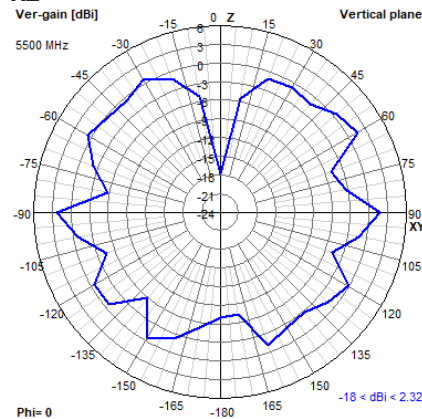
YZ



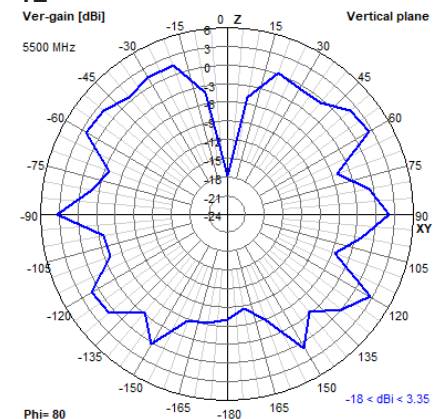
5500 MHz XY



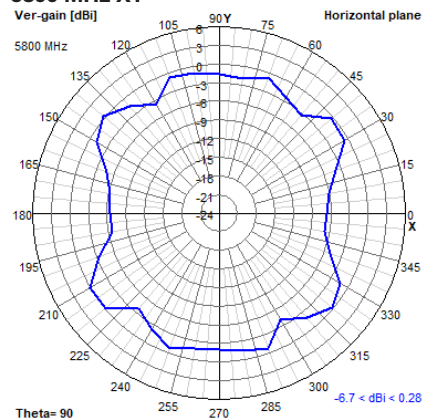
XZ



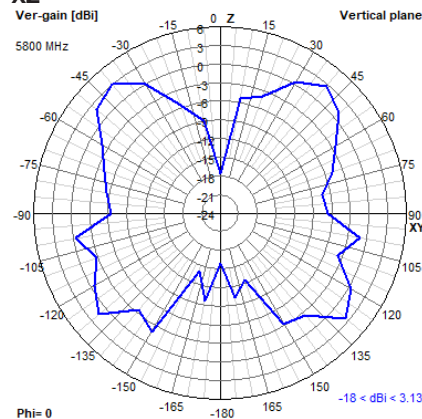
YZ



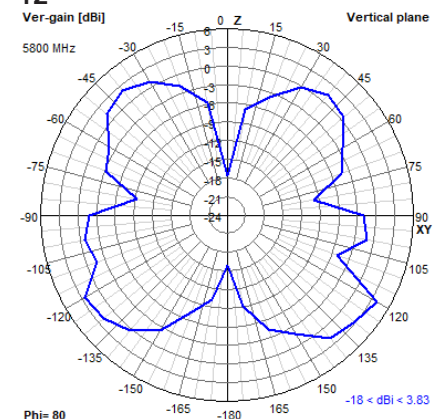
5800 MHz XY



XZ



YZ



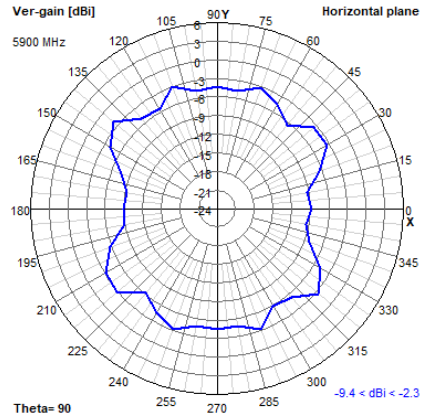


Delta 22A

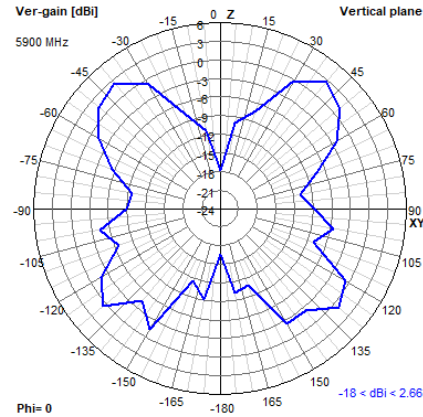
868 MHz ISM Direct Connect 95mm Hinged Antenna

2D Radiation Plots

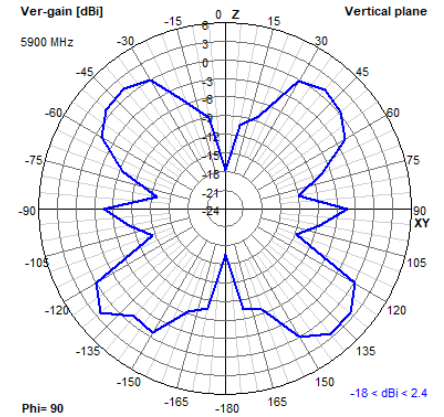
5900 MHz XY



XZ



YZ



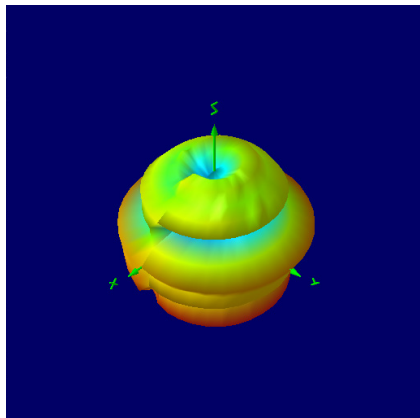


Delta 22A

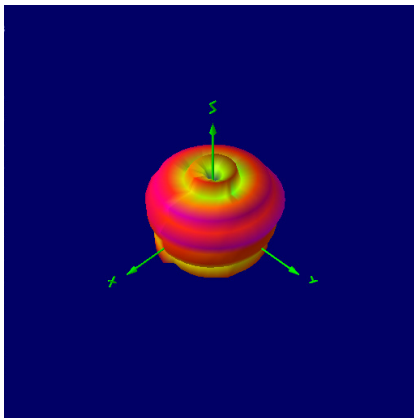
868 MHz ISM Direct Connect 95mm Hinged Antenna

3D Radiation Plots

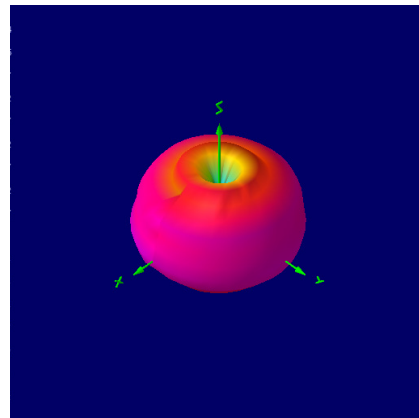
900 MHz



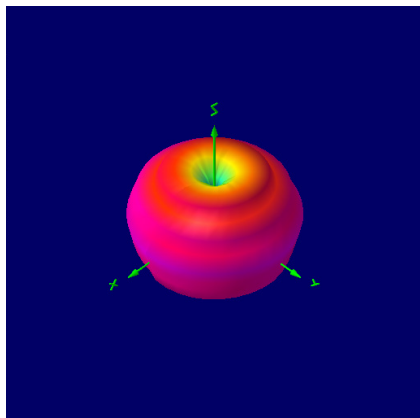
1700 MHz



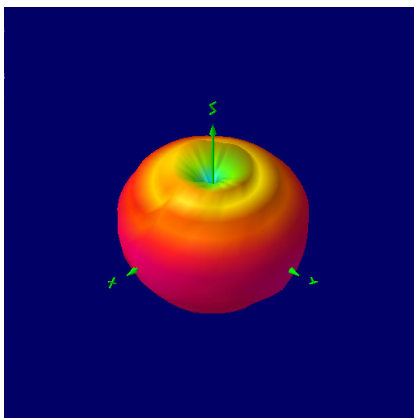
1800 MHz



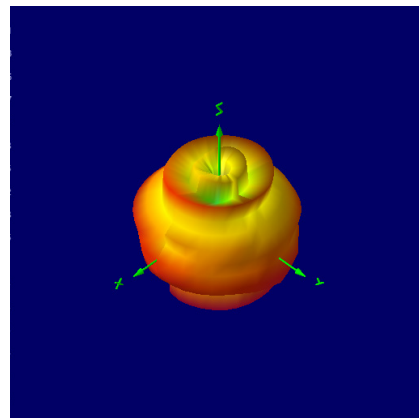
1900 MHz



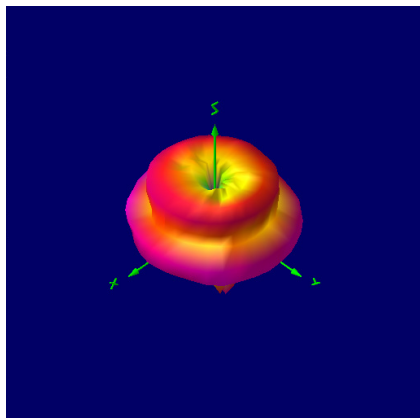
2000 MHz



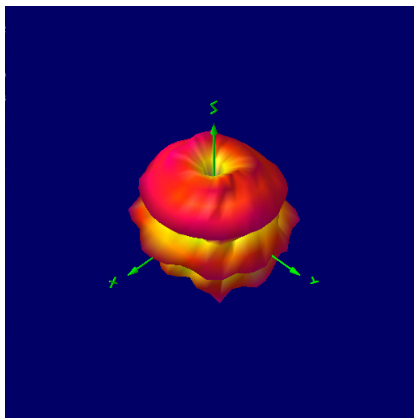
2100 MHz



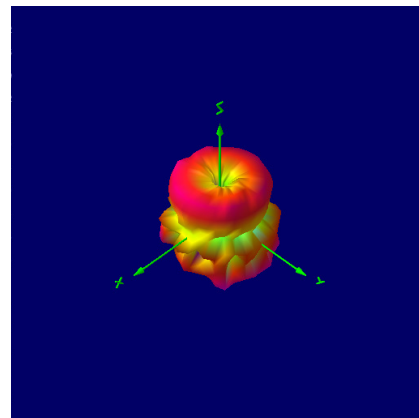
5200 MHz



5500 MHz



5800 MHz



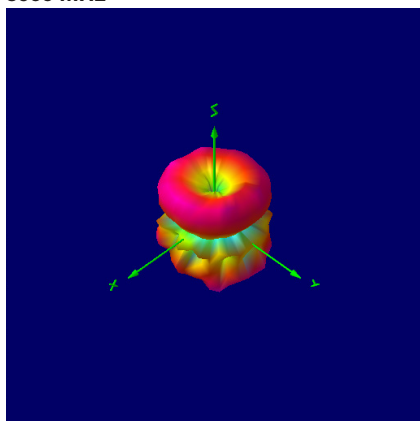


Delta 22A

868 MHz ISM Direct Connect 95mm Hinged Antenna

3D Radiation Plots

5900 MHz



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

Ordering Details:

Part Number	Description
DELTA22A/X/SMAM/S/S/20	868 MHz ISM Direct Connect 95mm Hinged Antenna SMA Male