



## Oscar 20A

5G/4G/LoRa/Sigfox/Bluetooth/Zigbee Directional Yagi 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 2.4 GHz / WLAN 2400 / ISM 2400 / Bluetooth / Zigbee bands
- Supports LoRa / Sigfox / ISM 433 / ISM 868 / ISM 915 / ISM 5800 / IEEE 802.15.4 bands
- Highly sensitive
- Small size

### Additional Considerations

- High performance for fringe coverage areas
- Suitable for both indoor and outdoor use

### General Description

The Oscar 20 antenna is a high gain, wide frequency range antenna for connectivity in remote environments where a point-to-point link is the only effective method of communication between equipment and single cell site. It is recommended to be used in fixed locations where the base station direction is known.

Designed for indoor or outdoor environments the antenna is supplied with a hinged mounting bracket and 5 meters of cable with an SMA male termination (The antenna has an SMA Female connector).

The advantage of using a yagi type antenna is to improve performance over omnidirectional antennas whilst keeping the small size.

See the Snyder cellular signal tester for a tool to locate the best base station in your area.

○ Wall/Pole	5G New Radio	4G LTE	3G UMTS	2G GSM
LTE Cat M	LTE NB IoT	NR NB IoT	ISM 433	ISM 868
ISM 915	ISM 2.4G	ISM 5.8G	IEEE 802.15.4	BLE Bluetooth
ZB Zigbee	WLAN 2400	WLAN 5800	WiFi 4 802.11n	WiFi 5 802.11ac
WiFi 6 802.11ax	WiFi 2.4G	LoRa Wireless	SF Sigfox	HNT Helium
W Weightless	IP 66			



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### Electrical Specifications

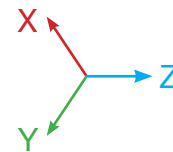
Impedance:	50 Ohm
Polarization:	Vertical
Max Input Power:	50 W
Ground plane independent:	No

### Environmental Specifications

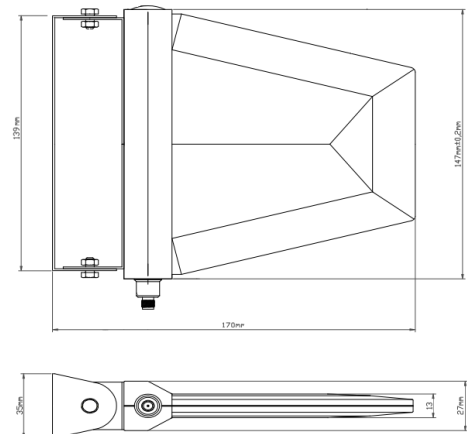
Operating Temperature range:	-35 to +75 °C
Storage Temperature range:	-40 to +80 °C

### Mechanical Specifications

Dimensions:	W147 x L176 x H27 mm
Weight:	430 g (includes the 5 metres cable)
Connector:	SMA (Female) / SMA (Male)
Antenna Cable:	RG58U Low Loss
Housing materials:	ABS



orientation

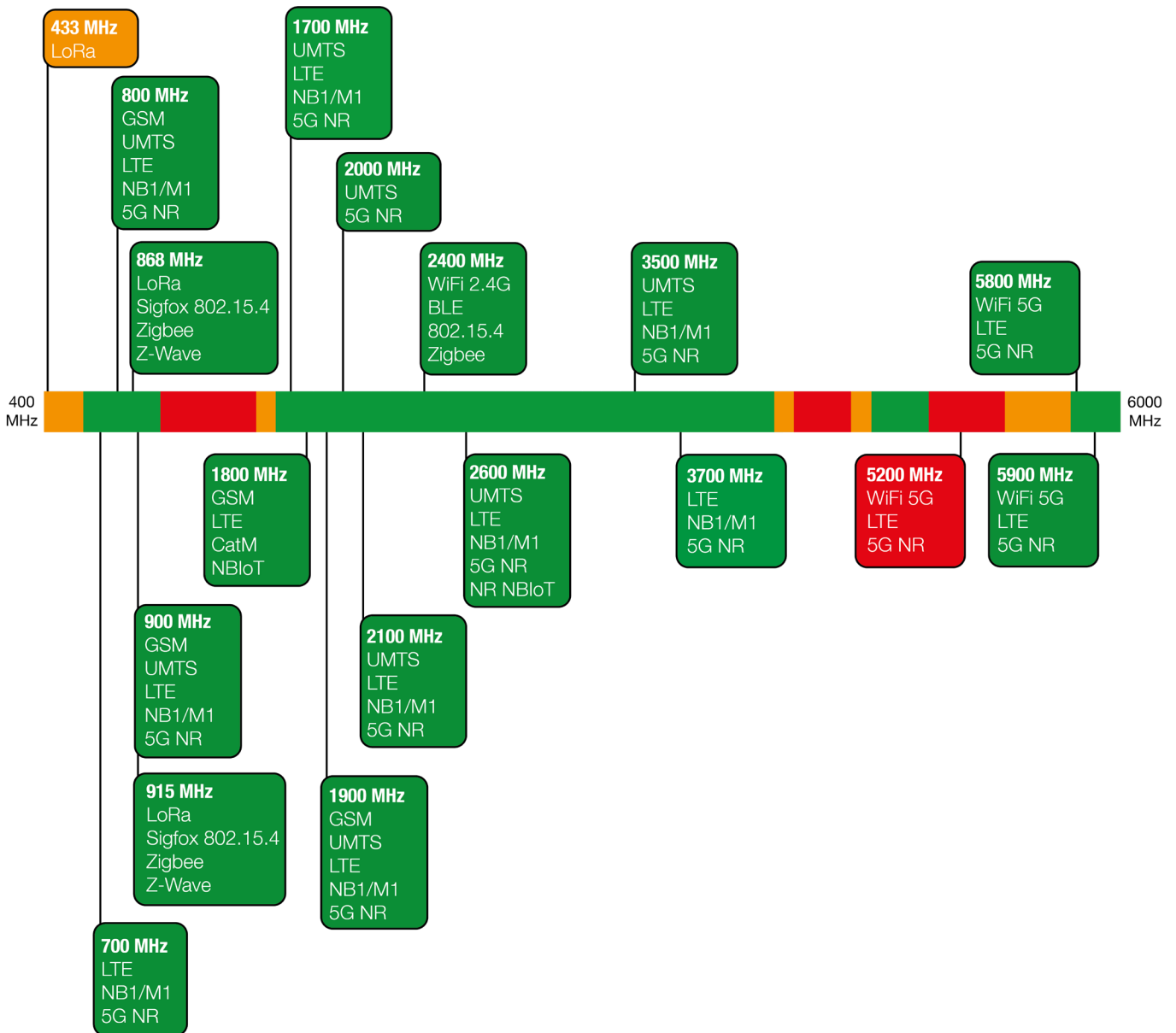




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### Spectrum Coverage



● Suitable band

● Adequate band in good signal conditions

● Likely to be unsuitable



## Oscar 20A

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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)

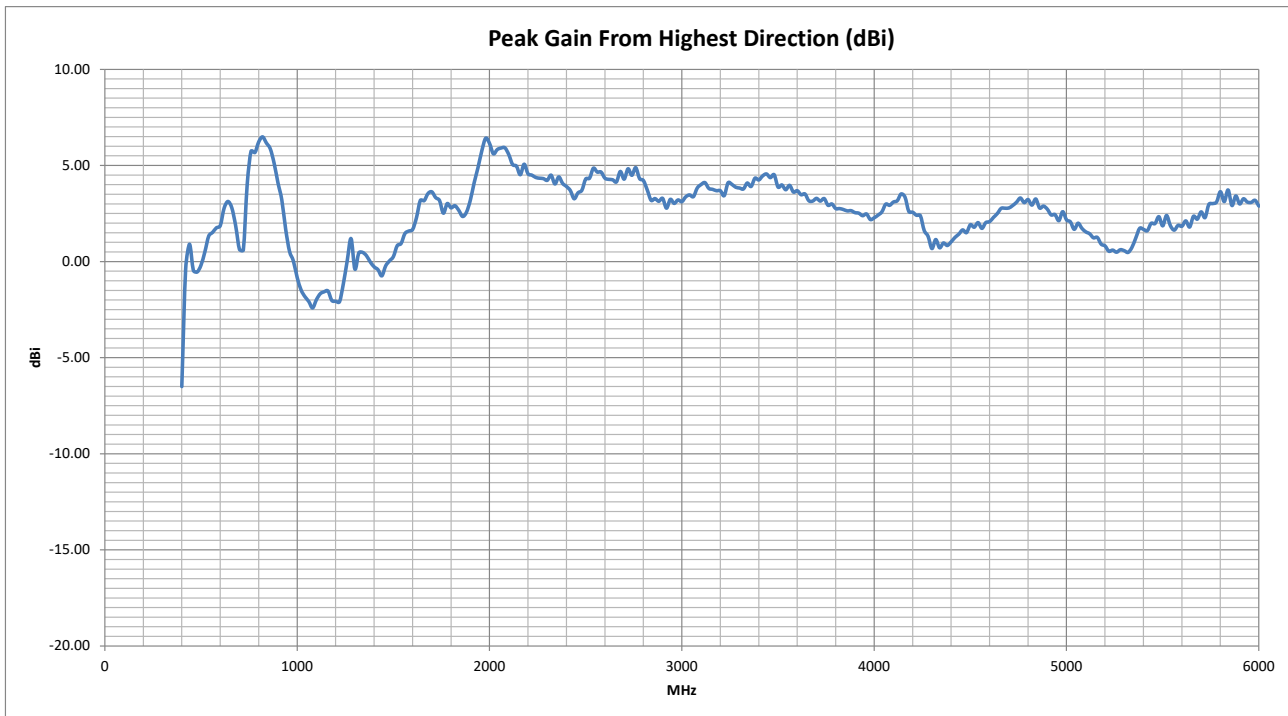
	433	868	915	2450	5800
Bluetooth				●	
IEEE 802.15.4		●	●	●	
LoRa	●	●	●		
Sigfox		●	●		
WiFi 2.4G				●	
WiFi 5G					
Zigbee		●	●	●	
Z-Wave		●	●		



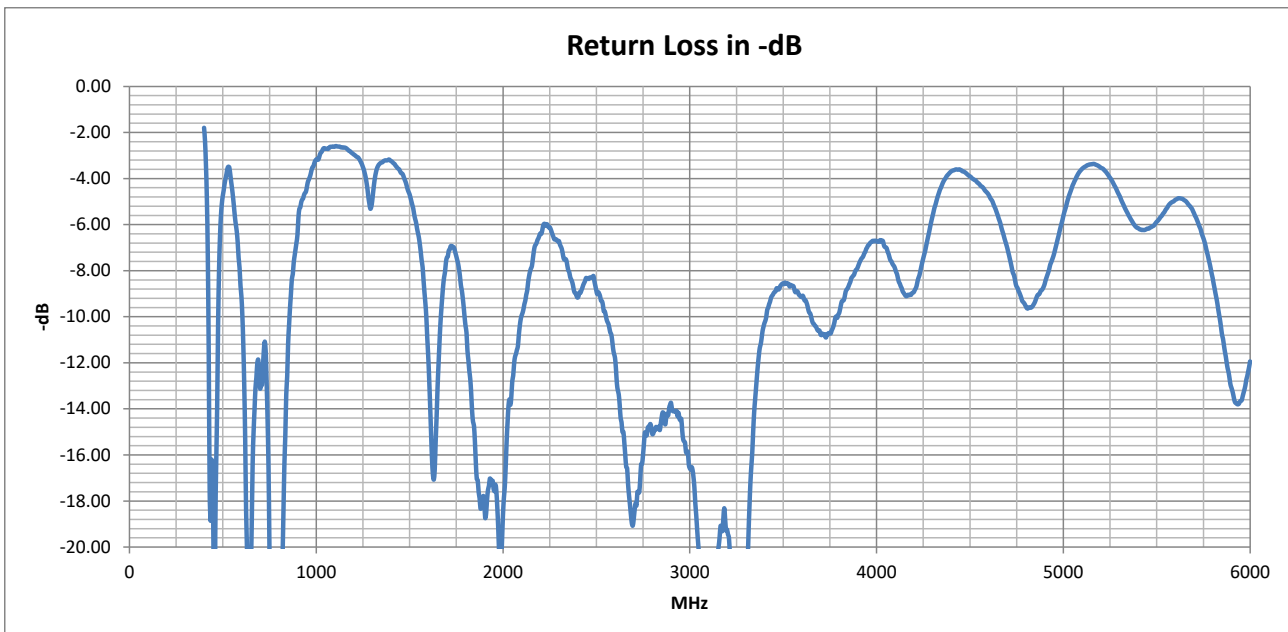
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### Peak Gain vs. Frequency



### Return Loss

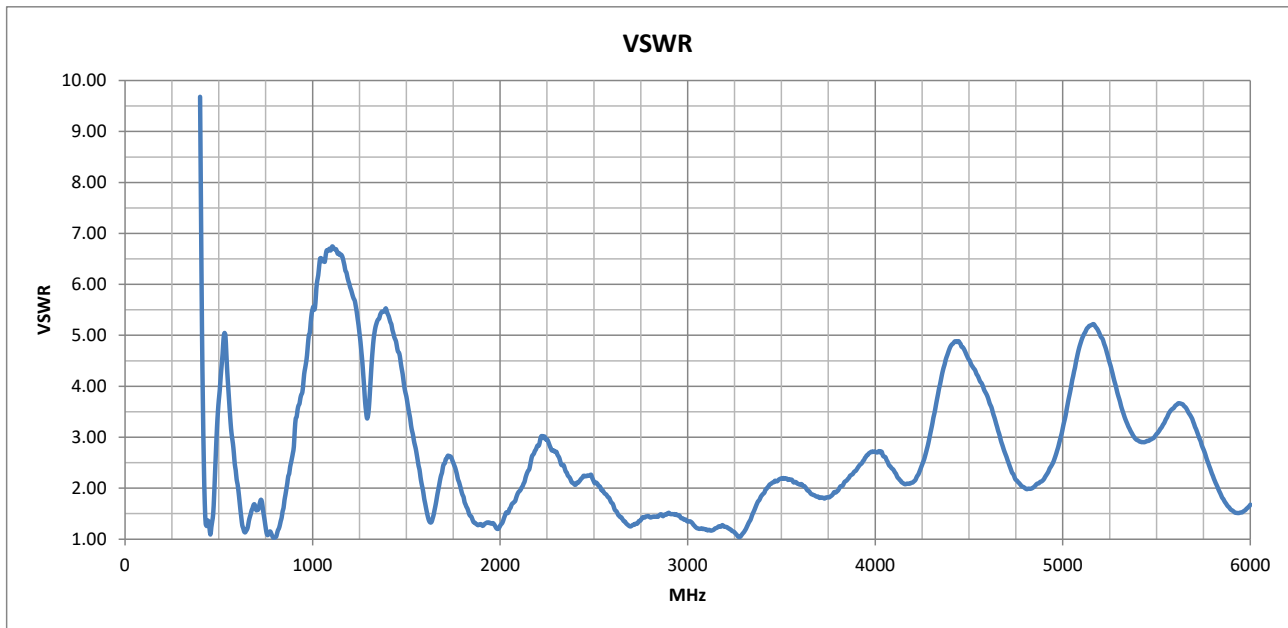




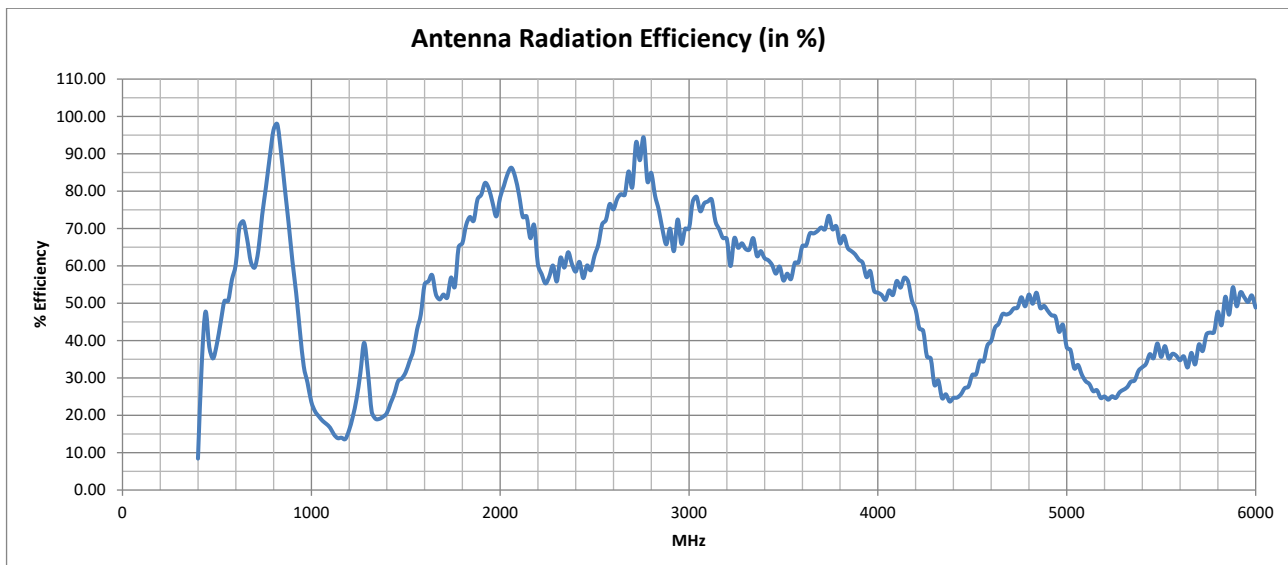
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### VSWR



### Radiation Efficiency





## Oscar 20A

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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	78.46	71.68	1.33	2.63	●
PCS-1900	2	2	2	2	n2	n2	1850 - 1910 MHz	1930 - 1990 MHz	76.50	77.25	1.41	1.33	●
DCS-1800	3	3	3	3	n3	n3	1710 - 1785 MHz	1805 - 1880 MHz	56.47	72.39	2.64	1.83	●
	4	4	4	4			1710 - 1755 MHz	2110 - 2155 MHz	54.24	72.81	2.64	2.37	●
GSM-850	5	5	5	5	n5	n5	824 - 849 MHz	869 - 894 MHz	91.52	70.60	1.73	2.67	●
	6						830 - 840 MHz	875 - 885 MHz	92.26	71.40	1.55	2.50	●
	7	7	7	7	n7	n7	2500 - 2570 MHz	2620 - 2690 MHz	68.89	80.60	2.13	1.55	●
E-GSM-900	8	8	8	8	n8	n8	880 - 915 MHz	925 - 960 MHz	62.86	41.46	3.40	4.35	●
	9	9					1749.9 - 1784.9 MHz	1844.9 - 1879.9 MHz	59.15	73.89	2.50	1.45	●
	10	10					1710 - 1770 MHz	2110 - 2170 MHz	54.76	71.68	2.64	2.63	●
	11	11	11	11			1427.9 - 1447.9 MHz	1475.9 - 1495.9 MHz	25.62	30.42	5.08	4.33	●
	12	12	12	12	n12	n12	699 - 716 MHz	729 - 746 MHz	61.34	72.35	1.67	1.73	●
	13	13	13	13	n13	n13	777 - 787 MHz	746 - 756 MHz	89.83	77.73	1.13	1.32	●
	14	14	14	14	n14		788 - 798 MHz	758 - 768 MHz	93.84	82.31	1.04	1.13	●
		17		17			704 - 716 MHz	734 - 746 MHz	61.92	73.48	1.67	1.62	●
		18	18	18	n18	n18	815 - 830 MHz	860 - 875 MHz	96.61	77.25	1.36	2.28	●
	19	19	19	19			830 - 845 MHz	875 - 890 MHz	91.23	70.16	1.61	2.60	●
	20	20	20	20	n20	n20	832 - 862 MHz	791 - 821 MHz	86.88	96.46	2.03	1.22	●
	21	21	21	21			1447.9 - 1462.9 MHz	1495.9 - 1510.9 MHz	28.37	32.08	4.81	3.86	●
	22	22					3410 - 3490 MHz	3510 - 3590 MHz	59.79	59.13	2.18	2.20	●
		24	24	24	n24		1626.5 - 1660.5 MHz	1525 - 1559 MHz	55.71	38.34	1.77	3.23	●
	25	25	25	25	n25	n25	1850 - 1915 MHz	1930 - 1995 MHz	76.85	77.19	1.41	1.33	●
	26	26	26	26	n26		814 - 849 MHz	859 - 894 MHz	93.23	72.96	1.73	2.67	●
		27	27				807 - 824 MHz	852 - 869 MHz	97.38	80.53	1.26	2.21	●
		28	28	28	n28	n28	703 - 748 MHz	758 - 803 MHz	67.52	89.07	1.77	1.15	●

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● Adequate band in good signal conditions

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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	64.46	86.28	1.77	1.15	●
		29			n29		N/A	717 - 728 MHz	N/A	65.54	N/A	1.77	●
		30			n30		2305 - 2315 MHz	2350 - 2360 MHz	59.04	62.65	2.66	2.33	●
		31	31	31			452.5 - 457.5 MHz	462.5 - 467.5 MHz	40.65	37.52	1.16	1.43	●
	32	32					N/A	1452 - 1496 MHz	N/A	29.73	N/A	4.74	●
		33					1900 - 1920 MHz	1900 - 1920 MHz	80.65	80.65	1.31	1.31	●
		34			n34		2010 - 2025 MHz	2010 - 2025 MHz	81.08	81.08	1.46	1.46	●
		35					1850 - 1910 MHz	1850 - 1910 MHz	76.50	76.50	1.41	1.41	●
		36					1930 - 1990 MHz	1930 - 1990 MHz	77.25	77.25	1.33	1.33	●
		37					1910 - 1930 MHz	1910 - 1930 MHz	81.64	81.64	1.33	1.33	●
		38			n38		2570 - 2620 MHz	2570 - 2620 MHz	76.07	76.07	1.85	1.85	●
		39	39		n39		1880 - 1920 MHz	1880 - 1920 MHz	79.54	79.54	1.31	1.31	●
		40	40		n40		2300 - 2400 MHz	2300 - 2400 MHz	60.63	60.63	2.71	2.71	●
		41	41	41	n41	n41	2496 - 2690 MHz	2496 - 2690 MHz	74.83	74.83	2.16	2.16	●
		42	42	42			3400 - 3600 MHz	3400 - 3600 MHz	59.56	59.56	2.20	2.20	●
		43	43	43			3600 - 3800 MHz	3600 - 3800 MHz	69.19	69.19	2.08	2.08	●
		44					703 - 803 MHz	703 - 803 MHz	78.31	78.31	1.77	1.77	●
		45					1447 - 1467 MHz	1447 - 1467 MHz	28.51	28.51	4.83	4.83	●
		46			n46		5150 - 5925 MHz	5150 - 5925 MHz	35.89	35.89	5.22	5.22	●
		47			n47		5855 - 5925 MHz	5855 - 5925 MHz	51.03	51.03	1.79	1.79	●
		48			n48		3550 - 3700 MHz	3550 - 3700 MHz	65.85	65.85	2.17	2.17	●
		49					3550 - 3700 MHz	3550 - 3700 MHz	65.85	65.85	2.17	2.17	●
		50			n50		1432 - 1517 MHz	1432 - 1517 MHz	29.59	29.59	5.02	5.02	●
		51			n51		1427 - 1432 MHz	1427 - 1432 MHz	24.49	24.49	5.09	5.09	●
		52					3300 - 3400 MHz	3300 - 3400 MHz	64.37	64.37	1.88	1.88	●

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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	60.70	60.70	2.26	2.26	●
		65		65	n65	n65	1920 - 2010 MHz	2110 - 2200 MHz	77.95	70.16	1.33	2.84	●
		66	66	66	n66	n66	1710 - 1780 MHz	2110 - 2200 MHz	55.85	70.16	2.64	2.84	●
		67			n67		N/A	738 - 758 MHz	N/A	76.60	N/A	1.51	●
		68					698 - 728 MHz	753 - 783 MHz	62.89	84.32	1.77	1.16	●
		69					N/A	2570 - 2620 MHz	N/A	76.07	N/A	1.85	●
		70		70	n70	n70	1695 - 1710 MHz	1995 - 2020 MHz	52.16	79.47	2.57	1.41	●
		71	71	71	n71		663 - 698 MHz	617 - 652 MHz	62.02	70.91	1.68	1.52	●
		72	72	72			451 - 456 MHz	461 - 466 MHz	41.36	37.75	1.20	1.39	●
		73	73	73			450 - 455 MHz	460 - 465 MHz	41.83	37.90	1.23	1.36	●
		74	74	74	n74		1427 - 1470 MHz	1475 - 1518 MHz	27.17	31.52	5.09	4.34	●
		75			n75		N/A	1432 - 1517 MHz	N/A	29.59	N/A	5.02	●
		76			n76		N/A	1427 - 1432 MHz	N/A	24.49	N/A	5.09	●
					n77		3300 - 4200 MHz	3300 - 4200 MHz	61.19	61.19	2.73	2.73	●
					n78		3300 - 3800 MHz	3300 - 3800 MHz	64.37	64.37	2.20	2.20	●
					n79		4400 - 5000 MHz	4400 - 5000 MHz	41.84	41.84	4.89	4.89	●
					n80		1710 - 1785 MHz	N/A	56.47	N/A	2.64	N/A	●
					n81		880 - 915 MHz	N/A	62.86	N/A	3.40	N/A	●
					n82		832 - 862 MHz	N/A	86.88	N/A	2.03	N/A	●
					n83		703 - 748 MHz	N/A	67.52	N/A	1.77	N/A	●
					n84		1920 - 1980 MHz	N/A	78.46	N/A	1.33	N/A	●
		85	85	85	n85		698 - 716 MHz	728 - 746 MHz	61.25	72.12	1.67	1.74	●
					n86		1710 - 1780 MHz	N/A	55.85	N/A	2.64	N/A	●
		87	87	87			410 - 415 MHz	420 - 425 MHz	24.24	35.48	5.17	2.50	●
		88	88	88			412 - 417 MHz	422 - 427 MHz	26.77	36.88	4.56	2.18	●

● 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	91.52	N/A	1.73	N/A	●
					n90	n90	2496 - 2690 MHz	2496 - 2690 MHz	74.83	74.83	2.16	2.16	●
					n91		832 - 862 MHz	1427 - 1432 MHz	86.88	24.49	2.03	5.09	●
					n92		832 - 862 MHz	1432 - 1517 MHz	86.88	29.59	2.03	5.02	●
					n93		880 - 915 MHz	1427 - 1432 MHz	62.86	24.49	3.40	5.09	●
					n94		880 - 915 MHz	1432 - 1517 MHz	62.86	29.59	3.40	5.02	●
					n95		2010 - 2025 MHz	N/A	81.08	N/A	1.46	N/A	●
					n97		2300 - 2400 MHz	N/A	60.63	N/A	2.71	N/A	●
					n98		1880 - 1920 MHz	N/A	79.54	N/A	1.31	N/A	●
					n99		1626.5 - 1660.5 MHz	N/A	55.71	N/A	1.77	N/A	●
					n101		1900 - 1910 MHz	1900 - 1910 MHz	79.86	79.86	1.29	1.29	●
				103			787 - 788 MHz	757 - 758 MHz	91.85	80.16	1.05	1.10	●

● 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	43.48	1.28	0.5694	●
ISM 868 MHz	863 - 870 MHz	77.71	2.24	5.7575	●
ISM 915 MHz	902 - 928 MHz	54.79	3.64	4.011	●
ISM 2.4 GHz	2400 - 2500 MHz	59.50	2.26	4.3	●
Wi-Fi 2.4G	2401 - 2483 MHz	59.17	2.26	3.8995	●
Wi-Fi 2.4G (USA)	2401 - 2473 MHz	59.18	2.25	3.8995	●
Wi-Fi 2.4G (Japan)	2401 - 2495 MHz	59.36	2.26	4.1525	●
Wi-Fi 5G (all channels)	5150 - 5990 MHz	37.09	5.22	3.73	●
Wi-Fi 5G (Ch 32-48)	5150 - 5250 MHz	25.14	5.22	1.26	●
Wi-Fi 5G (Ch 32-64)	5150 - 5330 MHz	25.69	5.22	1.26	●
Wi-Fi 5G (Ch 32-161)	5150 - 5815 MHz	33.55	5.22	3.64	●
Wi-Fi 5G (Ch 32-173)	5150 - 5875 MHz	34.80	5.22	3.73	●
ISM 5.8 GHz	5725 - 5875 MHz	45.30	3.01	3.73	●

● Suitable band

● Adequate band in good signal conditions

● Likely to be unsuitable

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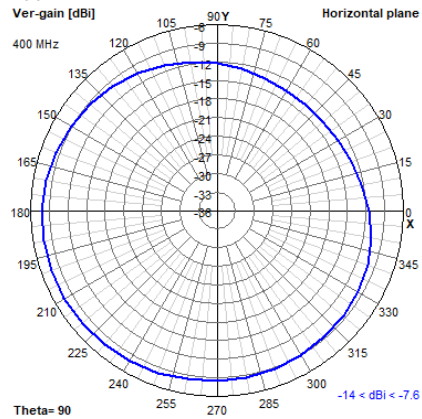


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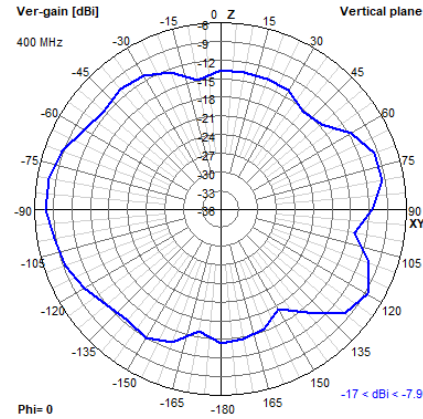
5G/4G/LoRa/Sigfox/Bluetooth/Zigbee Directional Yagi Antenna

### 2D Radiation Plots

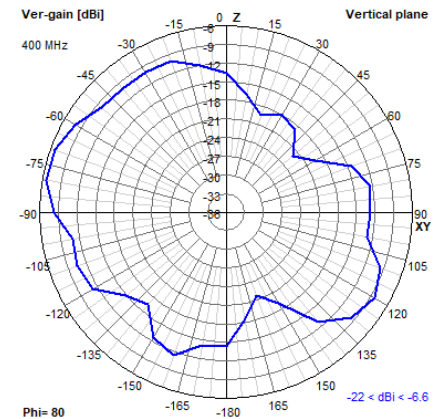
#### 400 MHz XY



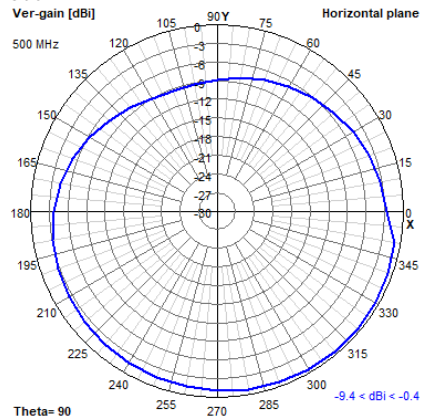
#### XZ



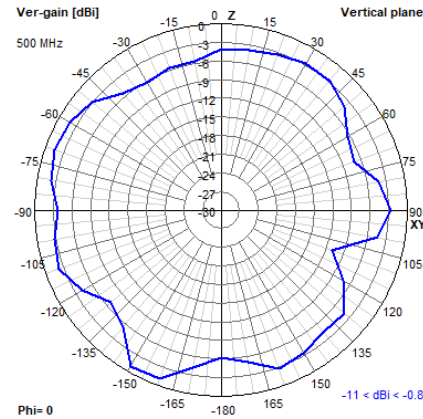
#### YZ



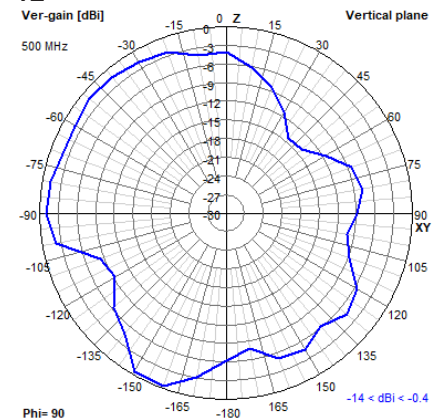
#### 500 MHz XY



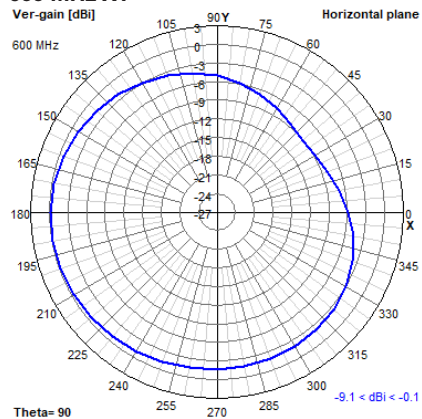
#### XZ



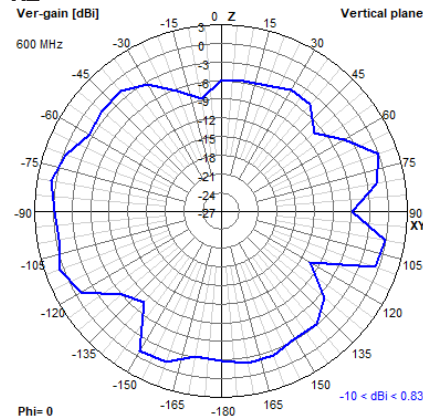
#### YZ



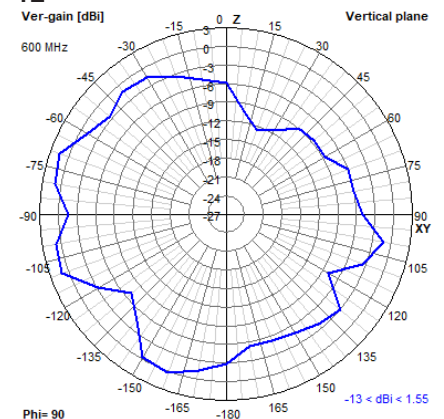
#### 600 MHz XY



#### XZ



#### YZ



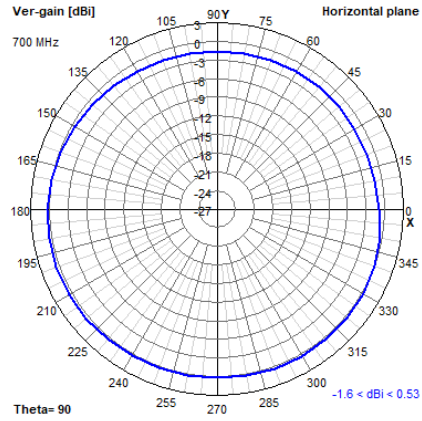


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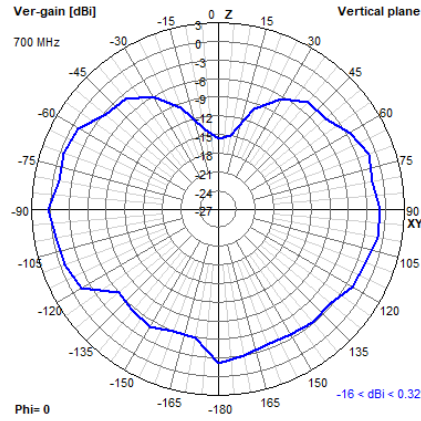
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### 2D Radiation Plots

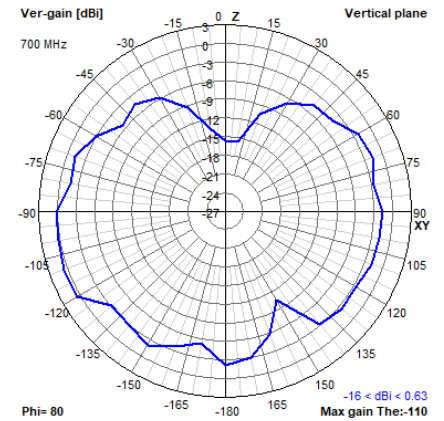
#### 700 MHz XY



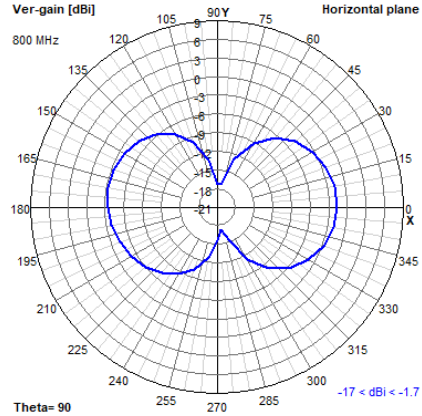
#### XZ



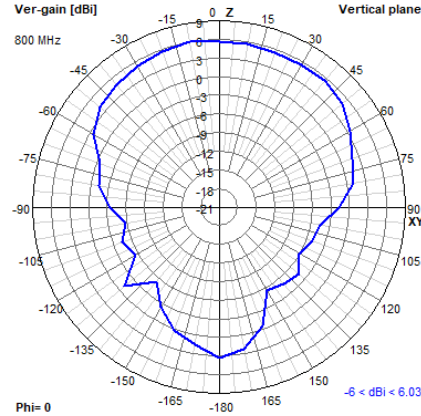
#### YZ



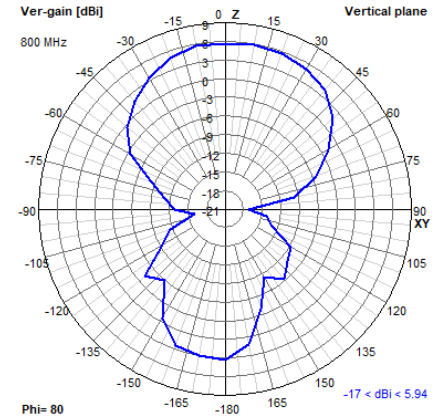
#### 800 MHz XY



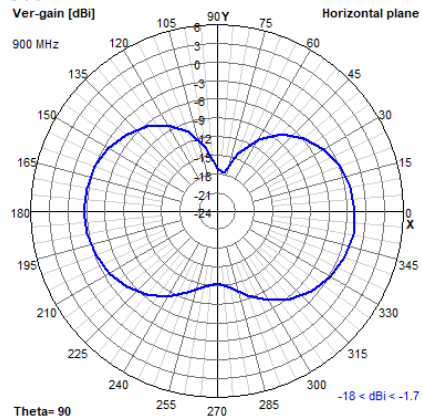
#### XZ



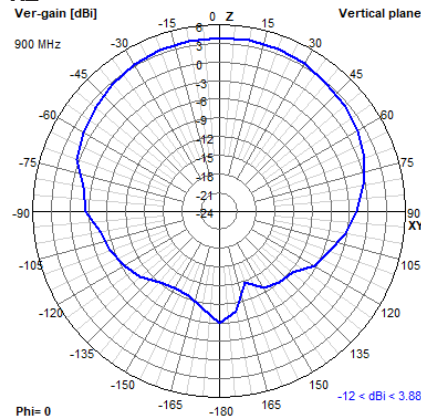
#### YZ



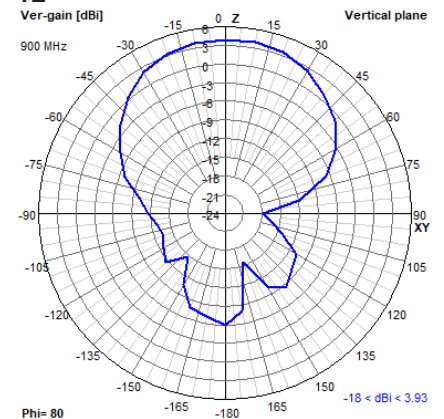
#### 900 MHz XY



#### XZ



#### YZ



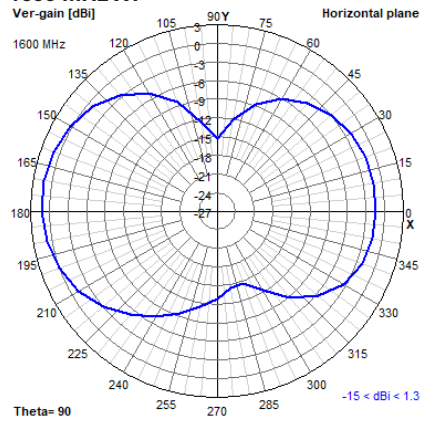


## Oscar 20A

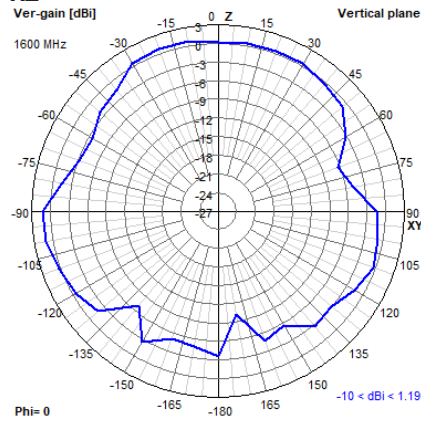
5G/4G/LoRa/Sigfox/Bluetooth/Zigbee Directional Yagi Antenna

### 2D Radiation Plots

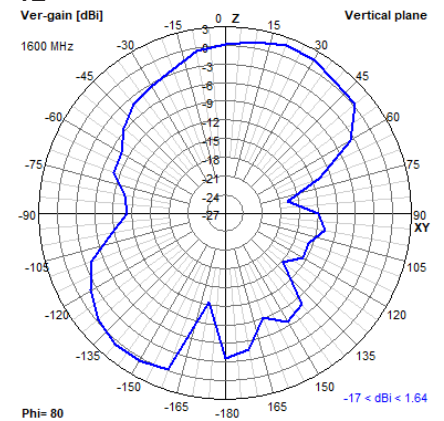
#### 1600 MHz XY



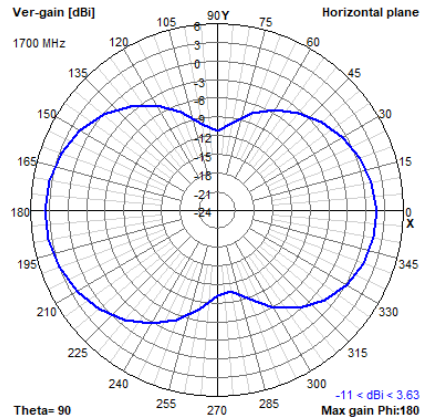
#### XZ



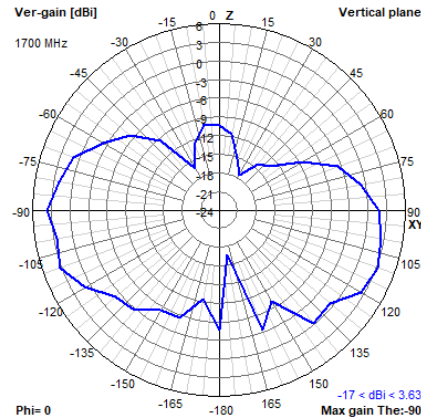
#### YZ



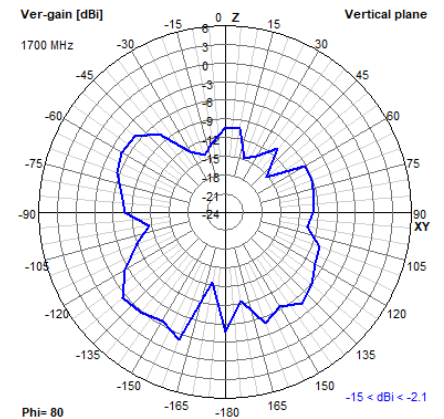
#### 1700 MHz XY



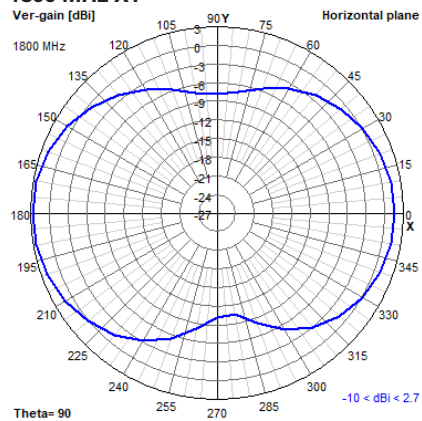
#### XZ



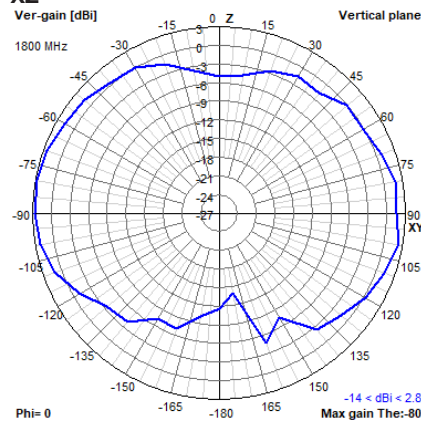
#### YZ



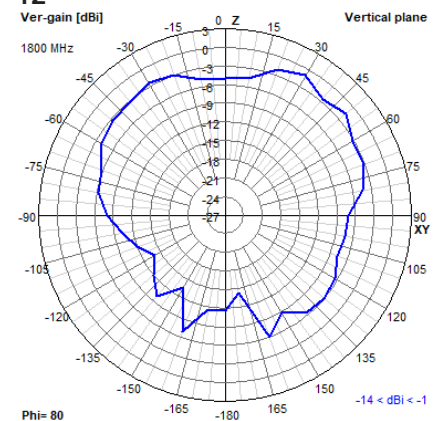
#### 1800 MHz XY



#### XZ



#### YZ



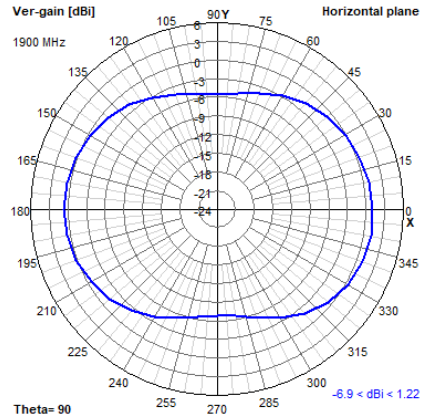


## Oscar 20A

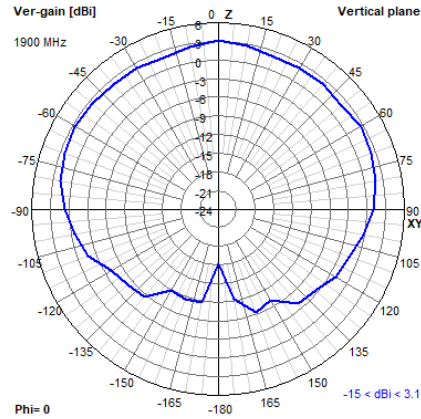
5G/4G/LoRa/Sigfox/Bluetooth/Zigbee Directional Yagi Antenna

### 2D Radiation Plots

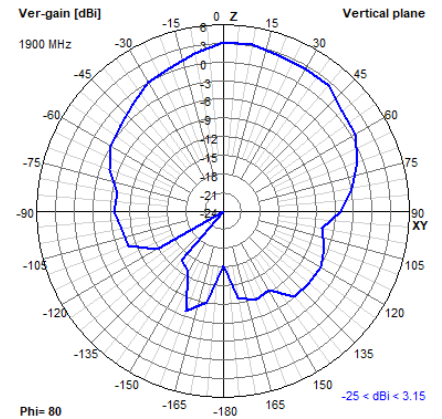
#### 1900 MHz XY



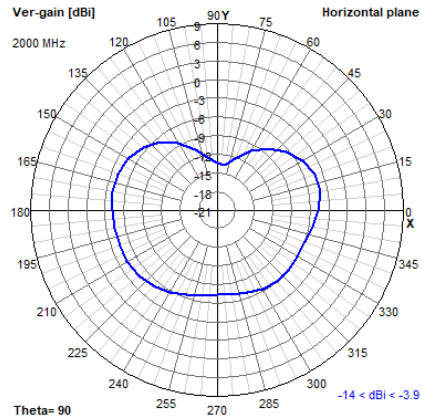
#### XZ



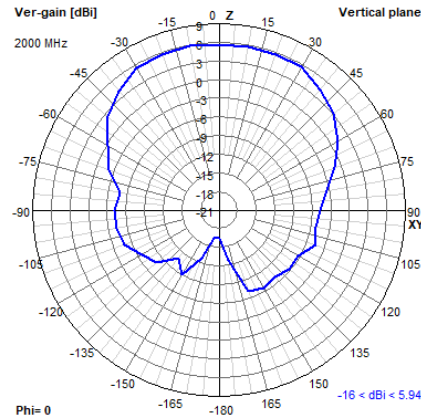
#### YZ



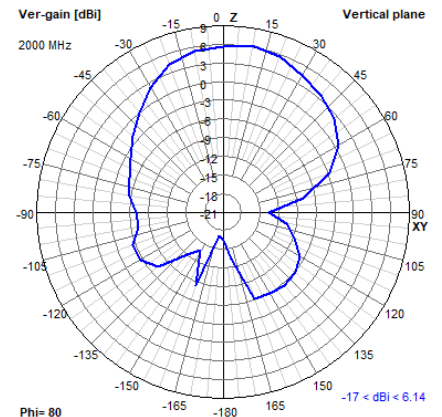
#### 2000 MHz XY



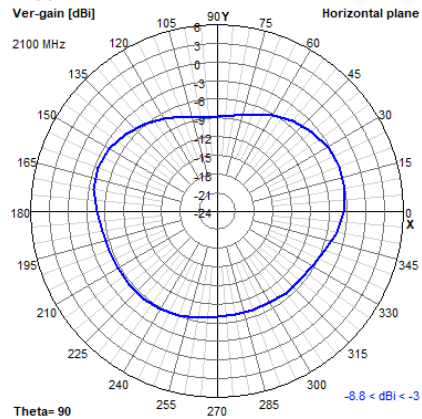
#### XZ



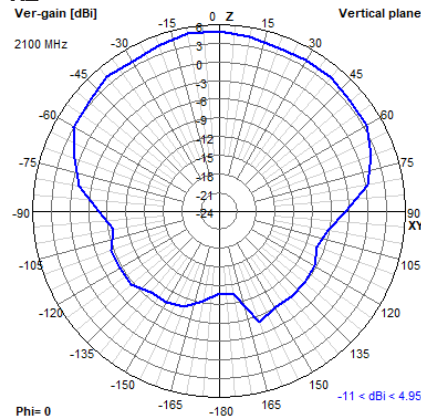
#### YZ



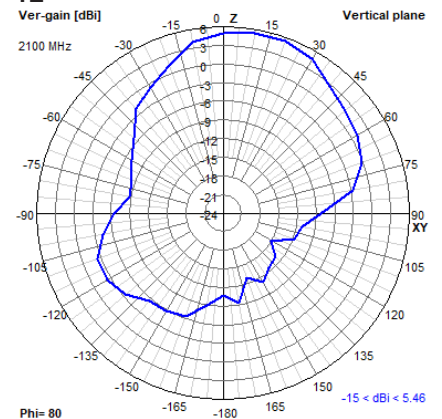
#### 2100 MHz XY



#### XZ



#### YZ



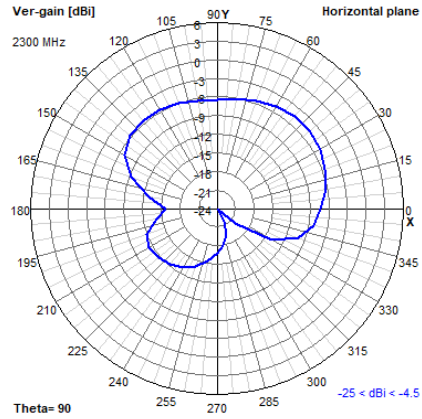


## Oscar 20A

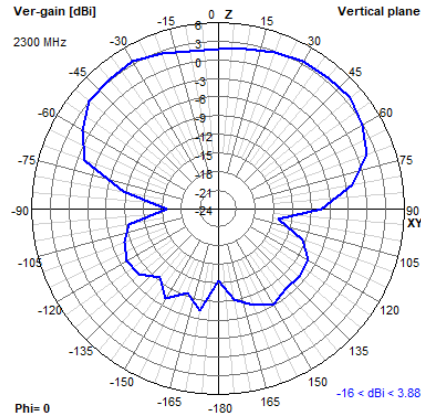
5G/4G/LoRa/Sigfox/Bluetooth/Zigbee Directional Yagi Antenna

### 2D Radiation Plots

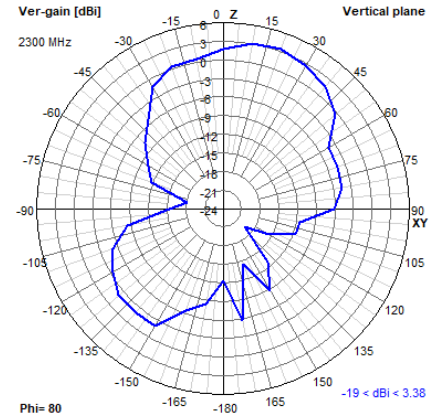
#### 2300 MHz XY



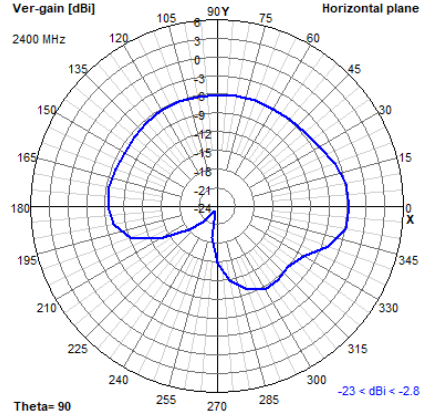
#### XZ



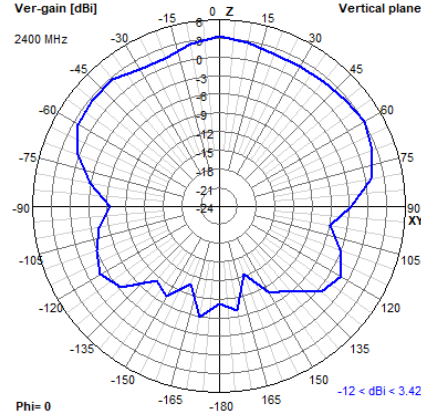
#### YZ



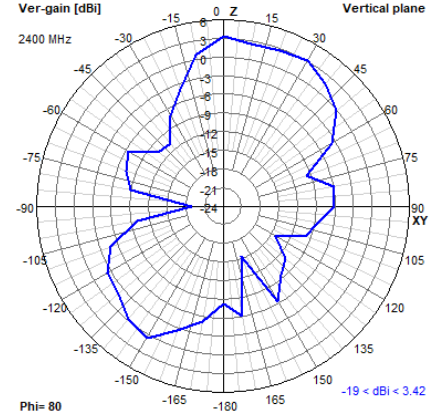
#### 2400 MHz XY



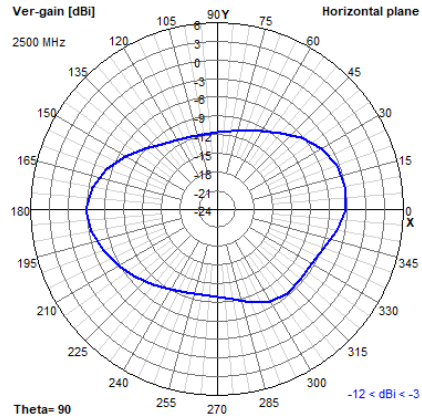
#### XZ



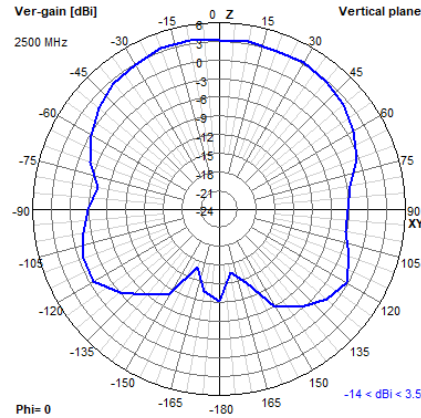
#### YZ



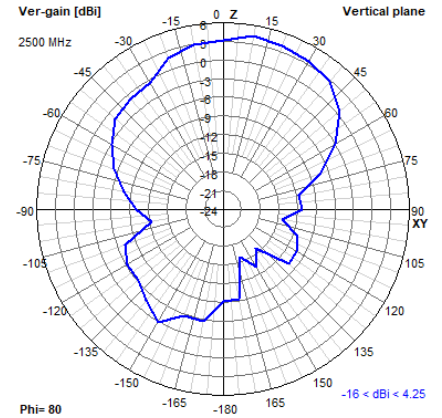
#### 2500 MHz XY



#### XZ



#### YZ





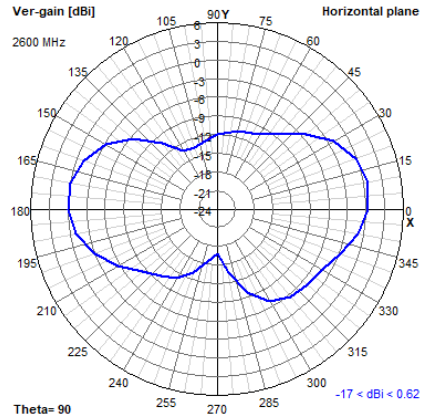


## Oscar 20A

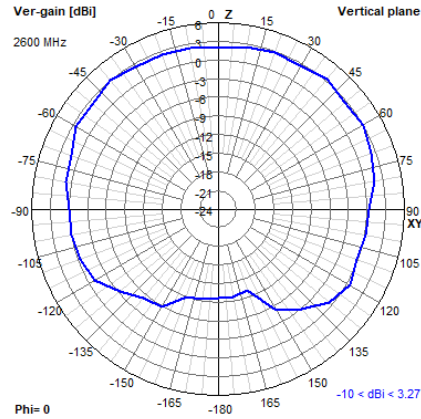
5G/4G/LoRa/Sigfox/Bluetooth/Zigbee Directional Yagi Antenna

### 2D Radiation Plots

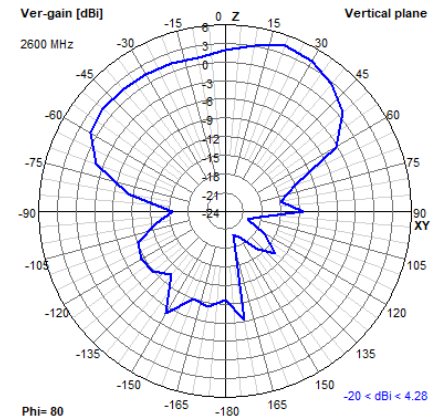
#### 2600 MHz XY



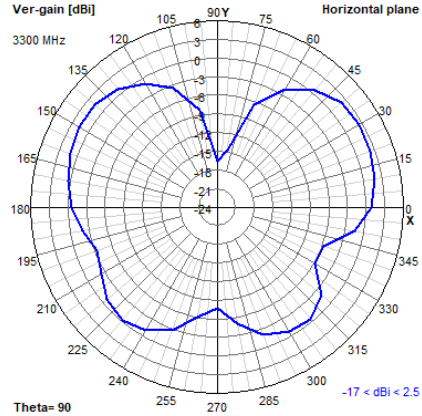
#### XZ



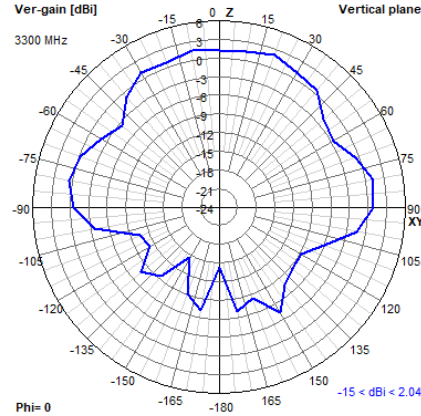
#### YZ



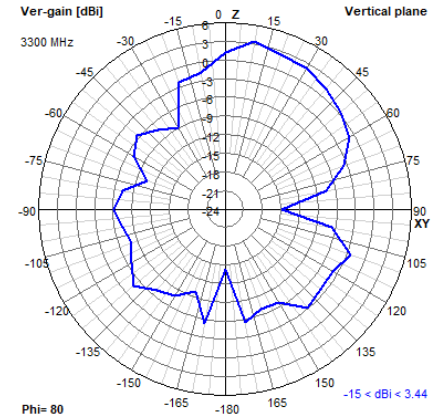
#### 3300 MHz XY



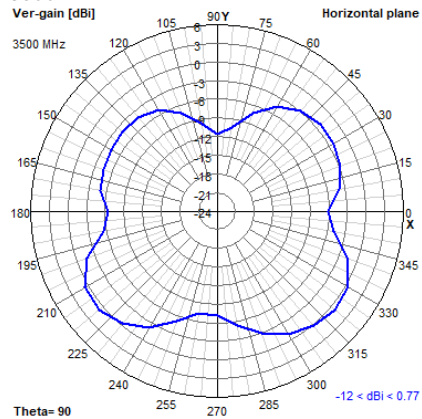
#### XZ



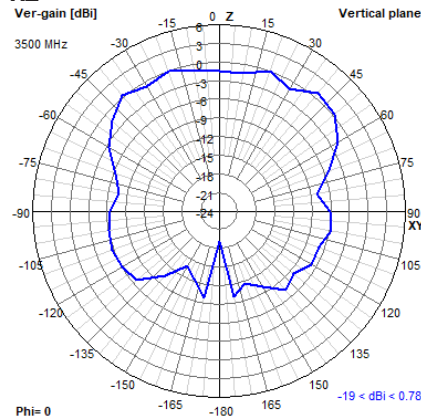
#### YZ



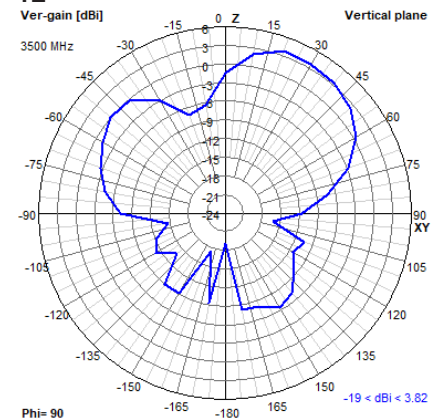
#### 3500 MHz XY



#### XZ



#### YZ



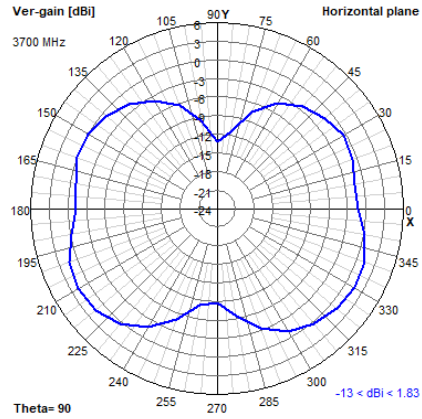


## Oscar 20A

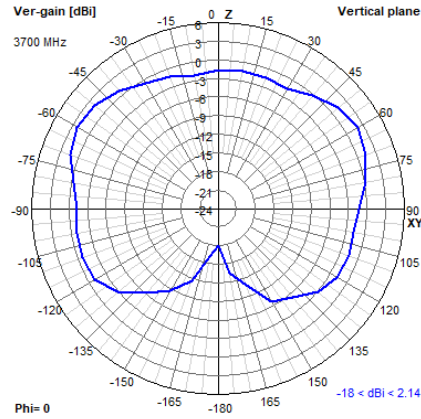
5G/4G/LoRa/Sigfox/Bluetooth/Zigbee Directional Yagi Antenna

### 2D Radiation Plots

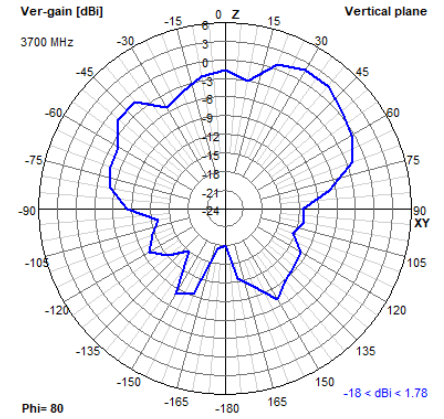
#### 3700 MHz XY



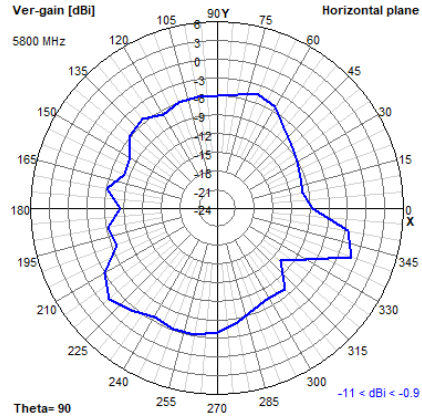
#### XZ



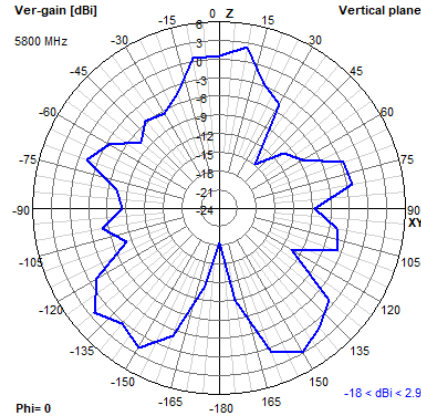
#### YZ



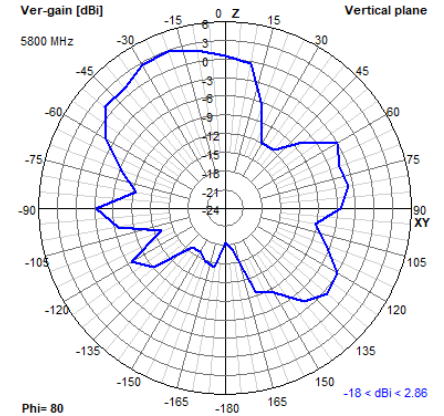
#### 5800 MHz XY



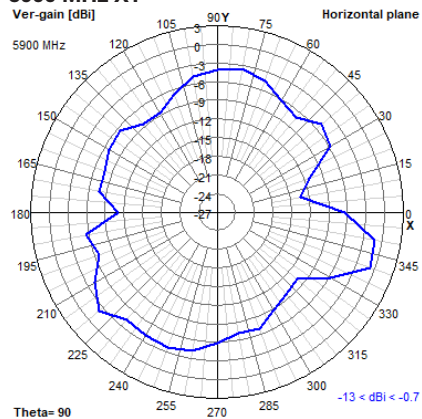
#### XZ



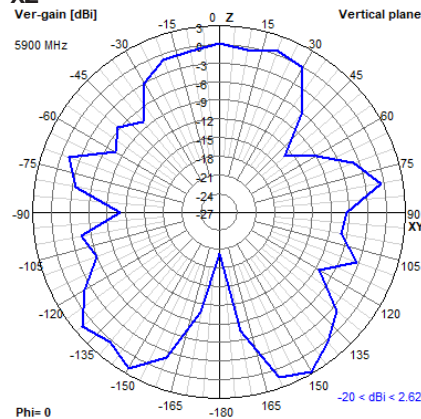
#### YZ



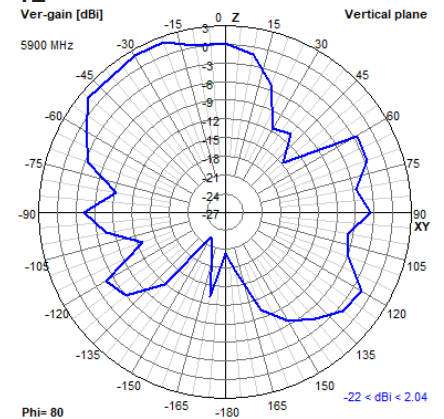
#### 5900 MHz XY



#### XZ



#### YZ



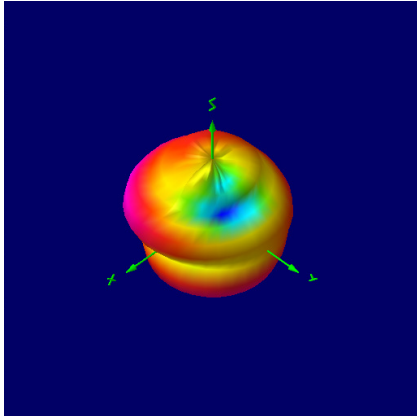


## Oscar 20A

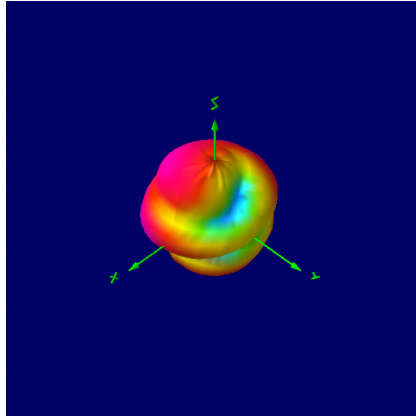
5G/4G/LoRa/Sigfox/Bluetooth/Zigbee Directional Yagi Antenna

### 3D Radiation Plots

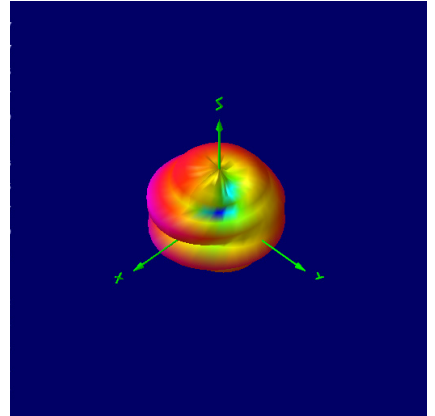
400 MHz



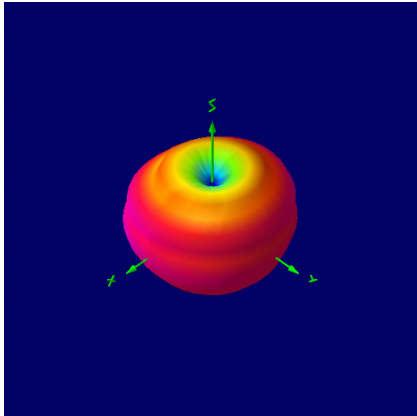
500 MHz



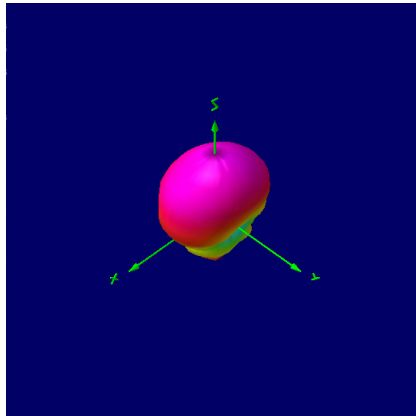
600 MHz



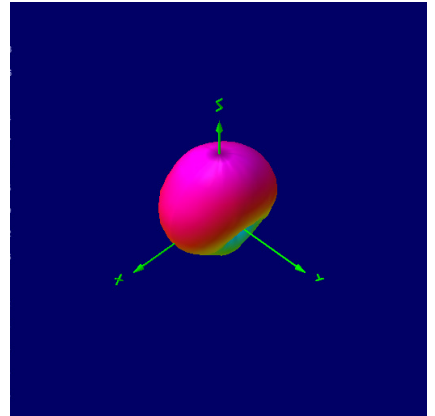
700 MHz



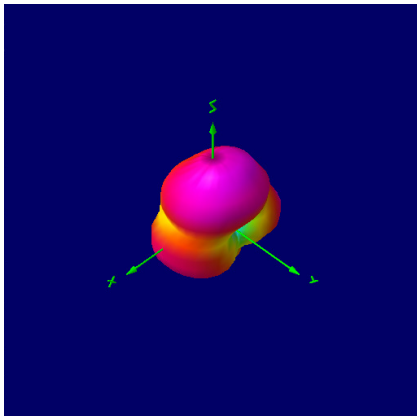
800 MHz



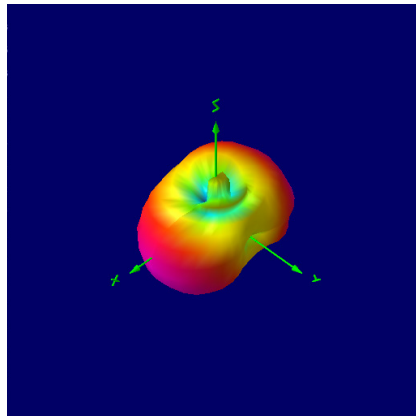
900 MHz



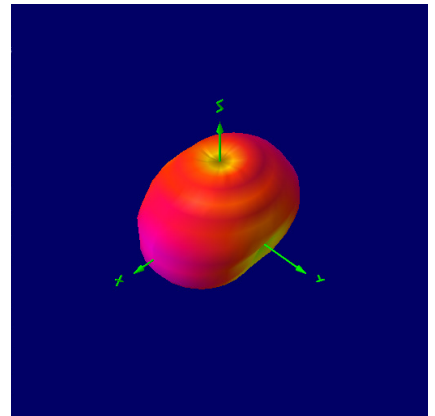
1600 MHz



1700 MHz



1800 MHz



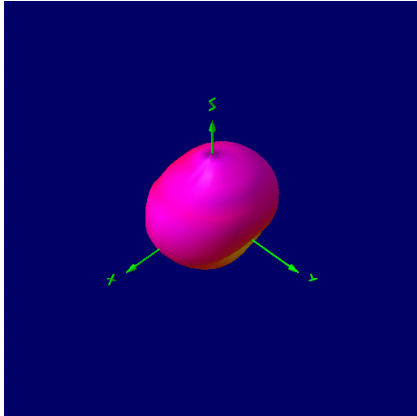


## Oscar 20A

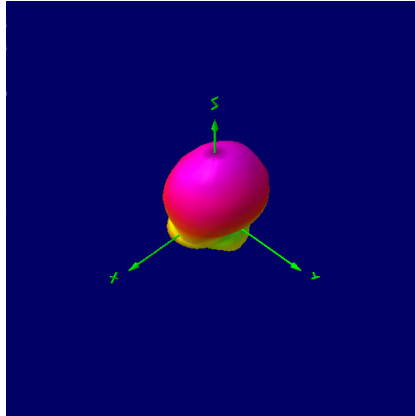
5G/4G/LoRa/Sigfox/Bluetooth/Zigbee Directional Yagi Antenna

### 3D Radiation Plots

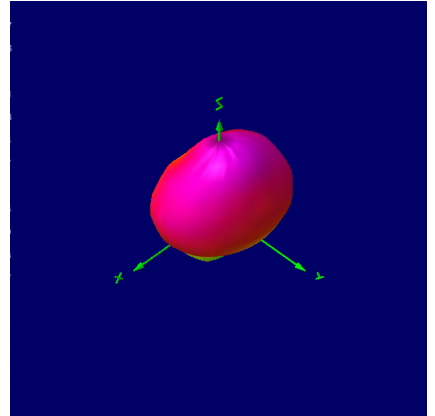
1900 MHz



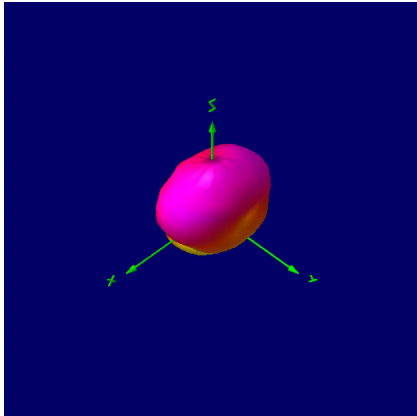
2000 MHz



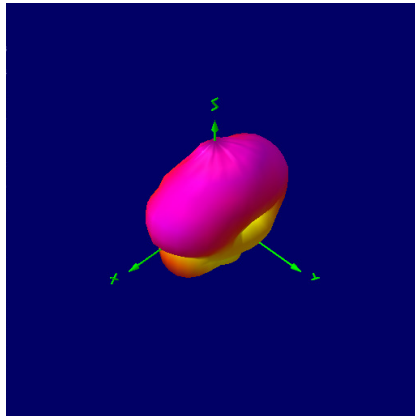
2100 MHz



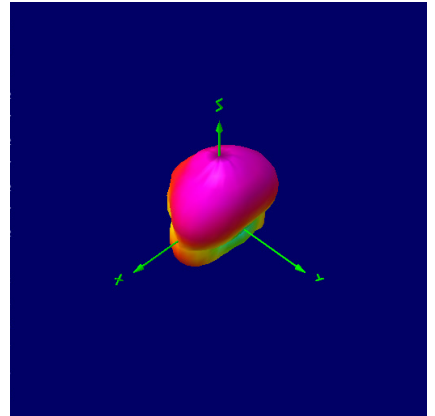
2300 MHz



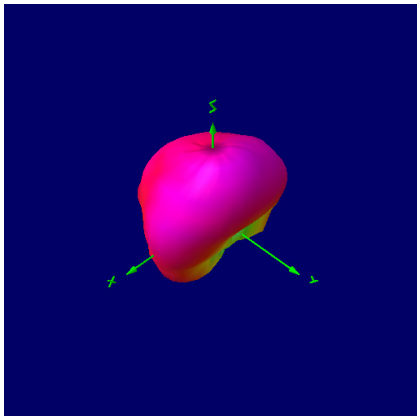
2400 MHz



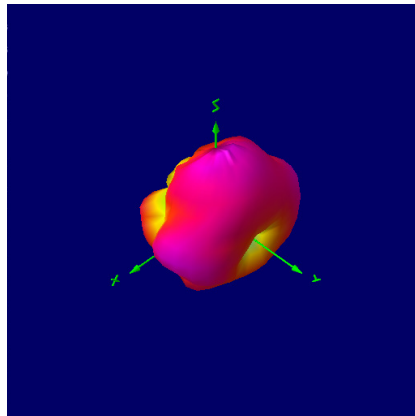
2500 MHz



2600 MHz



3300 MHz



3500 MHz

