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Mike 19

IP67 Active Dual Band High Accuracy GNSS L1/L5 Magnetic Patch Antenna

General Description

The MIKE 19 is a high-performance, dual-band GNSS antenna designed to deliver exceptional positional accuracy in the L1 (1575.45 MHz) and L5 (1176.42 MHz) frequency bands. Supporting major satellite constellations, including GPS, Galileo, BeiDou, NavIC and QZSS, the MIKE 19 ensures robust and reliable signal reception, even in challenging environments.

With excellent axial ratio performance across the top hemisphere, the MIKE 19 effectively minimises multipath interference, enhancing signal stability and reliability. The integrated LNA amplifies weak signals, providing superior sensitivity and enabling centimetre-level positioning accuracy. These attributes make the MIKE 19 ideal for precision applications such as drone navigation, precision agriculture, and survey mapping.

Housed in a compact 50 x 50 mm IP67-rated enclosure, the MIKE 19 is designed for durability and versatility. Its low-profile form factor and flexible mounting options, including magnetic and adhesive bases, ensure optimal performance in outdoor and rugged environments for GNSS positioning, tracking, and timing systems.

Key Features

- Supports GPS bands L1 and L5
- Supports Galileo bands E1-I, E1-Q and E5a
- Supports BeiDou bands B1C, B2a
- Supports QZSS bands L1, L5
- Supports NavIC band L5
- High Gain (up to 25.28 dBiC peak)
- Median Axial Ratio ≤ 3.75 dB for improved multipath rejection

Additional Considerations

- Integrated LNA for enhanced sensitivity and signal strength
- Compact design with IP67 ingress protection

Typical Applications

- Vehicle tracking and fleet management
- Precision agriculture and surveying equipment
- Timing synchronisation for critical infrastructure
- Drone navigation and positioning systems

M Magnetic | A Adhesive | GPS L1 | GPS L5 | GNSS GALILEO | GNSS BEIDOU | GNSS QZSS | IP 67

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Electrical Specifications

Frequency Bands	1176 MHz (L5), 1575 MHz (L1)
Polarization	RHCP
V.S.W.R	≤ 2.0
Gain at Zenith	22.43 dBiC (L5), 23.39 dBiC (L1)
Median Axial Ratio (Top Hemisphere)	≤ 3.75 dB
LNA Gain	25 ± 2 dB
Noise Figure	≤ 1.0 dB
Impedance	50 Ohm
Supply Voltage	3–5 V DC
Current Consumption	≤ 45 mA

Mechanical Specifications

Mounting Method	Magnetic / Adhesive
Connector	SMA Male / Custom options
Cable	RG174
Dimensions	Length 50 mm, Width 50 mm, Height 18 mm

Environmental Specifications

Operational Temperature Range	-40°C to +85°C
Ingress Protection	IP67
Vibration	10–55 Hz with 1.5 mm amplitude
Relative Humidity	Up to 95%

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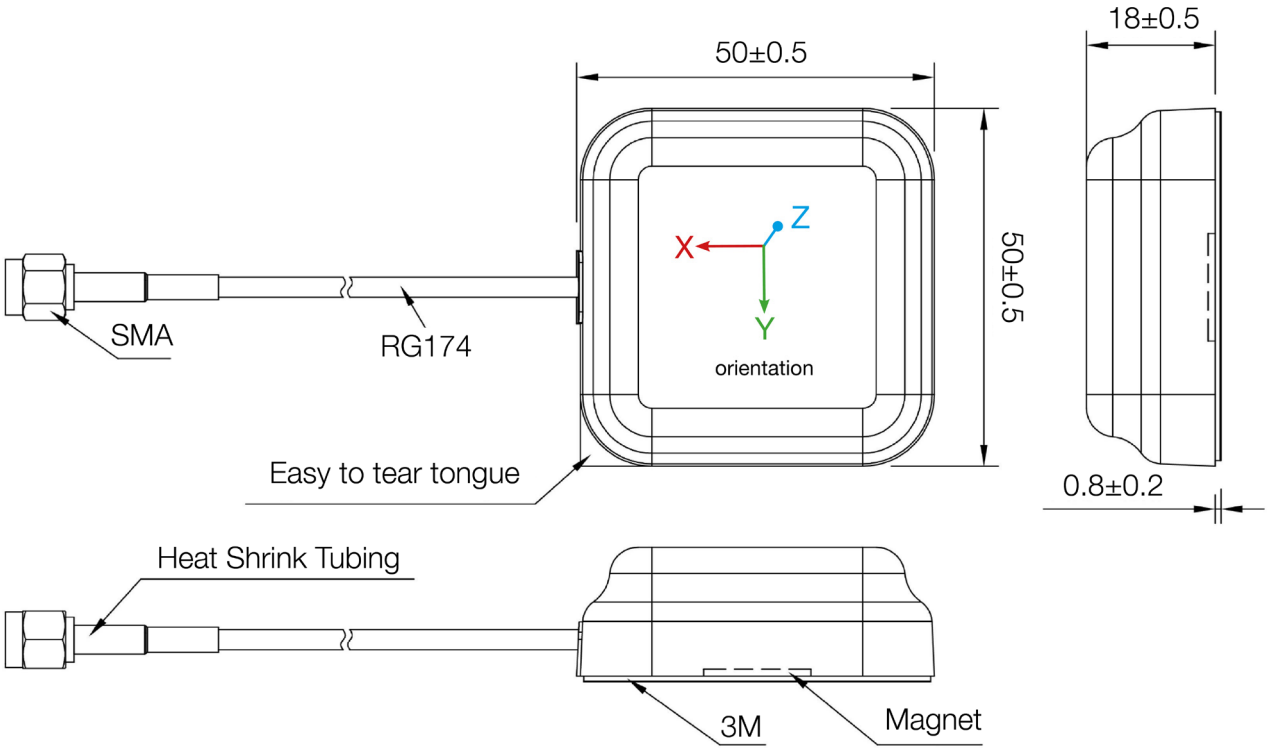
Dimensional Drawing



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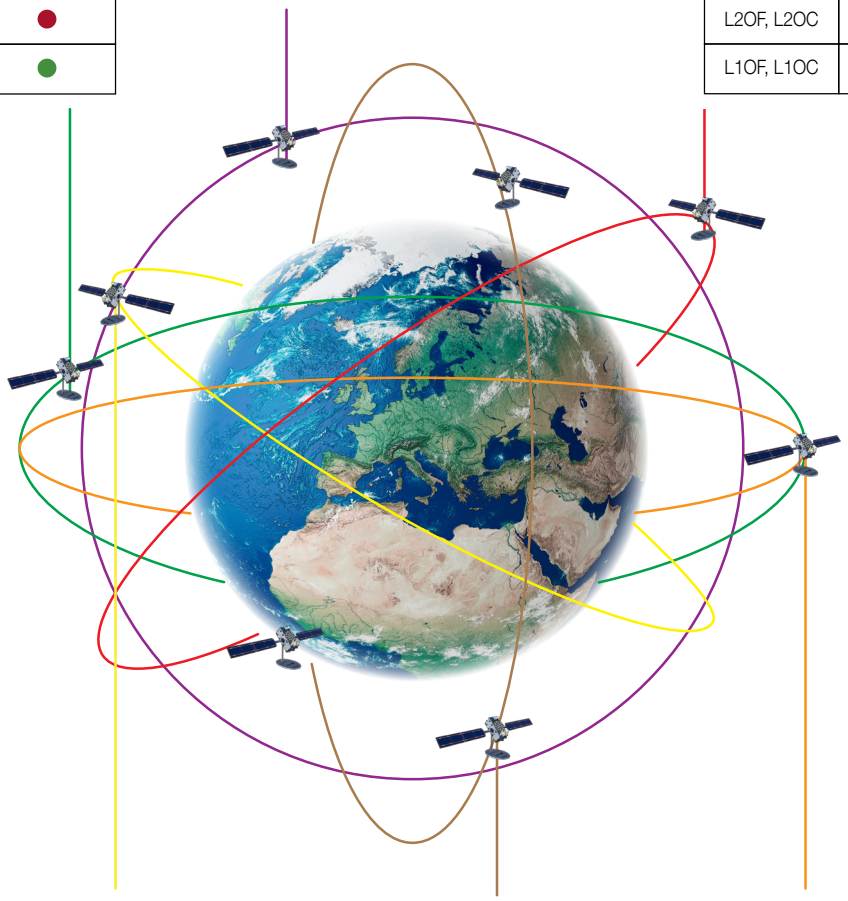
Spectrum Coverage

GPS		
Band	**Frequency**	**Use Indicator**
L5	1176.45	●
L2	1227.6	●
L1	1575.42	●

NavIC		
Band	**Frequency**	**Use Indicator**
L5	1176.45	●

GLONASS		
Band	**Frequency**	**Use Indicator**
L3OC	1202.025	●
L2OF, L2OC	1246	●
L1OF, L1OC	1602	●



Galileo		
Band	**Frequency**	**Use Indicator**
E5a	1176.45	●
E5b	1207.14	●
E6-I, E6-Q	1278.75	●
E1-I, E1-Q	1575.42	●

BeiDou		
Band	**Frequency**	**Use Indicator**
B2a	1176.45	●
B2I, B2b	1207.14	●
B3I	1268.52	●
B1I	1561.098	●
B1C	1575.42	●

QZSS		
Band	**Frequency**	**Use Indicator**
L5	1176.45	●
L2	1227.6	●
L6	1278.75	●
L1	1575.42	●

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

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GNSS Standards Band Support

	Electrical Interface	
Centre Frequency (MHz)	**VSWR**	**Return Loss (dB)**
1176.45	1.3722	-16.0874
1575.42	1.3575	-16.3859

	Top hemisphere RF Measurements				Zenith RF Measurements	
Centre Frequency (MHz)	**Average RHCP Gain (dBiC)**	**Peak RHCP Gain (dBiC)**	**Median Axial Ratio (dB)**	**Minimum Axial Ratio (dB)**	**RHCP Gain at Zenith (dBiC)**	**Axial Ratio at Zenith (dB)**
1176.45	21.23	23.48	2.85	0.16	22.43	3.67
1575.42	22.93	25.28	3.75	0.25	23.39	1.79

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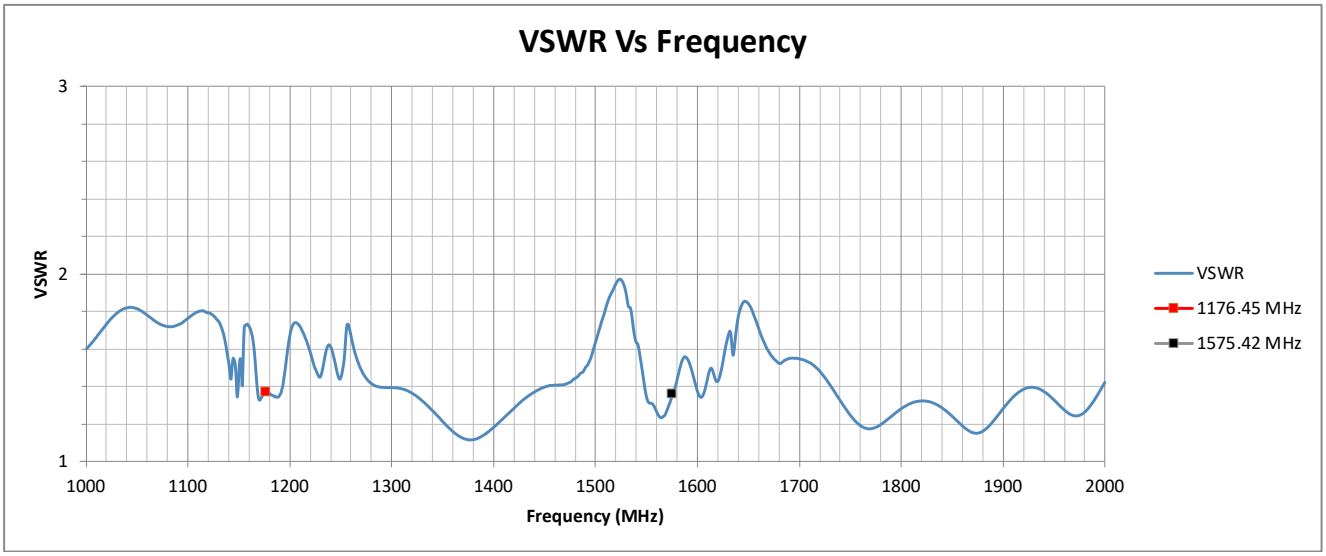
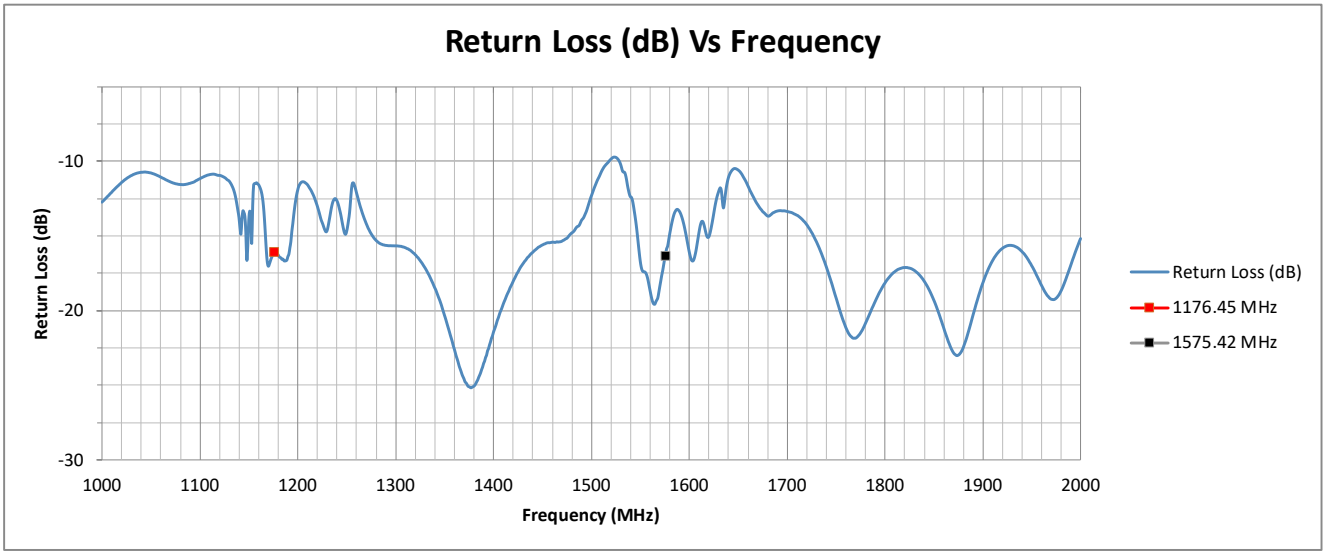
Electrical





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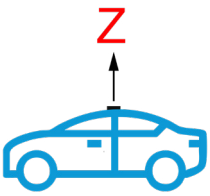
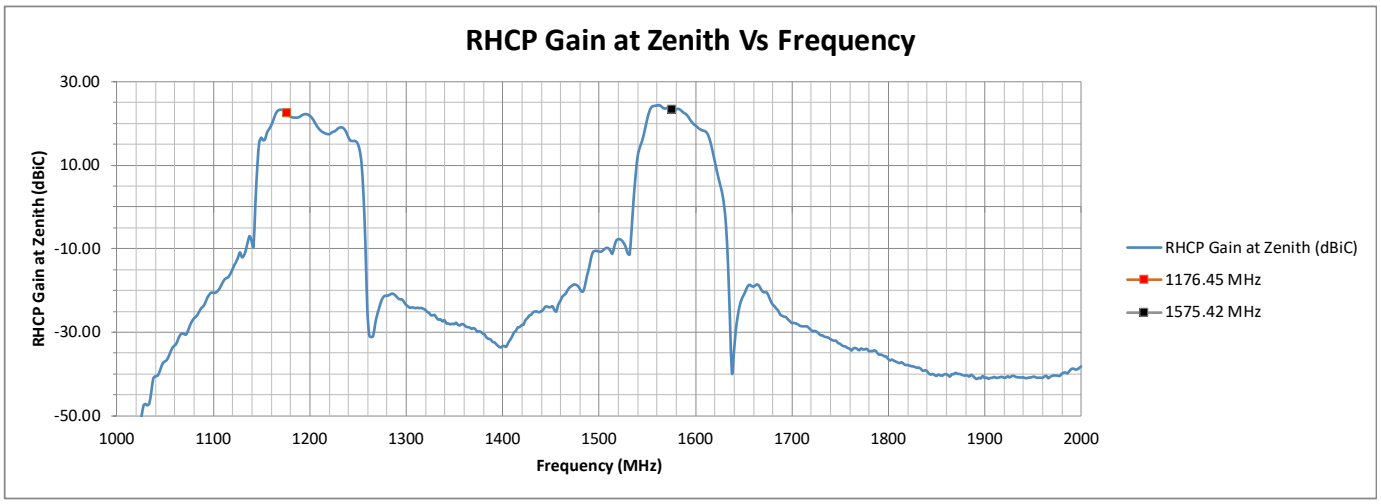
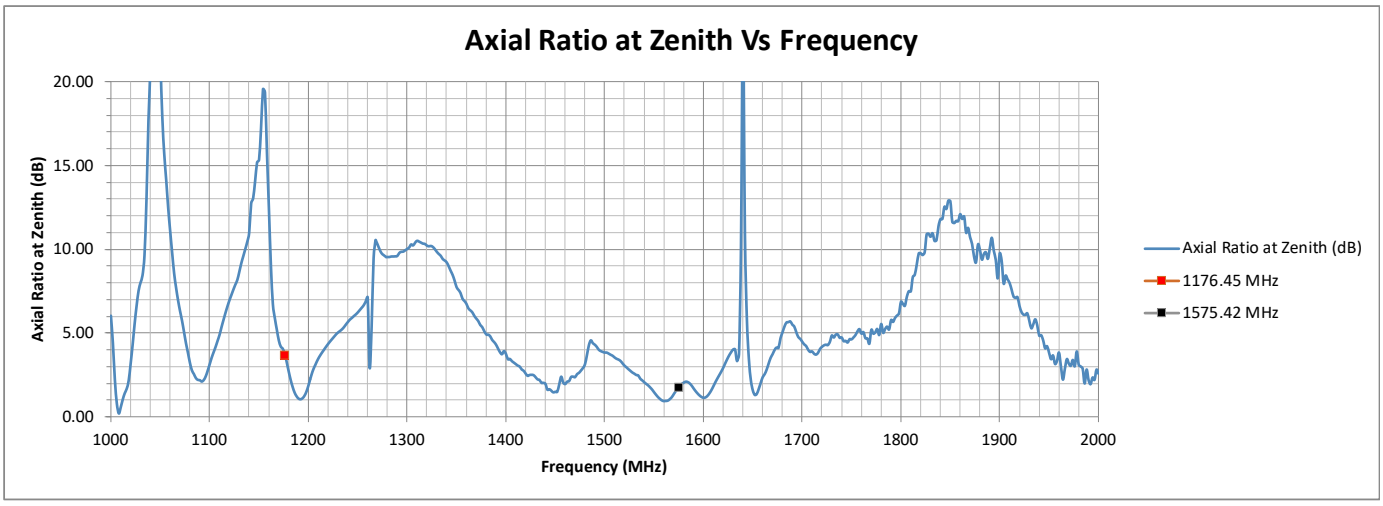
RF Zenith

This page presents the RHCP Gain at Zenith and the Axial Ratio at Zenith as a function of frequency. These measurements indicate how well the antenna performs when receiving signals directly from satellites overhead (zenith direction). A higher RHCP gain ensures strong signal reception, while a lower axial ratio signifies better polarization purity for optimal GNSS performance.







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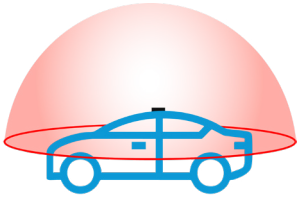
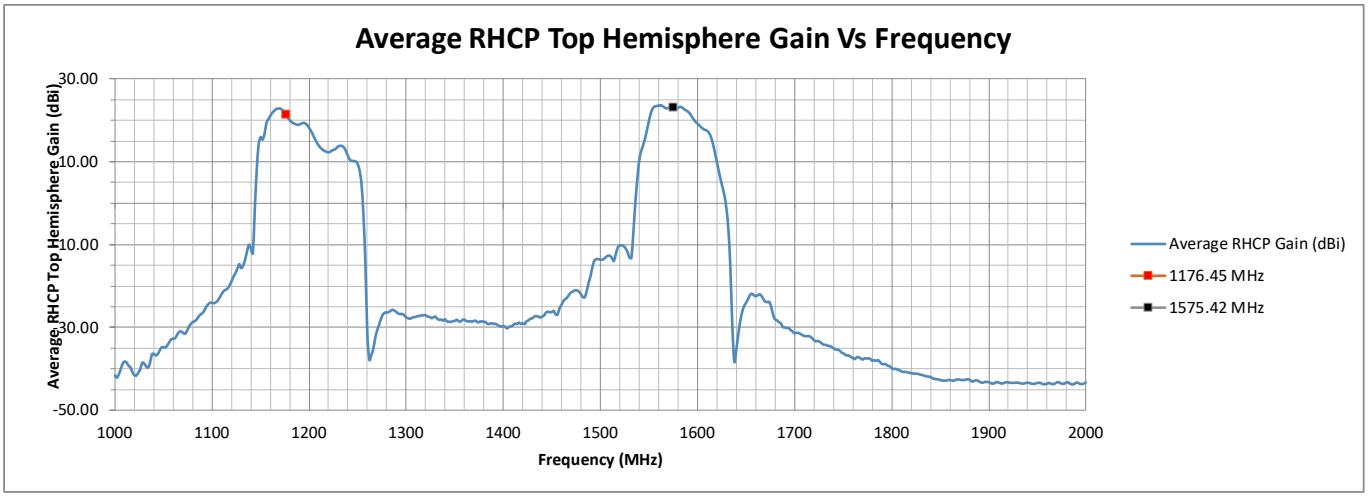
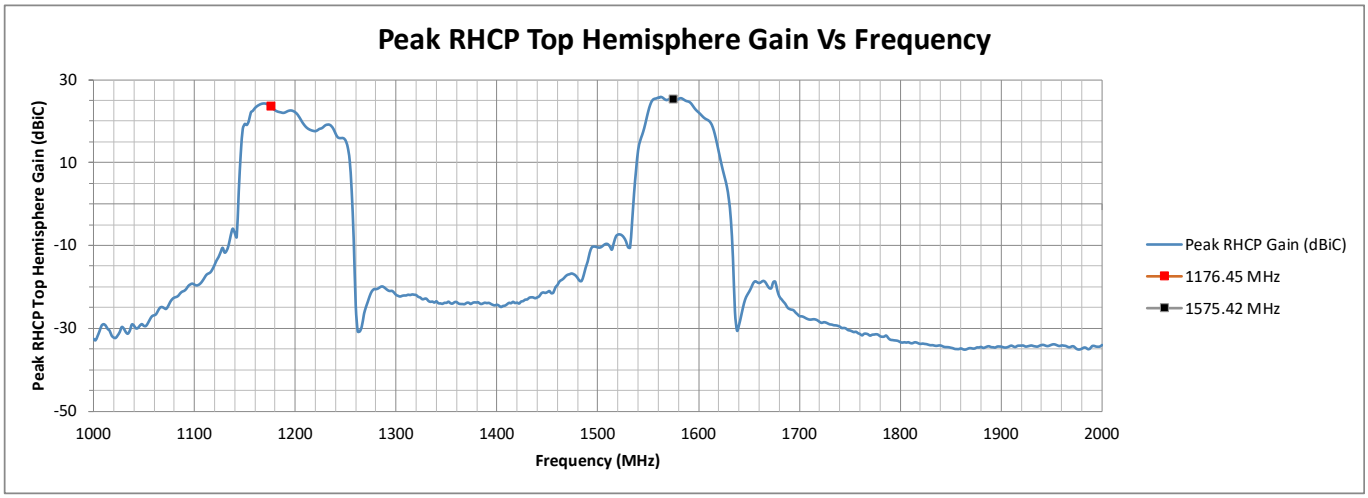
RF Top Hemisphere

The graphs on this page showcase the Average and Peak RHCP Gain in the Top Hemisphere. These measurements assess how effectively the antenna receives signals from satellites positioned in the upper half of the sky. Strong RHCP gain in this region is critical for reliable GNSS reception, especially in environments where satellites may not always be directly overhead.

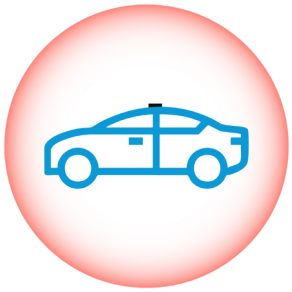


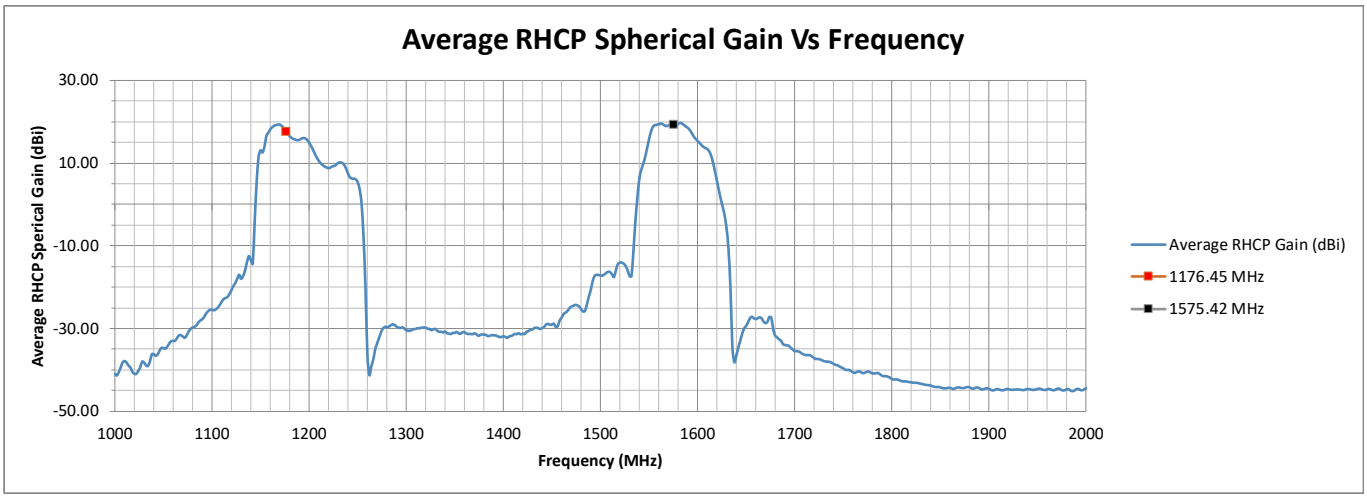


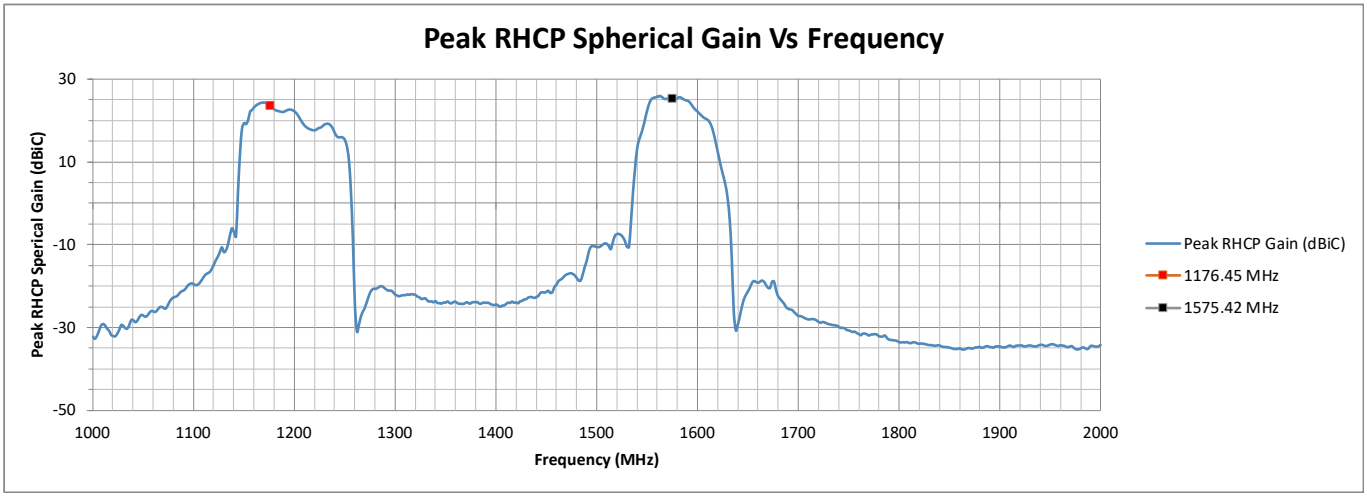


RF Spherical

This page displays the Average and Peak RHCP Gain across the entire spherical coverage of the antenna. These metrics provide a comprehensive view of the antenna's ability to receive signals from satellites at all elevations and directions. Consistently high gain across the sphere ensures strong and stable GNSS reception in a variety of operating conditions.







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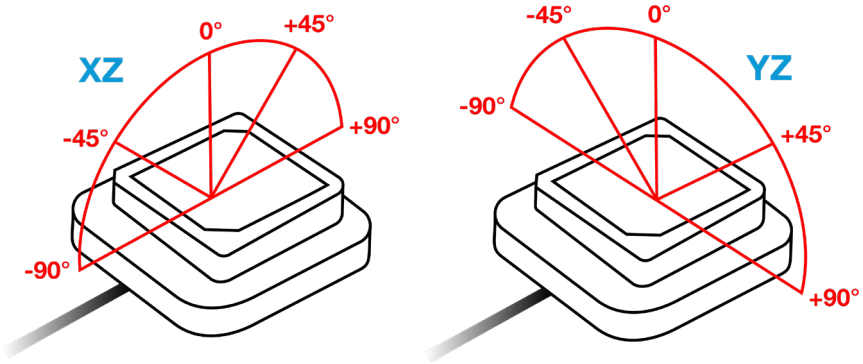
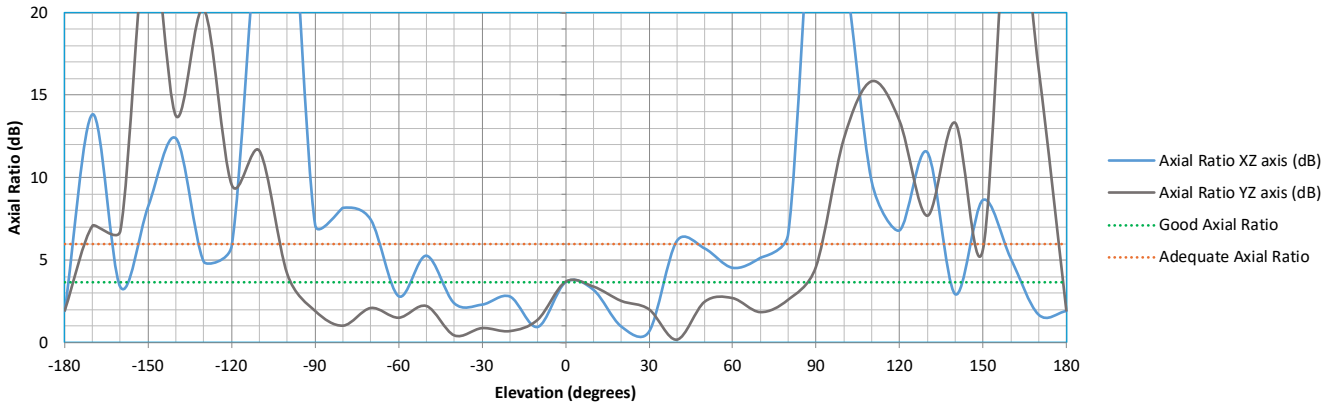
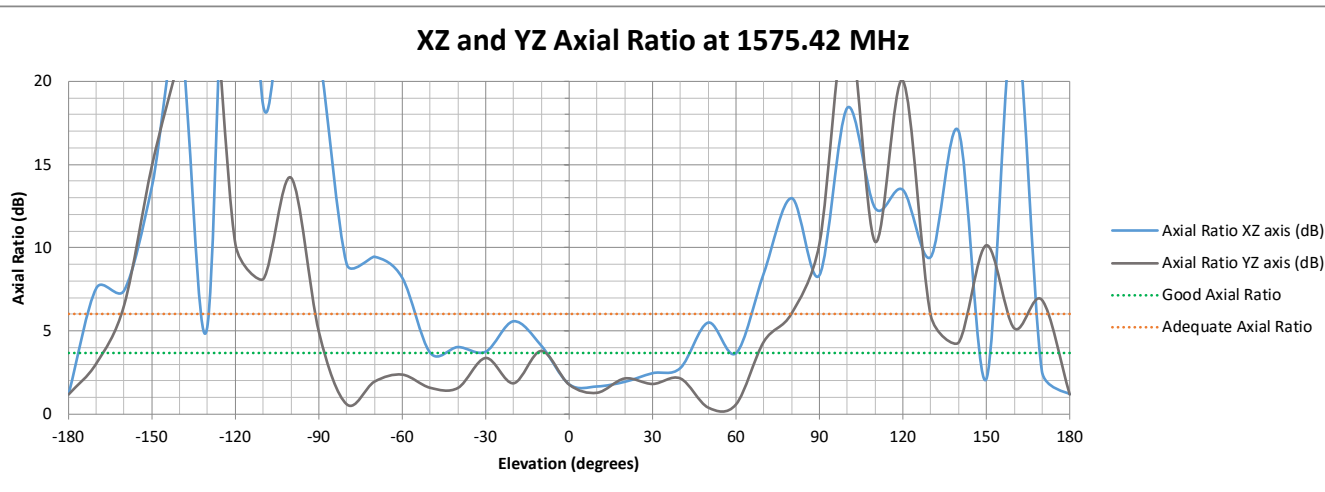
ZX and YZ Plane Axial Ratio Plots (Zenith is at 0 degrees)

This page shows how well the antenna maintains circular polarization at different elevation angles.

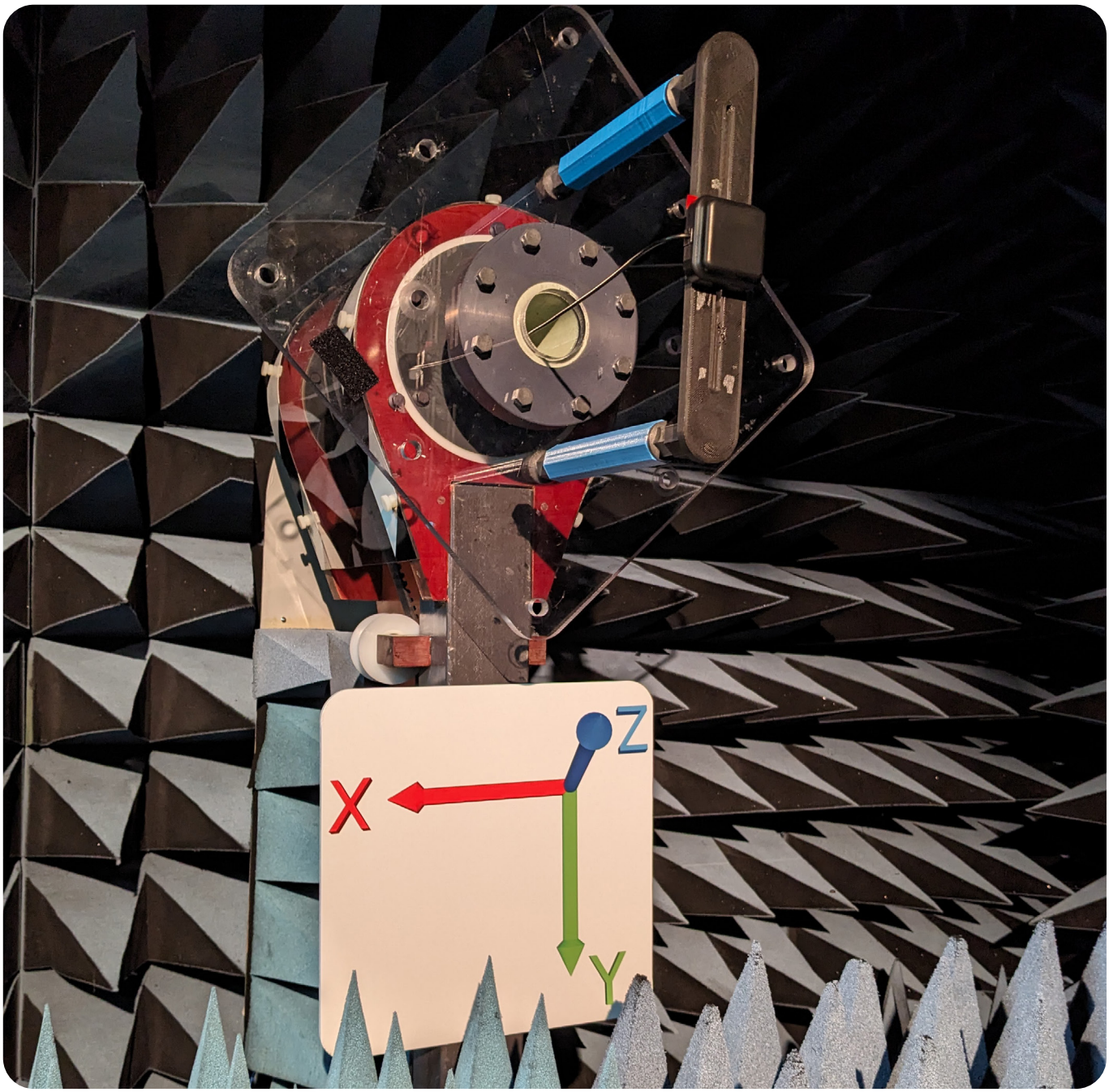
A lower axial ratio ensures better GNSS signal reception, especially at low elevations, which is crucial for applications requiring strong performance in obstructed environments or wide-angle satellite visibility.







Test Setup (in Free Space)



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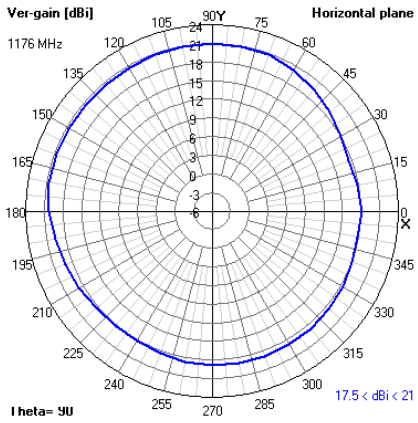
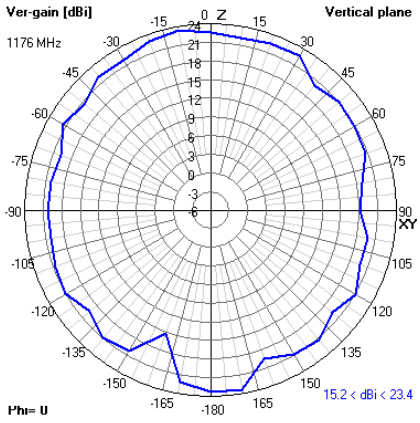
2D Radiation Plots - 1176.45 MHz

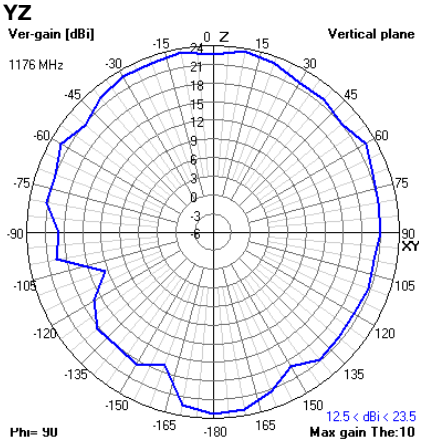
XY



XZ

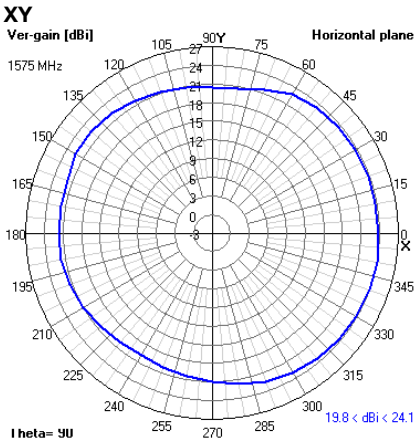


YZ

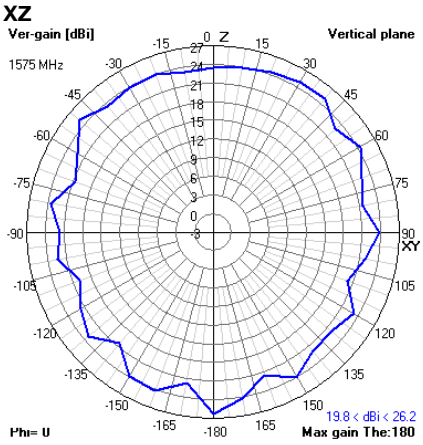


2D Radiation Plots - 1575.45 MHz

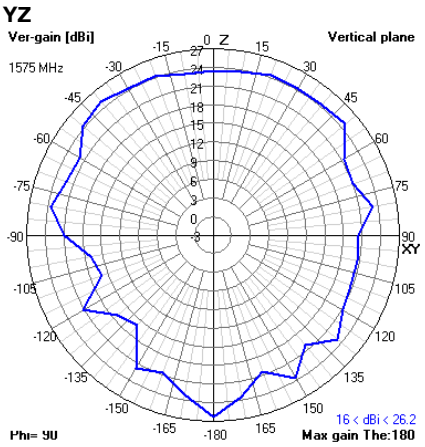
XY



XZ



YZ



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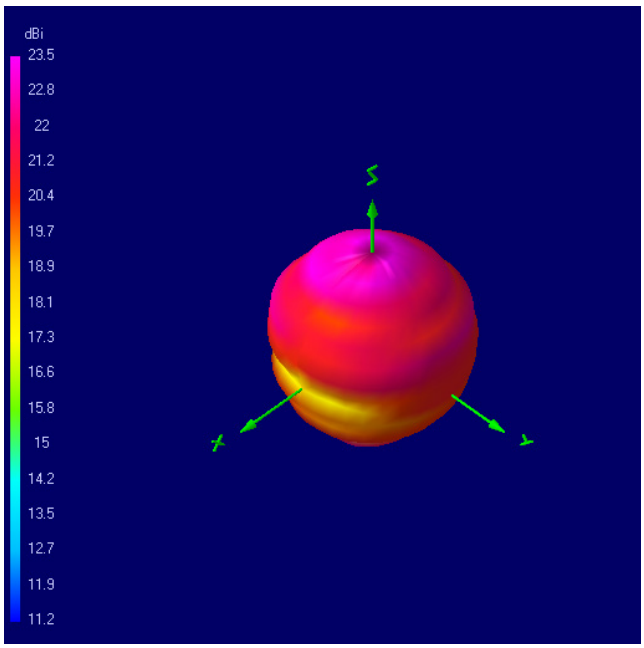
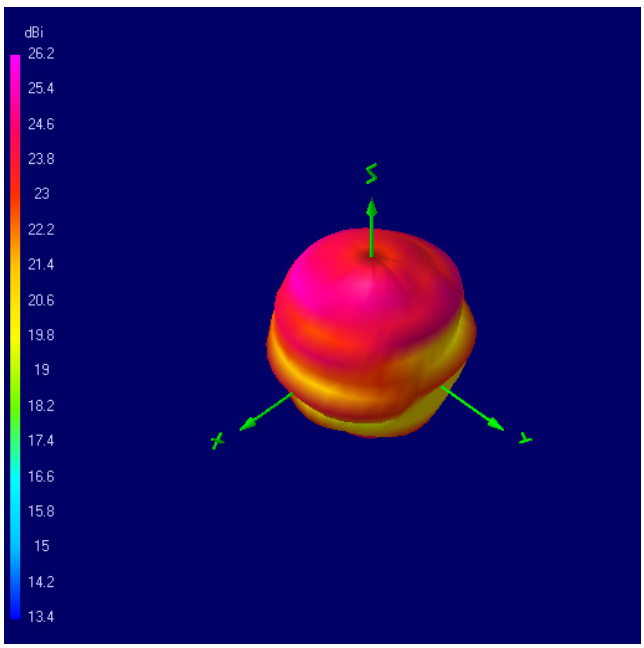
3D Radiation Plots

1176.45 MHz



1575.45 MHz



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

Ordering Details:

Part Number	Description
MIKE19/1M/SMAM/S/S/26	IP67 Active Dual Band GNSS L1/L5 Adhesive/Magnetic Patch Antenna 1M Cable SMA Male Connector
MIKE19/3M/SMAM/S/S/26	IP67 Active Dual Band GNSS L1/L5 Adhesive/Magnetic Patch Antenna 3M Cable SMA Male Connector