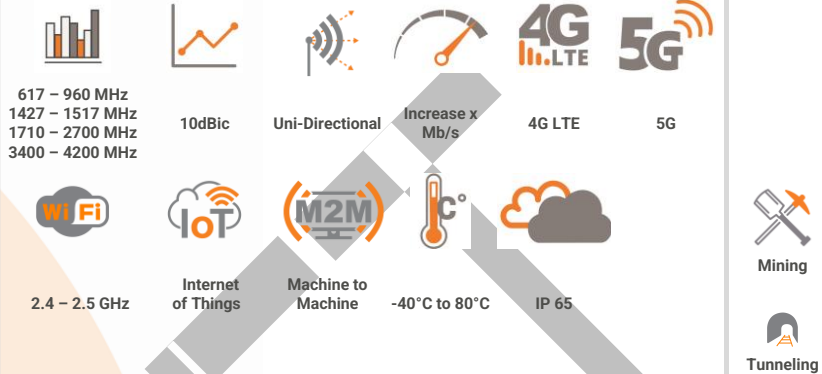
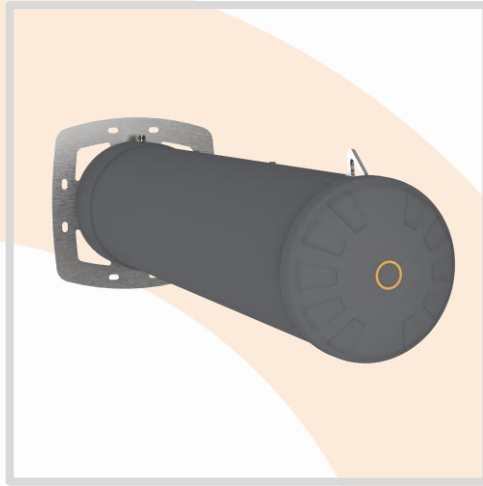


ANTENNAS | HELI-33 SERIES

CIRCULAR POLARISED, DIRECTIONAL 5G TUNNEL ANTENNA (LOW PIM)

617 – 4200 MHz; 10dBic



- Ultra-Wideband Circular Polarised LTE/5G Antenna
- Circular Polarised HELI antenna provides enhanced signal propagation and connection stability within a tunnel
- Uni-directional – Radiates in one direction within a tunnel
- Low PIM antenna (-150dBc) for high power applications
- Ruggedized, water and dust ingress protected (IP 65)
- Ideal for Mining & Tunnel M2M and IoT deployments

Product Overview

The HELI-33 forms part of our HELI antenna series, a circular polarized, ultra-wideband antenna designed for optimal performance across the 617 to 4200 MHz spectrum. It is ideal for cellular and IoT/M2M deployments, where it excels in tunnels, providing robust telemetry and enhancing mining automation. The circular polarization enhances signal propagation around bends, ensuring a reliable connection in non-line-of-sight scenarios and offering immunity to signal-disrupting elements like trains and drilling machinery.

The HELI-33 also meets low PIM requirements with an impressive -150dBc at 2 x 20 W inputs, minimizing interference for critical applications. With a peak gain of 10dBic across the entire operational band from 617 to 4200 MHz, this antenna guarantees consistently strong signal performance. In summary, the HELI-33 is a versatile solution, delivering reliability, resilience, and peak performance for cellular and IoT/M2M deployments in challenging environments, particularly tunnels.

Features

- Ultra-wideband antenna from 617 – 4200 MHz
- Peak gain of 10dBic over the entire frequency range
- Circular polarisation, to improve signal propagation
- Uni-directional – Radiates in one direction
- Intrinsically safe version available on request

Application Areas

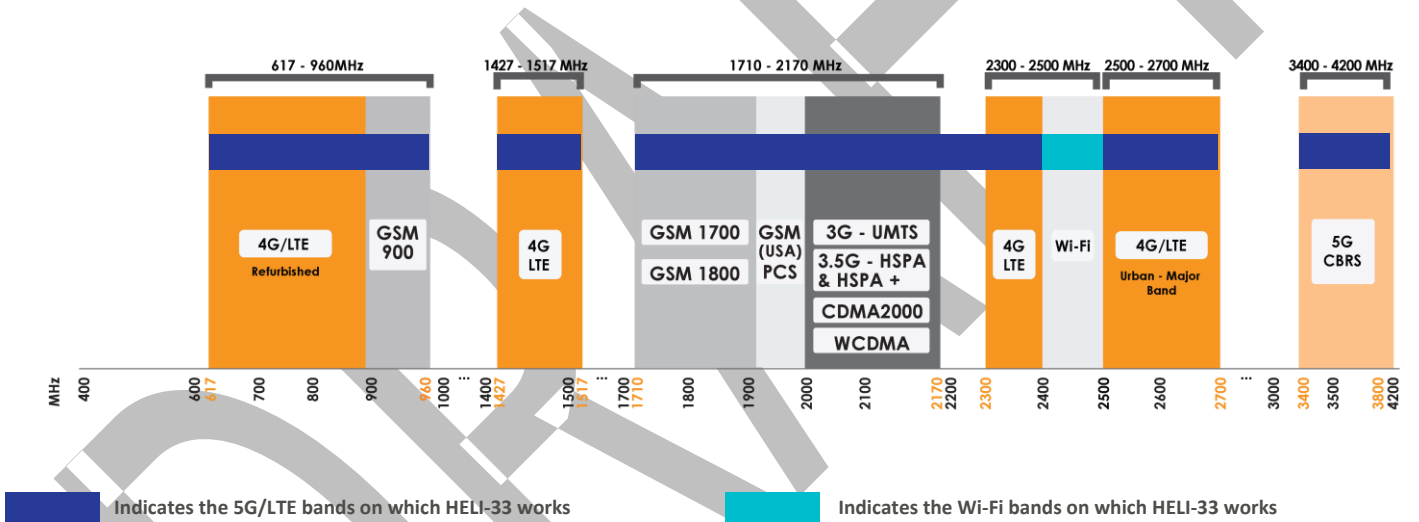
- Supplementing fibre/cable network “Hotspots” to areas to enhance mobility or extend networks to inaccessible areas such as mines and tunnels
- Underground telemetry
- Create complete underground tunnel-wide data networks and internet/LTE and Wi-Fi connectivity
- Seamless connection to personnel using cellular phones, smart devices, and tablets





Frequency Bands

The HELI-33 is a directional antenna that works from | 617 – 960 MHz | 1427 – 1517 MHz | 1710 – 2700 MHz | 3400 – 4200 MHz |



Antenna Derivatives

Product Order Code (SKU)	A-HELI-0033-V1-01
Ports	1
SISO/MIMO	SISO
Coax Cable Type	N/A
Coax Cable Length	N/A
Connector Type	4.3-10 (F)
EAN	6009710927977

**The coax cable & connector are factory-mounted to the antenna*

Electrical Specifications

Frequency Bands:	617 – 960 MHz 1427 – 1517 MHz 1710 – 2700 MHz 3400 – 4200 MHz
Gain (Max):	10dBic @ 617 - 960 MHz 9dBic @ 1427 – 1517 MHz 9.5dBic @ 1710 – 2700 MHz 9.5dBic @ 3400 - 4200 MHz
VSWR:	≤2.5:1
Feed Power Handling:	50 W
PIM Rating:	-150dBc using a 2x20W PIM Tester
Input Impedance:	50 Ohm (nominal)
Polarisation:	Circular (LHCP)
DC short:	Yes

Product Box Contents

Antenna:	A-HELI-0033-V1-01
Mounting Bracket:	65mm U-bolt for pole mount option

Mechanical Specifications

Product Dimensions (L x W):	898 mm x 286 mm x 286 mm
Packaged Dimensions:	1013 mm x 330 mm x 330 mm
Weight:	TBC
Packaged Weight:	TBC
Radome Material:	PVC
Radome Colour:	Grey Pantone 424C
Mounting Type:	Ceiling Mount (12mm ID Eye Hook) Pole Mount (65mm U-bolt)

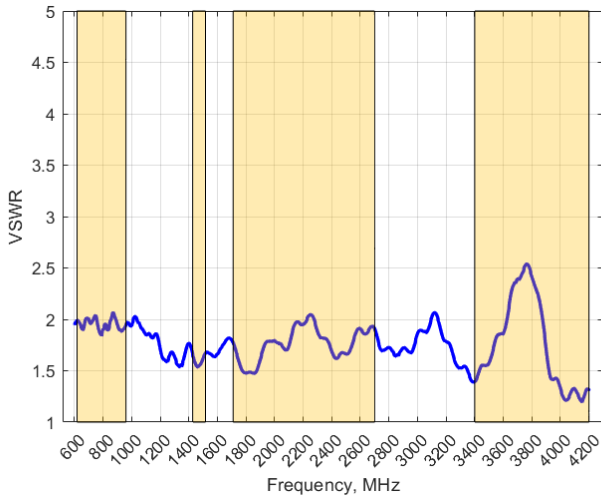
Environmental Specifications, Certification & Approvals

Wind Survival:	≤120 km/h
Temperature Range (Operating):	-40°C to +80°C
Environmental Conditions:	Outdoor/Indoor
Water Ingress Protection Ratio/Standard:	IP 65
Salt Spray:	MIL-STD 810G/ASTM B117
Operating Relative Humidity:	Up to 98%
Storage Humidity:	5% to 95% - non-condensing
Storage Temperature:	-40°C to +80°C
Enclosure Flammability Rating:	UL 94-HB
Impact Resistance:	IK 08
Product Safety & Environmental:	Complies with CE and RoHS standards

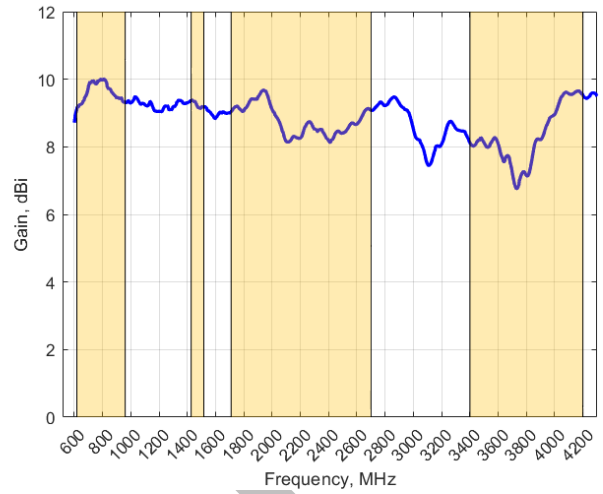


Antenna Performance Plots

VSWR



GAIN (EXCLUDING CABLE LOSS)



Voltage Standing Wave Ratio (VSWR)*

VSWR is a measure of how efficiently radio-frequency power is transmitted from a power source, through a transmission line, into a load. In an ideal system, 100% of the energy is transmitted which corresponds to a VSWR of 1:1.

The HELI-33 delivers superior performance across all bands with a VSWR of $\leq 2.5:1$.

**VSWR measured without a cable*

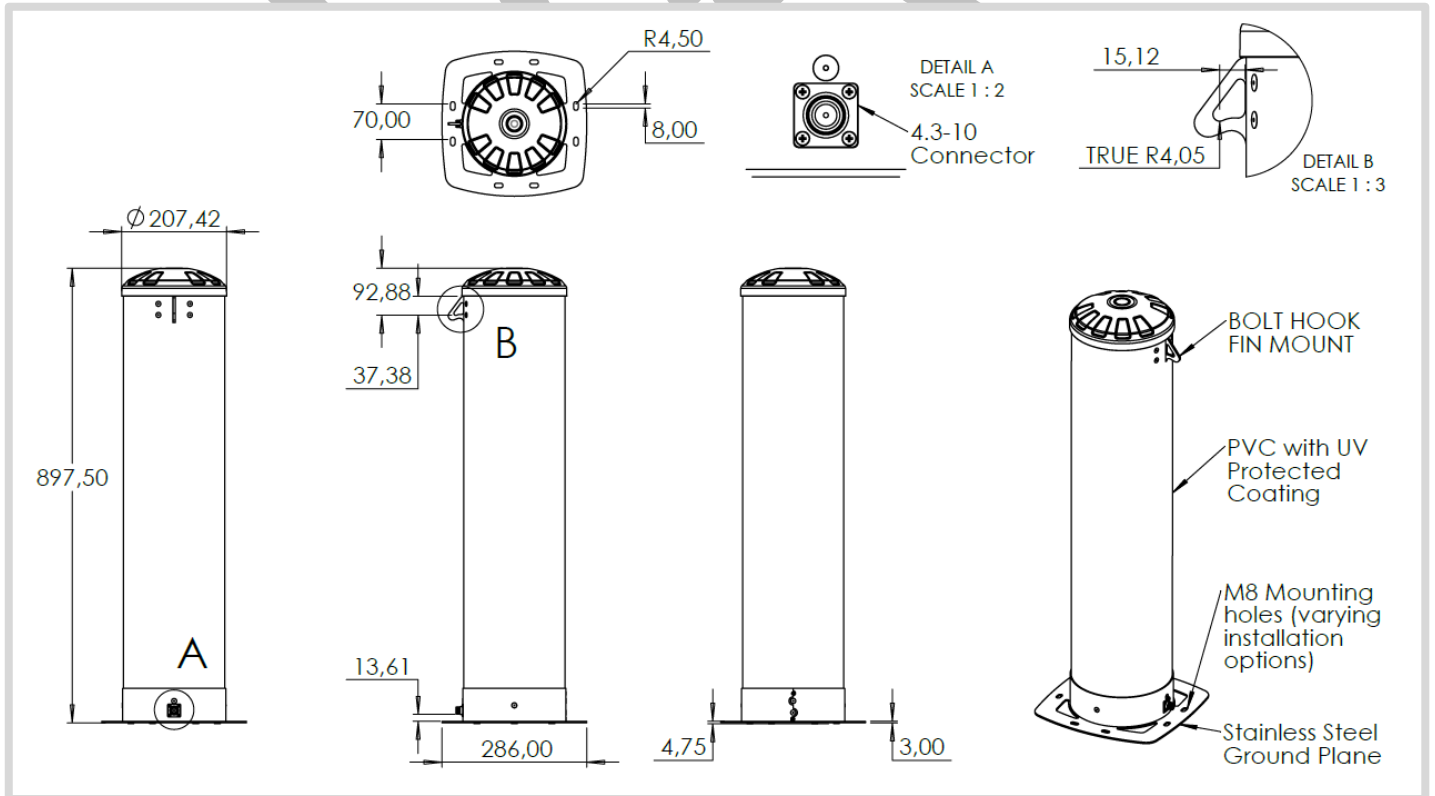
Gain* in dBic

10dBic is the peak gain across all bands from 617 – 4200 MHz

Gain @ 617 – 960 MHz:	10dBic
Gain @ 1427 – 1517 MHz:	9Bic
Gain @ 1710 – 2700 MHz:	9.5dBic
Gain @ 3400 – 4200 MHz:	9.5dBic

**Antenna gain measured with polarisation-aligned standard antenna*

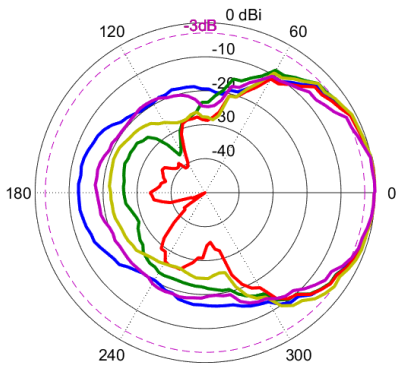
Technical Drawings



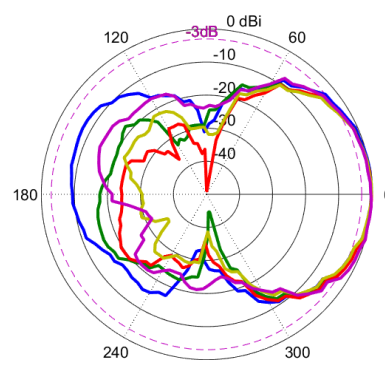
Radiation Patterns

Azimuth: 617 – 960 MHz

Elevation: 617 – 960 MHz



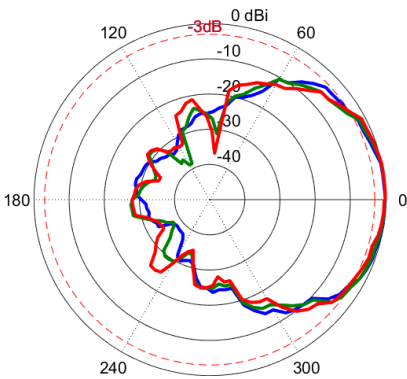
- 617 MHz
- 700 MHz
- 800 MHz
- 900 MHz
- 960 MHz



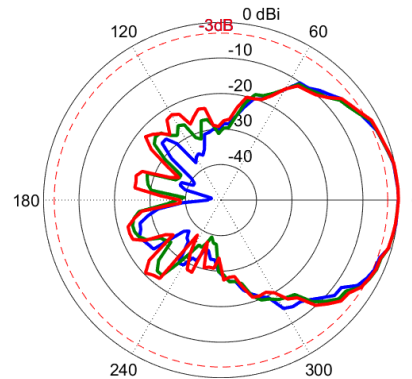
- 617 MHz
- 700 MHz
- 800 MHz
- 900 MHz
- 960 MHz

Azimuth: 1427 – 1517 MHz

Elevation: 1427 – 1517 MHz



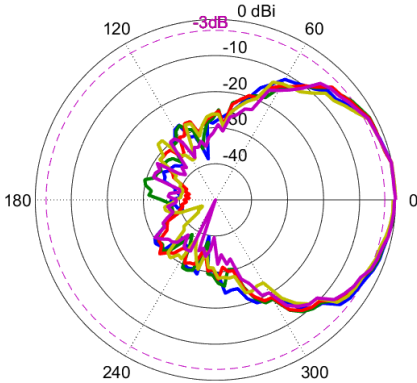
- 1427 MHz
- 1470 MHz
- 1517 MHz



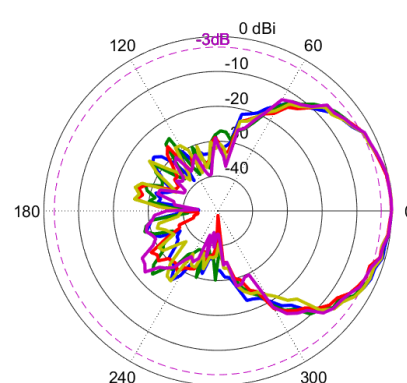
- 1427 MHz
- 1470 MHz
- 1517 MHz

Azimuth: 1710 – 2170 MHz

Elevation: 1710 – 2170 MHz



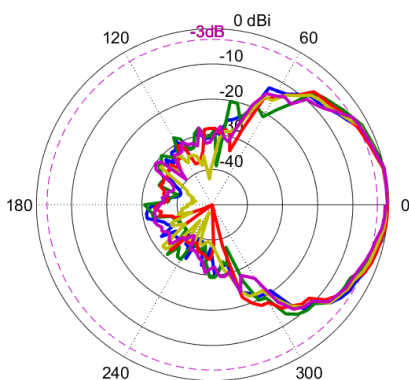
- 1710 MHz
- 1800 MHz
- 1900 MHz
- 2000 MHz
- 2170 MHz



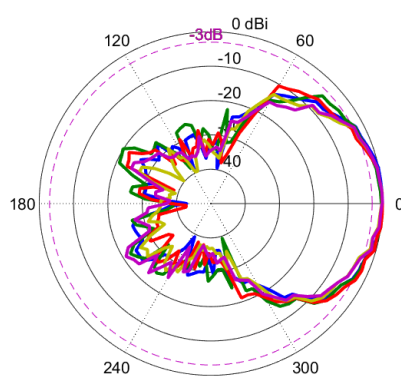
- 1710 MHz
- 1800 MHz
- 1900 MHz
- 2000 MHz
- 2170 MHz

Azimuth: 2300 – 2700 MHz

Elevation: 2300 – 2700 MHz



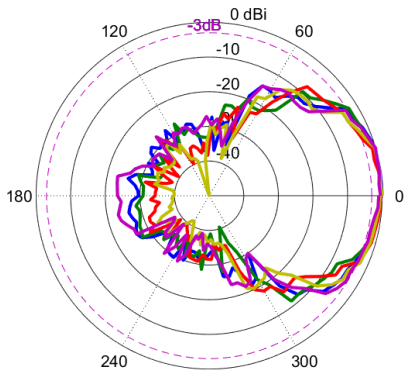
- 2300 MHz
- 2400 MHz
- 2500 MHz
- 2600 MHz
- 2700 MHz



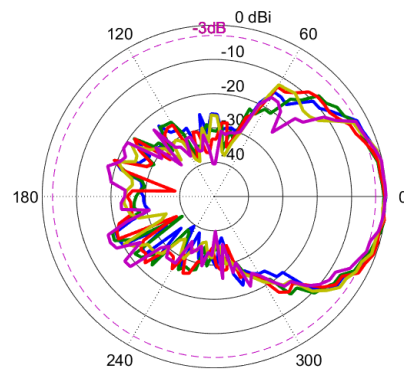
- 2300 MHz
- 2400 MHz
- 2500 MHz
- 2600 MHz
- 2700 MHz

Azimuth: 3400 – 3800 MHz

Elevation: 3400 – 4200 MHz



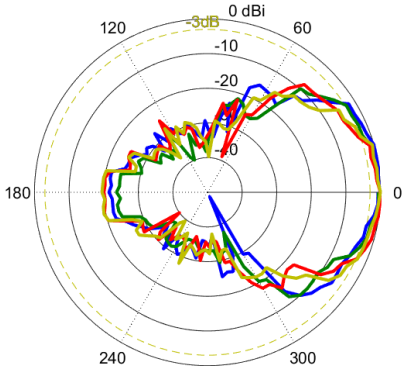
- 3400 MHz
- 3500 MHz
- 3600 MHz
- 3700 MHz
- 3800 MHz



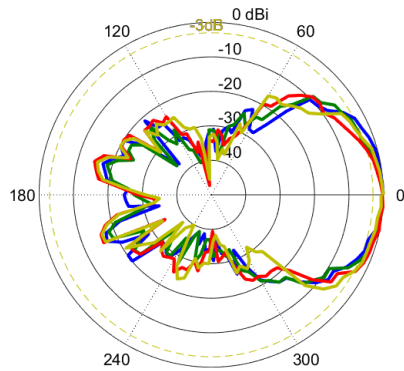
- 3400 MHz
- 3500 MHz
- 3600 MHz
- 3700 MHz
- 3800 MHz

Azimuth: 3900 – 4200 MHz

Elevation: 3900 – 4200 MHz



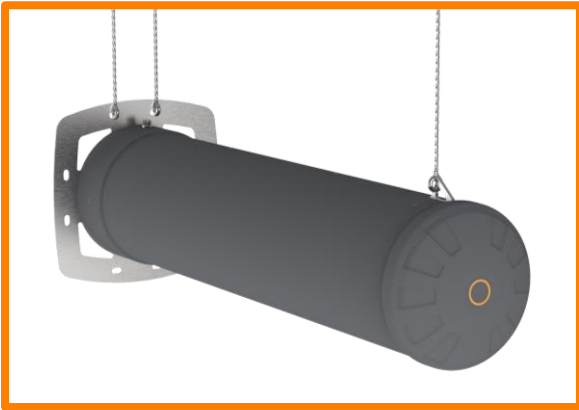
- 3900 MHz
- 4000 MHz
- 4100 MHz
- 4200 MHz



- 3900 MHz
- 4000 MHz
- 4100 MHz
- 4200 MHz

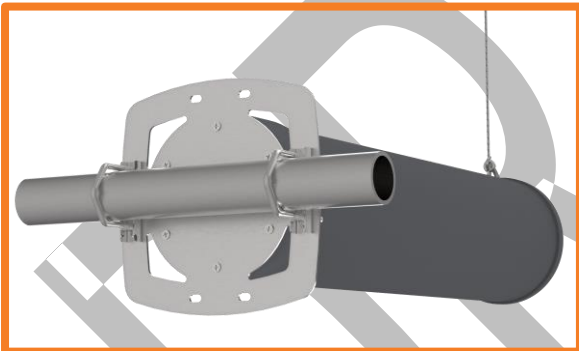
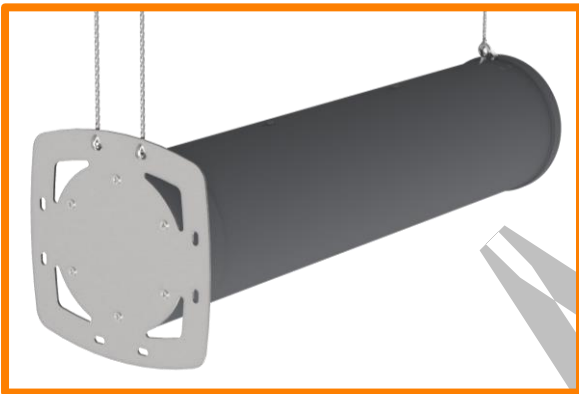


Mounting Options



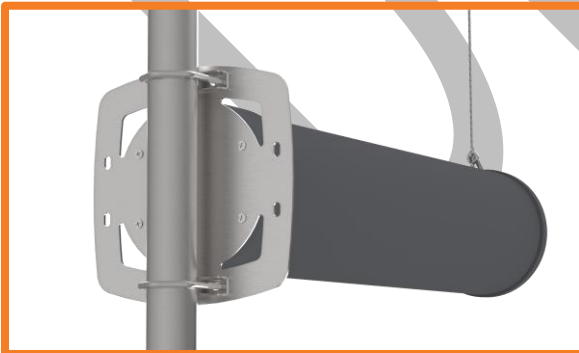
Ceiling Mount

Suspend from ceiling to desired height with cable attached to the M6 eye bolt and one of the mounting holes on the ground plate



Pole/Hanger Bolt Mount

Suspend from the ceiling using the eye bolt and attach the ground plane to a pole or hanger bolt using the included v-bolts



Additional Accessories

See accessories technical specifications on www.poynting.tech

CONTACT POYNTING**Poynting Antennas (Pty) Ltd - Head Office**

Unit 4, N1 Industrial Park,
Landmarks Avenue,
Samrand, 0157, South Africa

Phone: +27 (0) 12 657 0050

E-mail: info@poynting.tech

International Email: sales-global@poynting.tech

Poynting Europe

Regus Business Center Neue Messe Riem
Kronstadter Straße 4
81677 München
Germany

Phone: +49 89 7453 9002

E-mail: sales-europe@poynting.tech

Poynting USA

1804 Owen Court, Suite 104,
Mansfield,
TX 76063
USA

Phone: +1 817 533-8130

E-mail: sales-us@poynting.tech