

ANTENNAS | HELI-5 SERIES

## CIRCULAR POLARISED, DIRECTIONAL MINE/TUNNEL ANTENNA

LTE; 1710 - 2170 MHz, 16 dBi



 1710 – 2170 MHz	 16 dBi	 Increase x Mb/s	 Uni-Directional	 Machine to Machine	 Internet of Things
 4G LTE	 IP 65	 -40°C to +70°C	 Fire Resistant		

- **Circular Polarised HELI antenna provides enhanced signal propagation and connection stability within a tunnel**
- **Covers LTE frequency band 10 from 1710 – 2170 MHz**
- **Left Hand Circular (LHC) polarised**
- **Uni-directional – radiates in one direction in a tunnel**
- **Ruggedized & water ingress protected**
- **Ideal for Mining & Tunnel M2M and IoT deployments**



APPLICATION AREAS

### Product Overview

The HELI-5 is a high gain, directional antenna for LTE applications, which complements our MinePoynt mine and tunnel antennas. The combination of MinePoynt beam antennas for long distance thru-tunnel links with this directional antenna, exploits Poynting's fifteen years' experience in designing and manufacturing antennas for underground mining communication and data networks. This antenna is also suitable for oil/gas chemical environments where IS equipment is required. In tests the data rate and range achieved with this antenna was greater than those obtained when using linear polarised panel antennas of the same gain. The hardy construction of the antenna makes it ideal for a mining environment.

### Features

- High gain over the 1710 -2170 MHz frequency range
- Uni-directional antenna
- Proven antenna performance giving maximum range
- Improved performance due to circularly polarised
- Ideal for mining and tunnelling applications
- Intrinsically safe version available on request

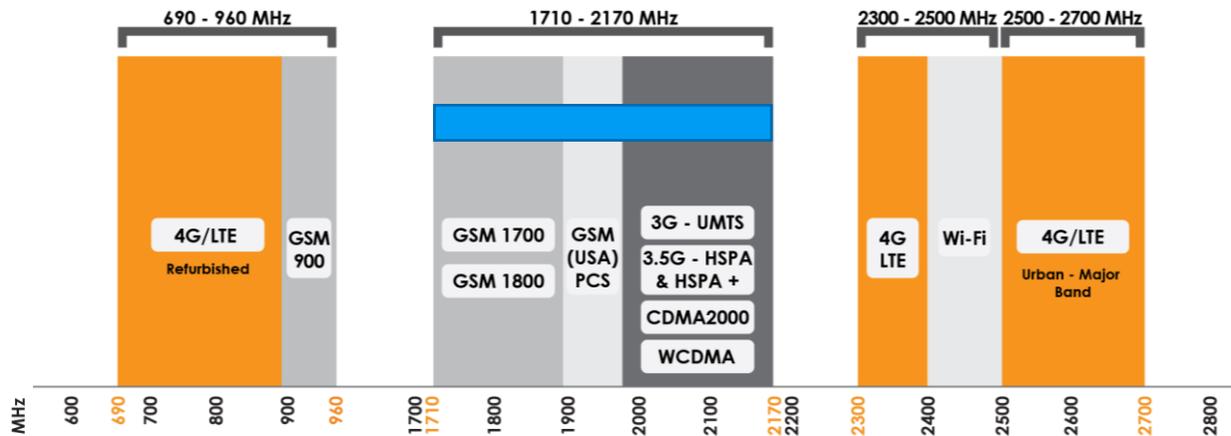
### Application Areas

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



## Frequency Bands

The HELI-5 is an LTE antenna that works from 1710 – 2170 MHz



Indicates the LTE bands on which HELI-5 works

## Antenna Overview

Ports	1
SISO / MIMO	SISO
Frequency Bands	1710 -2170 MHz
Polarisation	Left Hand Circular Polarised
Peak Gain	16 dBi
Coax Cable Type	N/A
Coax Cable Length	N/A
Connector Type	N-Type (Female) Bulkhead

## Electrical Specifications

Frequency bands:	1710 – 2170 MHz
Gain (max):	16 dBi
VSWR:	<1.5:1 over 90% of the band
Feed power handling:	30 W
Input impedance:	50 Ohm (nominal)
Polarisation:	LHC <i>*RHC option available upon request</i>
Coax cable loss:	N/A
DC short:	No

## Coax Cable & Connector Type

Cable length:	N/A
Coax cable type:	N/A
Connector type:	N-Type (Female) Bulkhead <i>*The connector is factory mounted to the antenna</i>

## Product Box Contents

Antenna:	A-HELI-0005-V1-01
Mounting bracket:	65mm U-bolt for pole mount option

## Ordering Information

Commercial name:	HELI-5
Order product code:	A-HELI-0005-V1-01
EAN number:	6009880915446

## Mechanical Specifications

Product dimensions	245 mm x 197 mm x 514mm
Packaged dimensions:	280mm x 230mm x 550mm
Weight:	2.10 kg
Packaged weight:	2.30 kg
Radome material:	PVC
Radome colour:	Grey
Mounting Type:	Ceiling Mount (12mm ID Eye Hook) Pole Mount (65mm U-bolt)

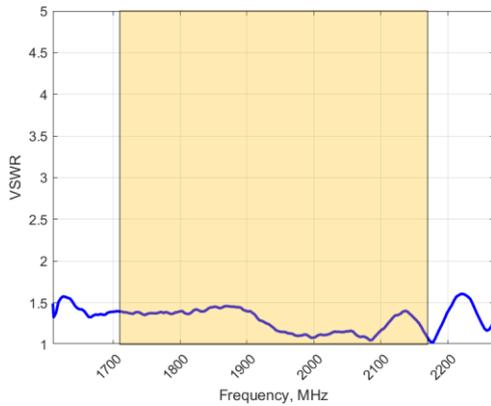
## Environmental Specifications, Certification & Approvals

Wind Survival:	≤120 km/h
Temperature Range (Operating):	-40°C to +70°C
Environmental Conditions:	Outdoor/Indoor
Water ingress protection ratio/standard:	IP 65
Salt Spray:	MIL-STD 810F/ASTM B117
Operating Relative Humidity:	Up to 98%
Storage Humidity:	5% to 95% - non-condensing
Storage Temperature:	-40°C to +70°C
Enclosure Flammability Rating:	UL 94-HB
Impact resistance:	IK 08
Product Safety & Environmental:	Complies with CE and RoHS standards

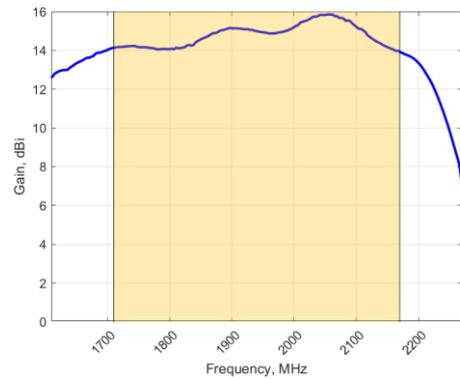


Antenna Performance Plots

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-5 delivers superior performance across all bands with a VSWR of 1.5:1 or better across 90% of the bands.

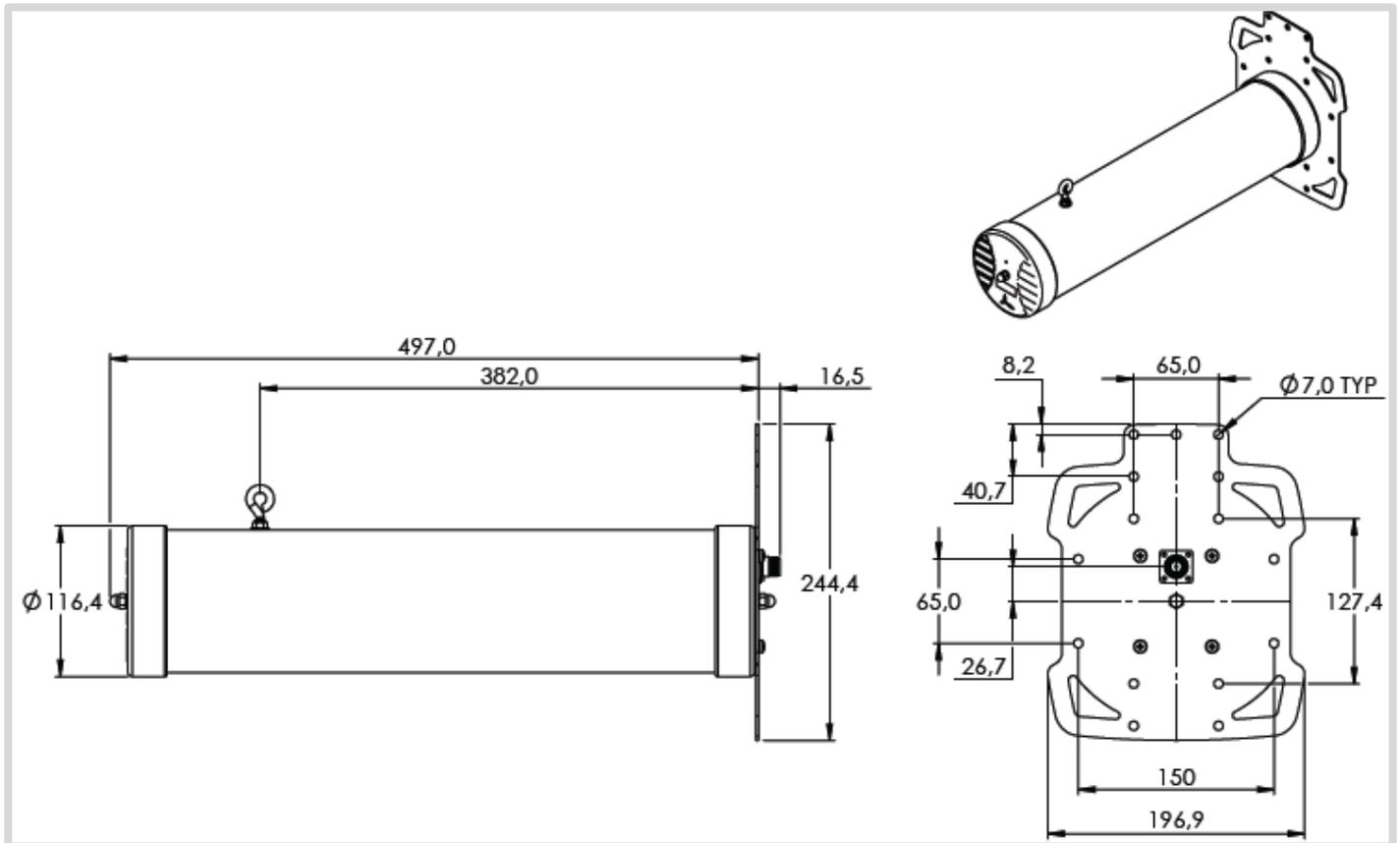
Gain\* in dBi

16 dBi is the peak gain across all bands from 1710 – 2170 MHz

Gain @ 1710 – 2170 MHz: 16 dBi

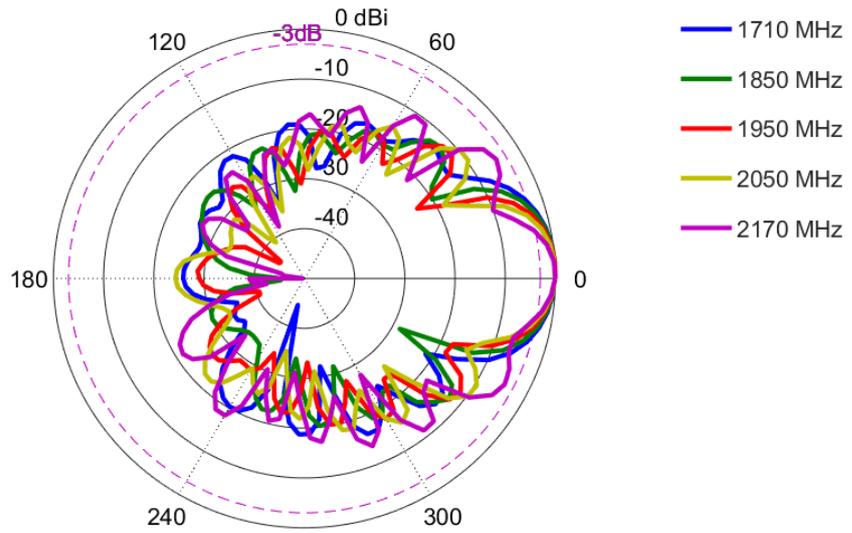
\*Antenna gain measured with polarisation aligned standard antenna

Technical Drawings

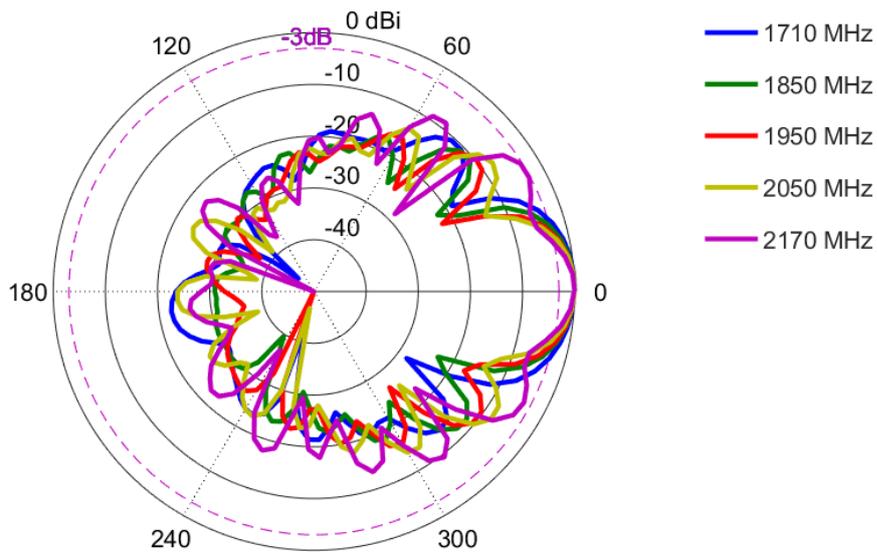


**Radiation Patterns**

Azimuth: 1710 – 2170 MHz



Elevation: 1710-2170 MHz

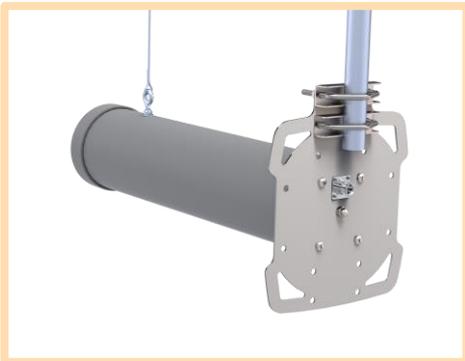


## Mounting Options



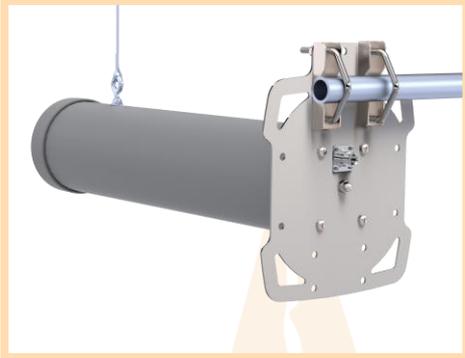
### Ceiling Mount

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 ceiling using the eye bolt and attaching the ground plane to a pole or hanger bolt using the included u-bolts.



## Contact Poynting

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