

## ANTENNAS | HELI-8IS

# 2400 – 2500 MHZ HIGH GAIN MINE/TUNNEL ANTENNA



- **Circular polarised helical antenna**
- **Wi-Fi compatible**
- **Bi-directional**
- **Ruggedised**
- **Future proof**



Mining



Tunnelling



Urban



MASC

APPLICATION AREAS

## Product Overview

This high gain directional antenna compliments our Wi-Fi MinePoynt tunnel and mine 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 data networks. This antenna is also suitable for oil/gas chemical environments where IS equipment is required. The HELI 8 IS tunnel antenna is the ideal antenna for 2.4-2.5 GHz wireless applications in tunnels. In tests, both the data rate and range achieved with this antenna was greater than obtained when using linearly polarized panel antennas of the same gain. The hardy construction of this antenna makes it ideal for the mining environment. The A-HELI-0008 IS is an Intrinsically Safe antenna with high resistivity non static radome. This antenna is also suitable for oil/gas chemical environments where IS equipment is required. A-HELI-0008 IS is a bi-directional antenna whilst the closely related A-HELI-0003 fires in one direction. This antenna gives you a low cost network infrastructure for current voice and data needs in mines and tunnels.

## Features

- Proven antenna performance giving maximum range in all directions
- Ideal where the other devices used polarisation could change
- High gain over the 2400 MHz Wi-Fi band
- Versatile installation mounting options
- Lightweight

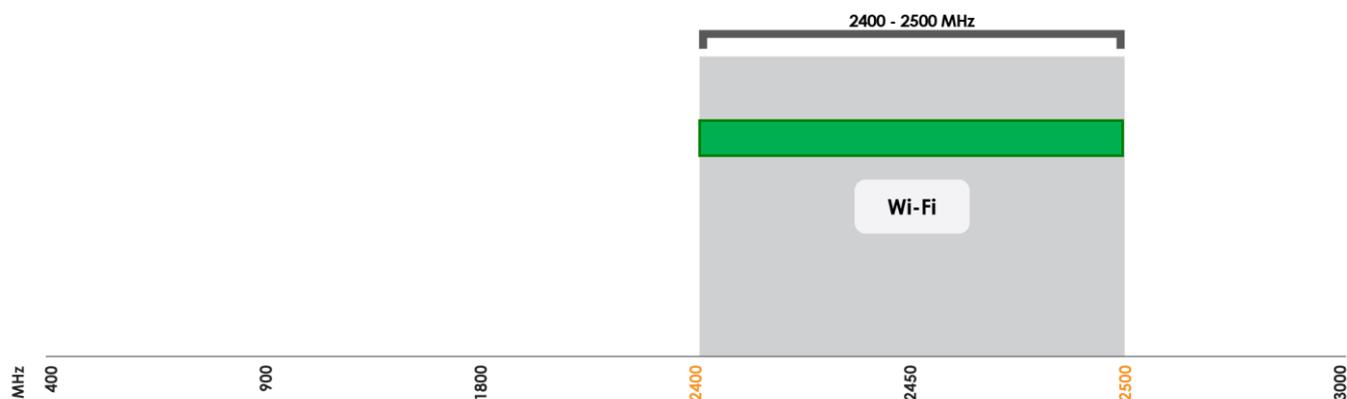
## Application Areas

- Supplementing fibre/cable networks by providing wireless "Hotspots" to areas to enhance mobility or extend networks to inaccessible areas such as mines and tunnels
- Underground telemetry
- Creation of complete in tunnel/mine wide data networks and or internet connectivity
- Seamless connection to personnel using VOIP phones, smart devices and tablets
- M2M applications
- Extension/deployment of wireless connectivity on oil rigs, refinery, factories where intrinsically safe equipment is required



### Frequency Bands

The HELI-8IS is a wide-band antenna that works from 2400 – 2500 MHz



Indicates the WIFI bands on which HELI-8IS works

### Antenna Overview

Ports	1
SISO / MIMO	SISO
Frequency Bands	2400 - 2500 MHz
Peak Gain	14 dBi
Coax Cable Type	N/A
Coax Cable Length	N/A
Connector Type	N-type(f)

## Electrical Specifications

Frequency bands:	2400-2500 MHz
Gain (max):	14 dBi
VSWR:	<3:1
Feed power handling:	30 W
Input impedance:	50 Ohm (nominal)
Polarisation:	Left-Hand Circular
DC short:	No

## Coax Cable & Connector Type

Cable length:	Up to 15m HDF 195 (extension)
Coax cable type:	N/A
Connector type:	N-type solder Jack, panel mount

*\*The coax cable & connector is factory mounted to the antenna*

## Product Box Contents

Antenna:	A-HELI-0008IS
Mounting bracket:	Two 6mm eyebolts for ceiling mount

## Ordering Information

Commercial name:	HELI-8IS
Order product code:	A-HELI-0008IS
EAN number:	0707273468772

## Mechanical Specifications

Product dimensions	2050 mm x 140 mm x 140 mm
Packaged dimensions:	2100 mm x 150 mm x 190 mm
Weight:	5.1 kg
Packaged weight:	6.02 kg
Radome material:	PVC
Radome colour:	PANTONE 447 C RAL 000 25 00
Mounting Type:	Ceiling Mount

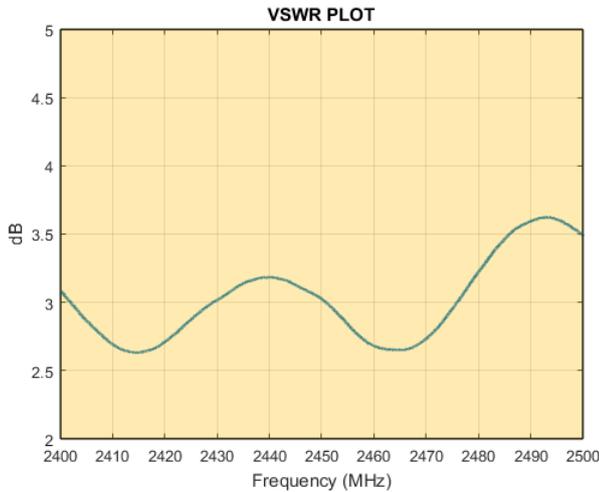
## Environmental Specifications, Certification & Approvals

Wind Survival:	<120 km/h
Temperature Range (Operating):	-20°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:	-20°C to +70°C
Enclosure Flammability Rating:	UL 94-HB
Impact resistance:	IK 08
Product Safety & Environmental:	Complies with CE and RoHS standards

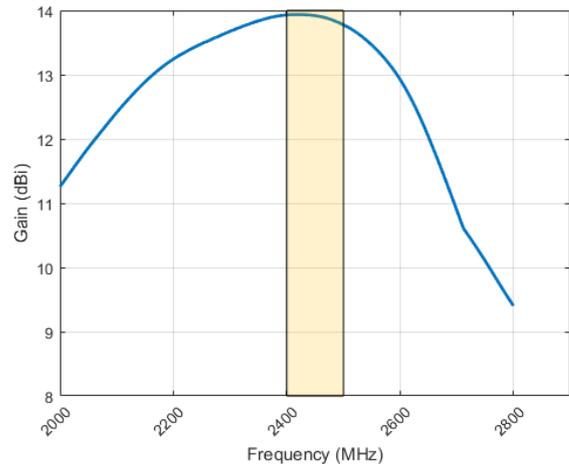


**Antenna Performance Plots**

**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-8IS delivers superior performance across all bands with a VSWR of 3:1 or better across 90% of the bands.

**Gain\* in dBi**

14 dBi is the peak gain across all bands from 2400 – 2500 MHz

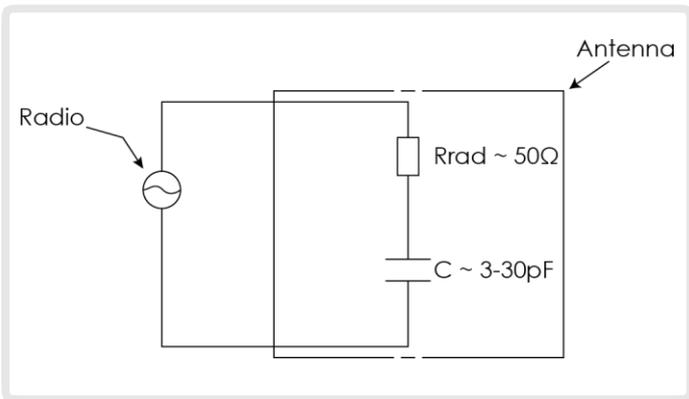
Gain @ 2400 – 2500 MHz: 14 dBi

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

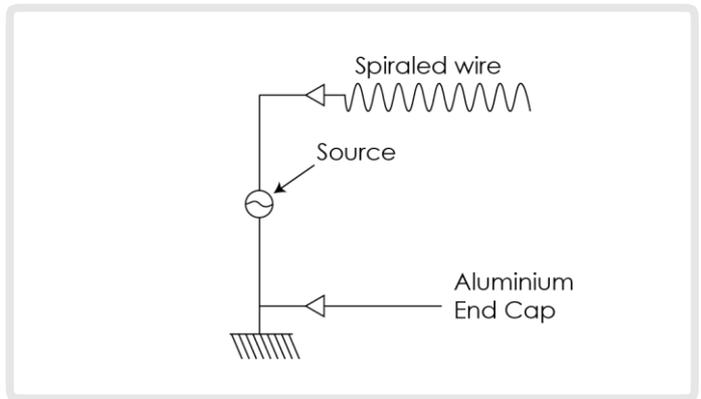
**Intrinsically Safe Electrical Diagram**

- Capacitance as measured between the inner spiral and the base plate 3-30 pF
- Frequency 2.4-2.5 GHz
- The A-HELI-0008 is a transducer that transforms the electrical currents and voltages received at its input terminals and radiates this energy in the form of an electromagnetic wave (and visa-versa)

**Equivalent circuit**



**Electrical schematic A-HELI-0003**

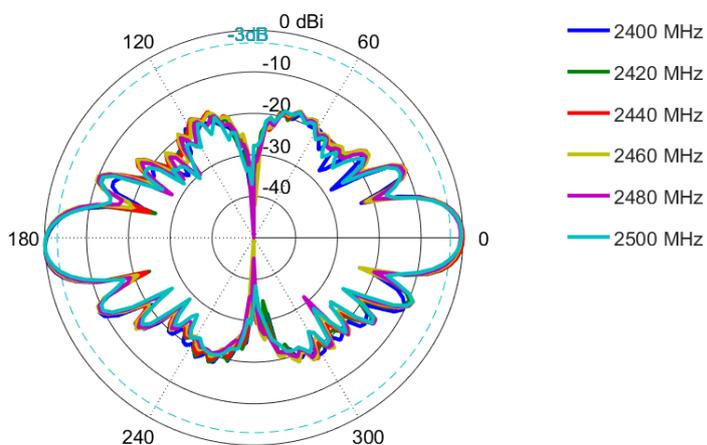


- Pmax = 87 mW
- Vmax = 2,95V
- Imax = 60mA

Surface resistivity: 1 mΩ/□ to 15Ω/□

## Radiation Patterns

Azimuth & Elevation: 2400 – 2500 MHz



## Contact Poynting

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