

## ANTENNAS | HELI-3IS

# HELI-3IS

2400 - 2500 MHZ HIGH GAIN INTRINSICALLY SAFE MINE/TUNNEL ANTENNA



2400 - 2500  
MHz

17.5 dBi

VSWR  
< 2.0:1



-20°C to +70°C

IP 65

UL 94-HB



Increase  
x Mb/s



- Circular polarised helical antenna
- WiFi compatible
- Uni-directional
- Ruggedised
- Future proof

### 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 A-HELI-0003 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-0003 IS is a directional antenna whilst the closely related A-HELI-0008 fires in both directions (Bi – Directional). This antenna give 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
- Intrinsically Safe with high resistivity non static radome
- Versatile installation mounting options.
- Lightweight


### Application Areas

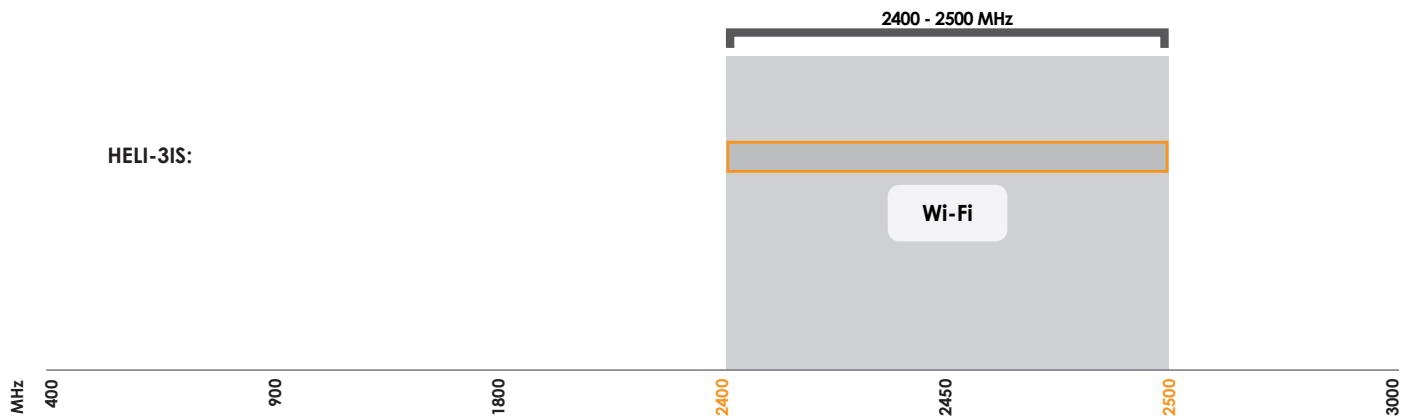
- Supplementing fibre/cable networks by providing wireless "Hotspots" to areas to enhance mobility or extend networks to inaccessible areas such as mines and tunnels
- Underground telemetry
- Creation of complete in tunnel/mine wide data networks and or internet connectivity
- Seamless connection to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



## Frequency bands

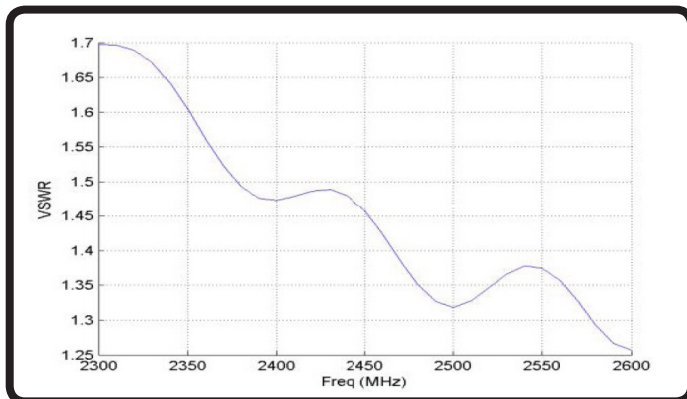
The HELI-3IS is a wide-band antenna that works from 2400 - 2500 MHz

 Indicates the bands on which this antenna works



## Antenna performance plots

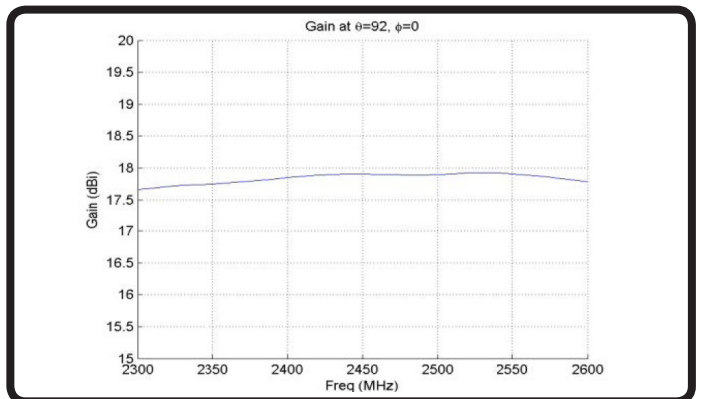
### VSWR:



### 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-3IS delivers superior performance across all bands with a VSWR of < 2.0:1 or better.

### Gain: (excluding cable loss)



### Gain\* in dBi

17.5 dBi is the peak gain across all bands from 2400 - 2500 MHz

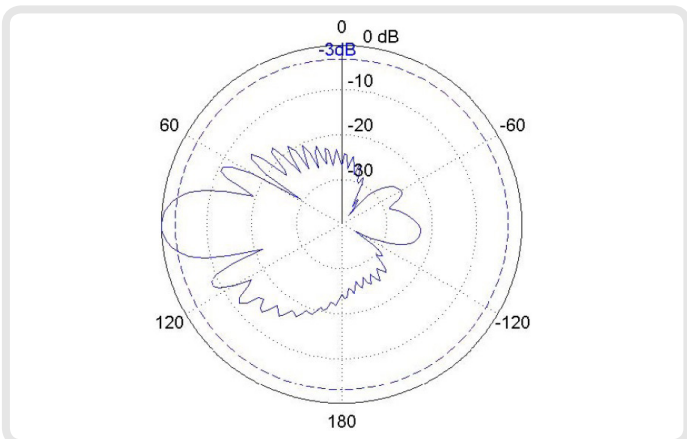
Gain @ 2400-2500 MHz:

17.5 dBi

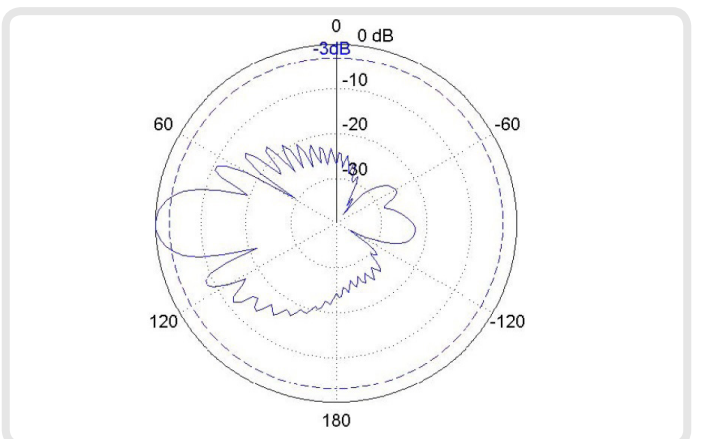
\*Antenna gain measured with polarisation aligned standard antenna

## Radiation patterns

### Azimuth: 2400 - 2500 MHz (side view)



### Elevation: 2400 - 2500 MHz (top view)



## Electrical specifications

Frequency bands:	2400 - 2500 MHz
Gain (Max):	17.5 dBi
VSWR:	<2.0:1
Feed power handling:	30 W
Input impedance:	50 Ohm (nominal)
Polarisation:	Right-hand Circular
DC Short:	No
Connector type:	N-type female

## Environmental specifications

Temperature range (operating):	-20°C to +70°C
Environmental conditions:	Outdoor/Indoor
Operating relative humidity:	Up to 98%
Storage humidity:	5% to 95% - non condensing
Storage temperature:	-20°C to +70°C
Flammability rating:	UL 94-HB

## Ordering Information

Commercial name:	HELI-3IS
Order Product Code:	A-HELI-0003IS
EAN number:	0707273468734

## Additional Accessories Available

Extension Cables:	Up to 15m HDF 195
Various connectors available	

For more detailed information and availability in your region, visit our web site: [www.poynting.tech](http://www.poynting.tech)

## Contact Poynting

### Poynting Antennas (Pty) Ltd - Head Office

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**E-mail:** [sales@poynting.co.za](mailto:sales@poynting.co.za)

## Mechanical specifications

Product dimensions (L x W x D):	1050 mm x 150 mm x 120 mm
Packaged dimensions:	1060 mm x 160 mm x 160 mm
Weight:	2.35 kg
Packaged weight:	2.6 kg
Radome material:	PVC
Radome colour:	PANTONE 447 C RAL 000 25 00

## Product box contents

Antenna:	A-HELI-0003IS
Mounting bracket:	Two 6mm eye-bolts for ceiling mount

*The connector is factory mounted to the antenna*



## Certification Approvals and Standards

Water Ingress Protection Ratio/Standard:	IP 65 (NEMA 4X)
Impact resistance:	IK 08
Salt Spray:	MIL-STD 810F /ASTM B117
Product Safety:	Complies with UL, CE, EN, CSA and IEC standards



### HELI-3IS

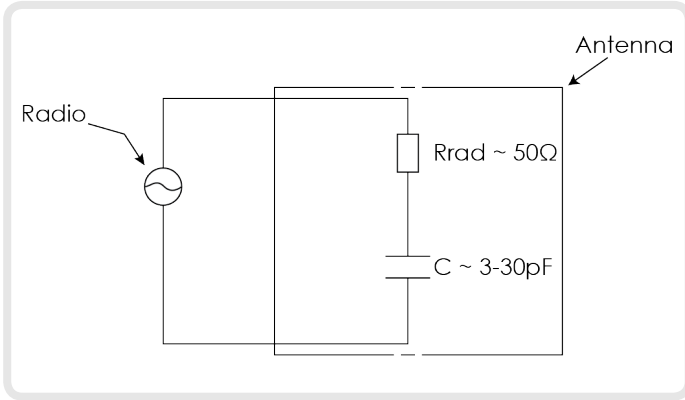
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Product Specifications may change without prior notice  
Revised: July 2017

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2008  
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[www.poynting.tech](http://www.poynting.tech)

## 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-0003 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)

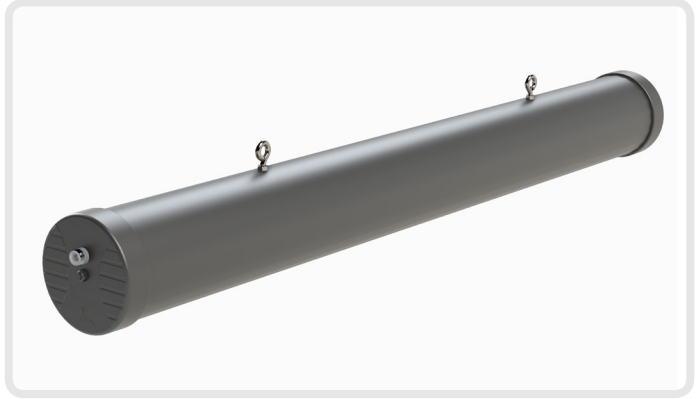
## Equivalent circuit



- $P_{max} = 87 \text{ mW}$
- $V_{max} = 2,95\text{V}$
- $I_{max} = 60\text{mA}$

Surface resistivity:  
 $1\text{m}\Omega/\square$  to  $15\Omega/\square$

## A-HELI-0003-IS



## Electrical schematic A-HELI-0003

