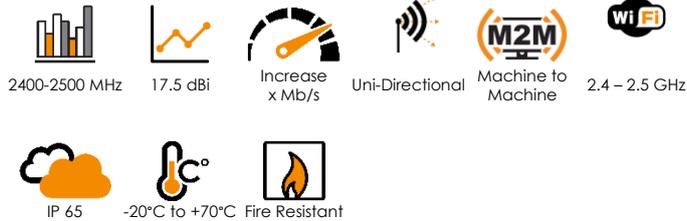


# HELI-3 SERIES

ANTENNAS | HELI-3 SERIES

## CIRCULAR POLARISED, DIRECTIONAL MINE/TUNNEL ANTENNA 2400 - 2500 MHz, 17.5 dBi (Intrinsically Safe)



- Circular polarised HELI antenna provides enhanced signal propagation and connection stability within a tunnel
- Uni-directional – radiates in one direction in a tunnel
- Covers Wi-Fi band from 2400 – 2500 MHz
- Careful mechanical design provides ruggedness, water and dust resistance (IP 65)
- Ideal for Mining & Tunnel M2M and Wi-Fi deployments
- Intrinsically safe



Mining



Tunnelling



MASC



Urban

APPLICATION AREAS

### Product Overview

The HELI-3-IS is a high gain, directional antenna which complements 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. The HELI-3-IS is an intrinsically safe (IS) antenna with a high resistivity non static radome. This antenna is also suitable for oil/gas chemical environments where IS equipment is required. HELI-3-IS, is a uni-directional antenna whilst the closely related HELI-8 is a bi-directional antenna. The HELI-3-IS gives you a low-cost network infrastructure for current voice and data needs in mines and tunnels.

### Features

- Uni-directional antenna
- High gain over the 2.4 GHz Wi-Fi band
- Improved performance due to circular polarisation
- Ideal for mining and tunnelling applications
- Versatile installation mounting options
- Intrinsically safe

### 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

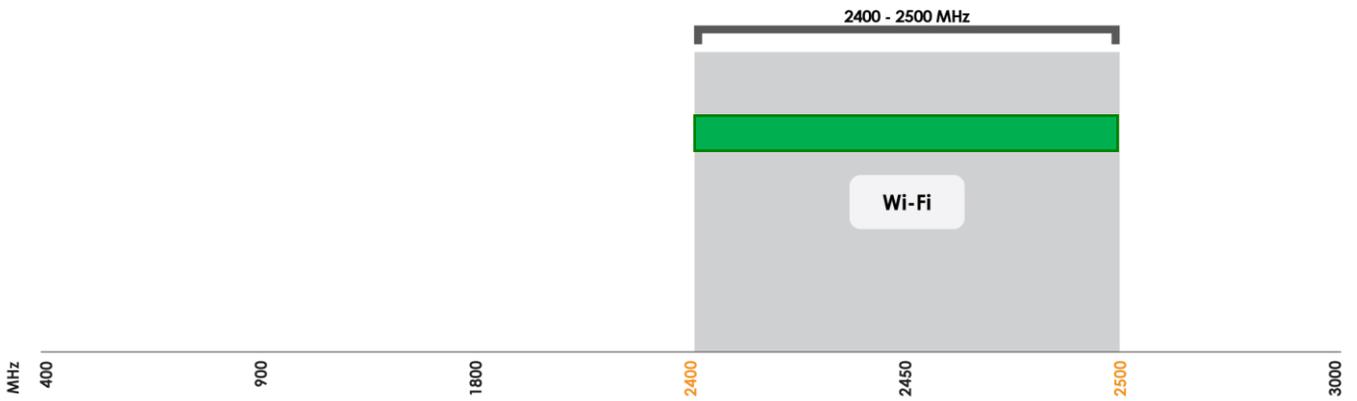


### HELI-3 SERIES



## Frequency Bands

The HELI-3 SERIES is a Wi-Fi / ISM antenna that works from 2400 – 2500 MHz



 Indicates the WI-FI bands on which HELI-3 SERIES works

## Antenna Overview

	
Ports	1
SISO / MIMO	SISO
Frequency Bands	2400 - 2500 MHz
Peak Gain	17.5 dBi
Coax Cable Type	N/A
Coax Cable Length	N/A
Connector Type	N-Type (F)

*\*The connector is factory mounted to the antenna*

### HELI-3 SERIES

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 Product Specifications may change without prior notice  
 Revised: May 2020

### Electrical Specifications

Frequency bands:	2400-2500 MHz
Gain (Max)	17.5 dBi
VSWR:	<1.3:1
Feed power handling:	30 W
Input impedance:	50 Ohm (nominal)
Polarisation:	Left-Hand Circular
DC short:	N/A

### Product Box Contents

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

### Ordering Information

Commercial name:	HELI-3-IS
Order product code:	A-HELI-0003-IS
EAN number:	0707273468734

### Mechanical Specifications

Product dimensions	1040 mm x 145 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
Mounting Type:	Ceiling mount using the two 6mm eyebolts provided

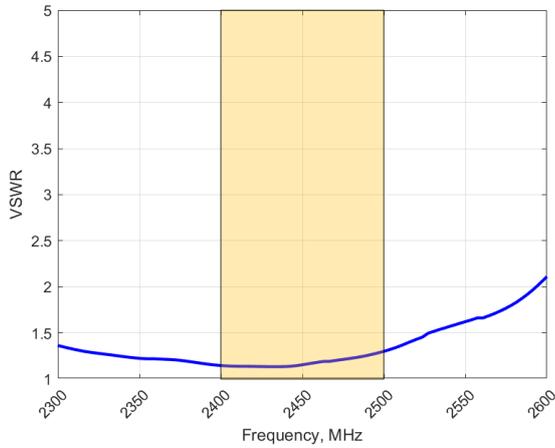
### Environmental Specifications, Certification & Approvals

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:	-20°C to +70°C
Enclosure Flammability Rating:	UL 94-HB
Impact resistance:	IK 08
Product Safety & Environmental:	Complies with CE and RoHS standards

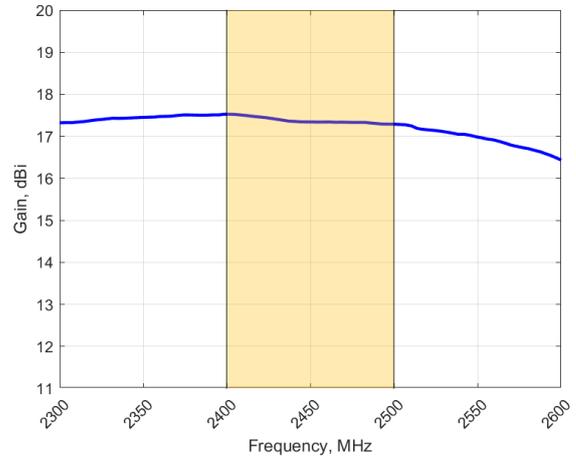


**Antenna Performance Plots**

**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-3 SERIES delivers superior performance across all bands with a VSWR of <1.3:1 or better across 90% of the bands.

**Gain\* in dBi**

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

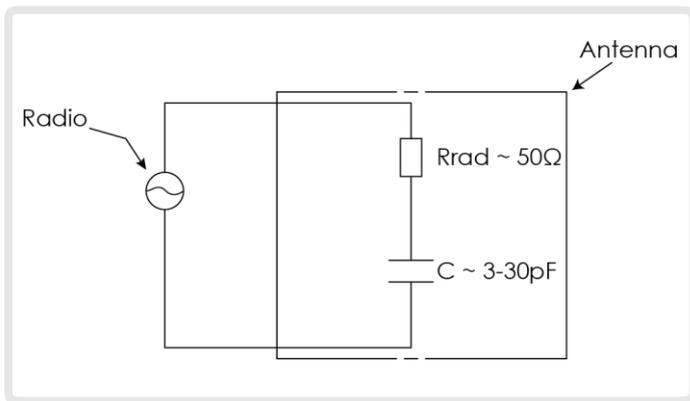
Gain @ 2400 – 2500 MHz: 17.5 dBi

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

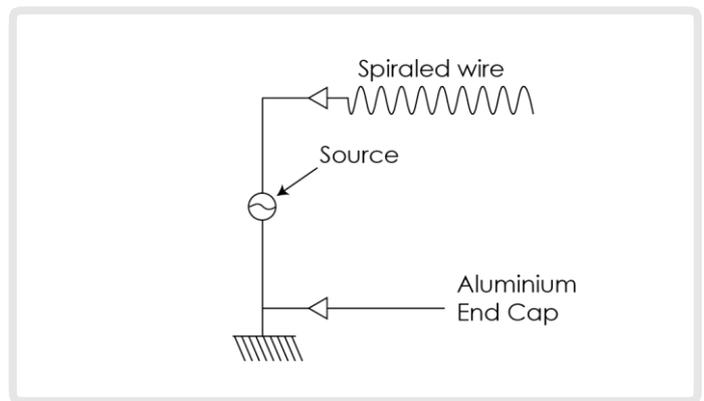
**Intrinsically Safe Electrical Diagram**

- 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**



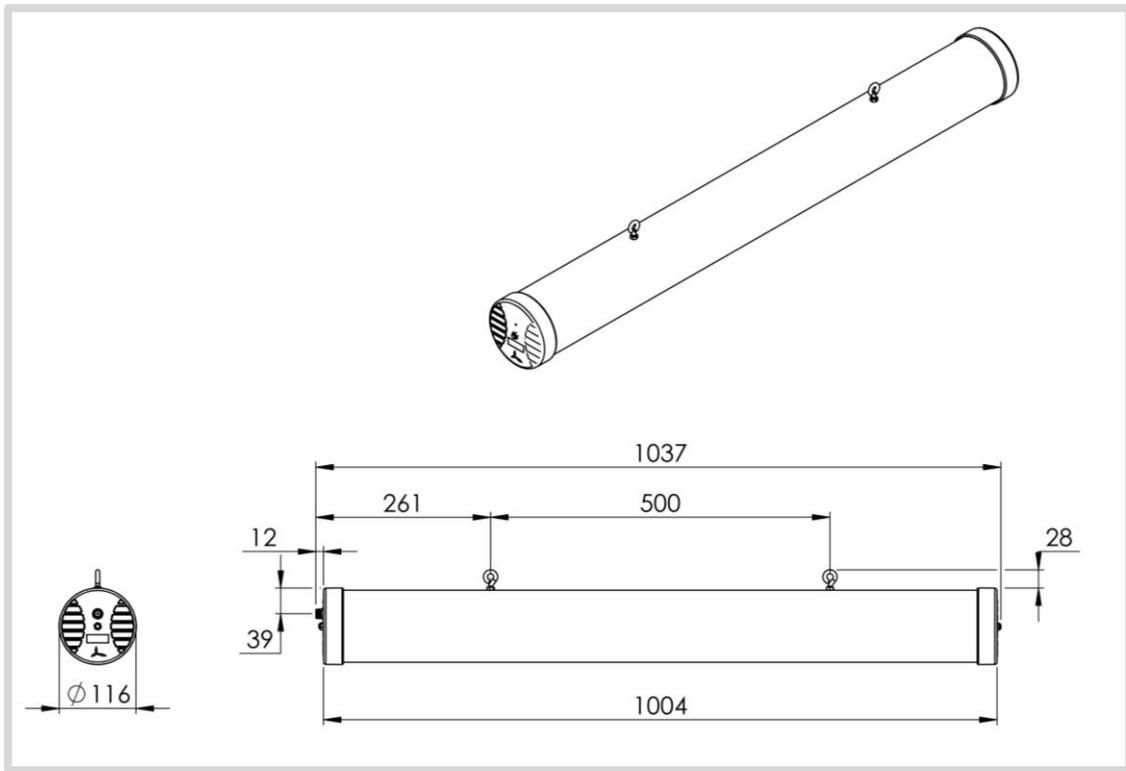
**Electrical schematic A-HELI-0003**



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

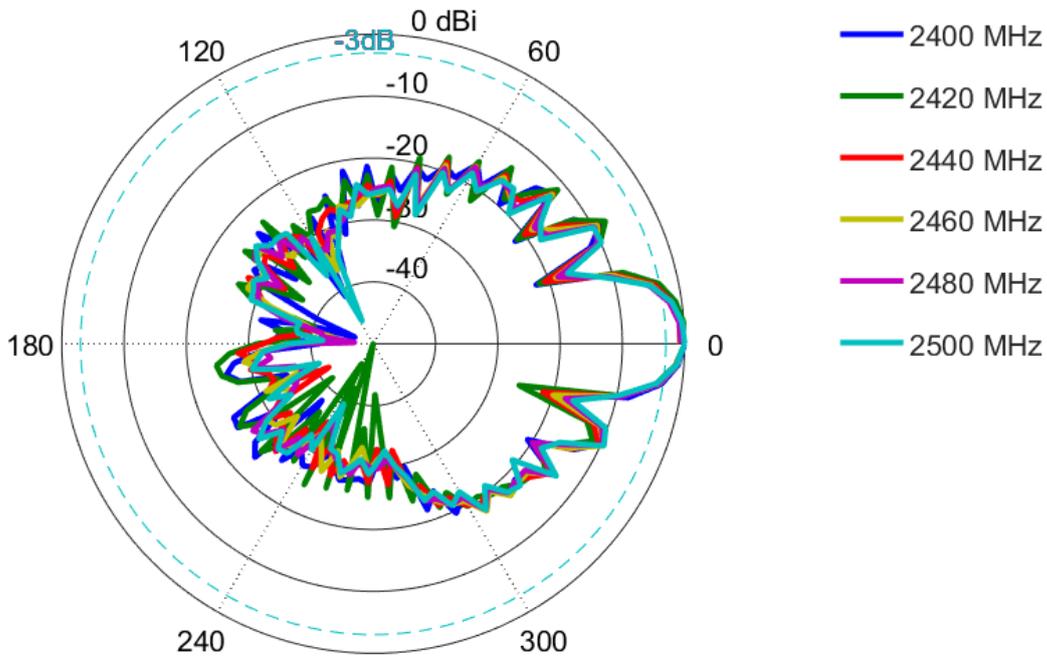
Surface resistivity: 1mΩ/□ to 15Ω/□

Technical Drawings



Radiation Patterns

Azimuth & Elevation: 2400 – 2500 MHz



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### Additional Accessories

Extension Cables: Up to 15m HDF 195 (extension)

See accessories technical specifications on [www.poynting.tech](http://www.poynting.tech)

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### 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:** [sales@poynting.co.za](mailto:sales@poynting.co.za)

#### Poynting Europe

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

**Phone:** +49 89 208026538

**E-mail:** [sales-europe@poynting.tech](mailto:sales-europe@poynting.tech)