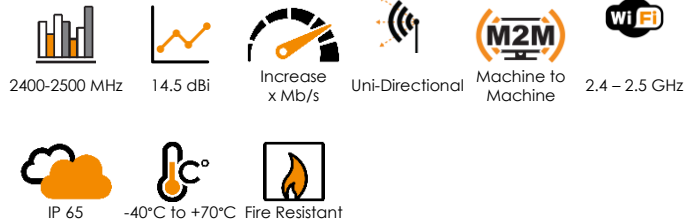


# HELI-4 SERIES

ANTENNAS | HELI-4 SERIES

## CIRCULAR POLARISED, DIRECTIONAL MINE/TUNNEL ANTENNA

Wi-Fi; 2400 - 2500 MHz, 14.5 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



APPLICATION AREAS

### Product Overview

The HELI-4-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. This antenna is also suitable for oil/gas chemical environments where intrinsically safe (IS) equipment is required. The 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 HELI-4-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
- 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, refineries, factories where intrinsically safe equipment are required

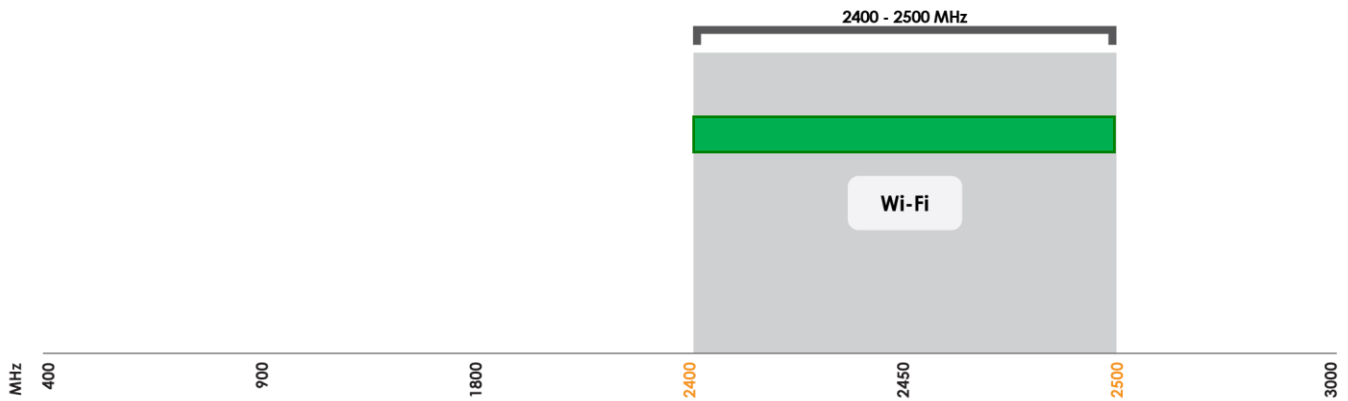


### HELI-4 SERIES




## Frequency Bands

The HELI-4 SERIES is a wide-band antenna that works from 2400 – 2500 MHz



 Indicates the WI-FI bands on which HELI-4 SERIES works

## Antenna Overview

	
Ports	1
SISO / MIMO	SISO
Frequency Bands	2400 - 2500 MHz
Peak Gain	14.5 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-4 SERIES

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Product Specifications may change without prior notice  
Revised: May 2020

### Electrical Specifications

Frequency bands:	2400-2500 MHz
Gain (max):	14.5 dBi
VSWR:	1.5:1
Feed power handling:	30 W
Input impedance:	50 Ohm (nominal)
Polarisation:	Left-Hand Circular
DC short:	N/A

### Product Box Contents

Antenna:	A-HELI-0004IS
Mounting bracket:	Two 6mm eyebolts for ceiling mount

### Ordering Information

Commercial name:	HELI-4IS
Order product code:	A-HELI-0004IS
EAN number:	0707273468758

### Mechanical Specifications

Product dimensions	420 mm x 145 mm x 120 mm
Packaged dimensions:	500 mm x 160 mm x 160 mm
Weight:	1.25 kg
Packaged weight:	1.50 kg
Radome material:	PVC
Radome colour:	PANTONE 447 C RAL 000 25 00
Mounting Type:	Ceiling Mount using the two 6mm eyebolts provided

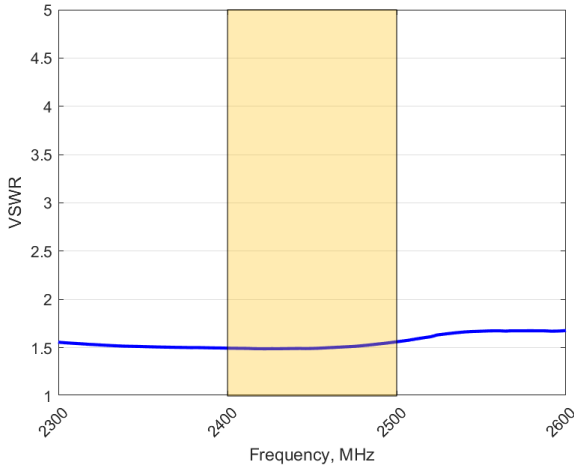
### Environmental Specifications, Certification & Approvals

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:	-40°C to +70°C
Enclosure Flammability Rating:	UL 94-HB
Impact resistance:	IK 08
Product Safety & Environmental:	Complies with CE and RoHS standards

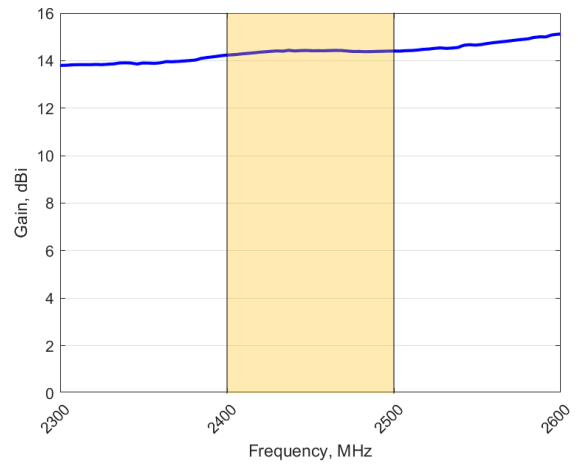


**Antenna Performance Plots**

**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-4 SERIES delivers superior performance across all bands with a VSWR of 1.5:1.

**Gain\* in dBi**

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

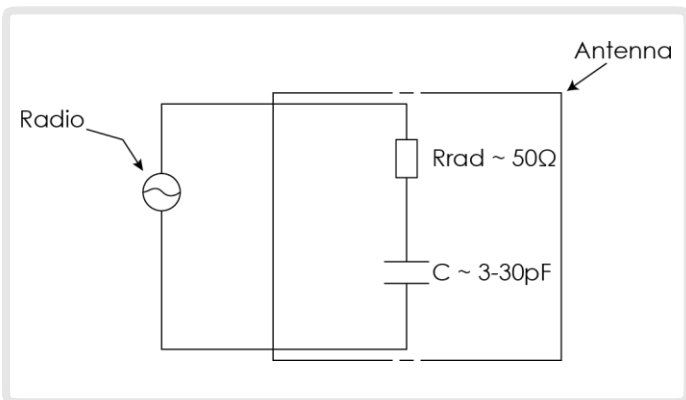
Gain @ 2400 – 2500 MHz: 14.5 dBi

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

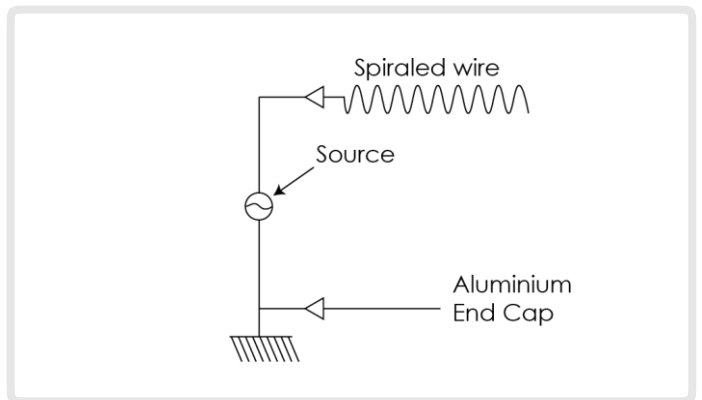
**Intrinsically Safe Electrical Diagram**

- Capacitance as measured between the inner spiral and the base plate 3-30 pF
- Frequency 2.4-2.5 GHz
- The A-HELI-0004 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**



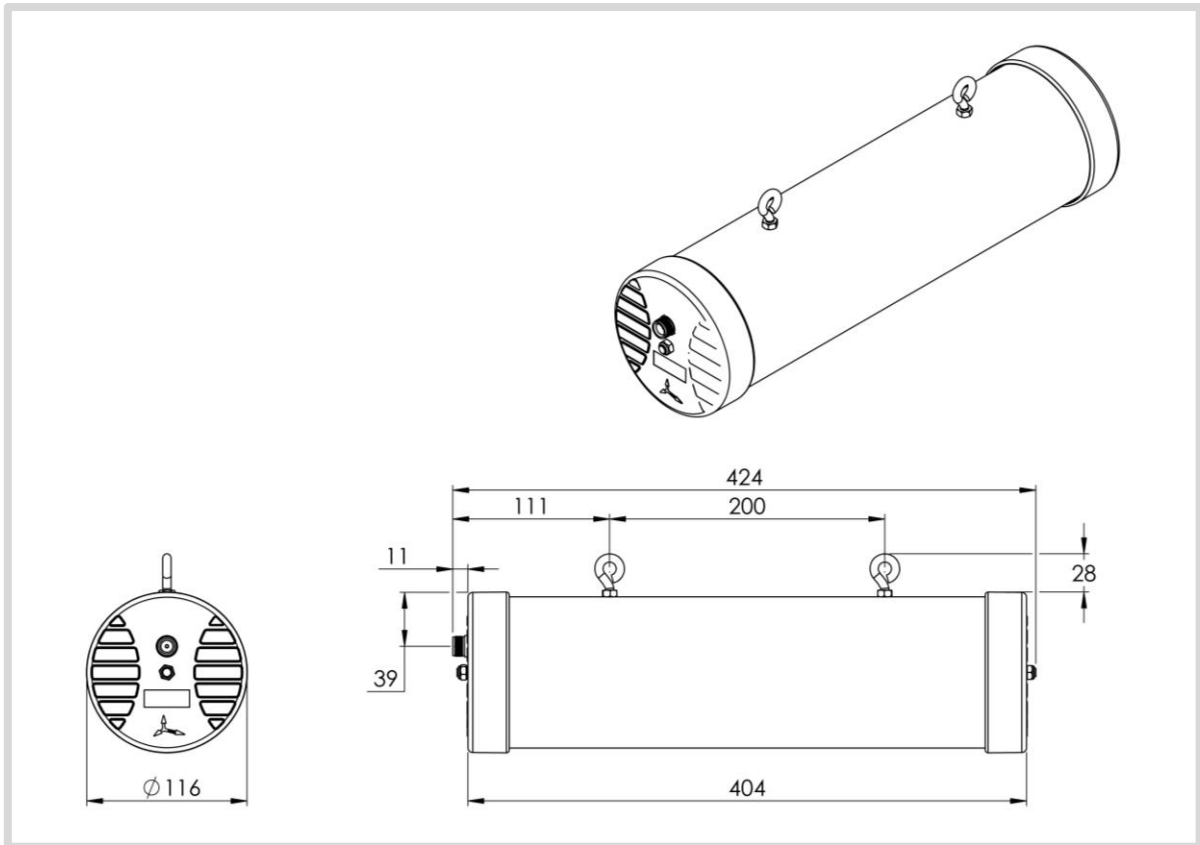
**Electrical schematic A-HELI-0004**



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

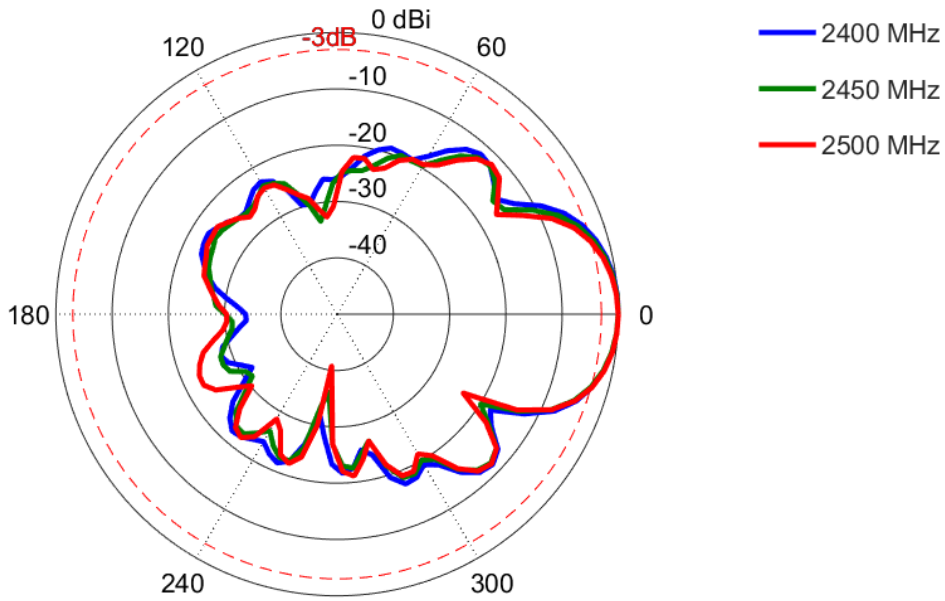
Surface resistivity: 1mΩ/□ to 15Ω/□

Technical Drawings

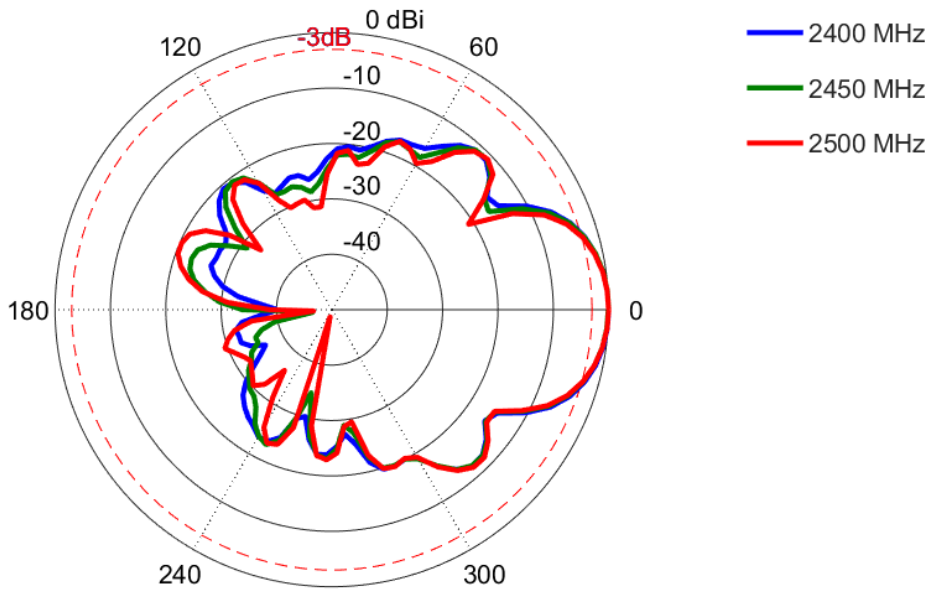


**Radiation Patterns**

Azimuth: 2400 – 2500 MHz



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

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