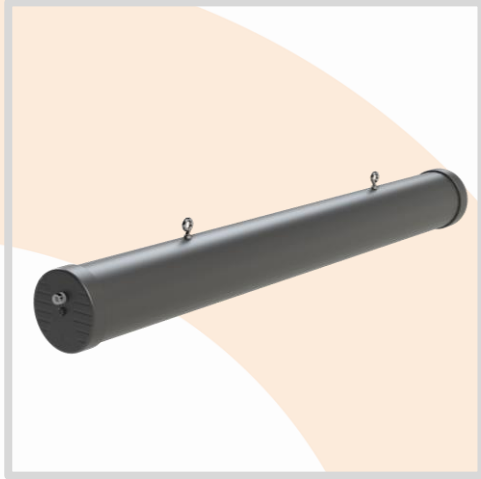


ANTENNAS | HELI-3-IS SERIES

CIRCULAR POLARISED, DIRECTIONAL MINE/TUNNEL ANTENNA

2400 – 2500 MHz, 17.5 dBic (Intrinsically Safe)



2400 – 2500 MHz



17.5 dBic



Increase
X Mb/s



Uni-Directional



2.4 – 2.5 GHz



Machine to
Machine



-40°C to +80°C Fire Resistant



IK 08



IP 65

- 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



Urban



MASC



Mining



Tunnelling

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

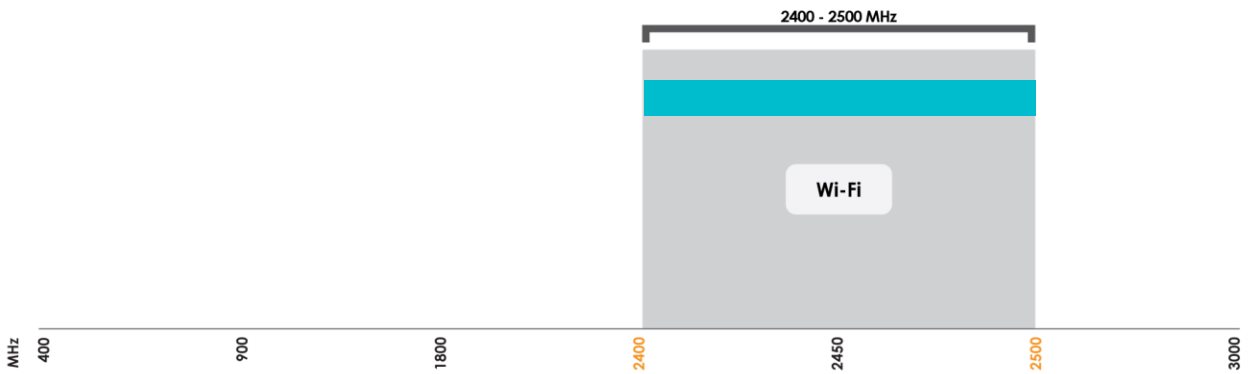
- Supplementing fibre/cable networks by providing wireless "Hotspots" to areas to enhance mobility or extend networks to inaccessible areas such as mines and tunnels
- Underground telemetry
- Creation of complete in tunnel/mine wide data networks and/or internet connectivity
- Seamless connection to personnel using VOIP phones, smart devices and tablets
- M2M Applications





Frequency Bands

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



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

Antenna Overview

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

**The connector is factory mounted to the antenna*

Electrical Specifications

Frequency Bands:	2400 – 2500 MHz
Gain (Max):	17.5 dBic
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-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:	6009710920312

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

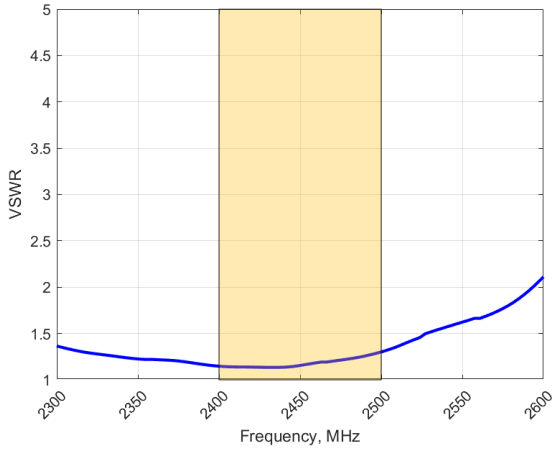
Environmental Specifications, Certification & Approvals

Wind Survival:	<120 km/h
Temperature Range (Operating):	-40°C to +80°C
Environmental Conditions:	Outdoor/Indoor
Water Ingress Protection Ratio/Standard:	IP 65
Salt Spray:	MIL-STD 810G/ASTM B117
Operating Relative Humidity:	Up to 98%
Storage Humidity:	5% to 95% - non-condensing
Storage Temperature:	-40°C to +80°C
Enclosure Flammability Rating:	UL 94-HB
Impact Resistance:	IK 08
Product Safety & Environmental:	Complies with CE and RoHS standards



Antenna Performance Plots

VSWR



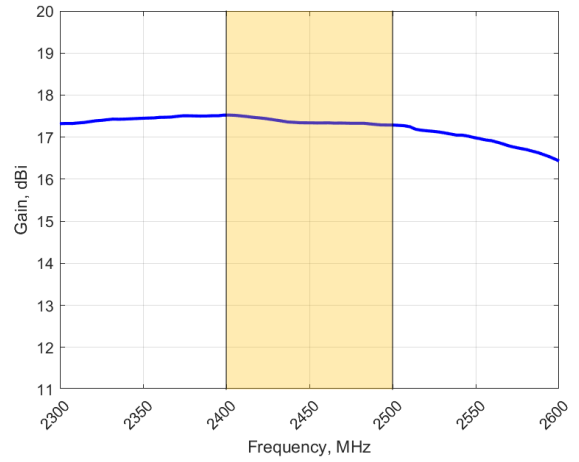
Voltage Standing Wave Ratio (VSWR)*

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-3-IS delivers superior performance across all bands with a VSWR of <1.5:1.

*VSWR measured without a cable

GAIN (EXCLUDING CABLE LOSS)



Gain* in dBic

17.5 dBic is the peak gain from 2400 – 2500 MHz

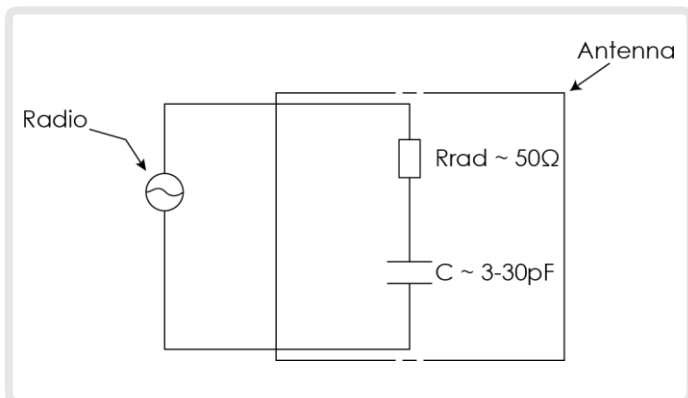
Gain @ 2400 – 2500 MHz: 17.5 dBic

* Antenna gain measured with circular polarised standard antenna

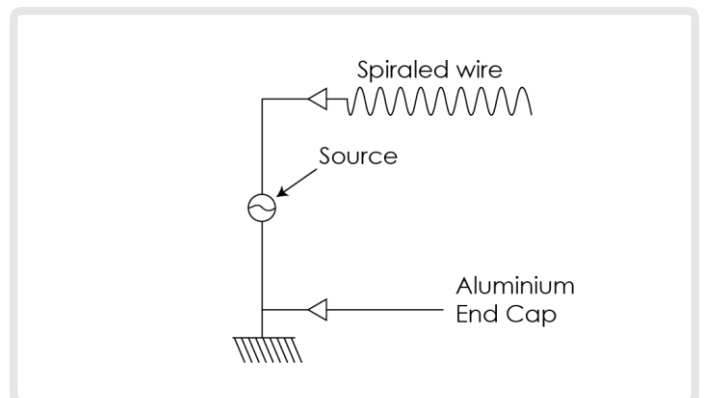
Intrinsically Safe Electrical Diagram

- 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



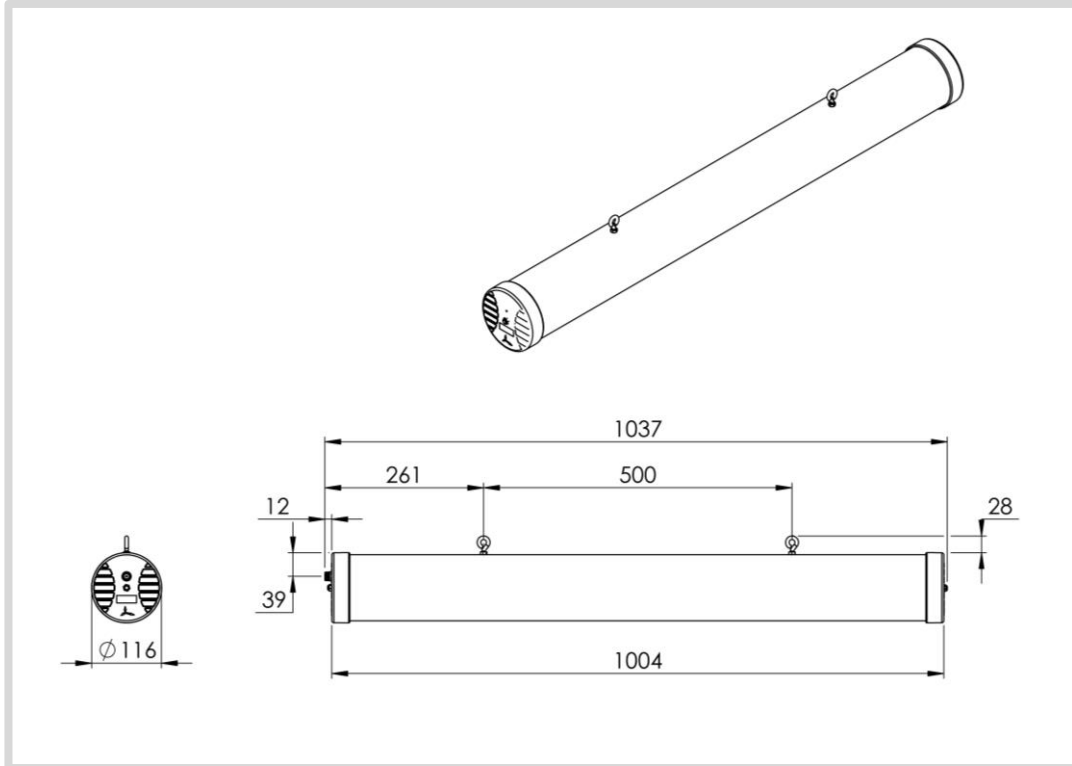
Electrical schematic A-HELI-0003-IS



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

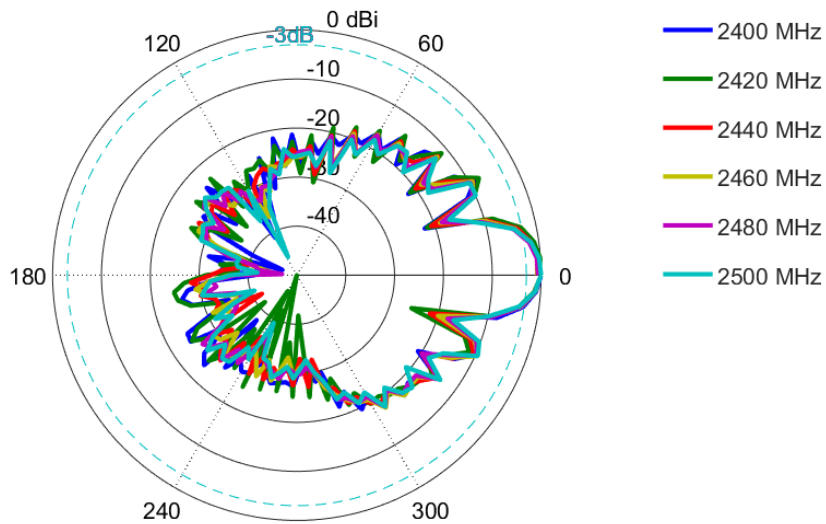
Surface resistivity: 1mΩ/□ to 15Ω/□

Technical Drawings



Radiation Patterns

Azimuth & Elevation: 2400 – 2500 MHz



Additional Accessories

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

See accessories technical specifications on www.poynting.tech

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