HELI-3 SERIES

ANTENNAS | HELI-3 SERIES

CIRCULAR POLARISED, DIRECTIONAL MINE/TUNNEL ANTENNA

2400 - 2500 MHz, 17.5 dBi (Intrinsically Safe)

2400-2500 MHz | 17.5 dBi | Increase x Mb/s | Uni-Directional | Machine to Machine | 2.4 – 2.5 GHz

IP 65 | -20°C to +70°C | Fire Resistant

- **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: Mining | Tunnelling | MASC | Urban

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

Revised: May 2020

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-HELI-0003-V1-IS REV4
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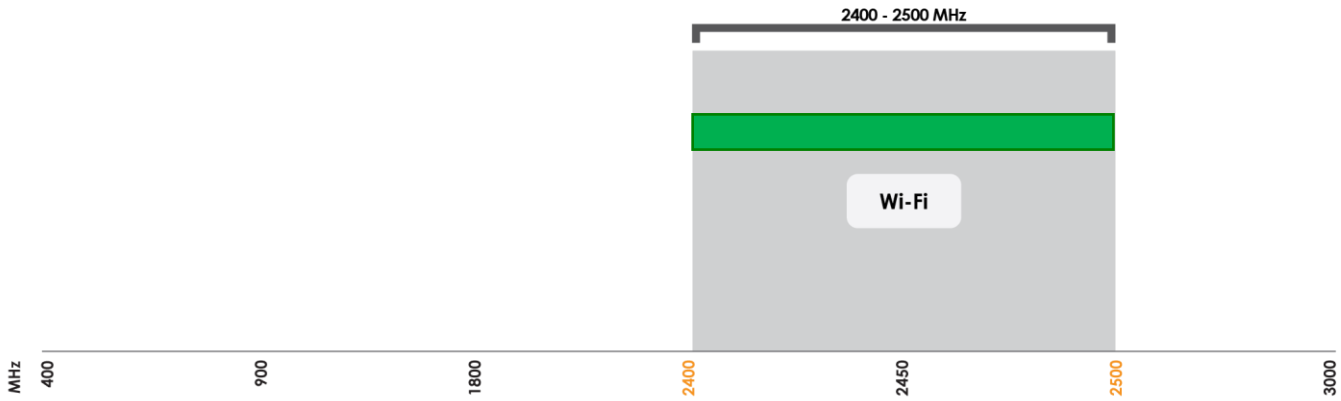
Frequency Bands

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

	Wi Fi
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*

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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

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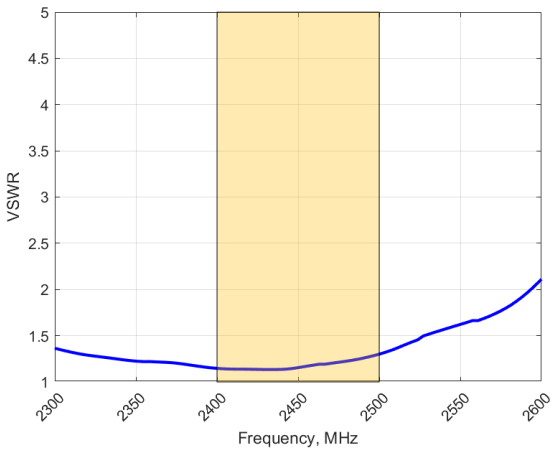
Antenna Performance Plots

VSWR

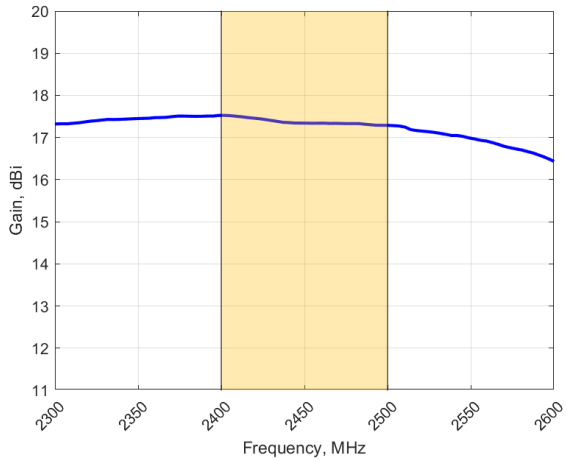


Voltage Standing Wave Ratio (VSWR)

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

GAIN (EXCLUDING CABLE LOSS)



Gain* in dBi

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

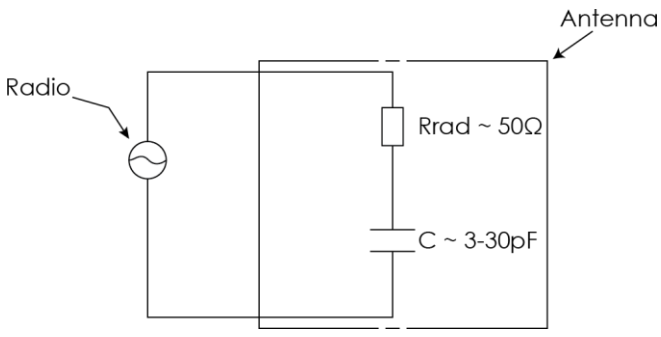
Gain @ 2400 – 2500 MHz: 17.5 dBi

**Antenna gain measured with polarisation aligned standard antenna*

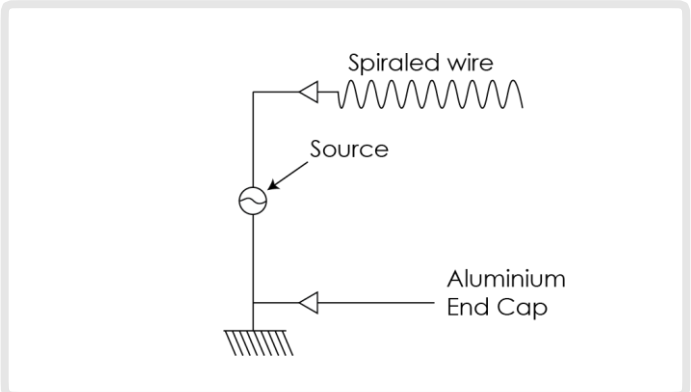
Intrinsically Safe Electrical Diagram

- 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/□

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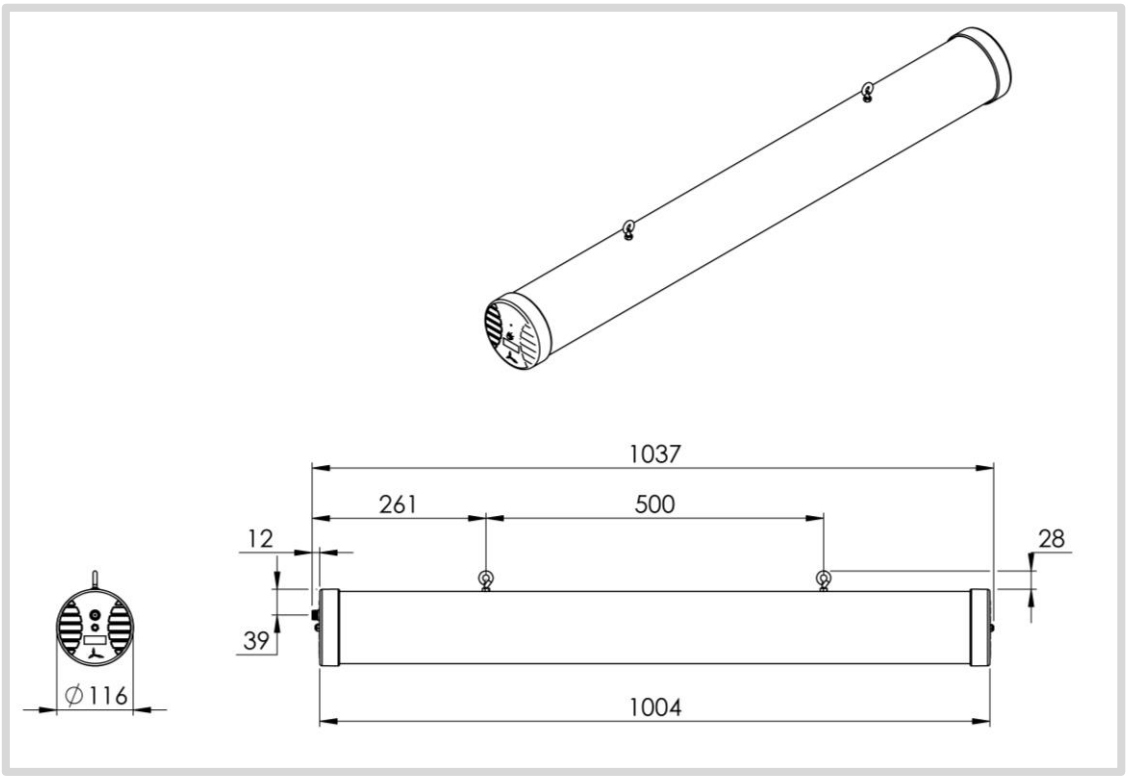
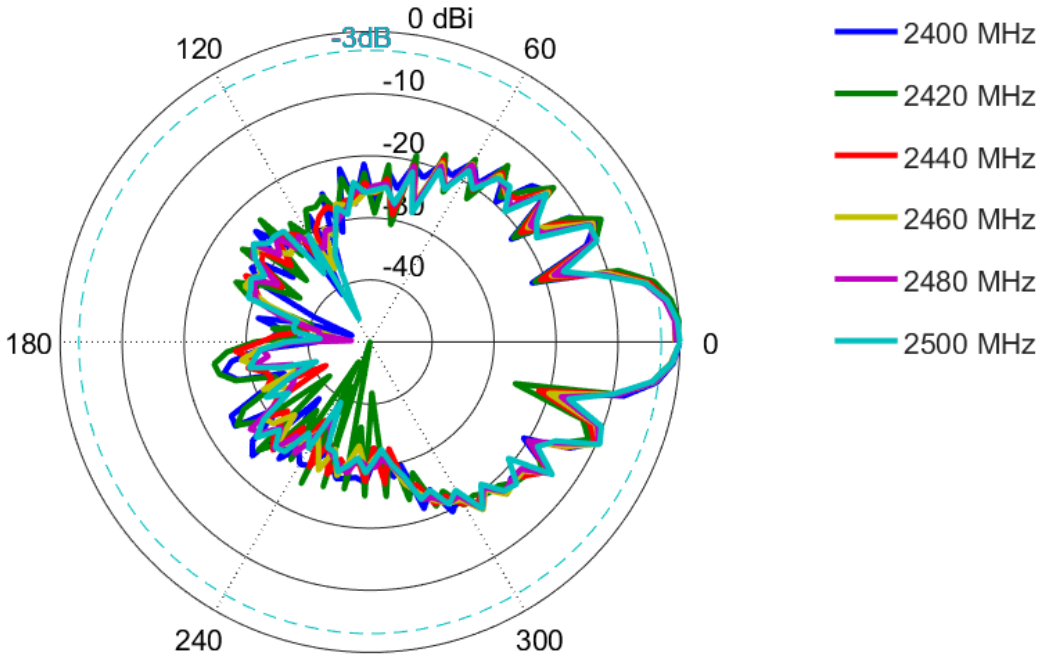
Technical Drawings



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

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