

HELI-8-IS

ANTENNAS | HELI-8 SERIES

CIRCULAR POLARISED, BI-DIRECTIONAL MINE/TUNNEL ANTENNA 2400 - 2500 MHz, 14.5dBi (Intrinsically Safe)



2400 – 2500 MHz	14.5 dBi	Increase x Mb/s	Bi-Directional	Machine to Machine	2.4 – 2.5 GHz
IP 65	-40°C to +70°C	Fire Resistant			

- **Circular Polarised HELI antenna provides enhanced signal propagation and connection stability within a tunnel**
- **Circularly polarised**
- **Bi-directional – radiates in both directions in a tunnel**
- **Careful mechanical design provides ruggedness, water and dust resistance (IP 65)**
- **Ideal for Mining & Tunnel M2M and IoT deployments**
- **Intrinsically safe**

APPLICATION AREAS

- Mining
- Tunnelling
- MASC
- Urban

Product Overview

The HELI-8-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 IS equipment is required. The HELI 8 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 HELI-8-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-8 is a bi-directional antenna whilst the closely related HELI-3 fires in one direction. This antenna gives you a low-cost network infrastructure for current voice and data needs in mines and tunnels.

Features

- Bi-directional antenna
- Proven antenna performance giving maximum range
- Improved performance due to circularly polarised
- Ideal for mining and tunnelling applications
- High gain over the 2400 MHz Wi-Fi band
- Intrinsically safe

Application Areas

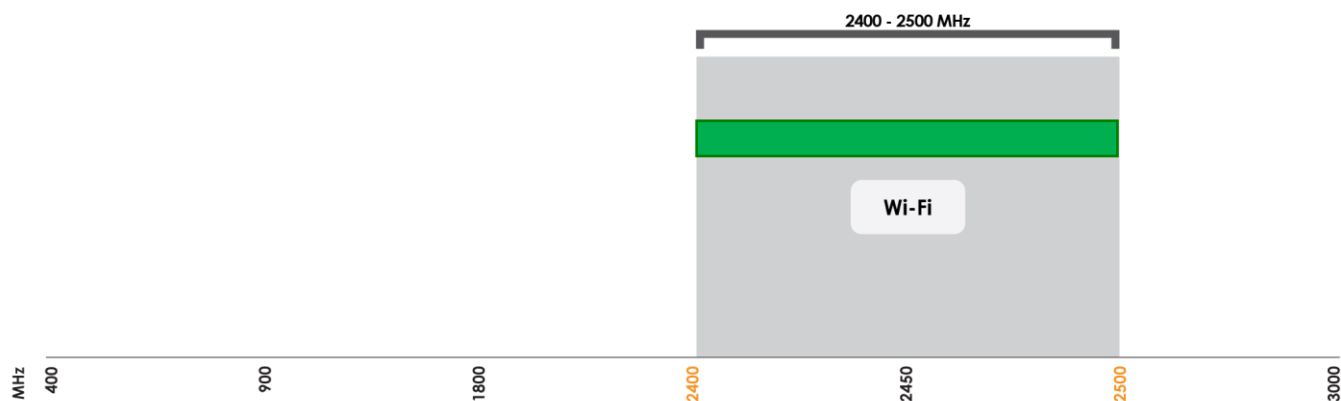
- Supplementing fibre/cable networks by providing wireless "Hotspots" to areas to enhance mobility or extend networks to inaccessible areas such as mines and tunnels
- Underground telemetry
- Creation of complete in tunnel/mine wide data networks and or internet connectivity
- Seamless connection to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





Frequency Bands

The HELI-8-IS is a wide-band antenna that works from 2400 – 2500 MHz



Indicates the WI-FI bands on which HELI-8-IS 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*

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-0008IS
Mounting bracket:	Two 6mm eyebolts for ceiling mount

Ordering Information

Commercial name:	HELI-8IS
Order product code:	A-HELI-0008IS
EAN number:	0707273468772

Mechanical Specifications

Product dimensions	2004 mm x 116 mm x 142 mm
Packaged dimensions:	2200 mm x 160 mm x 160 mm
Weight:	5.1 kg
Packaged weight:	6.02 kg
Radome material:	PVC
Radome colour:	PANTONE 447 C RAL 000 25 00
Mounting Type:	Ceiling Mount

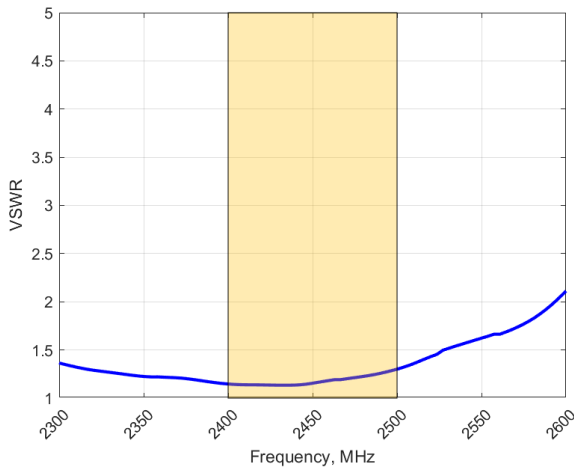
Environmental Specifications, Certification & Approvals

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

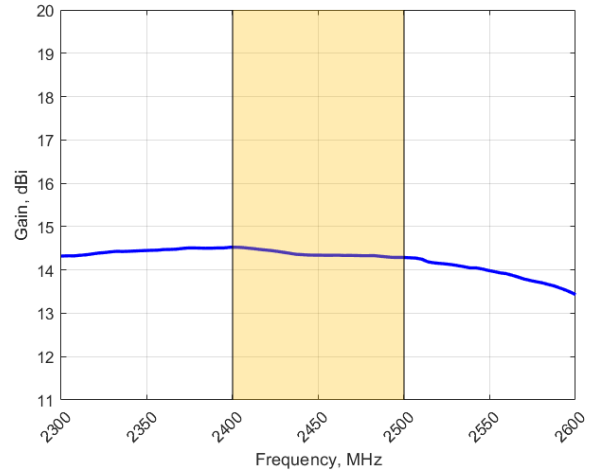


Antenna Performance Plots

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-8-IS delivers superior performance across all bands with a VSWR of <1.5:1 or better across the band.

Gain* in dBi

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

Gain @ 2400 – 2500 MHz:

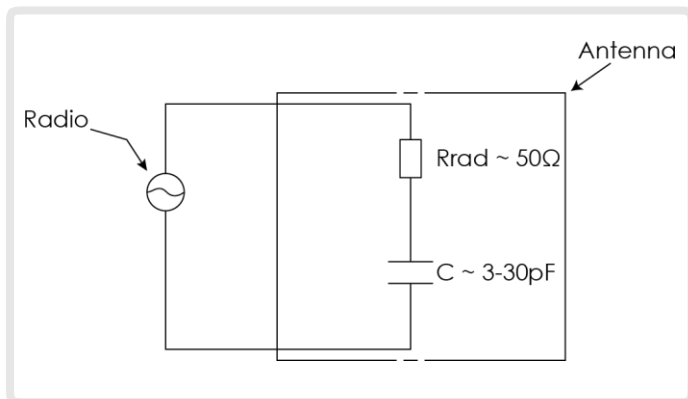
14.5 dBi

*Antenna gain measured with polarisation aligned standard antenna

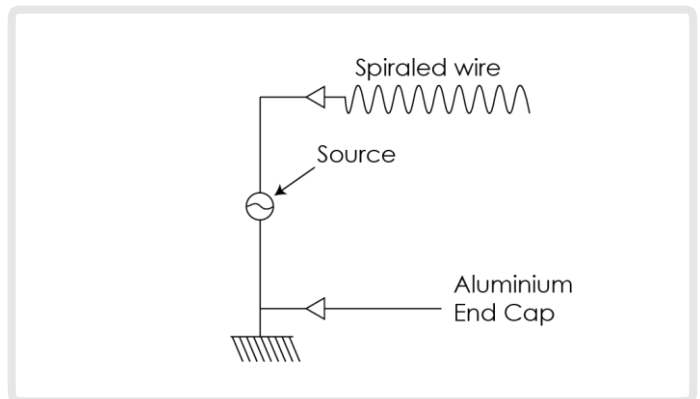
Intrinsically Safe Electrical Diagram

- Capacitance as measured between the inner spiral and the base plate 3-30 pF
- Frequency 2.4-2.5 GHz
- The A-HELI-0008 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



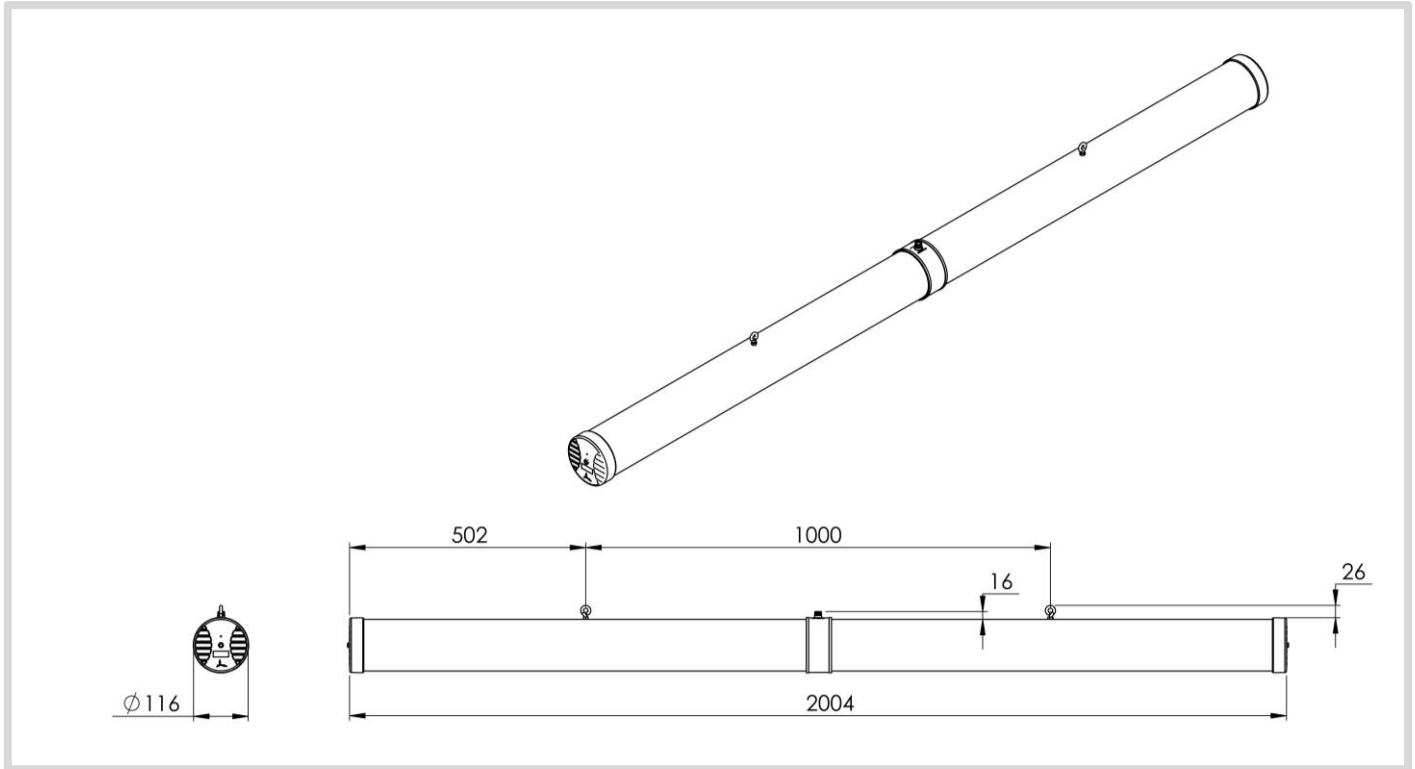
Electrical schematic A-HELI-0008



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

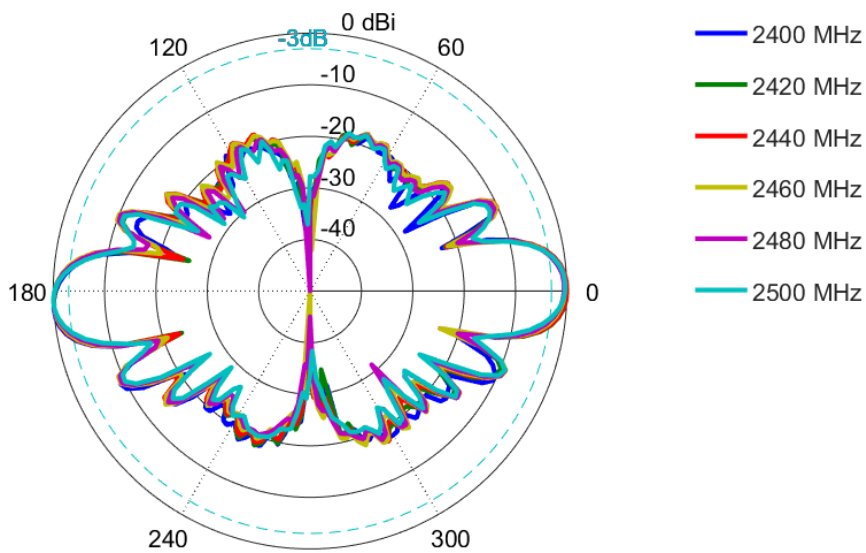
Surface resistivity: 1 mΩ/□ to 15Ω/□

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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