

ANTENNAS | HELI-4IS

HELI-4IS

2400 - 2500 MHZ HIGH GAIN INTRINSICALLY SAFE MINE/TUNNEL ANTENNA



2400 - 2500
MHz

15 dBi

VSWR
< 2.0:1



-20°C to +70°C

IP 65

UL 94-HB



Increase
x Mb/s



- Circular polarised helical antenna
- WiFi compatible
- Uni-directional
- Ruggedised
- Future proof

Product overview

This high gain directional antenna compliments 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 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. This antenna gives you a low cost network infrastructure for current voice and data needs in mines and tunnels.

Features

- Proven antenna performance giving maximum range in all directions
- Ideal where the other devices used polarisation could change
- High gain over the 2400 MHz Wi-Fi band
- Intrinsically Safe with high resistivity non static radome
- 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, refinery, factories where intrinsically safe equipment is required




HELI-4IS

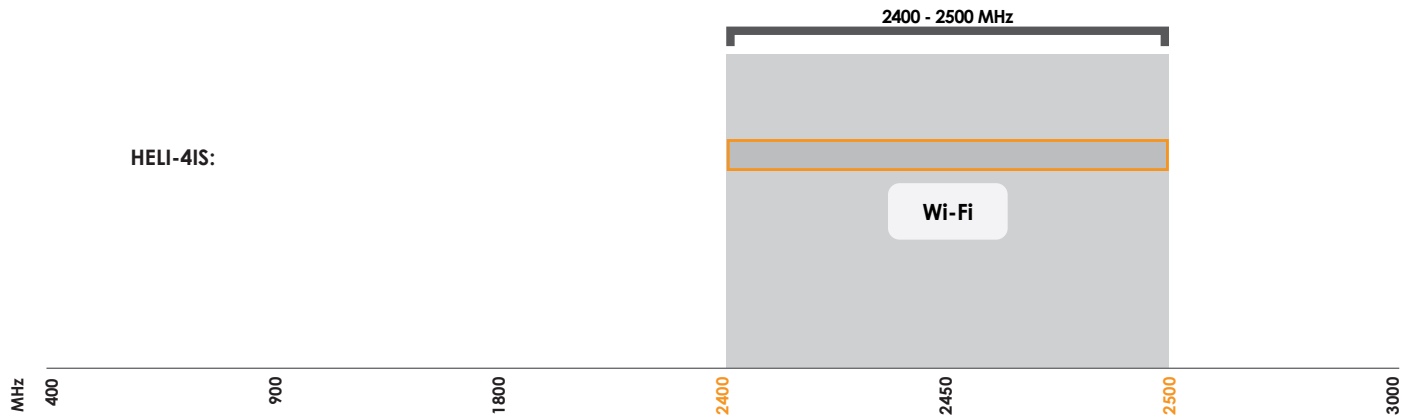
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Product Specifications may change without prior notice
Revised: August 2017

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-HELI-0004IS v1
www.poynting.tech

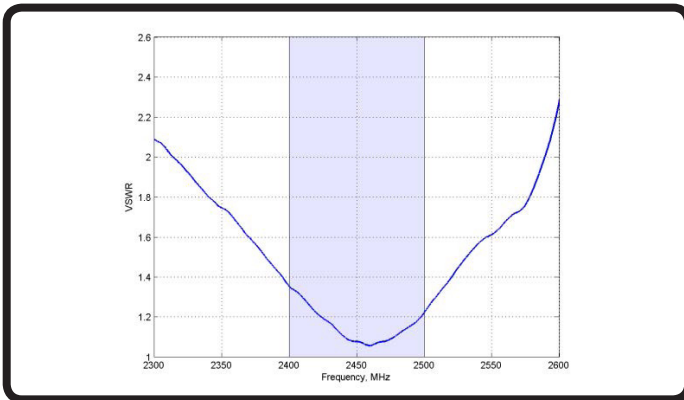
Frequency bands

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

 Indicates the bands on which this antenna works



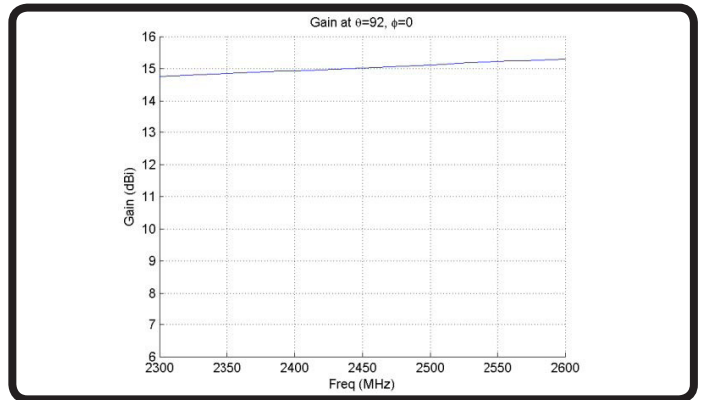
VSWR:



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-4IS delivers superior performance across all bands with a VSWR of < 2.0:1 or better.

Gain: (excluding cable loss)



Gain* in dBi

15 dBi is the peak gain across all bands from 2400 - 2500 MHz

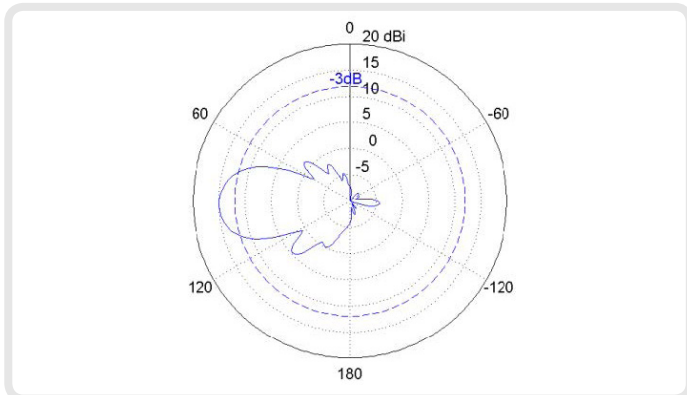
Gain @ 2400-2500 MHz:

15 dBi

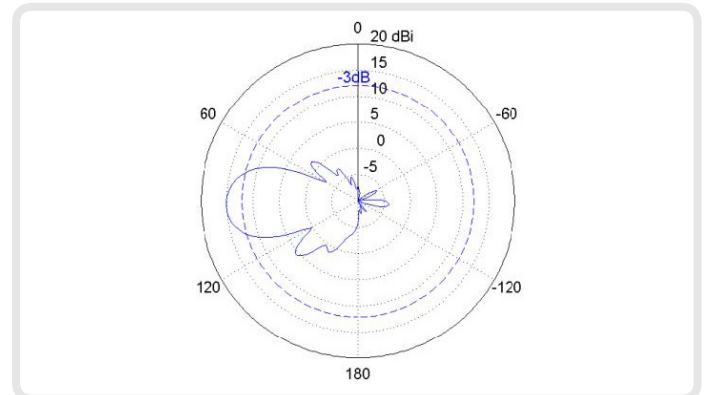
*Antenna gain measured with polarisation aligned standard antenna

Radiation patterns

Azimuth: 2400 - 2500 MHz (side view)



Elevation: 2400 - 2500 MHz (top view)



Electrical specifications

| | |
|----------------------|------------------|
| Frequency bands: | 2400 - 2500 MHz |
| Gain (Max): | 15 dBi |
| VSWR: | <2.0:1 |
| Feed power handling: | 30 W |
| Input impedance: | 50 Ohm (nominal) |
| Polarisation: | Circular |
| DC Short: | No |
| Connector type: | N-type female |

Environmental specifications

| | |
|--------------------------------|----------------------------|
| Temperature range (operating): | -20°C to +70°C |
| Environmental conditions: | Outdoor/Indoor |
| Operating relative humidity: | Up to 98% |
| Storage humidity: | 5% to 95% - non condensing |
| Storage temperature: | -20°C to +70°C |
| Flammability rating: | UL 94 -HB |

Ordering information

| | |
|---------------------|---------------|
| Commercial name: | HELI-4 |
| Order Product Code: | A-HELI-0004 |
| EAN number: | 0707273468741 |

Additional accessories available

| | |
|------------------------------|-------------------|
| Extension Cables: | Up to 15m HDF 195 |
| Various connectors available | |

For more detailed information and availability in your region, visit our web site: www.poynting.tech

Contact Poynting

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Mechanical specifications

| | |
|---------------------------------|--------------------------------|
| Product dimensions (L x W x D): | 405 mm x 110 mm x 130 mm |
| Packaged Dimensions: | 450 mm x 160 mm x 160 mm |
| Weight: | 1.25 kg |
| Packaged weight: | 1.26 kg |
| Radome material: | PVC |
| Radome colour: | PANTONE 447 C RAL 000 25 00 |

Product box contents

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

The connector is factory mounted to the antenna



Certification approvals and standards

| | |
|--|---|
| Water Ingress Protection Ratio/Standard: | IP 65 (NEMA 4X) |
| Impact resistance: | IK 08 |
| Salt Spray: | MIL-STD 810F /ASTM B117 |
| Product Safety: | Complies with UL, CE, EN, CSA and IEC standards |



HELI-4IS

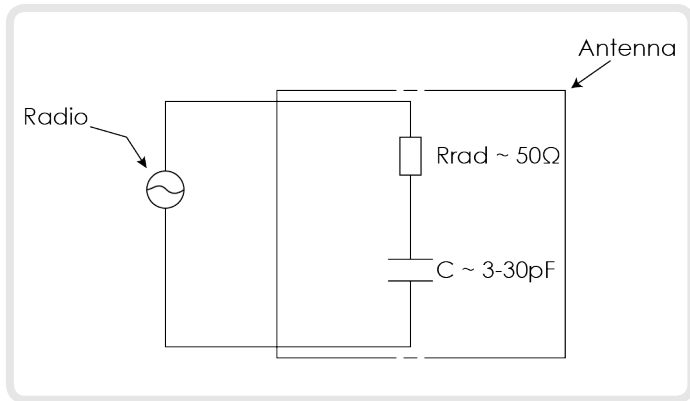
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Intrinsically Safe electrical diagram

- 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



- $P_{max} = 87 \text{ mW}$
- $V_{max} = 2,95\text{V}$
- $I_{max} = 60\text{mA}$

Surface resistivity:
 $1\text{m}\Omega/\square$ to $15\Omega/\square$

A-HELI-0004-IS



Electrical schematic A-HELI-0004

