HELI-4IS

ANTENNAS | HELI-4IS

2400 – 2500 MHZ HIGH GAIN MINE/TUNNEL ANTENNA

2400-2500 MHz | **15.5 dBi** | Increase x Mb/s | -20°C to +70°C | Fire Resistant | IP 65 | Machine to Machine

- **Circular polarised helical antenna**
- **Wi-Fi compatible**
- **Uni-directional**
- **Ruggedised**
- **Future proof**

APPLICATION AREAS: Mining, Tunnelling, MASC, Urban

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
- 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

Revised: January 2020

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-HELI-0004-V1-IS REV2
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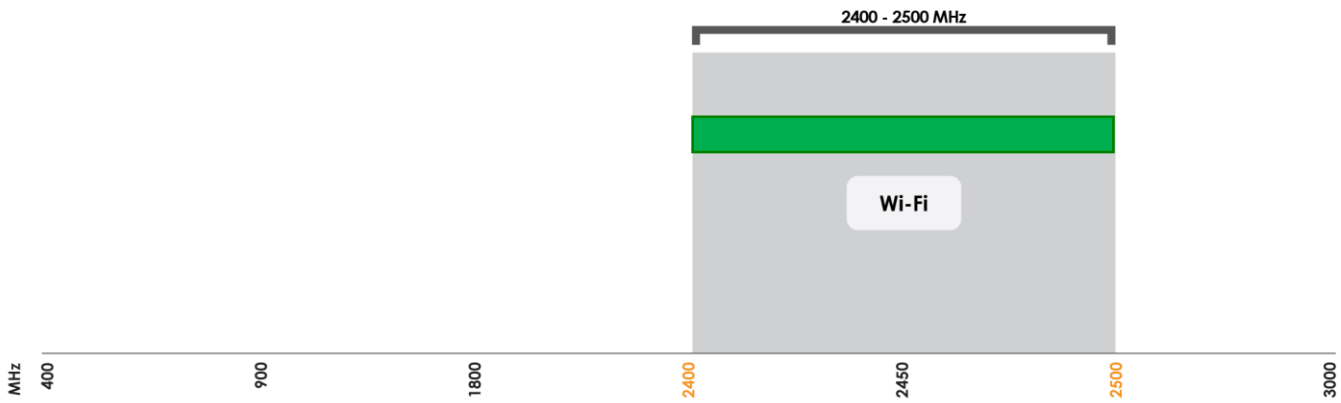
Frequency Bands

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



Indicates the WIFI bands on which HELI-4IS works

Antenna Overview

	Wi Fi
Ports	1
SISO / MIMO	SISO
Frequency Bands	2400 - 2500 MHz
Peak Gain	15.5 dBi
Coax Cable Type	N/A
Coax Cable Length	N/A
Connector Type	N-type(f)

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Electrical Specifications

Frequency bands:	2400-2500 MHz
Gain (max):	15.5 dBi
VSWR:	<1.3:1
Feed power handling:	30 W
Input impedance:	50 Ohm (nominal)
Polarisation:	Left-Hand Circular
DC short:	No

Coax Cable & Connector Type

Cable length:	Up to 15m HDF 195 (extension)
Coax cable type:	N/A
Connector type:	N-type(f))

**The coax cable & connector is factory mounted to the antenna*

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:	0707273468727

Mechanical Specifications

Product dimensions	1050 mm x 150 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

Environmental Specifications, Certification & Approvals

Wind Survival:	<120 km/h
Temperature Range (Operating):	-20°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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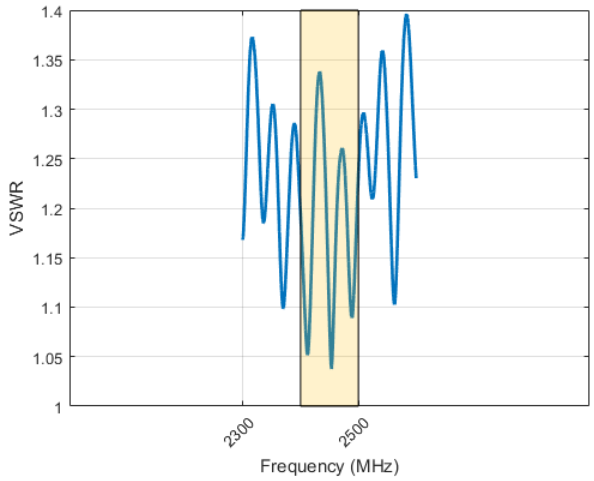
Antenna Performance Plots

VSWR

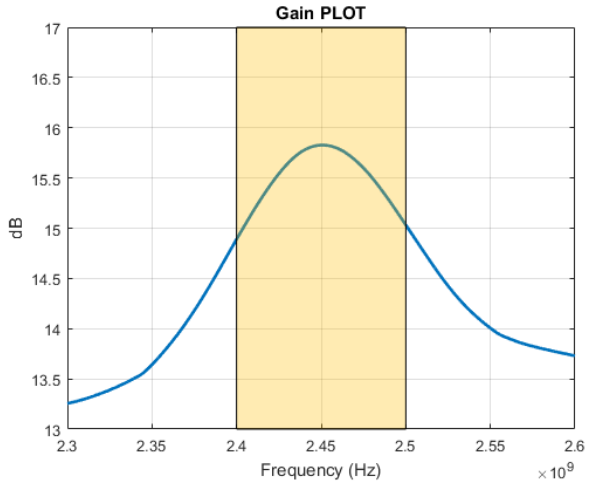


Voltage Standing Wave Ratio (VSWR)

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-4IS 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 is the peak gain across all bands from 2400 – 2500 MHz

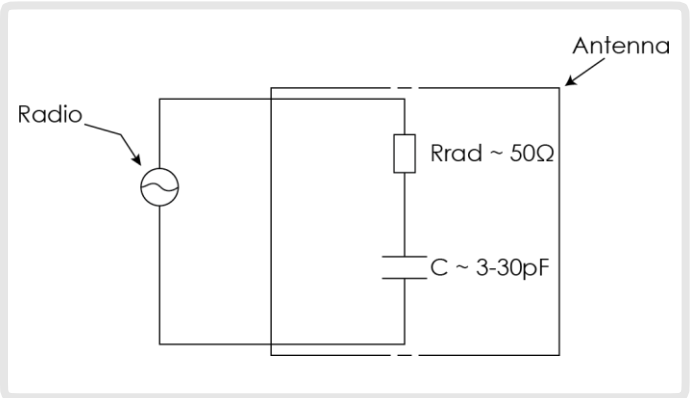
Gain @ 2400 – 2500 MHz: 15.5 dBi

**Antenna gain measured with polarisation aligned standard antenna*

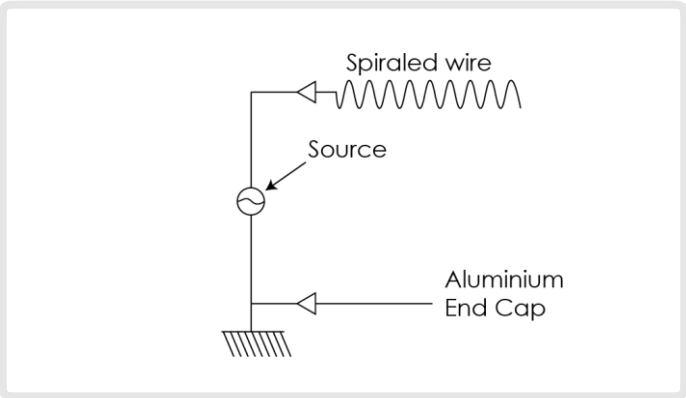
Intrinsically Safe Electrical Diagram

- 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-0003



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

Surface resistivity: 1mΩ/□ to 15Ω/□

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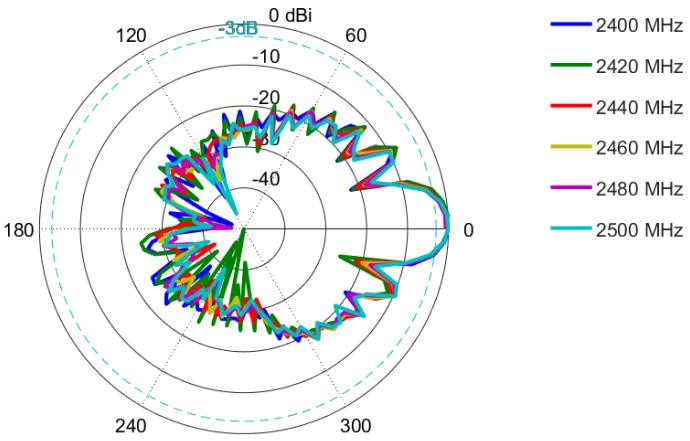
Radiation Patterns

Azimuth & Elevation: 2400 – 2500 MHz



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