HELI-40

POYNTING
BEYOND A CONNECTED LIFE

ANTENNAS | HELI-40 SERIES

CIRCULAR POLARISED, BI-DIRECTIONAL MINE/TUNNEL ANTENNA

Dual-Band Wi-Fi, 2400 – 2500 MHz; 5000 – 6000 MHz, 4.8 dBic

2400 – 2500 MHz
00 – 6000 MHz

4.8 dBic

Increase
X Mb/s

Bi-Directional

2.4 – 2.5 GHz
5.0 – 6.0 GHz

Internet of Things

Machine to Machine

2x2 MIMO

-40°C to +80°C

Fire Resistant

Chemical Protection

IP 68

APPLICATION AREAS

Mining

Tunnelling

Vehicle

- **Circular Polarised antenna provides enhanced signal propagation and connection stability within a tunnel**
- **Left-Hand Circular (LHC) & Right-Hand Circular (RHC) polarised**
- **Bi-directional – radiates in both directions within a tunnel**
- **Ruggedized, water and dust ingress protected (IP 68)**
- **Ideal for Mining & Tunnel M2M and IoT deployments**

Product Overview

The HELI-40 adds to our current HELI antenna range for mining and tunnelling deployment. The HELI-40 is a dual-band 2.4 GHz and 5 GHz Wi-Fi antenna, radiating in both directions (i.e. bi-directional). This makes them ideal for the coverage of both Wi-Fi bands in mining and other type of tunnels. The HELI-40 was specifically designed for vehicle/equipment mounting, making it ideal for deployment within the tunnel to provide telemetry and mining automation.

The antenna comes standard in both Left-Hand Circular (LHC) and Right-Hand Circular (RHC) polarised to provide optimal decorrelation within a MIMO deployment. The polarisation diversity and frequency diversity of the antenna enhances MIMO performance and RF reliability within a mining tunnel. The circular polarisation allows the dual-band Wi-Fi frequencies to propagate around tunnel bends in a non-line of sight scenario. This provides improved performance with enhanced link stability and reliability.

Features

- Circular polarised, four port 2.4 GHz and 5 GHz antenna
- Left & Right-Hand Circular Polarised
- Bi-Directional – Radiates in both direction in a tunnel
- Rugged mechanical design for harsh environments (IK10)
- Water and dust ingress protected (IP 68)

Application Areas

- Mining Vehicles & Machinery communications, telemetry, and automation (M2M & IoT)
- Industrial factory automation, robotic machinery and other M2M systems telemetry
- Creating complete underground in tunnel connection for vehicle tracking and personnel safety

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Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-HELI-0040-V1-01 REV 4.0
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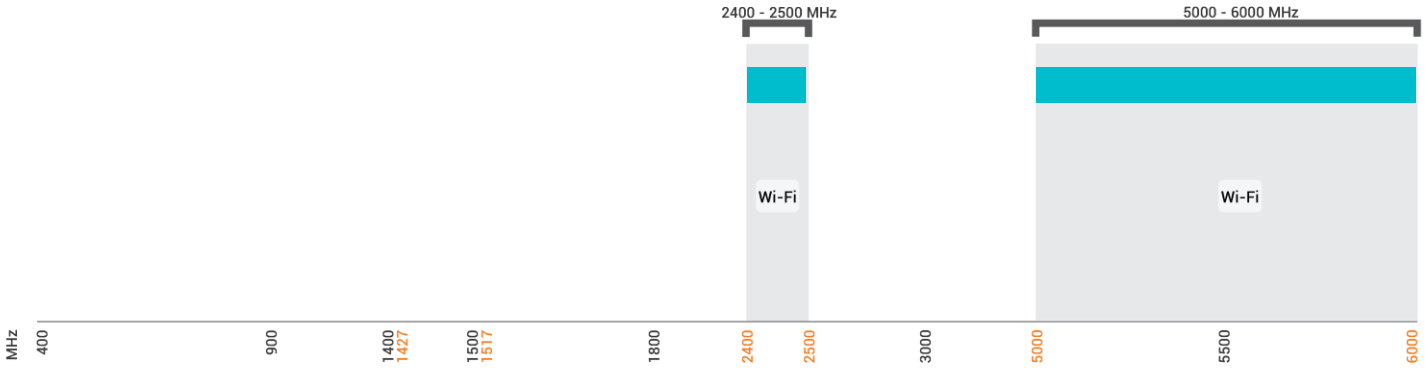
Frequency Bands

The HELI-40 is a bi-directional antenna that works from | 2400 – 2500 MHz | and | 5000 – 6000 MHz |



Indicates the WI-FI bands on which HELI-40 works

Antenna Overview

	Wi Fi DUALBAND
Ports	4
SISO / MIMO	MIMO
Frequency Bands	2400 – 2500 MHz 5000 – 6000 MHz
Polarisation	LHCP & RHCP
Peak Gain	4.8 dBic
Coax Cable Type	RG 141
Coax Cable Length	400 mm
Connector Type	N-Type (M)

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

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Electrical Specifications

Frequency Bands:	2400 – 2500 MHz 5000 – 6000 MHz
Gain (Max):	4.8 dBic
VSWR:	<2:1
Feed Power Handling:	30 W
Input Impedance:	50 Ohm (nominal)
Polarisation:	LHCP & RHCP
Coax Cable Loss:	0.82 dB/m@ 2400 MHz 1.42 dB/m @ 5800 MHz
DC Short:	Yes

Product Box Contents

Antenna:	A-HELI-0040-V1-01
Mounting Bracket:	Threaded Spigots (Up to 60mm clamping thickness), Adhesive Surface Mounting & Optional Magnetic Mount

Ordering Information

Commercial Name:	HELI-40
Order Product Code:	A-HELI-0040-V1-01
EAN Number:	6009710923542

Mechanical Specifications

Product Dimensions	253 mm x 128 mm x 144 mm
Packaged Dimensions	265 mm x 211 mm x 204 mm
Weight	1.00 kg
Packaged Weight	1.48 kg
Radome Material:	UV Stable ASA
Radome Colour:	Black
Mounting Type:	Spigot, Surface with Magnetic mount option

Environmental Specifications, Certification & Approvals

Wind Survival:	≤220 km/h
Temperature Range (Operating):	-40°C to +80°C
Environmental Conditions:	Vibration resistant, mining & automotive application
Water Ingress Protection Ratio/Standard:	IP 68
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 10
Product Safety & Environmental:	Complies with CE and RoHS standards

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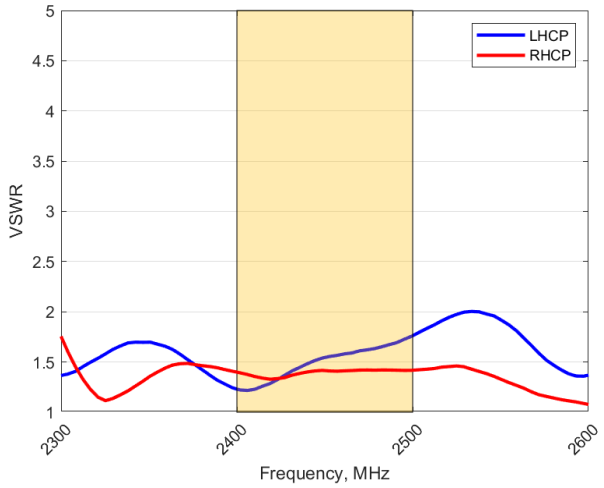
Antenna Performance Plots

VSWR: 2400 – 2500 MHz



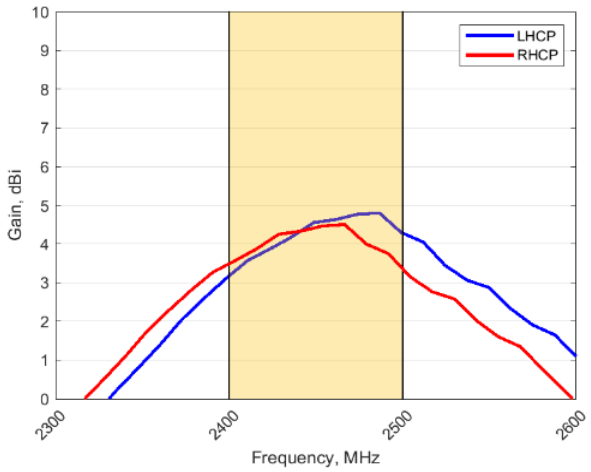
Voltage Standing Wave Ratio (VSWR)*

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-40 delivers superior performance across all bands with a VSWR of <2:1.

**VSWR measured with a 300mm low loss cable*

GAIN (EXCLUDING CABLE LOSS): 2400 – 2500 MHz

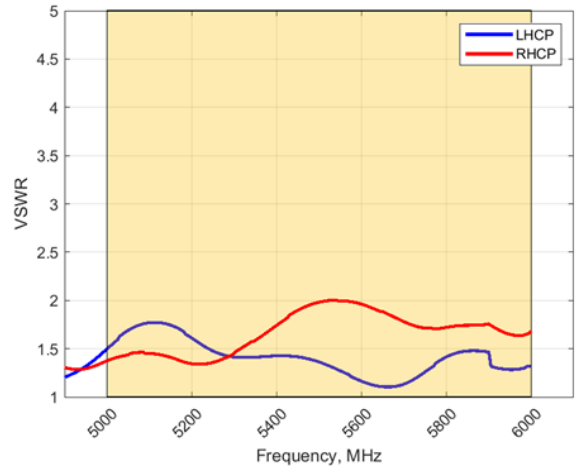


Gain+ in dBic

4.8 dBic is the peak gain across all bands from 2400 – 2500 MHz

**Antenna gain measured with polarisation aligned standard antenna*

VSWR: 5000 – 6000 MHz



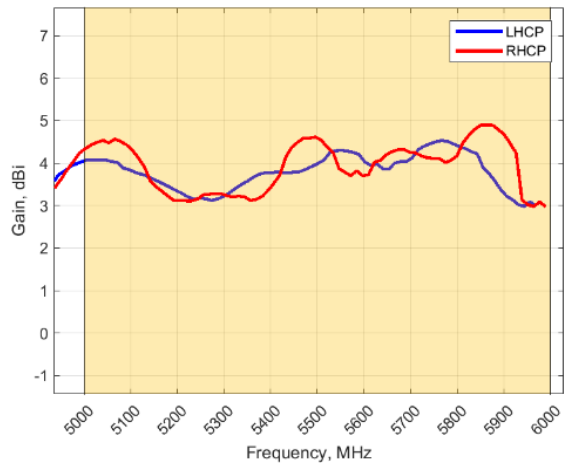
Voltage Standing Wave Ratio (VSWR)*

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-40 delivers superior performance across all bands with a VSWR of ≤2:1.

**VSWR measured with a 300mm low loss cable*

GAIN (EXCLUDING CABLE LOSS): 5000 – 6000 MHz



Gain+ in dBic

4.8 dBic is the peak gain across all bands from 5000 – 6000 MHz

**Antenna gain measured with polarisation aligned standard antenna*

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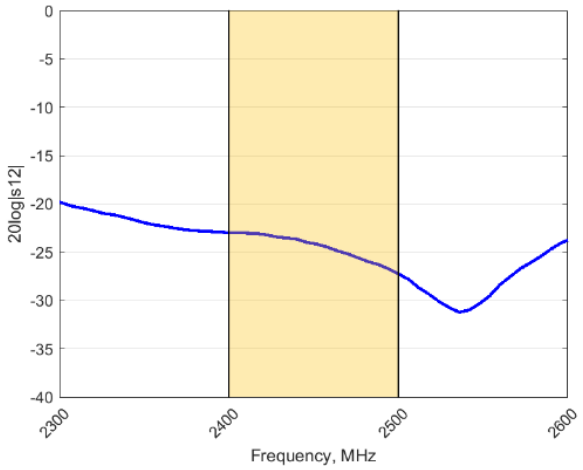
Isolation: 2400 – 2500 MHz

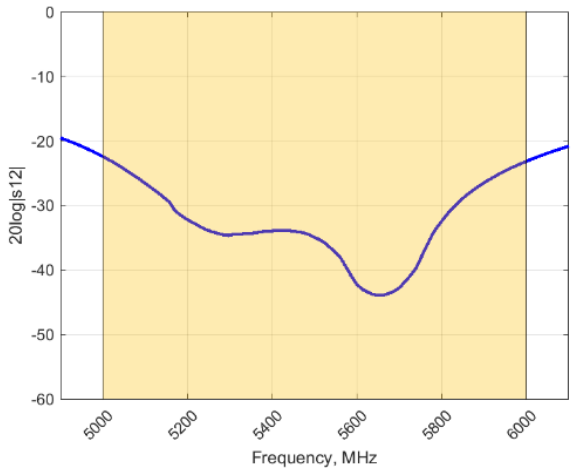


Isolation

Isolation is a measurement of the amount of energy leaked from one port to another. In an ideal case no energy should leaked between the ports.

The HELI-40 antenna has an isolation of <-20dB across the 2400 – 2500 MHz band.

Isolation: 5000 – 6000 MHz



Isolation

Isolation is a measurement of the amount of energy leaked from one port to another. In an ideal case no energy should leaked between the ports.

The HELI-40 antenna has an isolation of <-20dB across the 5000 – 6000 MHz band.

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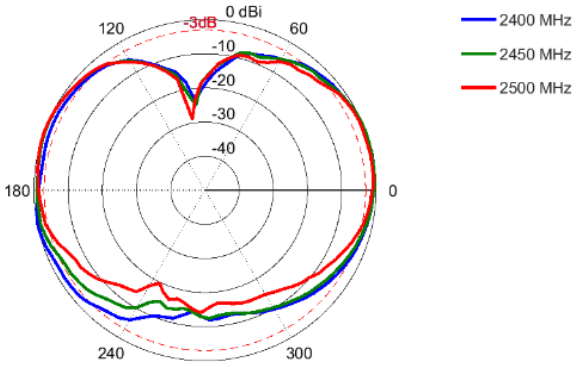
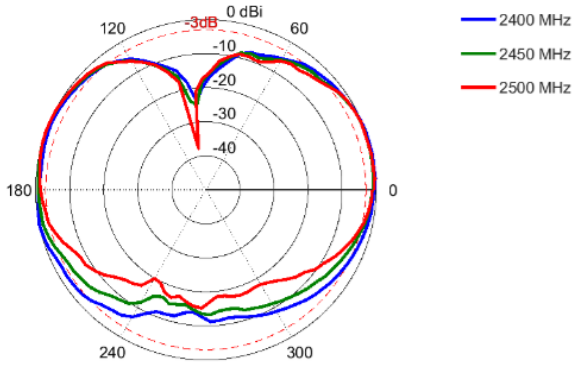
Radiation Patterns

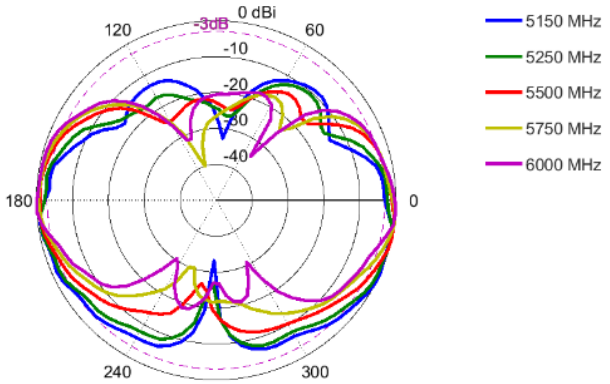
Azimuth: 2400 – 2500 MHz



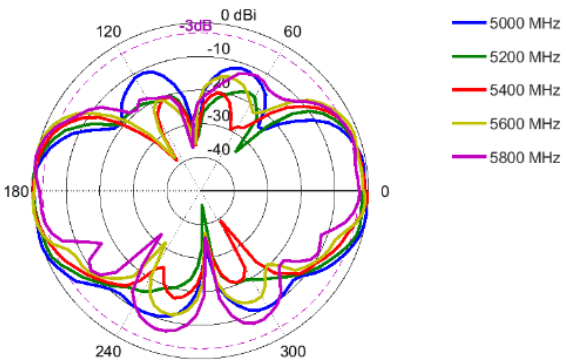
Elevation: 2400 – 2500 MHz



Azimuth: 5000 – 6000 MHz



Elevation: 5000 – 6000 MHz



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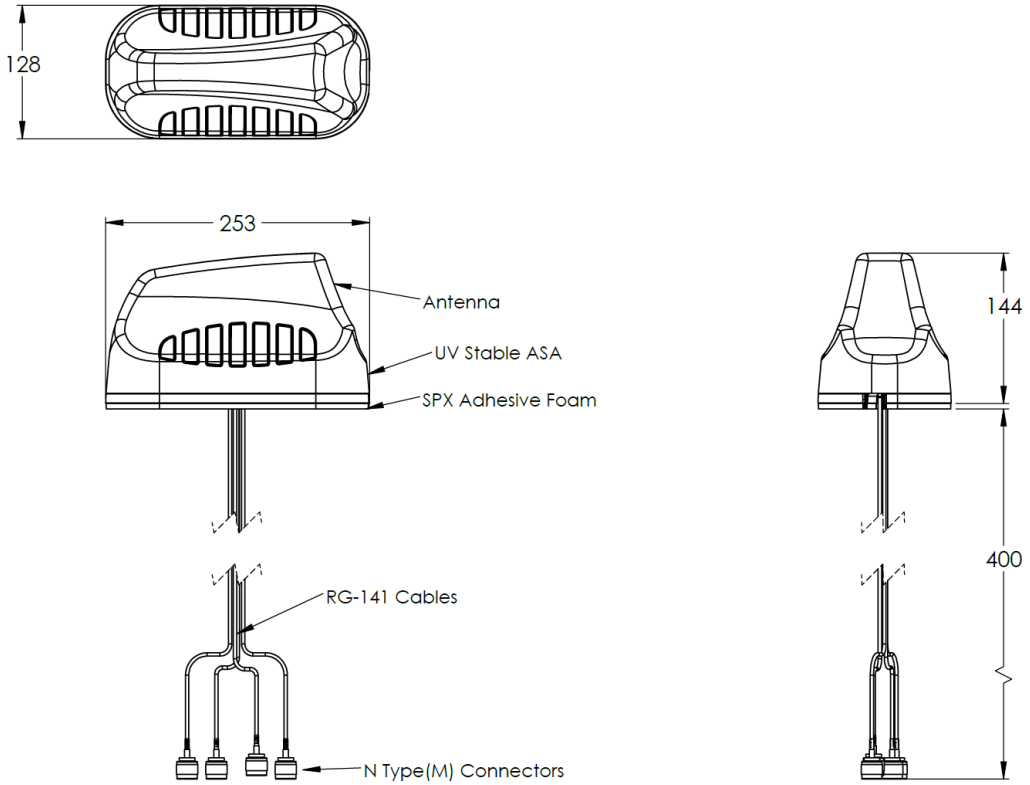
Technical Drawings



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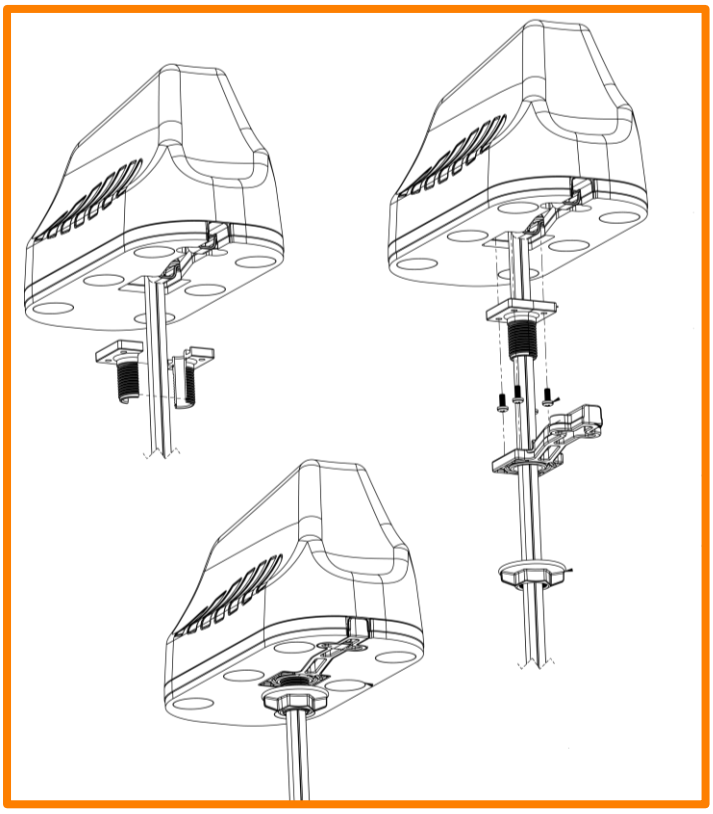
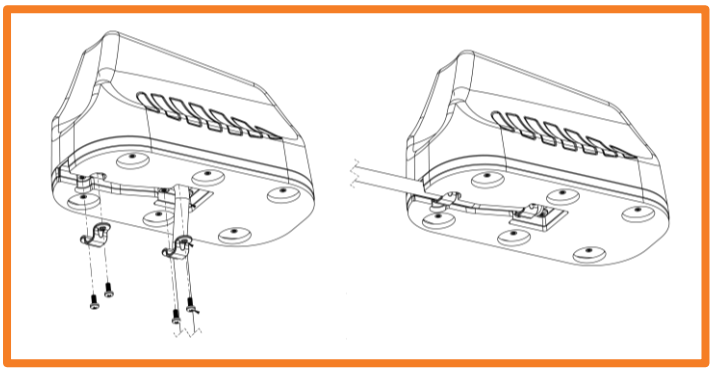
Mounting Options



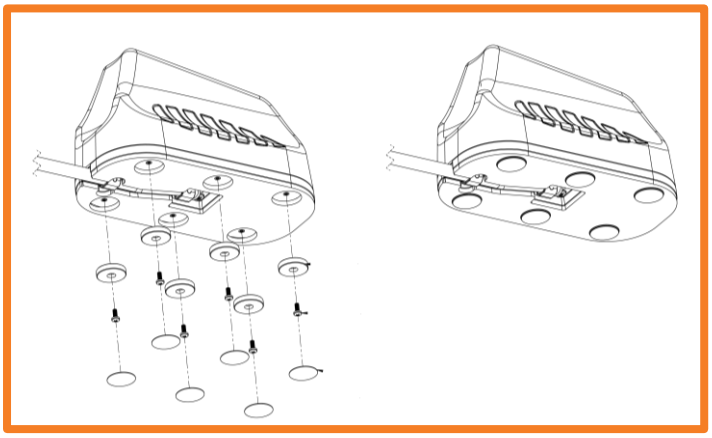
Standard Spigot Mount

Threaded Spigot Mounting



Surface Mount

Adhesive Surface Mounting



Magnetic Mount

Magnetic Base Kit (Optional)

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Additional Accessories

A-MBK-0001-V1.0

Magnetic Base Kit (Optional)

Additional cables and adapters available. See accessories technical specifications on www.poynting.tech

CONTACT POYNTING

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