

ANTENNAS | HELI-12 SERIES

UNI-DIRECTIONAL MINE & TUNNEL ANTENNA

UNI-DIRECTIONAL 5000–6000 MHZ CIRCULAR POLARISED ANTENNA



- **Circular Polarised HELI antenna provides enhanced signal propagation and connection stability within a tunnel.**
- **Left Hand Circular (LHC) & Right Hand Circular (RHC) Polarised options available**
- **Uni-directional – radiates in one direction in a tunnel**
- **Ruggedized & water ingress protected**
- **Ideal for Mining & Tunnel M2M and IoT deployments**



Mining and Surface



Mining



Tunnel

APPLICATION AREAS

Product Overview

The HELI-12 forms part of a series of Mini-HELI antennas. These antennas are only mini in size relative to their bigger brothers, the HELI-5 & HELI-6, but offer medium to high gain, which makes these antennas ideal for mining tunnels where IoT/M2M connectivity is deployed and can also be used for coverage into the stopes.

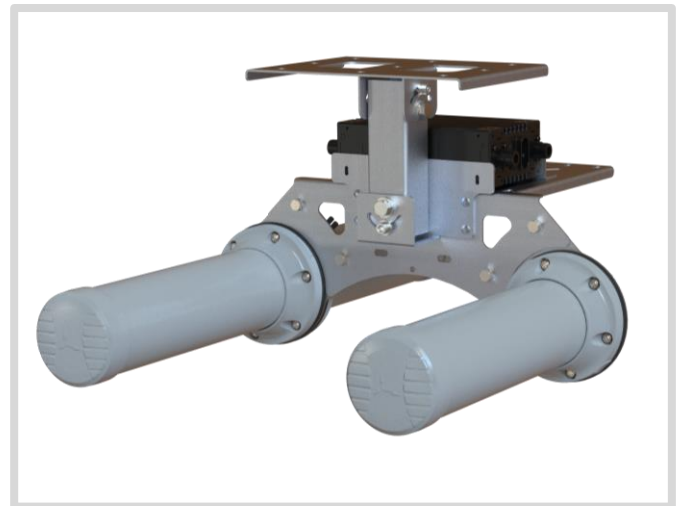
The HELI-12 is a 5GHz antenna, radiating in one direction (i.e. Uni-directional), which make it ideal for the coverage of the 5GHz in mining and other type of tunnels. These antennas are typically used for the deployment of IoT within the tunnel to provide telemetry and mine automation. These antennas are available in both Left Hand Circular (LHC) & Right Hand Circular (RHC) polarised antenna elements to provide optimal decorrelation within a MIMO deployment, resulting in the best of the two worlds; decorrelation due to the polarisation differences and also spatial diversity to enhance MIMO performance and RF reliability to service the most severe connectivity within a demanding mining tunnel. The WiFi connection propagates around tunnel bends in a non-Line of Sight scenario and provides immunity to many of the WiFi signal disrupting objects such as trains and drilling machinery which appear to obscure the tunnel.

Features

- Single Port 5GHz antenna.
- This antenna is especially designed for mining and other types of tunnels.
- Uni-directional – radiates in one direction in a tunnel.
- Left & Right Hand Circular Polarised available (for MIMO).
- Intrinsically safe version available on request

Application Areas

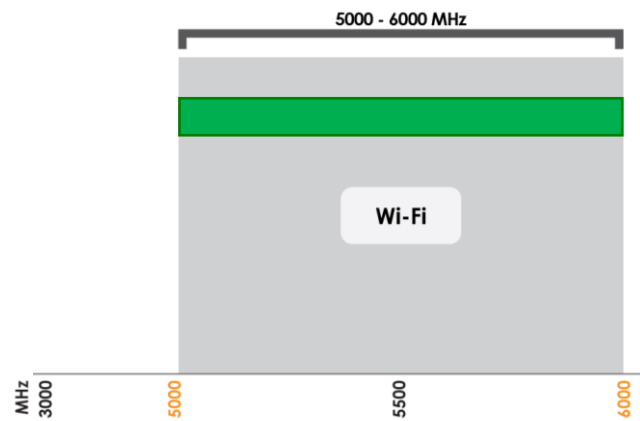
- Supplementing fibre /cable networks "Hotspots" to areas to enhance mobility or extend networks to inaccessible areas such as mines and tunnels.
- Underground telemetry and automation.
- Creating of complete underground in tunnel wide data networks and internet/LTE connectivity.
- Seamless connection to personnel using cellular phones and smart devices and tablets.





Frequency Bands

The HELI-12 is a wide-band antenna that works from | 5000-6000MHz |



Indicates: 5GHz Wi-Fi / ISM Band

Antenna Overview

Port	1
Frequency Bands	5000 MHz - 6000 MHz
Peak Gain	13.0 dBi
Coax Cable Type	RG-58
Coax Cable Length	350mm
Connector Type	N-Type Male

Electrical Specifications

Frequency bands:	5000 MHz - 6000 MHz
Gain (max):	13.0 dBi
VSWR:	<1.5:1 over 90% of the band
Feed power handling:	30 W
Input impedance:	50 Ohm (nominal)
Polarisation:	Circular Polarised (LHC or RHC)
Coax cable loss:	1.96 dB /m
DC short:	Yes

Coax Cable & Connector Type

Cable length:	350 mm
Coax cable type:	RG 58
Connector type:	N-Type (Male)

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

Product Box Contents

Antenna:	A-HELI-0012-V2-01
----------	-------------------

Ordering Information (for Right Hand Circular)

Commercial name:	HELI-12
Order product code:	A-HELI-0012-V2-01-R
EAN number:	6009693810174

Ordering Information (for Left Hand Circular)

Commercial name:	HELI-12
Order product code:	A-HELI-0012-V2-01-L
EAN number:	6009693810167

Product dimensions	± 321 mm x 142 mm x 114 mm
Packaged dimensions:	360mm x 160mm x 160mm
Weight:	0.85 kg
Packaged weight:	1.35 kg
Radome material:	ABS & PVC
Radome colour:	Grey
Mounting Type:	Ceiling mounted

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
Flammability Rating:	UL 94-HB
Impact resistance:	IK 08
Product Safety & Environmental:	Complies with CE, EN, CSA, RoHS and IEC standards



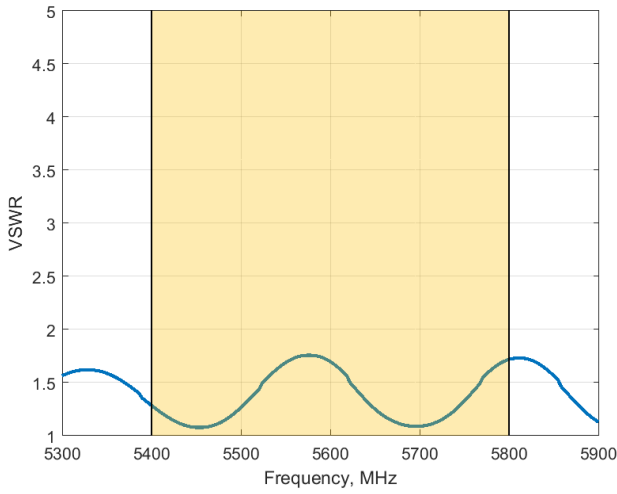
Mechanical Specifications

HELI-12

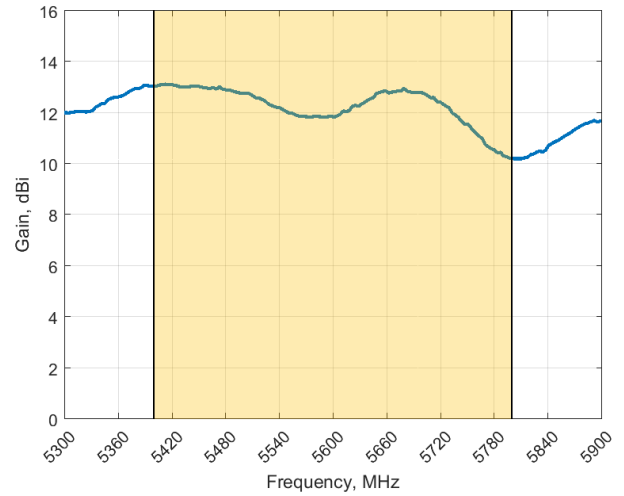
©2019 Poynting Antennas (Pty) Ltd. All rights reserved
 Product Specifications may change without prior notice
 Revised: August 2019

Antenna Performance Plots

VSWR 5000-6000 MHz



GAIN 5000-6000 MHz (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.

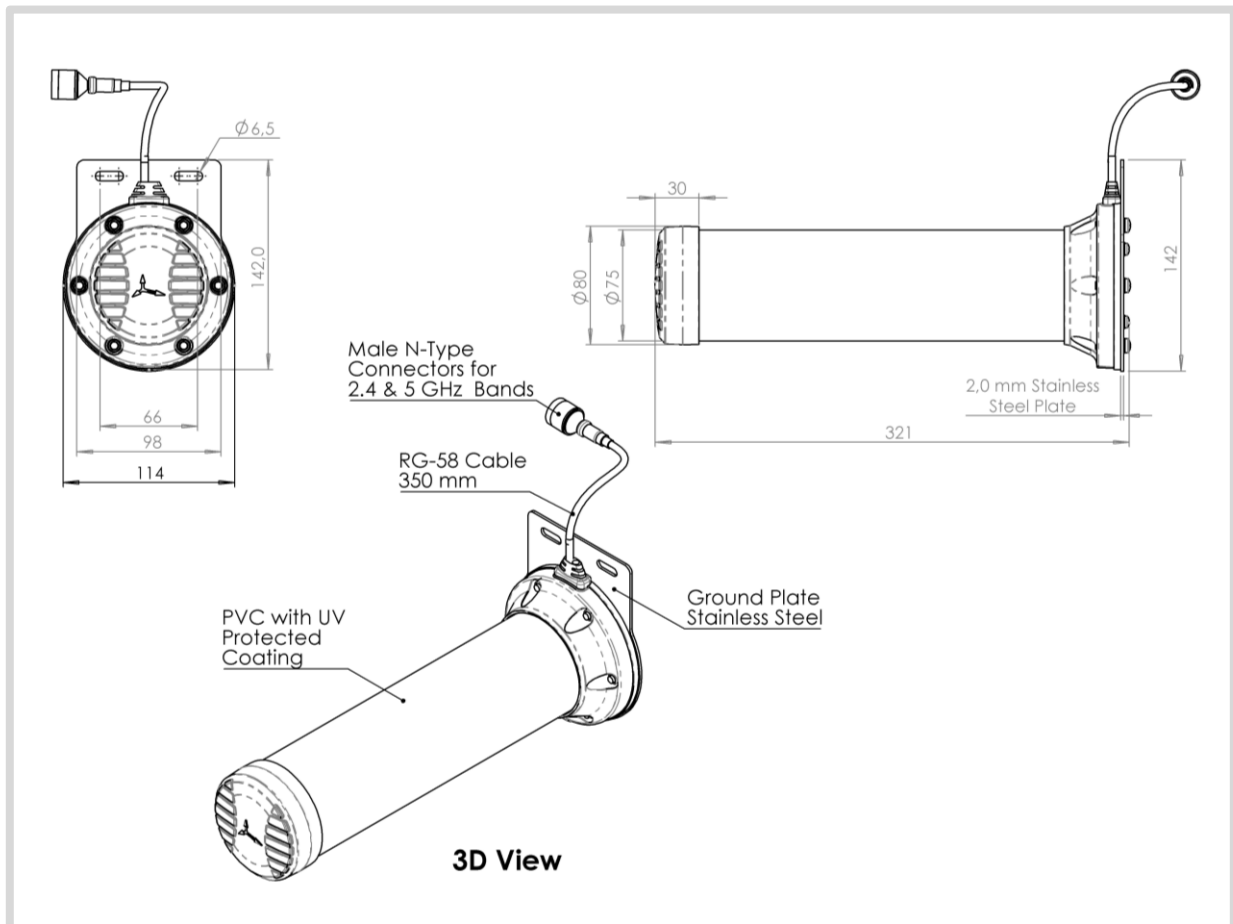
The HELI-12 delivers superior performance across all bands with a VSWR of 1.5:1 or better across 90% of the bands.

Gain* in dBi

13.0 dBi is the peak gain across all bands from 5000 – 6000 MHz

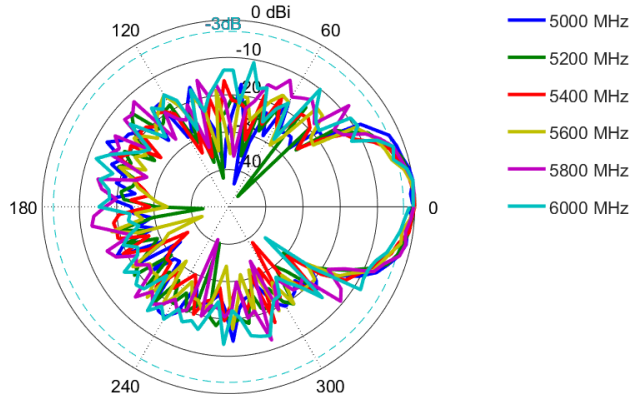
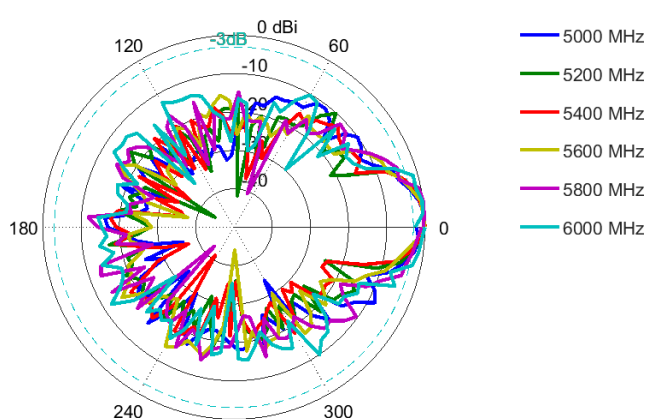
**Antenna gain measured with polarisation aligned standard antenna*

Technical Drawings

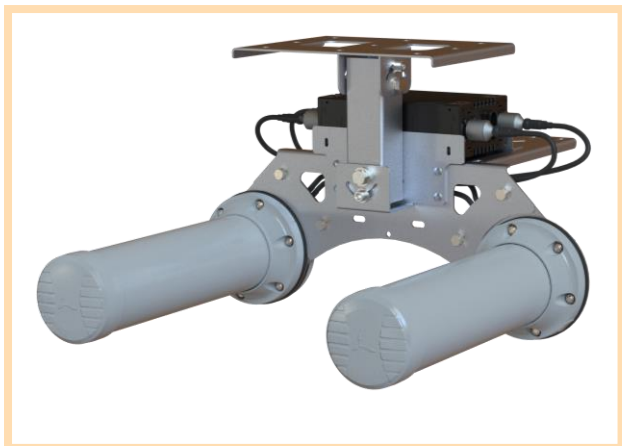


Radiation Patterns

Elevation: 5000-6000MHz Azimuth: 5000-6000MHz



Mounting Options



Ceiling Mount

Multi directional swivel bracket for mounting mini-Heli right hand circular and left hand circular polarised antennas to a ceiling.

This option uses A-BRKT-045-V2-01.



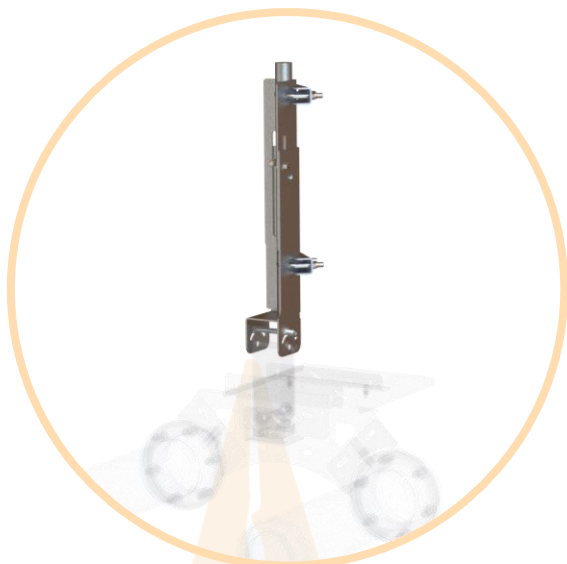
Mounting Rod

Ceiling 20mm rod mounting bracket attachment to use with bracket 45 for holding mini-Heli right hand circular and left hand circular polarised antennas.

This option uses A-BRKT-047-V2-01.

Additional Accessories**A – BRKT – 045 -V2 - 01**

Ceiling mounting bracket for holding mini-Heli Right hand and Left hand circular polarized antennas.

**A – BRKT – 047 -V1 - 01**

Ceiling 20mm Rod mounting bracket attachment to use with Bracket 45 for holding min-Heli Right hand and Left hand circular polarized antennas

Contact Poynting**Poynting Antennas (Pty) Ltd - Head Office**

Unit 4, N1 Industrial Park
Landmarks Avenue,
Samrand, 0157
South Africa

Phone: +27 (0) 12 657 0050

E-mail: sales@poynting.co.za

Poynting Europe

Regus Business Center Neue Messe Riem
Kronstadter Straße 4
81677 München
Germany

Phone: +49 89 208026538

E-mail: sales-europe@poynting.tech