HELI-31

POYNTING
BEYOND A CONNECTED LIFE

ANTENNAS | HELI-31 SERIES

CIRCULAR POLARISED, DIRECTIONAL MINE/TUNNEL ANTENNA

1700 – 7200 MHz, 9.5 dBic



1700 – 7200 MHz | 9.5 dBic | Increase X Mb/s | Uni-Directional | 2.4 – 2.5 GHz 5.0 – 6.0 GHz | Machine to Machine

5G | 4G/LTE | Internet of Things | IP 65 | -40°C to 80°C | Fire Resistant

- **Ultra-wideband circular polarised**
- **Wi-Fi 6 (802.11ax) & LTE/4G/5G**
- **Circular Polarised HELI antenna provides enhanced signal propagation and connection stability within a tunnel.**
- **Left-Hand Circular (LHC) & Right-Hand Circular (RHC) polarised.**
- **Uni-directional – radiates in one direction in a tunnel.**
- **Ruggedized, water and dust ingress protected (IP 65)**
- **Ideal for Mining & Tunnel M2M and IoT deployments**

APPLICATION AREAS

Mining
Tunnelling
MASC Mining and Surface

Product Overview

The HELI-31 forms part of a series of MiniHELI antennas. These antennas are only mini in size relative to their bigger brothers 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-31 is an ultra-wideband antenna, radiating in one direction (i.e. Uni-directional), which make them ideal for the coverage from 1700-7200 MHz. These antennas are typically used for the deployment of IoT within the tunnel to provide telemetry and mine automation. This wide-band helical antenna propagates around tunnel bends in a Non-Line of Sight scenario and provides immunity to many of the signal disrupting objects such as trains and drilling machinery which appear to obscure the tunnel.

Features

- Ultra-wideband antenna from 1700 – 7200 MHz.
- Peak gain of 9.5 dBic over the 1700 – 7200 MHz range.
- Proven antenna performance giving maximum range.
- Uni-directional – only radiates in one direction.
- Left & Right-hand Circular Polarised available (for MIMO).
- Intrinsically safe version available on request.

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
- Creating of complete underground in tunnel wide data networks and internet/LTE and Wi-Fi connectivity.
- Seamless connection to personnel using cellular phones and smart devices and tablet.



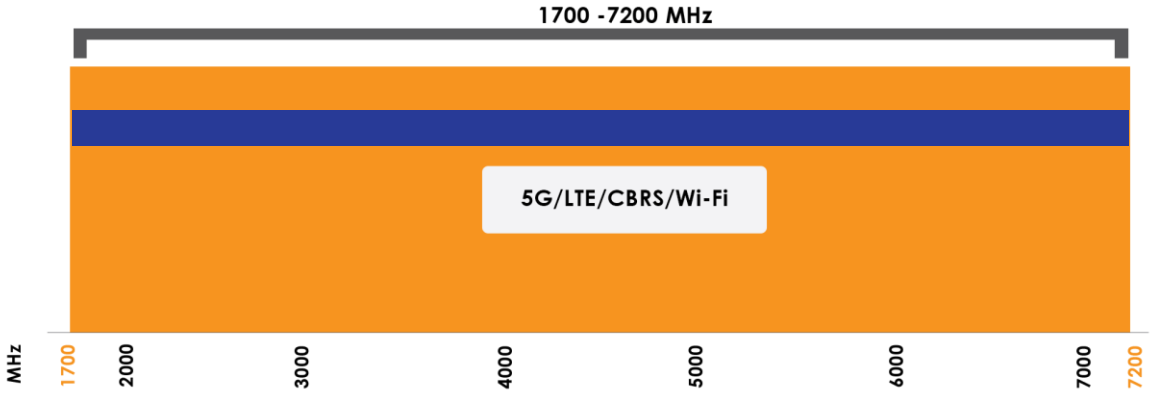
2x HELI-31 antennas mounted on the BRKT-45 for MIMO application

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Revised: February 2026

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
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Frequency Bands

The HELI-31 is a Wideband antenna that works from | 1700 – 7200 MHz |



Indicates all the bands on which HELI-31 works

Antenna Overview

	LTE
Ports	1
SISO / MIMO	SISO
Frequency Bands	1700 – 7200 MHz
Peak Gain	9.5 dBic
Coax Cable Type	RG 58
Coax Cable Length	600 mm
Connector Type	N-Type (M)

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

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Electrical Specifications

Frequency Bands:	1700 – 7200 MHz
Gain (Max):	9.5 dBic
VSWR:	≤2:1
Feed Power Handling:	30 W
Input Impedance:	50 Ohm (nominal)
Polarisation:	Circular Polarised
Coax cable loss:	0.71 dB/m @ 1800 MHz 0.86 dB/m @ 2400 MHz 1.0 dB/m @ 3000 MHz 2.10 dB/m @ 5800 MHz
DC Short:	N/A

Product Box Contents

Antenna:	A-HELI-0031-V2-01

Ordering Information (for Right-hand Circular)

Commercial name:	HELI-31
Order product code:	A-HELI-0031-V2-01-R
EAN number:	6009710921623

Ordering Information (for Left-hand Circular)

Commercial name:	HELI-31
Order product code:	A-HELI-0031-V2-01-L
EAN number:	6009710920411

Mechanical Specifications

Product dimensions	411 mm x 142 mm x 114 mm
Packaged dimensions:	450 mm x 165 mm x 140 mm
Weight:	1.20 kg
Packaged weight:	1. 6 kg
Radome material:	ABS & PVC
Radome colour:	Grey
Mounting Type:	Ceiling mounted

Environmental Specifications, Certification & Approvals

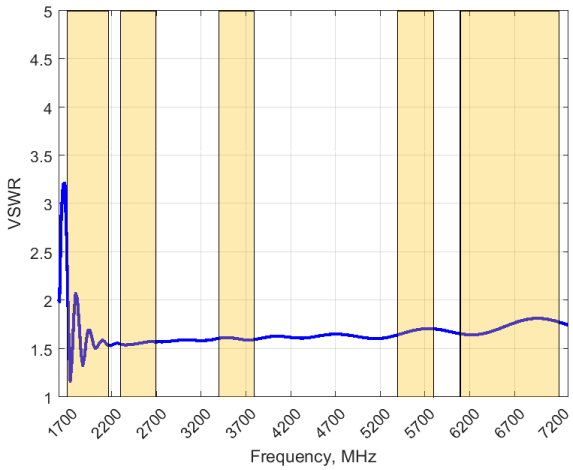
Wind Survival:	<120 km/h
Temperature Range (Operating):	-40°C to +70°C
Environmental Conditions:	Outdoor/Indoor
Water ingress protection ratio/standard:	IP 65
Salt Spray:	MIL-STD 810F/ASTM B117
Operating Relative Humidity:	Up to 98%
Storage Humidity:	5% to 95% - non-condensing
Storage Temperature:	-40°C to +70°C
Enclosure Flammability Rating:	UL 94-HB
Impact resistance:	IK 08
Product Safety & Environmental:	Complies with CE and RoHS standards

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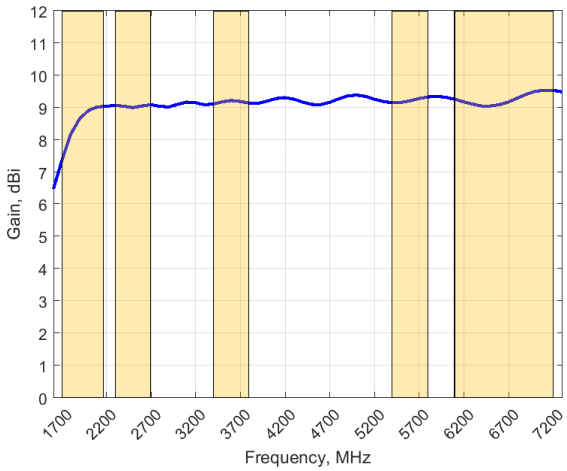
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Antenna Performance Plots

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-31 delivers superior performance across all bands with a VSWR of ≤2:1.

Gain⁺ in dBic

9.5 dBic is the peak gain across all bands from 1700 – 7200 MHz

**VSWR measured with a 350mm low loss cable*

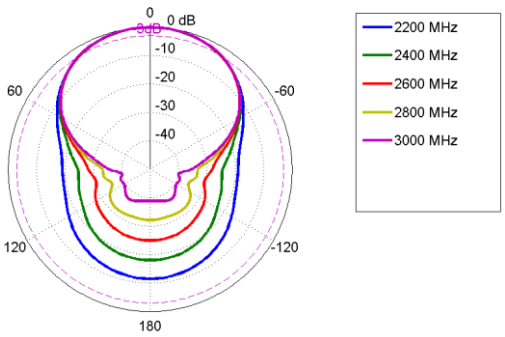
⁺*Antenna gain measured with circular polarised standard antenna*

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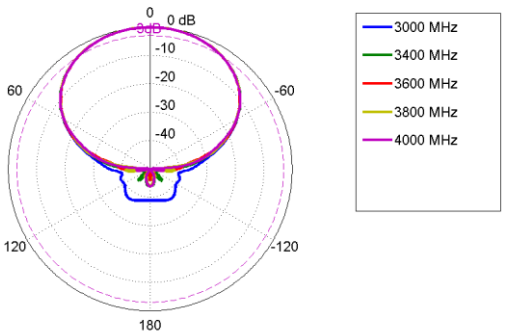
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Radiation Patterns

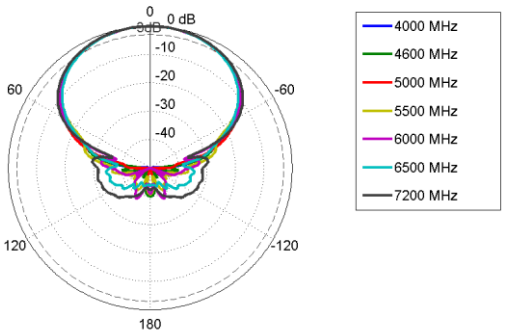
Azimuth & Elevation: 2000 – 3000 MHz



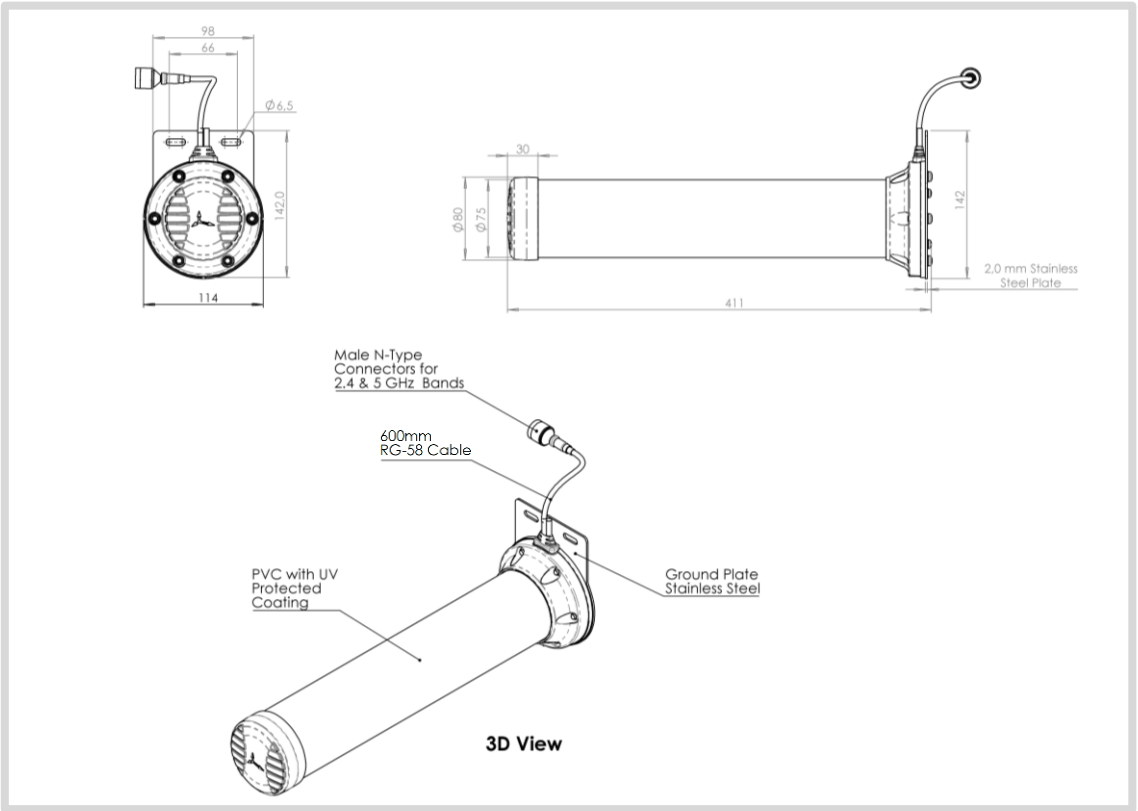
Azimuth & Elevation: 3000 – 4000 MHz



Azimuth & Elevation: 4000 – 7200 MHz



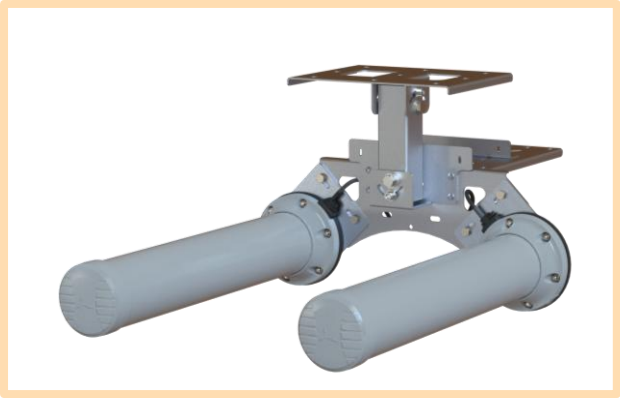
Technical Drawings



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Mounting Options



Ceiling Mount (MIMO) - Optional

An optional Multi directional swivel bracket is available for mounting 2 x miniHELI antennas (right-hand circular and left-hand circular polarised antennas) to a ceiling for MIMO application.

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



Roof Bolt Mounting - Optional

This optional 20mm roof bolt mounting bracket attachment is used in conjunction with BRKT-45 for mounting to standard mine roof bolts.

This option uses A-BRKT-047-V1-01.

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Additional Accessories



A – BRKT – 045 -V2 - 01

Ceiling mounting bracket for holding 2 x Heli -31 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 2x Heli -31 Right-hand and Left-hand circular polarized antennas

See accessories technical specifications on www.poynting.tech

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