













ANTENNAS | OMNI-294 SERIES

X-POLARISED, OMNI-DIRECTIONAL, 4X4 MIMO ANTENNA

Dual-Band Wi-Fi; 2400 – 2500 MHz, 3300 – 4200 MHz, 4900 – 7200 MHz; 8.5 dBi & 5.2 dBi



 2400 – 2500 MHz 3300 – 4200 MHz 4900 – 7200 MHz	 8.5 dBi	 Increase X Mb/s	 Omni- Directional	 2.4 - 2.5 GHz 4.9 - 7.2 GHz	 Machine to Machine
 Internet of Things	 -40°C to +80°C	 CBRS Band	 4X4 MIMO	 6.0 – 7.2 GHz	 IP 65

- Dual-band Wi-Fi antenna for 2.4 GHz and 4.9 to 7.2 GHz
- 4x4 MIMO capability for improved performance
- Cross-polarised antennas; vertical and horizontal polarisations
- Compliant with IEEE 802.11a/b/g/n/ac/ax wireless standards
- Covers the 3.5 GHz CBRS band for future 5G applications
- Robust and all-weather proof for harsh conditions (IP 65)



APPLICATION AREAS

Product Overview

The OMNI-294 is a high-performance, cross-polarized, dual-band Wi-Fi omni-directional antenna designed for fixed wireless access (FWA) deployments. This versatile antenna operates across the 2.4 GHz and 4.9 to 7.2 GHz frequency bands, making it compatible with both legacy Wi-Fi technologies and the latest advancements, including Wi-Fi 7.

In addition to its Wi-Fi capabilities, the OMNI-294 also supports the 3.3 to 4.2 GHz band, which is utilized for Citizens Broadband Radio Service (CBRS) in 5G applications. The antenna provides a peak gain of 8.5 dBi in this band, making it an excellent choice for enhancing 5G connectivity.

Engineered to deliver robust Wi-Fi coverage, the OMNI-294 supports 4x4 MIMO technology, facilitated by vertically separated radiating elements. This configuration ensures true omni-directional coverage, enhancing connectivity and reliability in FWA applications.

To optimize 4x4 MIMO performance, the antenna features cross-polarized elements, with high-gain vertical antennas offering a peak gain of 8.5 dBi and low-gain horizontally polarized antennas providing a peak gain of 5.2 dBi. This combination enhances overall performance, making the OMNI-294 an ideal solution for a wide range of Wi-Fi and 5G access points.

Features

- Dual-band Wi-Fi antenna for 2.4 GHz & 4.9 to 7.2 GHz
- CBRS band support from 3.3 to 4.2 GHz
- 4x4 MIMO capability for improved performance
- Cross-polarised antennas (vertical & horizontal)
- High gain performance across multiple frequency bands
- Robust and weather-resistant enclosure with an IP 65 rating

Application Areas

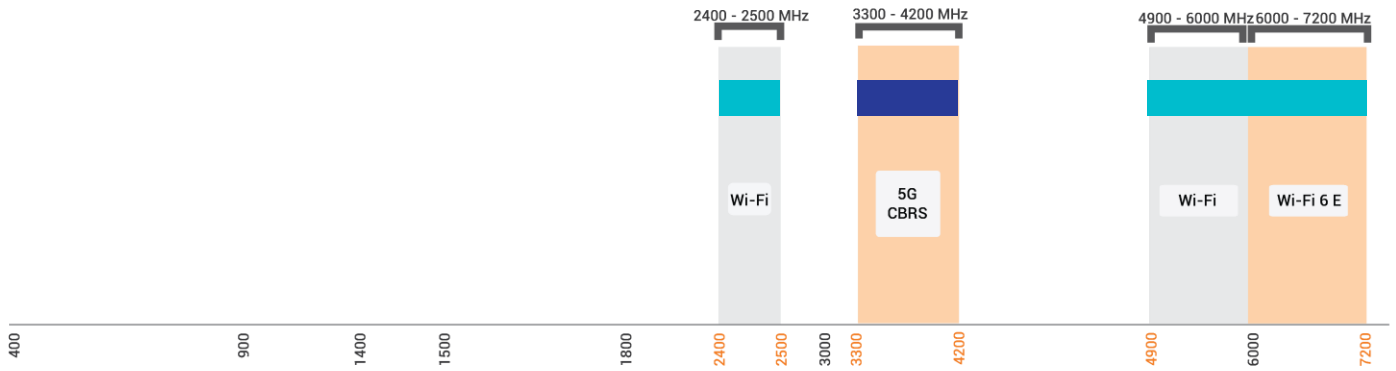
- Industrial and commercial Wi-Fi deployment
- Public Wi-Fi hotspots like parks, malls, airports, and stadiums
- Building sites and open-cast mines
- Production facilities and factories
- Smart Cities for M2M and IoT applications
- Areas with large amounts of machinery (cluttered environments)



OMNI-294

Frequency Bands


The OMNI-294 is an omni-directional antenna that works from | 2400 – 2500 MHz | 3300 – 4200 MHz | and | 4900 – 7200 MHz |



 Indicates the 5G/CBRS bands on which OMNI-294 works

 Indicates the WI-FI bands on which OMNI-294 works

Antenna Overview

	
Ports	4
SISO / MIMO	4x4 MIMO
Polarisation	Vertical & Horizontal
Peak Gain	8.5 dBi & 5.2 dBi
Coax Cable Type	2 x Twin HDF 195
Coax Cable Length	2m
Connector Type	SMA (M)

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

Electrical Specifications

Frequency Bands:	2400 – 2500 MHz
	3300 – 4200 MHz
	4900 – 7200 MHz
Gain (Vertical):	6.2 dBi; 5.5 dBi @ 2400 – 2500 MHz
	7.5 dBi; 7.3 dBi @ 3300 – 4200 MHz
	8.5 dBi; 7.5 dBi @ 4900 – 7200 MHz
Gain (Horizontal):	3.3 dBi; 3.2 dBi @ 2400 – 2500 MHz
	4.0 dBi; 6.3 dBi @ 3300 – 4200 MHz
	5.2 dBi; 4.6 dBi @ 4900 – 7200 MHz
VSWR:	<2:1
	Across 90% of the bands
Feed Power Handling:	10 W
Input Impedance:	50 Ohm (nominal)
Polarisation:	Vertical & Horizontal
Coax Cable Loss:	0.666 dB/m @ 2400 MHz
	0.788 dB/m @ 3000 MHz
	1.15 dB/m @ 5800 MHz
DC Short:	Yes

Product Box Contents

Antenna:	A-OMNI-0294-V1-01
Mounting Bracket:	L-bracket (Ø30-50mm Pole)
Adapters:	RPSMA(M) to SMA(F)

Ordering Information

Commercial Name:	OMNI-294
Order Product Code:	A-OMNI-0294-V1-01
EAN Number:	6009710929032

Mechanical Specifications

Product Dimensions	646 mm x Ø71 mm
Packaged Dimensions:	710 mm x 150 mm x 100 mm
Weight:	0.75 KG
Packaged Weight:	1.65 KG
Radome Material:	UV Stable ASA
Radome Colour:	Brilliant White
	Pantone P 179-1C
Mounting Type:	Wall/pole mount

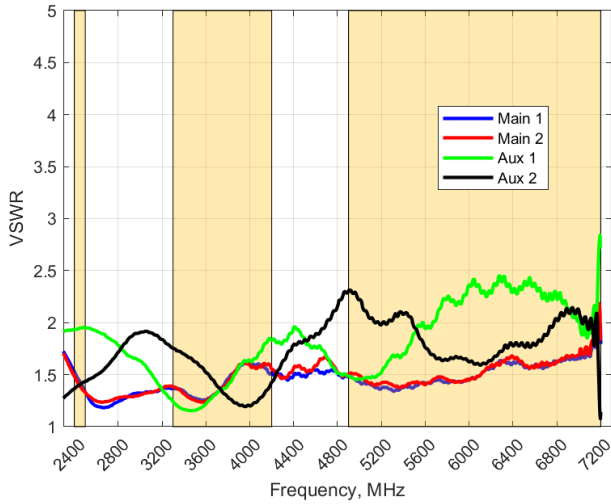
Environmental Specifications, Certification & Approvals

Wind Survival:	≤190 km/h
Temperature Range (Operating):	-40°C to +80°C
Environmental Conditions:	Outdoor
Water ingress Protection Ratio/standard:	IP 65
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 08
Product Safety & Environmental:	Complies with CE and RoHS standards



Antenna Performance Plots

VSWR: Antenna 1-4



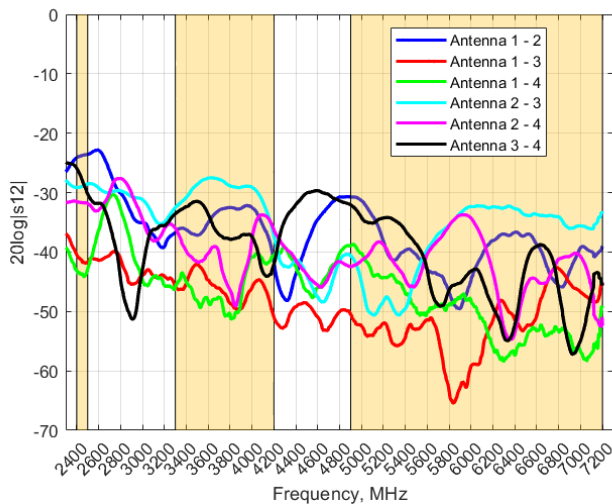
Voltage Standing Wave Ratio (VSWR)*

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 OMNI-294 delivers superior performance across all bands with a VSWR of <2:1 or better across 90% of the bands.

*VSWR measured with 2m low loss cable

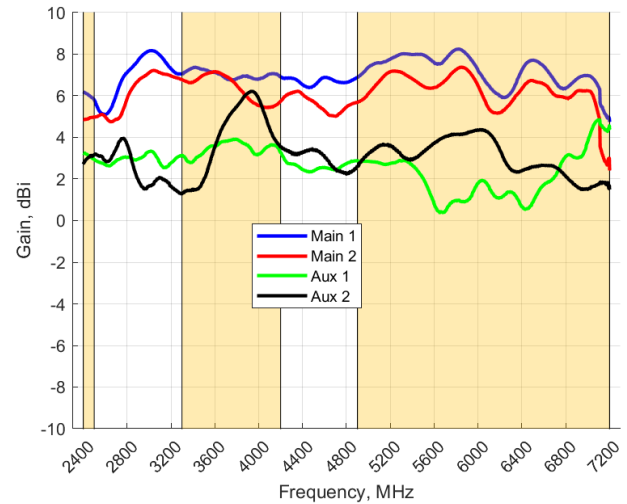
Isolation



Isolation

Isolation is a measurement of the amount of energy leaked from one port to another. A good isolation is under -20 dB.

GAIN (EXCLUDING CABLE LOSS): Antenna 1-4



Gain* in dBi

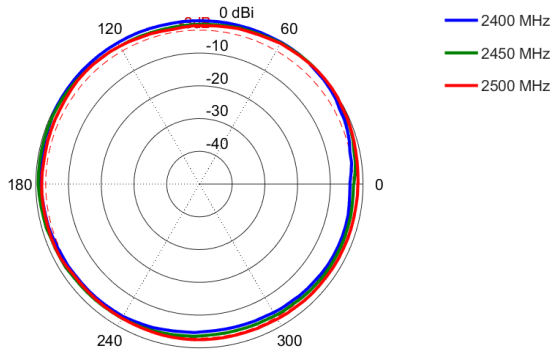
8.5 dBi is the peak gain across all bands from 2400 – 2500 MHz, 3300 – 4200 MHz and 4900 – 7200 MHz

Gain @ 2400 – 2500 MHz (Main 1; Main 2):	6.2 dBi; 5.0 dBi
Gain @ 2400 – 2500 MHz (Aux 1; Aux 2):	3.3 dBi; 3.2 dBi
Gain @ 3300 – 4200 MHz (Main 1; Main 2):	7.5 dBi; 7.3 dBi
Gain @ 3300 – 4200 MHz (Aux 1; Aux 2):	4.0 dBi; 6.3 dBi
Gain @ 4900 – 7200 MHz (Main 1; Main 2):	8.5 dBi; 7.5 dBi
Gain @ 4900 – 7200 MHz (Aux 1; Aux 2):	5.2 dBi; 4.6 dBi

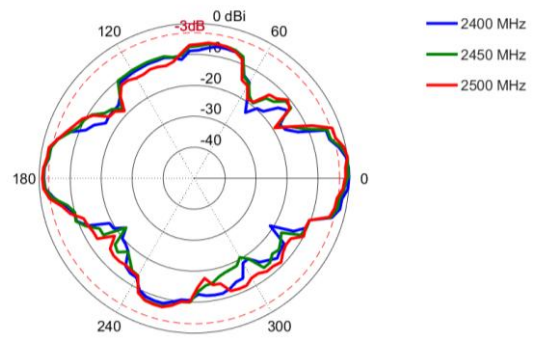
*Antenna gain measured with polarisation aligned standard antenna

MIMO High Radiation Patterns

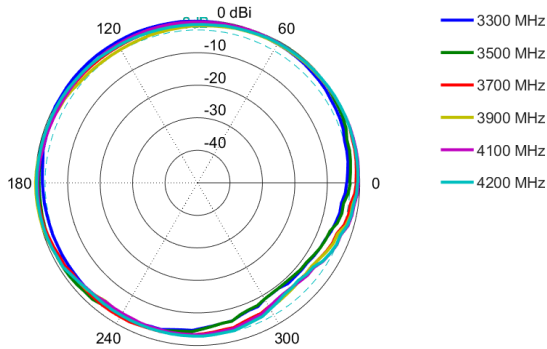
Azimuth: 2400 – 2500 MHz



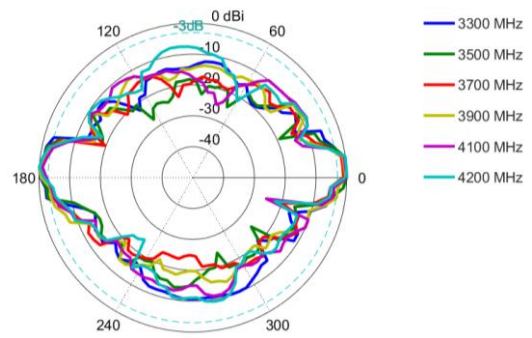
Elevation: 2400 – 2500 MHz



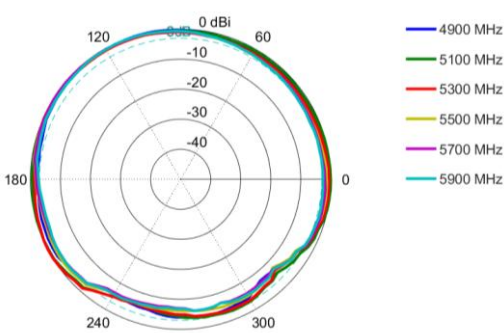
Azimuth: 3300 – 4200 MHz



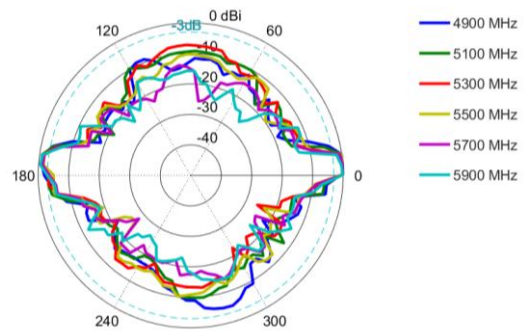
Elevation: 3300 – 4200 MHz



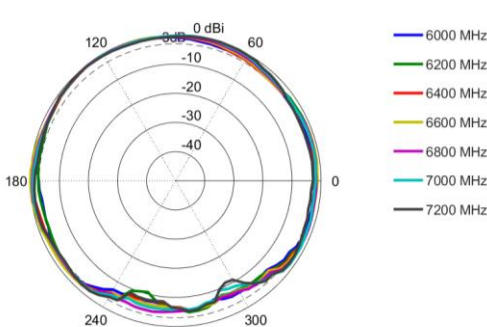
Azimuth: 4900 – 5900 MHz



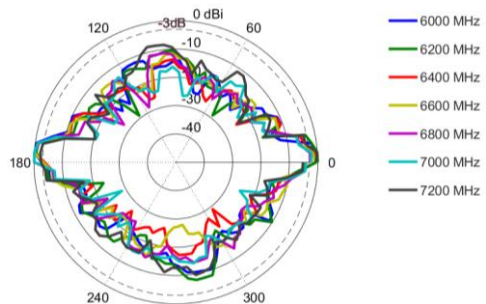
Elevation: 4900 – 5900 MHz



Azimuth: 6000 – 7200 MHz

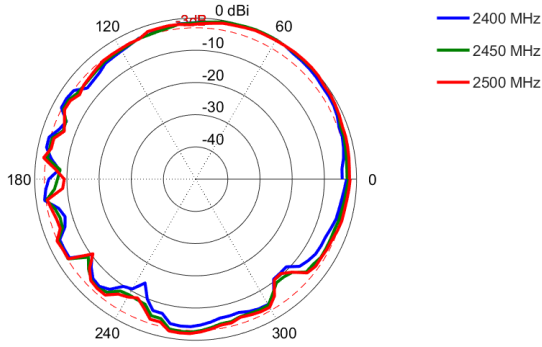


Elev

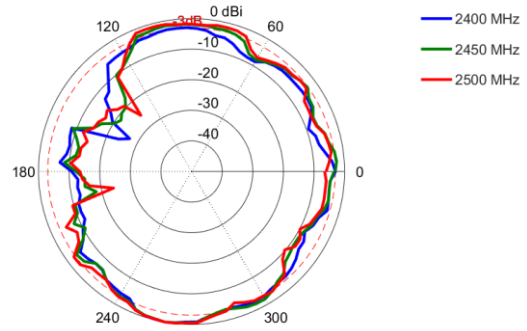


MIMO Low Radiation Patterns

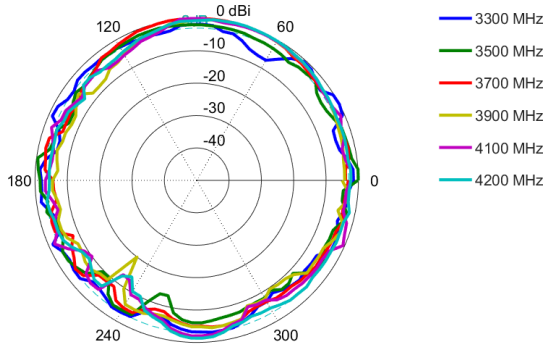
Azimuth: 2400 – 2500 MHz



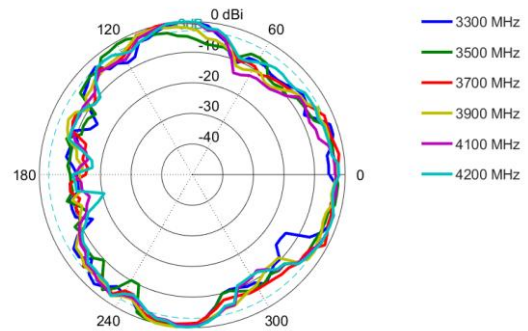
Elevation: 2400 – 2500 MHz



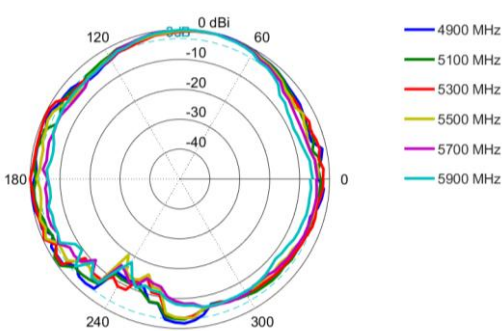
Azimuth: 3300 – 4200 MHz



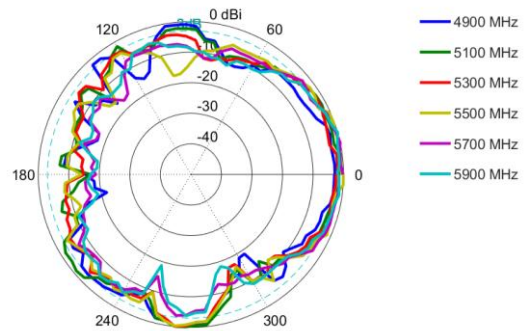
Elevation: 3300 – 4200 MHz



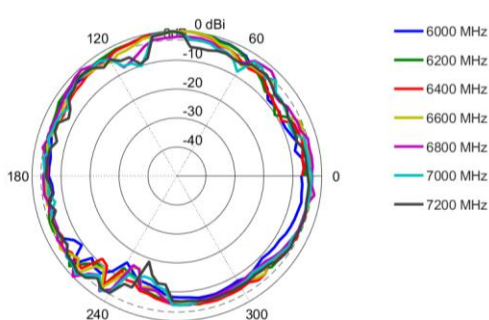
Azimuth: 4900 – 5900 MHz



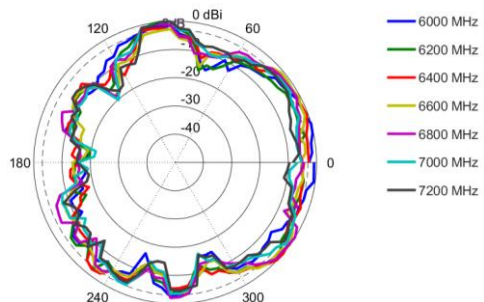
Elevation: 4900 – 5900 MHz



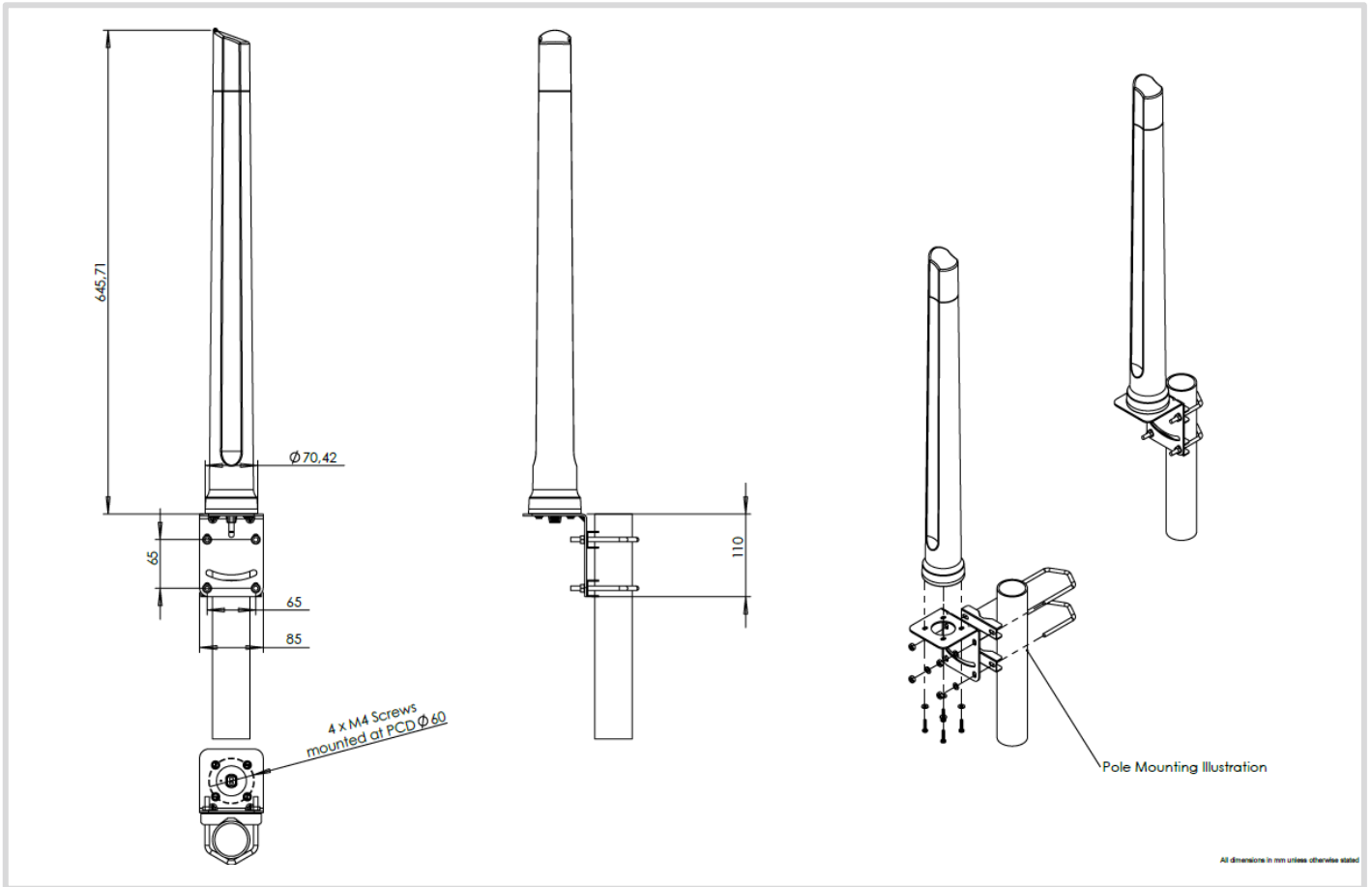
Azimuth: 6000 – 7200 MHz



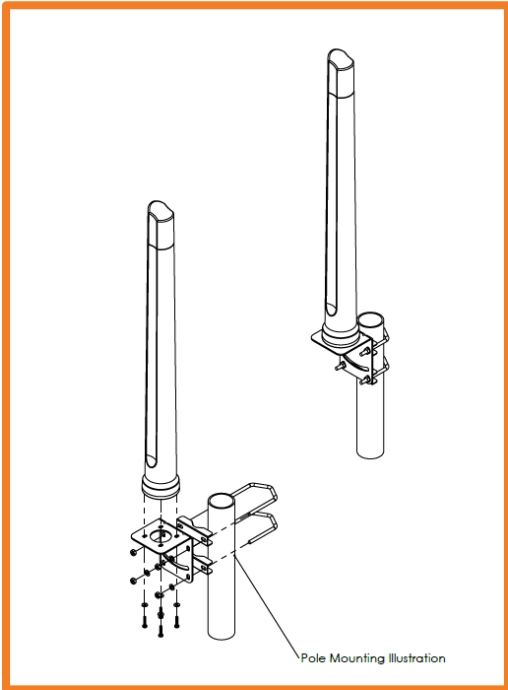
Elev



Technical Drawings

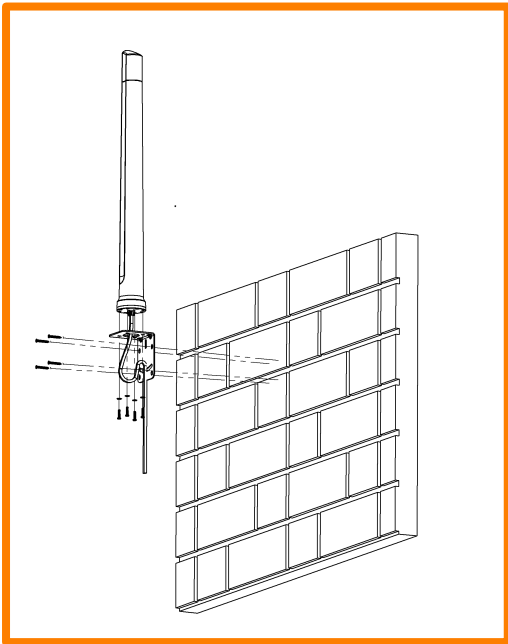


Mounting Options



Pole Mount

Pole/Wall Mounting bracket (included))



Wall Mount

Wall/pole mount bracket included

Additional Accessories

Extension Cables: Up to 15m HDF 195
Various connectors available
Installation poles and brackets available

See accessories technical specifications on www.poynting.tech

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