

## 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 dBi & 6 dBi



					
2400 – 2500 MHz 3300 – 4200 MHz 4900 – 7200 MHz	8 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	2.4 GHz 5 GHz 6 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/be 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 7.5 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 dBi and low-gain horizontally polarized antennas providing a peak gain of 6 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

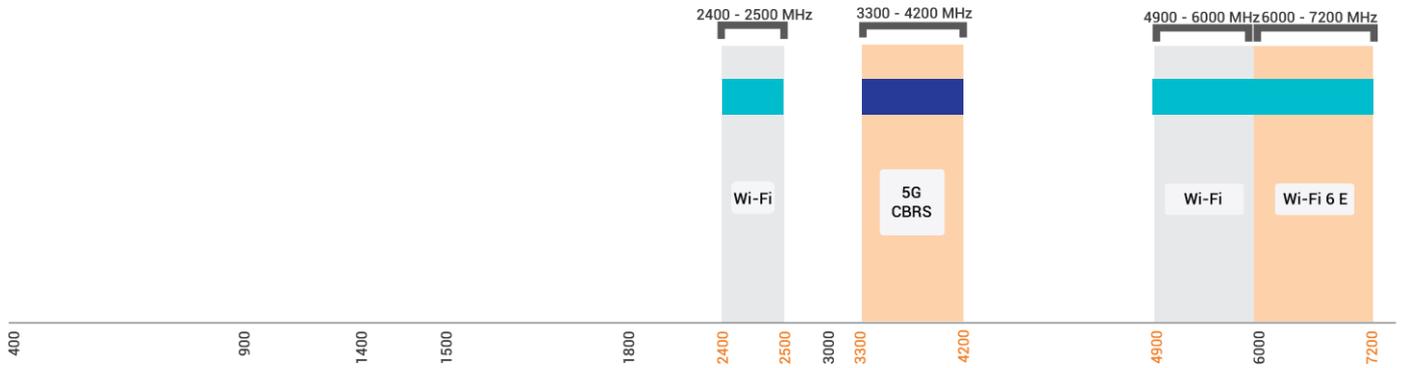
- Industrial and commercial Wi-Fi deployment
- Public Wi-Fi hotspots like parks, malls, airports, and stadiums
- Building sites and open-cast mines
- Production facilities and factories
- Smart Cities for M2M and IoT applications
- Areas with large amounts of machinery (cluttered environments)



## 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

	
<b>Ports</b>	4
<b>SISO / MIMO</b>	4x4 MIMO
<b>Polarisation</b>	Vertical & Horizontal
<b>Peak Gain</b>	8 dBi & 6 dBi
<b>Coax Cable Type</b>	2 x Twin HDF 195
<b>Coax Cable Length</b>	2m
<b>Connector Type</b>	SMA (M)

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

## Electrical Specifications

<b>Frequency Bands:</b>	2400 – 2500 MHz
	3300 – 4200 MHz
	4900 – 7200 MHz
<b>Gain (Vertical):</b>	6.0 dBi; 5.0 dBi @ 2400 – 2500 MHz
	7.5 dBi; 7.3 dBi @ 3300 – 4200 MHz
	8.0 dBi; 7.5 dBi @ 4900 – 7200 MHz
<b>Gain (Horizontal):</b>	3.3 dBi; 3.2 dBi @ 2400 – 2500 MHz
	4.0 dBi; 6.0 dBi @ 3300 – 4200 MHz
	5.0 dBi; 4.4 dBi @ 4900 – 7200 MHz
<b>VSWR:</b>	<2:1
	Across 90% of the bands
<b>Feed Power Handling:</b>	10 W
<b>Input Impedance:</b>	50 Ohm (nominal)
<b>Polarisation:</b>	Vertical & Horizontal
<b>Coax Cable Loss:</b>	0.666 dB/m @ 2400 MHz
	0.788 dB/m @ 3000 MHz
	1.15 dB/m @ 5800 MHz
<b>DC Short:</b>	Yes

## Product Box Contents

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

## Ordering Information

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

## Mechanical Specifications

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

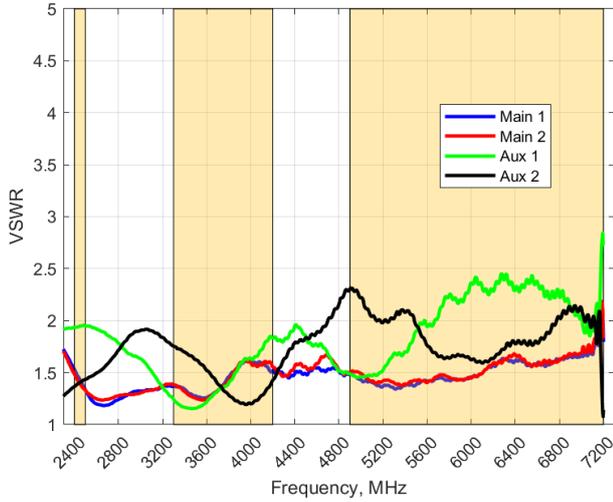
## Environmental Specifications, Certification & Approvals

<b>Wind Survival:</b>	≤190 km/h
<b>Temperature Range (Operating):</b>	-40°C to +80°C
<b>Environmental Conditions:</b>	Outdoor
<b>Water ingress Protection Ratio/standard:</b>	IP 65
<b>Salt Spray:</b>	MIL-STD 810G/ASTM B117
<b>Operating Relative Humidity:</b>	Up to 98%
<b>Storage Humidity:</b>	5% to 95% - non-condensing
<b>Storage Temperature:</b>	-40°C to +80°C
<b>Enclosure Flammability Rating:</b>	UL 94-HB
<b>Impact Resistance:</b>	IK 08
<b>Product Safety &amp; Environmental:</b>	Complies with CE and RoHS standards

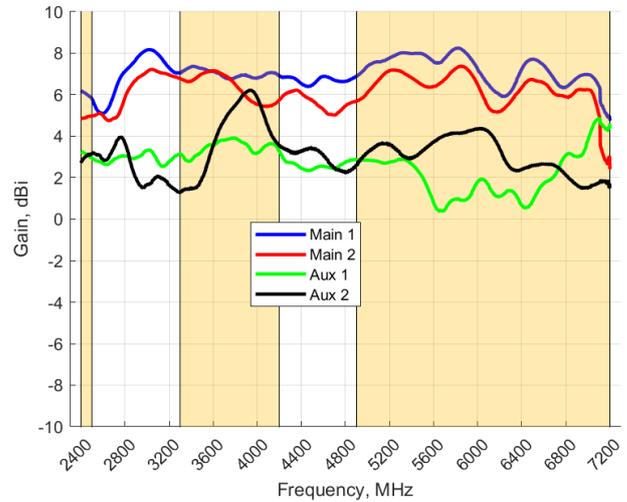


**Antenna Performance Plots**

**VSWR: Antenna 1-4**



**GAIN (EXCLUDING CABLE LOSS): 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

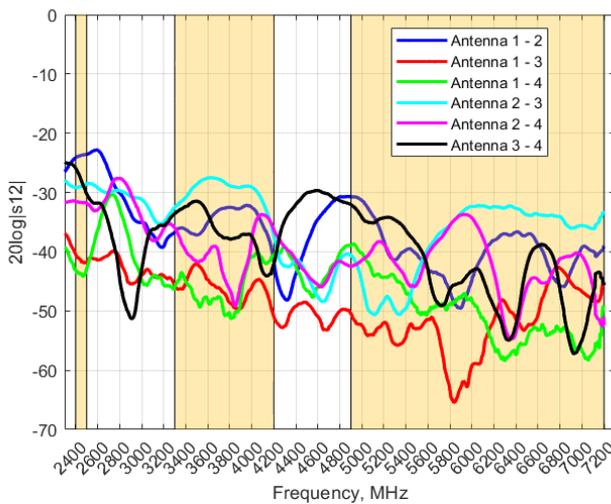
**Gain\* in dBi**

8 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):	6.0 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; 6.0 dBi
Gain @ 4900 – 7200 MHz (Main 1; Main 2):	8.0 dBi; 7.5 dBi
Gain @ 4900 – 7200 MHz (Aux 1; Aux 2):	5.0 dBi; 4.4 dBi

\*Antenna gain measured with polarisation aligned standard antenna

**Isolation**

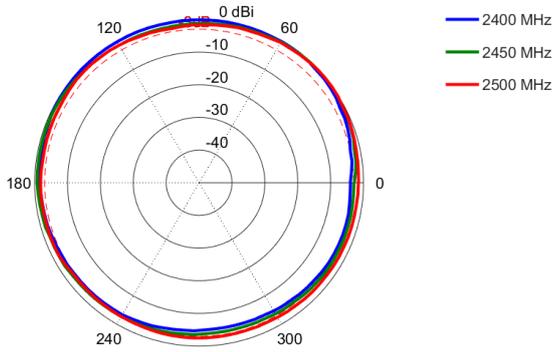


**Isolation**

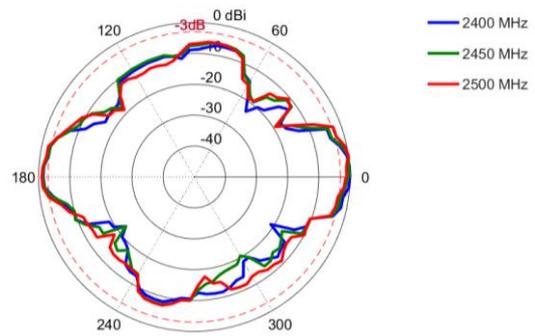
Isolation is a measure of how much energy from one port leaks into another port undesirably. Isolation of 0 dB between 2 ports means that there is no isolation and the energy from 1 port excitation is visible on another port. Isolation of -30 dB or more means that <0.1% of 1 port's energy is leaked into another. A good isolation is under -10 dB.

**Radiation Patterns – Main (Vertical) Elements**

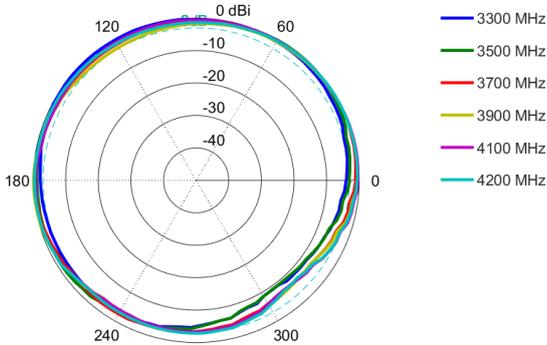
**Azimuth: 2400 – 2500 MHz**



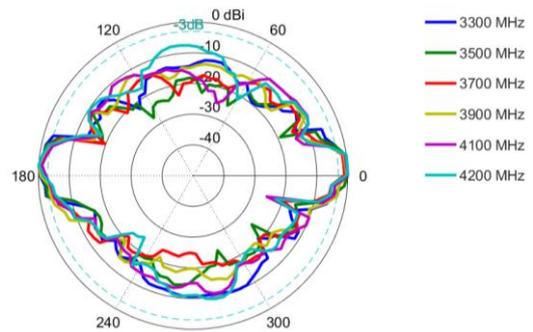
**Elevation: 2400 – 2500 MHz**



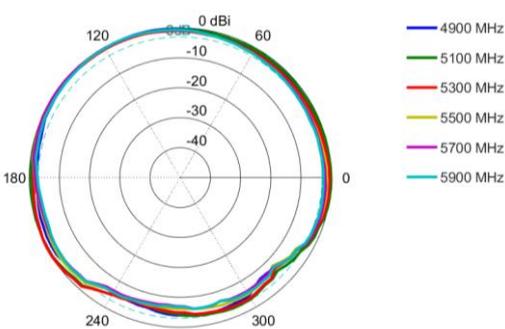
**Azimuth: 3300 – 4200 MHz**



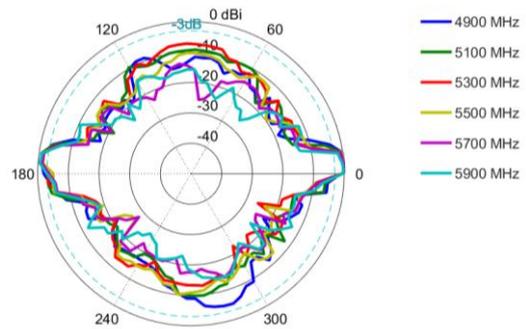
**Elevation: 3300 – 4200 MHz**



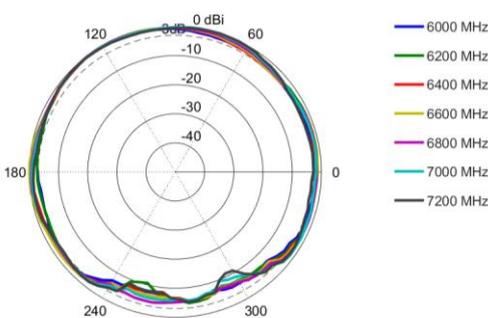
**Azimuth: 4900 – 5900 MHz**



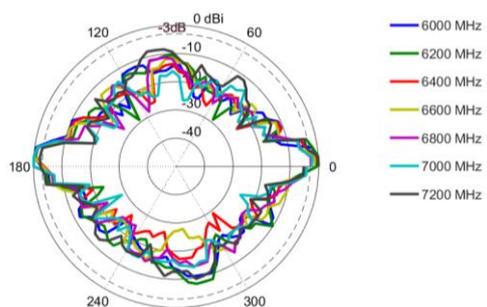
**Elevation: 4900 – 5900 MHz**



**Azimuth: 6000 – 7200 MHz**

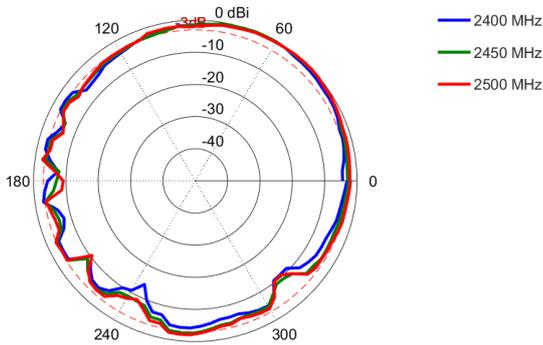


**Elevation: 6000 – 7200 MHz**

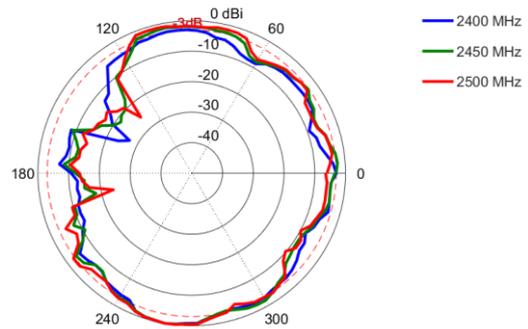


**Radiation Patterns – Aux (Horizontal) Elements**

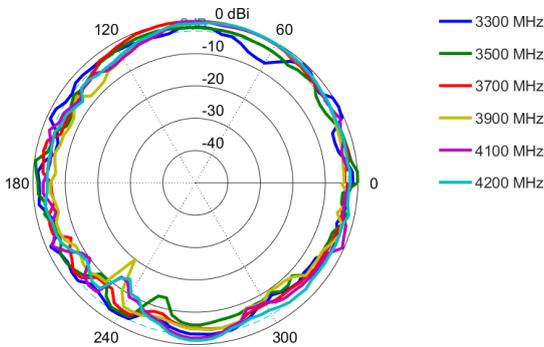
**Azimuth: 2400 – 2500 MHz**



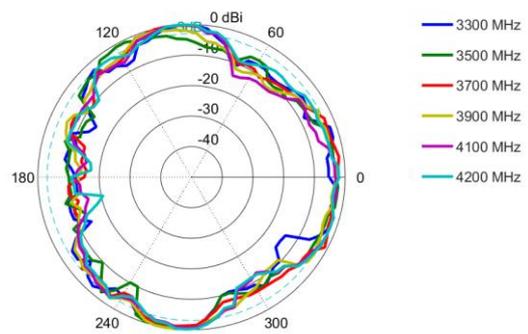
**Elevation: 2400 – 2500 MHz**



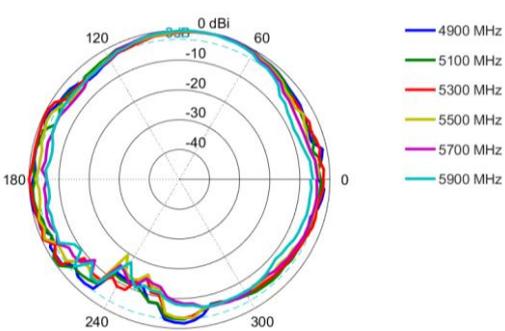
**Azimuth: 3300 – 4200 MHz**



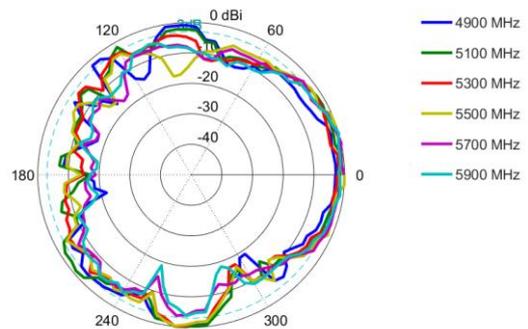
**Elevation: 3300 – 4200 MHz**



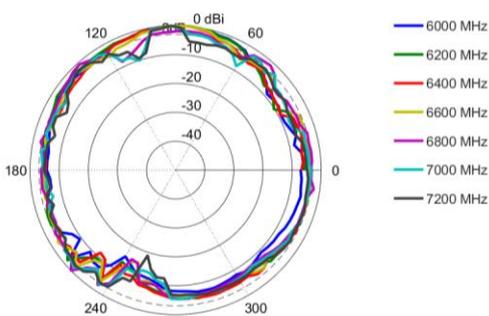
**Azimuth: 4900 – 5900 MHz**



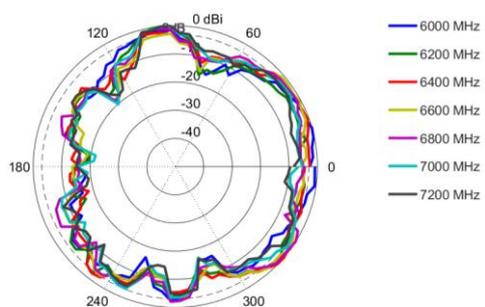
**Elevation: 4900 – 5900 MHz**



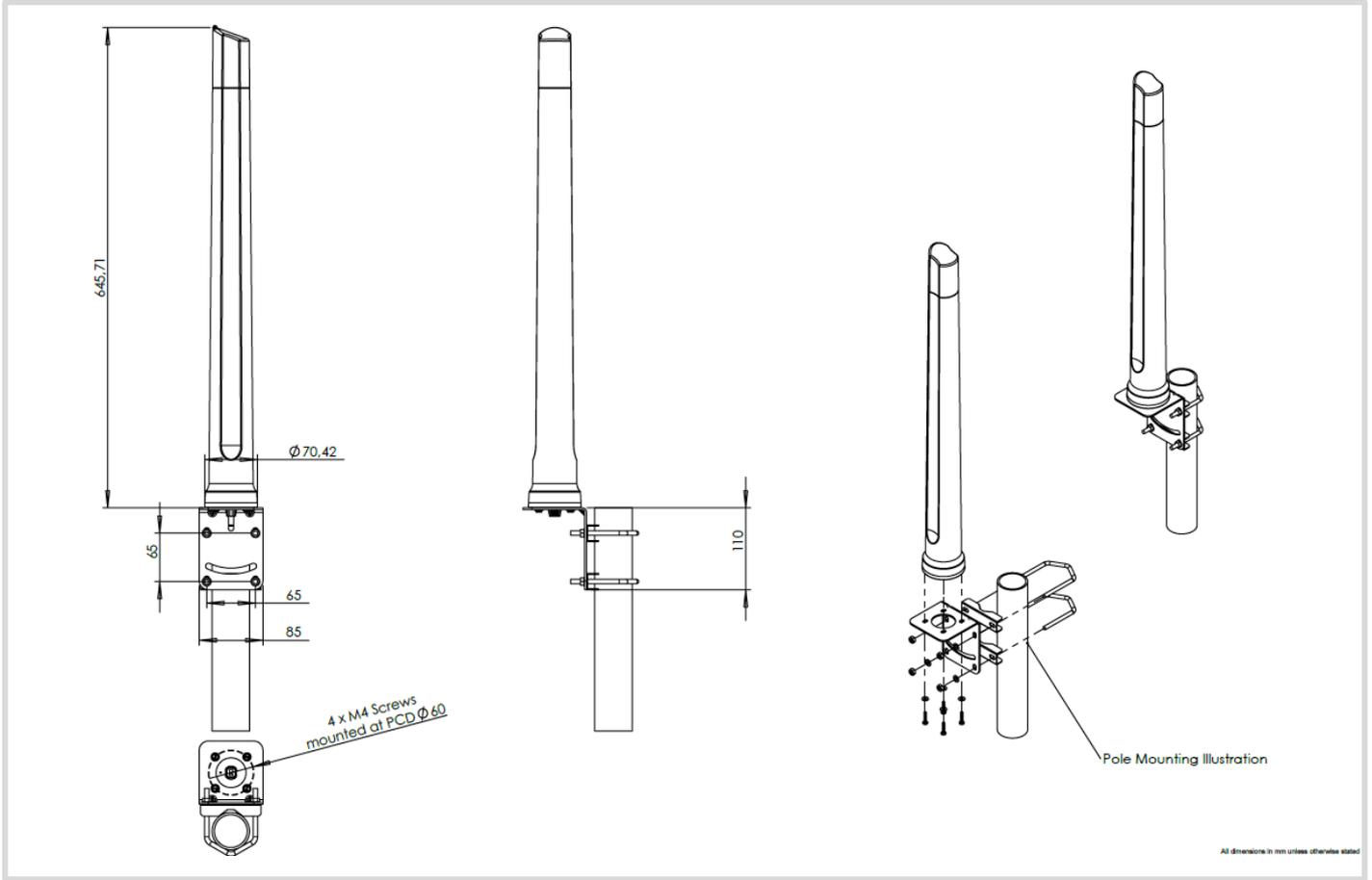
**Azimuth: 6000 – 7200 MHz**



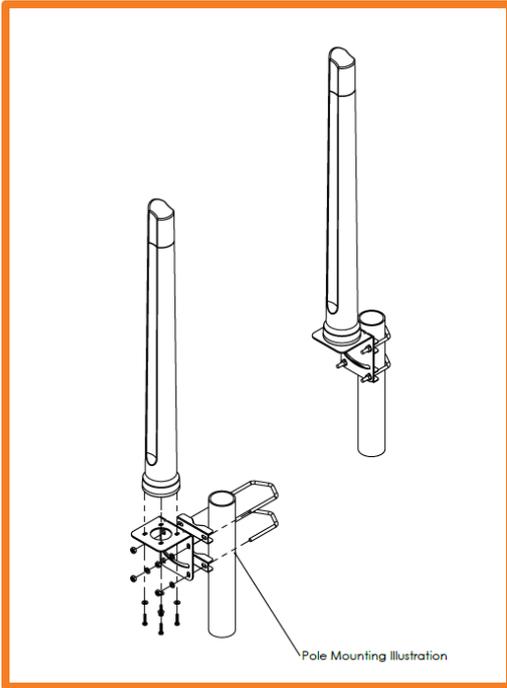
**Elevation: 6000 – 7200 MHz**



Technical Drawings

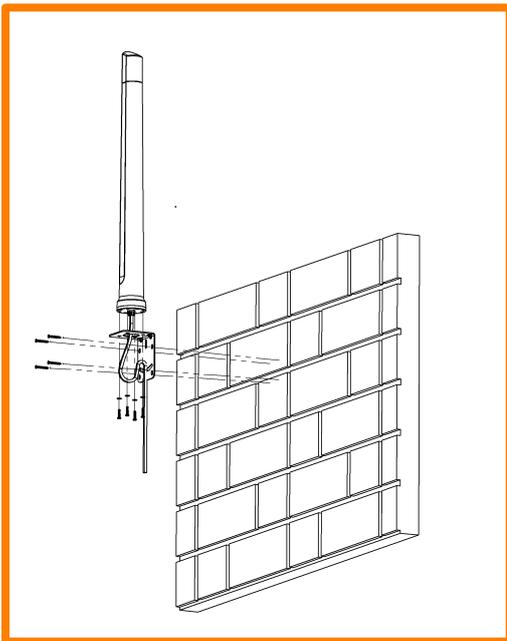


**Mounting Options**



**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](http://www.poynting.tech)

## CONTACT POYNTING

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