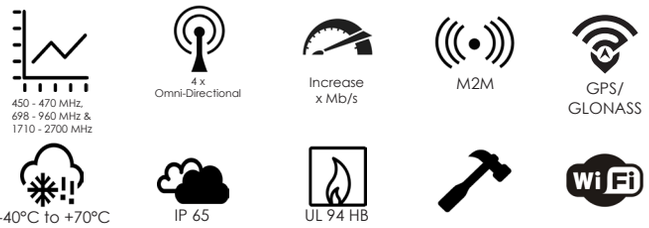
MIMO-3

5 - IN - 1 MIMO/GPS/WIFI ANTENNA



- **5 in 1 futureproof high performance multi frequency antenna**
- **Backwards compatible with 3G and 2G technologies**
- **2 x MiMo LTE**
- **2 x MiMo WIFI**
- **GPS & GLONASS**
- **Robust antenna**
- **Vandal and water resistant**
- **Increased connectivity stability**

Product Overview

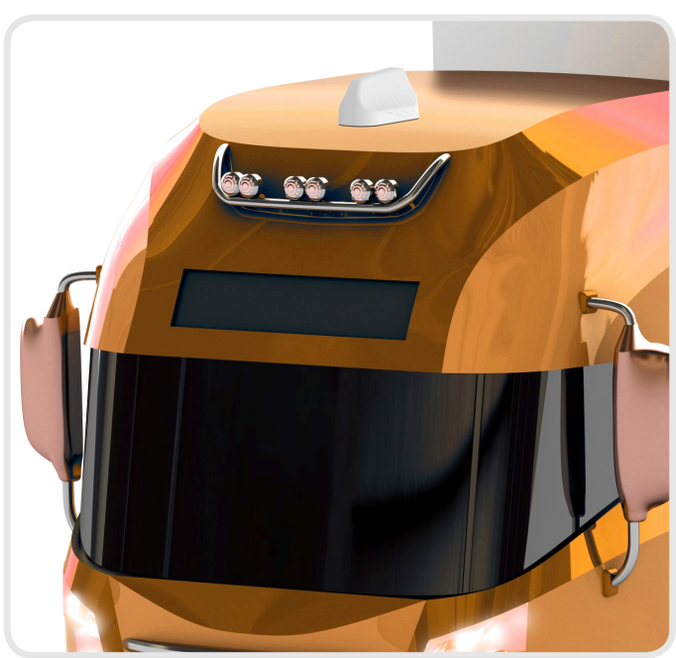
The MIMO-3 incorporates 5 antennas in a single antenna housing, providing 2x Cellular, 2x Wi-Fi and a GPS. The 2x Cellular MIMO antennas (for 2G/3G/4G) cover the 698MHz to 2700MHz band, as well as the 450MHz band, which is becoming popular for the various international network operators for LTE. This antenna, due to its wide band capabilities, is able to handle future cellular technologies such as 5G and offers a versatile antenna which can be used across different operators and technologies. The antenna provides two separate dual-band Wi-Fi antennas, providing concurrent 2.4GHz and 5GHz on each antenna with 2x2 MIMO capability. The fifth antenna is a high performance active GPS/GLONASS system operating down to -40 degrees.
The antenna exceeds the performance of most competitors due to the attention to the design of this high performance antenna. The radiation patterns of all radiating elements provide an excellent balance between omnidirectionality, pattern diversity and good radiation abilities at the desired elevation, which is important for this type of antenna. Main applications are for industrial vehicles, M2M and other IoT systems using a wide range of radio technologies, while remaining futureproof over the wide frequency band offered by this antenna.

Features

- Advanced antenna engineering with exceptional radiation pattern and gain
- Cleverly designed decorrelated antennas give superior MIMO performance in Wi-Fi and cellular bands
- Above features maintained from 698MHz to 5800MHz in relevant bands, including the 450MHz band
- Careful mechanical design provides ruggedness, water and corrosion resistance

Application areas

- Linking public vehicles to data networks
- Inland marine applications, trucks, tractors and other industrial and commercial vehicles for control and communications
- M2M to ATMs, vending machines, modems, smart meters, industrial enclosures
- 4G to Wi-Fi internet on busses, trains, etc
- Asset tracking (containers etc)



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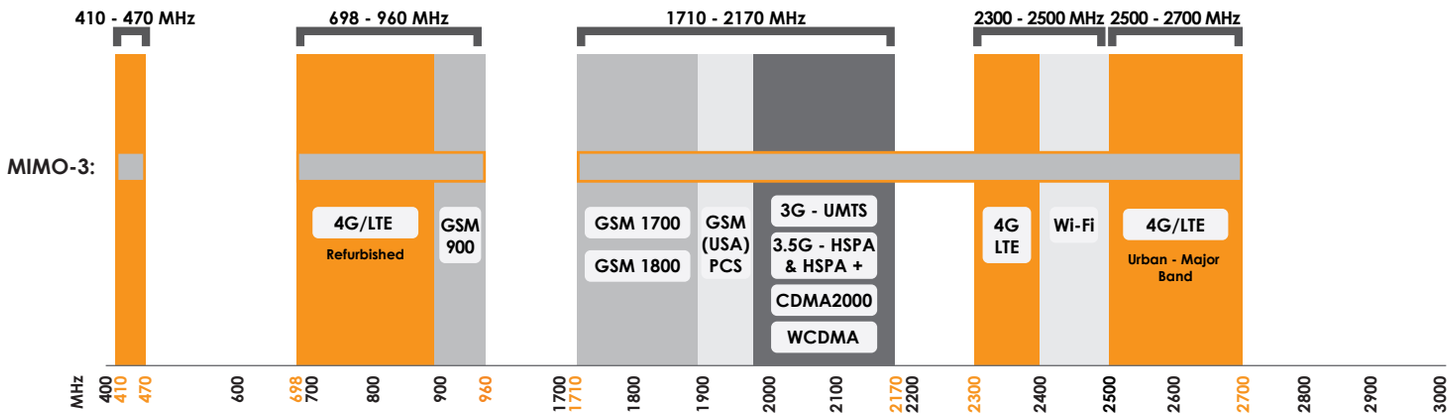
Frequency bands - Cellular

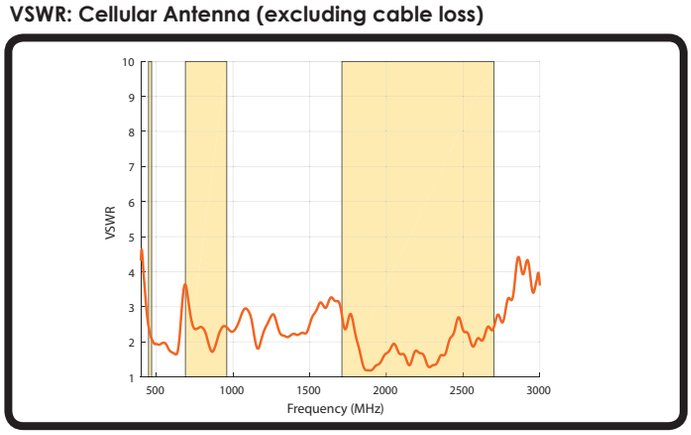
The MIMO-3 works across the following LTE bands: 1-21, 23-29, 30,31, 33-41,44

Indicates the bands on which this antenna works

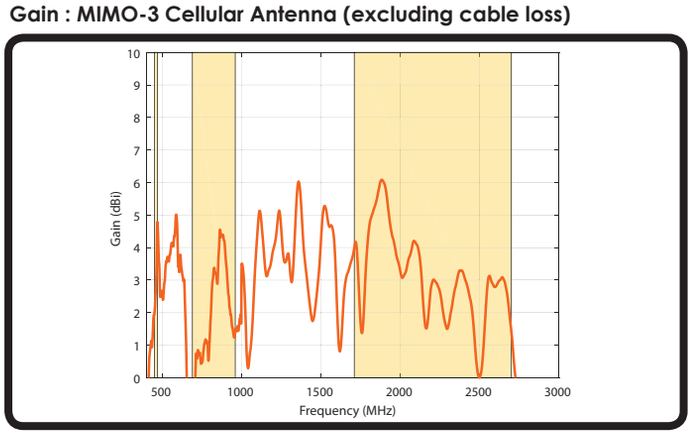


Antenna Performance Plots

VSWR: Cellular Antenna (excluding cable loss)



Gain : MIMO-3 Cellular Antenna (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 MIMO-3 delivers superior performance across all bands with a VSWR of 3:1 or better.

*Measured on a 40cm x 40cm ground plane

Gain* in dBi

6.0 dBi is the peak gain across all bands from 450 - 2700 MHz

Gain @ different bands:	4.0 dBi @410-470MHz
Gain @ different bands:	4.5 dBi @ 698-960MHz
Gain @ different bands:	6.0 dBi @1710-2700MHz

*Measured on a 40cm x 40cm ground plane

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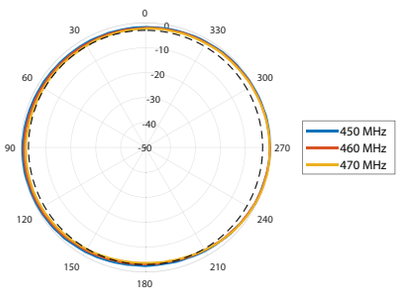
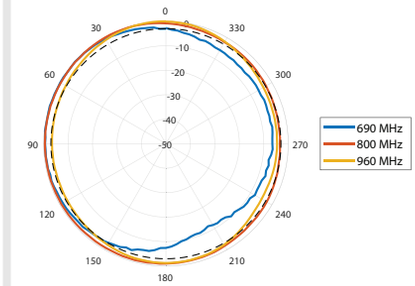
Radiation Patterns - Cellular

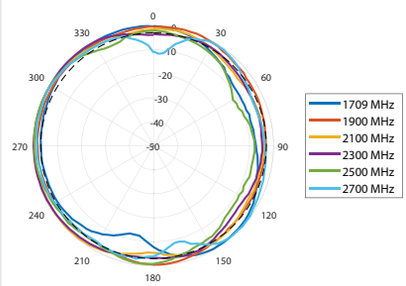
Azimuth (Port 1): 450 -470 MHz



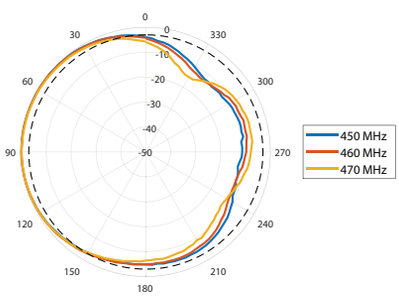
Azimuth (Port 1): 690-960 MHz



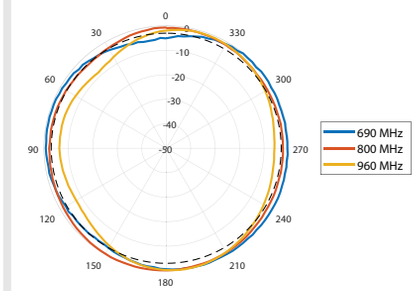
Azimuth (Port 1): 1709-2700 MHz



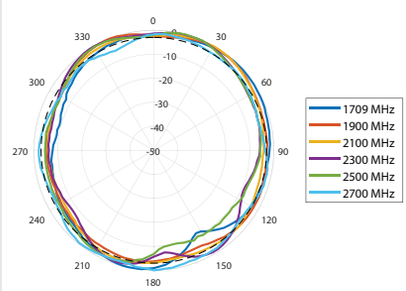
Azimuth (Port 2): 450 -470 MHz



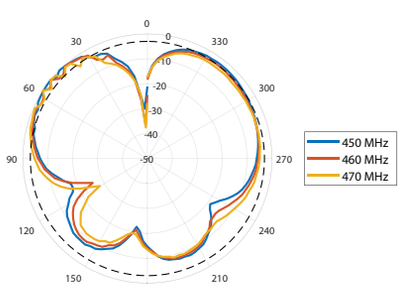
Azimuth (Port 2): 690-960 MHz



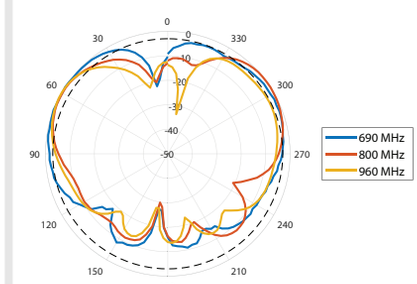
Azimuth (Port 2): 1709-2700 MHz



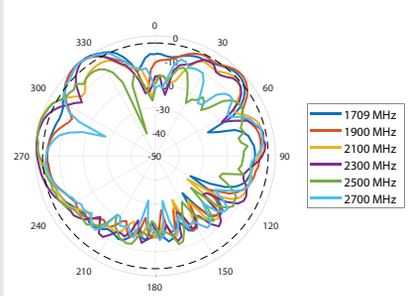
Elevation (Port 1): 450 -470 MHz



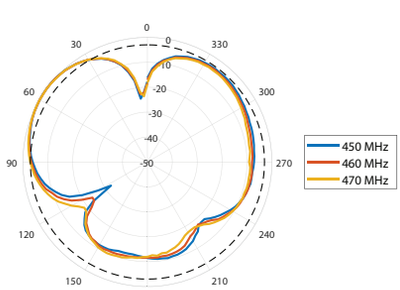
Elevation (Port 1): 690-960 MHz



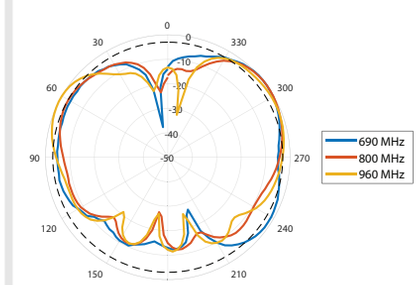
Elevation (Port 1): 1709-2700 MHz



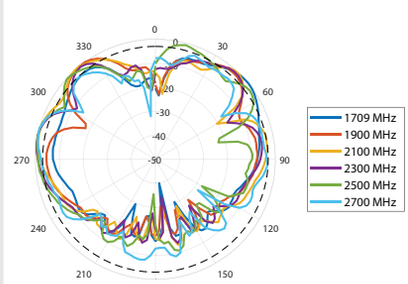
Elevation (Port 2): 450 -470 MHz



Elevation (Port 2): 690-960 MHz



Elevation (Port 2): 1709-2700 MHz



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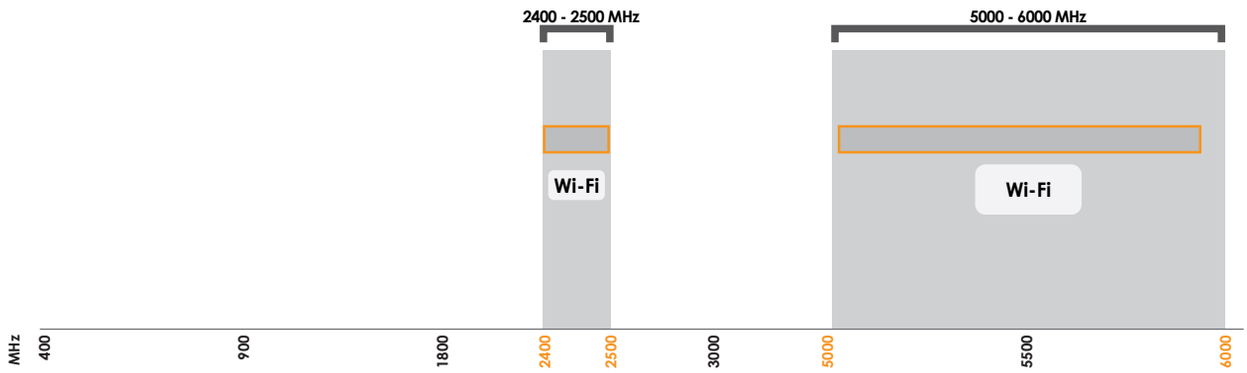
Frequency bands Wi-Fi

The MIMO-3 works on the 2400 - 2500 MHz and 5000 - 6000 MHz

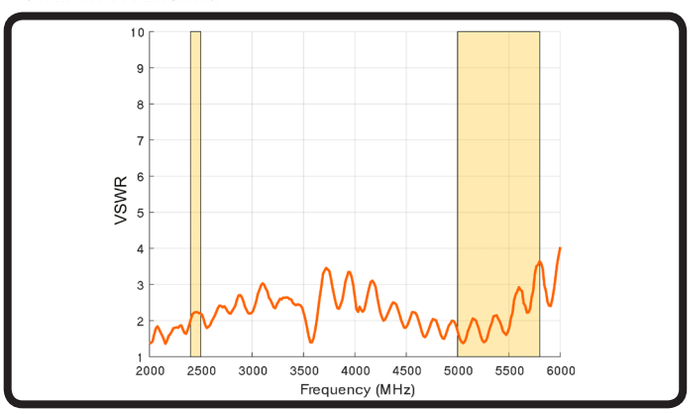
Indicates the bands on which this antenna works

MIMO-3:

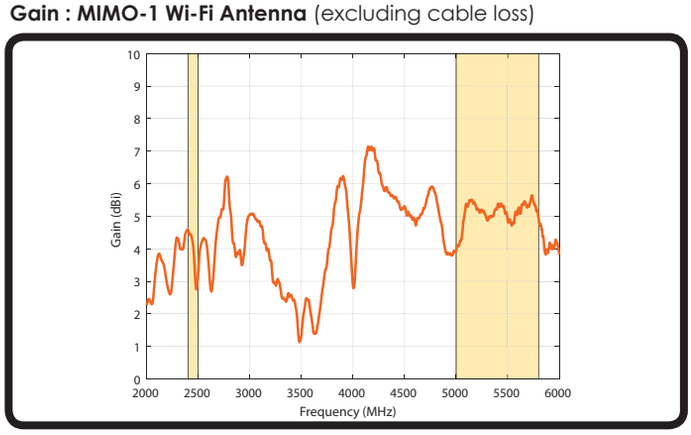


Antenna Performance Plots

VSWR: Wi-Fi Antenna



Gain : MIMO-1 Wi-Fi Antenna (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 3.0:1 or better.
The MIMO-3 delivers superior performance across all bands:
< 2:1 @2400 - 2500 MHz*
< 3:1 @5100 - 5800 MHz*

* Measured with 1m low loss cable
* Measured on a 40cm x 40cm ground plane

Gain* in dBi

4.5 dBi is the peak gain across band from 2400 - 2500 MHz
5.5 dBi is the peak gain across band from 5100 - 5800 MHz

* Measured on a 40cm x 40cm ground plane

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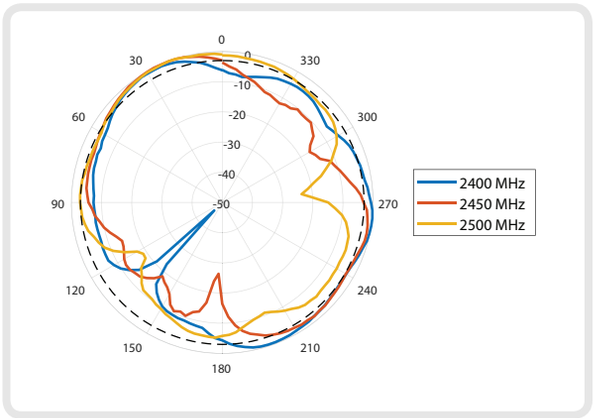
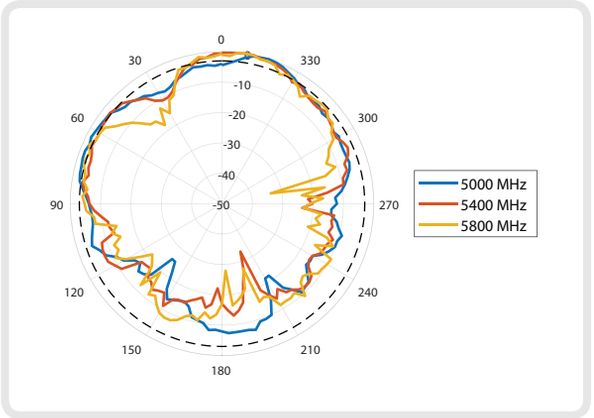
Radiation Patterns - Wi-Fi

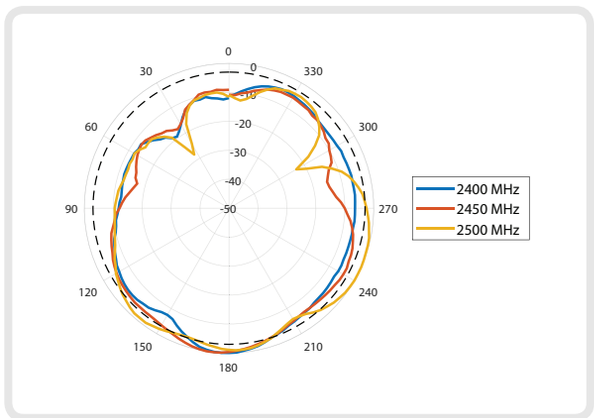
Azimuth (Port 1): 2400-2500 MHz



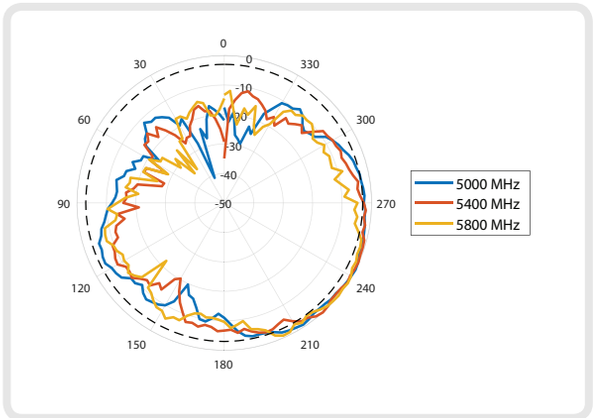
Azimuth (Port 1): 5100-5800 MHz



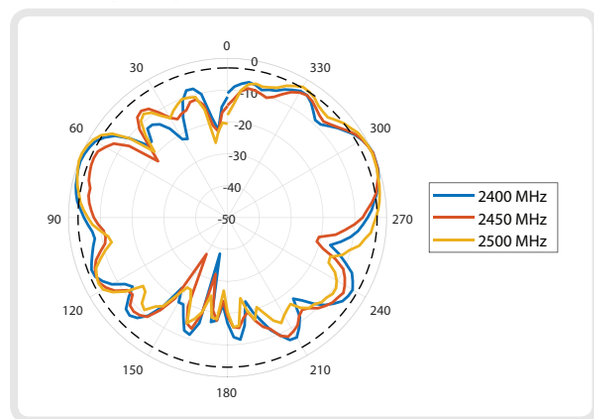
Azimuth (Port 2): 2400-2500 MHz



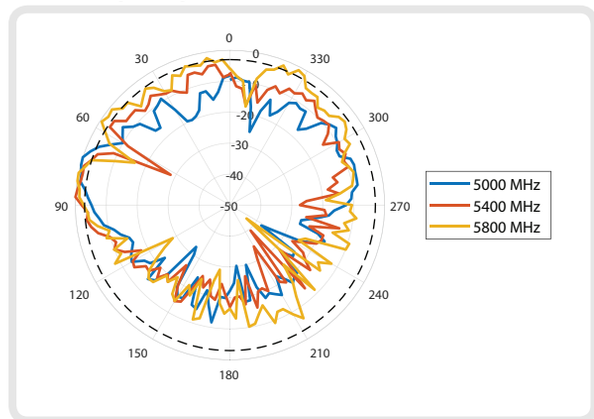
Azimuth (Port 2): 5100-5800 MHz



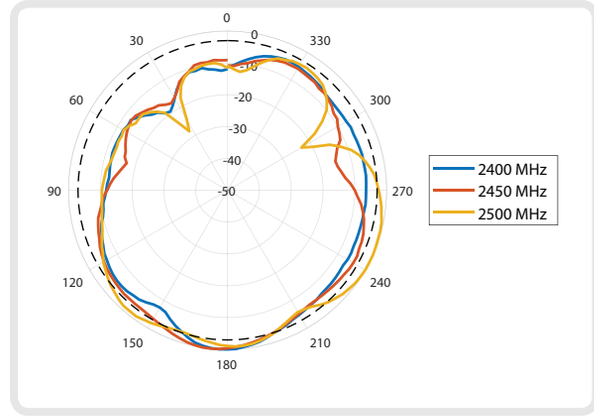
Elevation (Port 1): 2400-2500 MHz



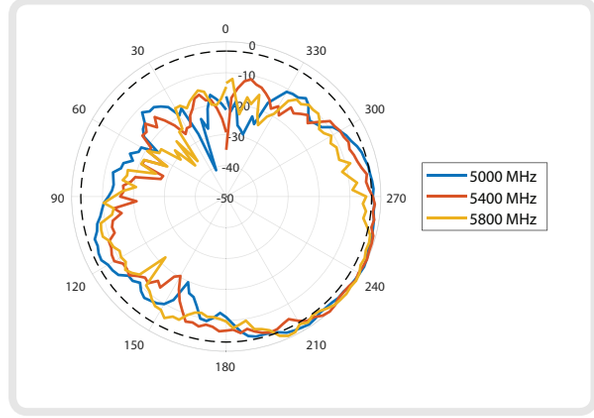
Elevation (Port 1): 5100-5800 MHz



Elevation (Port 2): 2400-2500 MHz



Elevation (Port 2): 5100-5800 MHz



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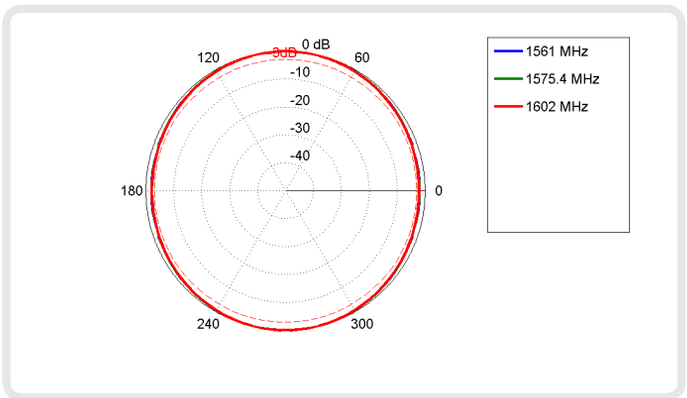
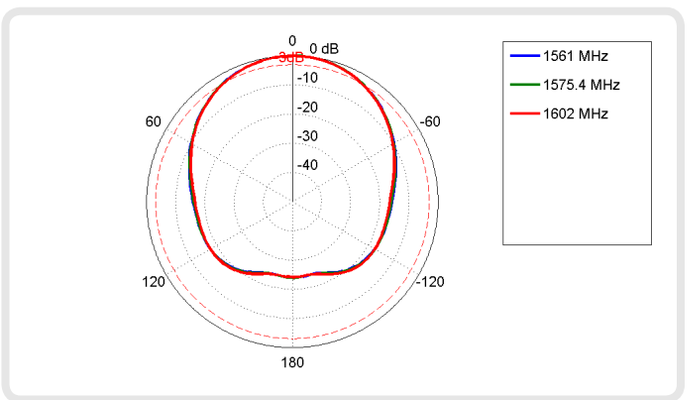
Radiation Patterns - GPS

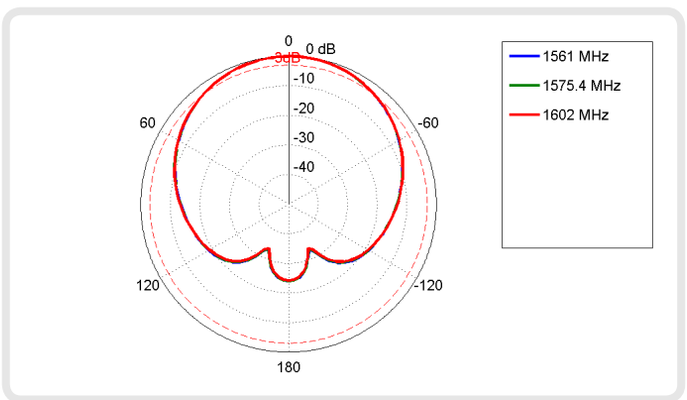
XY Plane:



XZ Plane:



YZ Plane:



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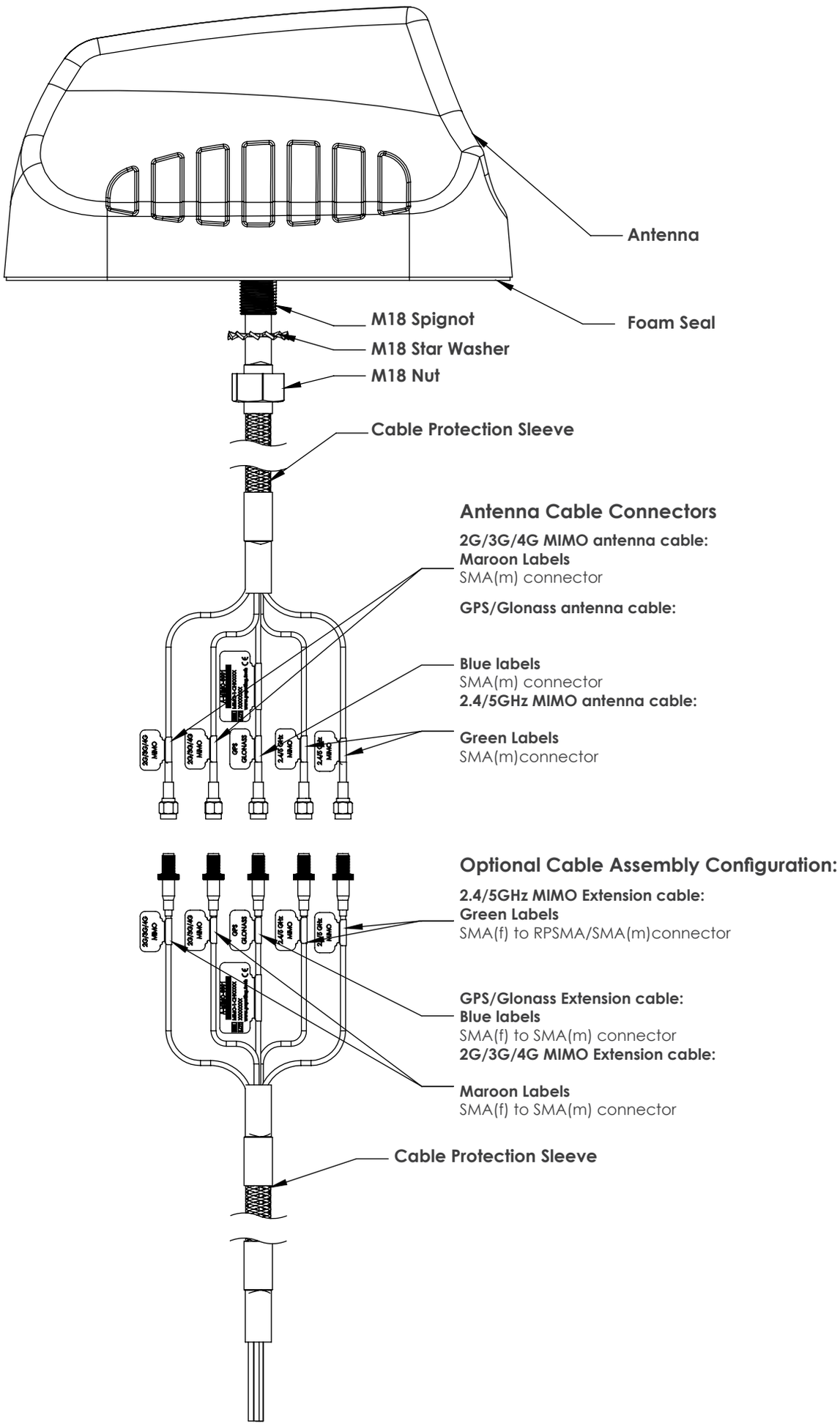
Cable Configuration



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Electrical Specifications

GSM/3G/LTE electrical specifications	
Frequency Band 1:	450 - 470MHz
Frequency Band 2:	690 - 960MHz
Frequency Band 3:	1710 - 2700MHz
Gain (Max):	6.0 dBi
VSWR:	<3:1
Feed Power Handling:	10 W
Input impedance:	50 Ohm (nominal)
Polarisation:	Linear Vertical x 2
Cable loss:	0.8dB/m @1000MHz 2.6dB/m@3000MHz
Cable:	2 x 0.3m EF_316_D
Connector:	2 x SMA male
DC Short:	Yes

GPS/Glonass Antenna electrical specifications	
Frequency Range (GPS):	1575.42MHz/1600MHz
Gain (Max):	21+/-2dBi
VSWR:	≤1.5:1
DC Voltage:	2.7-3.3 V
DC Current:	5-15mA
Noise Figure:	≤1.5 dB
Nominal Impedance:	50 Ω
Polarisation:	RHCP
Filter Out Band Attenuation:	12dB Min f0+50MHz, 16dBi Min f0-50MHz
Cable:	0.3m LMR-195FR
Connector:	SMA male
Voltage	2.7 - 3.3V
Max. Power-W:	50

Wi-Fi electrical specifications	
Frequency:	2400-2500 MHz 5100-5800 MHz
Gain (Max):	5.5 dBi
VSWR:	< 2:1 @2.4-2.5GHz < 3:1 @ 5.1-5.8GHz
Feed power handling:	10 W
Nominal input impedance:	50 Ohms
Polarisation:	2 x Vertical linear
Cable:	0.3m EF_316_D
Connector:	2 x SMA male

Mechanical Specifications

Product Dimensions (L x W x D):	252 mm x 130 mm x 140 mm
Packaged Dimensions:	270 mm x 140 mm x 185 mm
Weight:	900 g
Packaged Weight:	1150 g
Radome Material:	ABS (Halogen Free)
Base Material:	Passivated ADC12
Radome Colour:	Cool Grey (1C)
End Cap Colour:	Pantone - Cool Grey (1C) RAL - Cool Grey (1C)

Environmental Specifications

Wind Survival:	220 km/h
Temperature Range (Operating):	-40°C to +70°C
Environmental Conditions:	Outdoor/Indoor
Operating Relative Humidity:	Up to 98%
Storage Humidity:	5% to 95% - non condensing
Storage Temperature:	-40°C to +70°C

Certification Approvals and Standards

Cable Flammability rating:	UL 94 HB ECE R118.02 Certified
Water Ingress Protection Ratio/Standard:	IP 65 (NEMA 4X)
Impact resistance:	IK 08
Salt Spray:	MIL-STD 810F/ASTM B117
Product Safety:	Complies with UL, CE, EN, CSA and IEC standards

Ordering Information

Commercial name:	MIMO-3
Order Product Code:	A-MIMO-0003
EAN number:	0707273469212

Antenna Configuration Options

MIMO-0003-01:

Two LTE/4G/3G antennas covering all cellular bands and a third antenna is a high performance active GPS/GLONASS module.

MIMO-0003-02:

Two LTE/4G/3G antennas covering all cellular bands

*For cable and connector options please see MIMO Cable assemblies

For more detailed information and availability in your region, visit our web site: www.poynting.tech

Contact Poynting

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