PUCK-5

ANTENNAS | PUCK-5

5-IN-1 TRANSPORTATION & IOT/M2M ANTENNA

2X2 LTE (MIMO), 2X2 DUALBAND WIFI (MIMO), GPS/GLONASS

690-960; 1710-2700 & 3200-3800 MHz

LTE: 6 dBi GPS: 21 dBi WiFi: 7 dBi

Increase x Mb/s

4x Omni-Directional

Machine to Machine

IP 68

Chemical Protection

2.4-2.5 & 5.0-6.0 GHz

-40°C to +80°C

UL 94 HB

2x2 MIMO

GPS included

4G LTE

5G LTE Ready

- **5-in-1 high performance multi frequency 2G/3G/4G/LTE antenna (5G Ready)**
- **LTE (2 x MiMo), Dualband WIFI (2 x MiMo) & GPS / GLONASS**
- **Wideband – covers wide frequency band, incl. the CBRS band**
- **Robust and water proof (IP68) antenna**
- **Ideal for transportation, marine and IoT/M2M use**
- **Multi mounting options for easy installation**

APPLICATION AREAS

Urban

Rural/Farm

Marine

Transportation

IoT/Metering

Product Overview

Poynting's new PUCK antenna offers a small profile antenna for use in the IoT/M2M, Smart Meter, Smart Utilities, Transportation, Marine and the Agricultural/Farming markets. The PUCK-5-V1 consists of a 5-in-1 antenna system within a single housing, featuring 2x2 MIMO LTE, 2x2 MIMO Wi-Fi (Dual-band 2.4GHz & 5GHz) and GPS/GLONASS. The 2x Cellular MIMO antennas (for 2G/3G/4G) cover the 698MHz to 3800MHz band, which include the most popular international LTE bands. The antenna provides two separate dual-band Wi-Fi antennas offering concurrent 2.4GHz and 5GHz bands, capable of 802.11n and 802.11ac/ax with 2x2 MIMO. The fifth antenna is a high-performance active GPS/GLONASS system operating at temperatures as low as -40°C. The PUCK exceeds the performance of many competitors due to the attention to 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 often overlooked in such a small size antenna. Despite its small size, this antenna provides excellent performance especially at the higher frequency bands, where performance is critical for LTE throughput and connection stability.

Features

- Small & Low-Profile (100mm x h 36mm)
- Careful mechanical design provides ruggedness, corrosion, water, dust resistance (IP68)
- Fire Resistant (complies with ECE-R 118.02)
- UV Stable Enclosure
- Ground plane independent – performs consistently with and without a ground plane
- 5G Ready; includes 3.2GHz to 3.8GHz CBRS Band
- Easy installation; multi implementation options (as standard)
  - Spigot Mount; Magnetic Mount
  - Adhesive Tape Mount; Bracket Mount

Application Areas

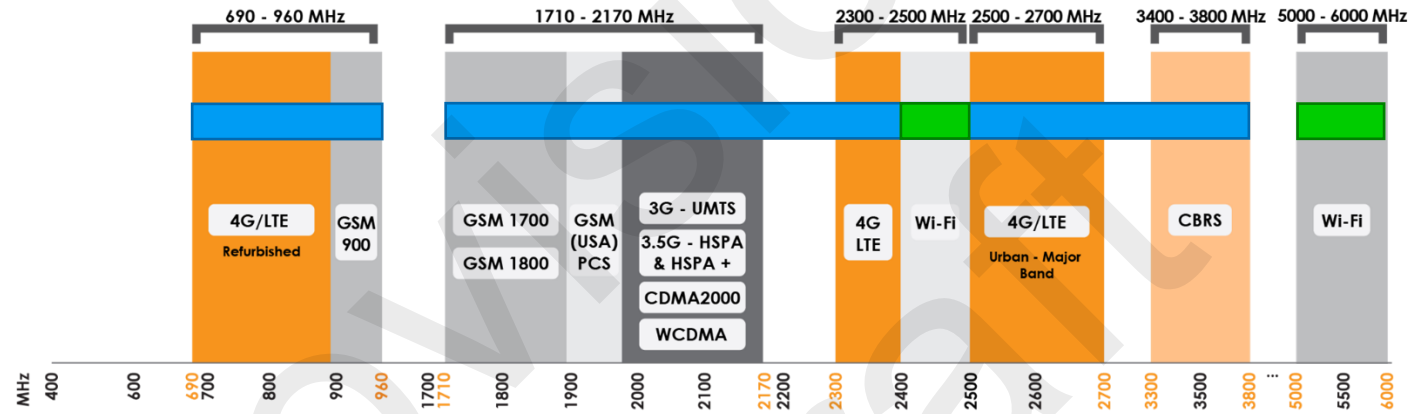
- Smart Utilities: Smart Power, Gas & Water Metering
- Smart Buildings: Climate control, access control, security, irrigation
- Digital Signage
- Warehouses & Logistic systems
- Industrial factory automation, robotic machinery and other M2M systems
- Transport (Busses, Utility & Public Safety)
- Mining Vehicles & Machinery communications, telemetry and automation (M2M & IoT)

Revised: September 2018

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-PUCK-0005-V1-01 REV0.1
www.poynting.tech

Frequency Bands – Cellular & Wi-Fi

The PUCK-5 is suitable for the following Cellular frequency bands | 698-960 MHz | 1710-2170 MHz | 2300-2500 MHz | 2500-2700 MHz | 3200-3800 MHz | and the following Wi-Fi frequency bands | 2400-2500 MHz | 5000-6000 MHz |



Indicates the frequency bands which PUCK-5 supports

Indicates the frequency bands which PUCK-5 supports

Antenna Overview

	LTE	WiFi DUALBAND	GPS
Ports	1 & 2	3 & 4	5
SISO / MIMO	2x2 MIMO	2x2 MIMO	N/A
Frequency Bands	698 MHz - 3800 MHz	2.4 - 2.5 & 5-6 GHz,	1575.42 MHz/1600 MHz
Peak Gain	6 dBi	7 dBi	21 dBi
Coax Cable Type	RTK-031	RTK-031	RTK-031
Coax Cable Length	2m	2m	2m
Connector Type	SMA Male	SMA Male	SMA Male

Revised: September 2018

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-PUCK-0005-V1-01 REV0.1
www.poynting.tech

Electrical Specifications - Cellular

Frequency bands:	698-960 MHz 1710-2700 MHz 3200-3800 MHz
Gain (max) Port 1 & 2:	6 dBi
VSWR Port 1 & 2:	≤2.5:1
Feed power handling:	10 W
Input impedance:	50 Ohm (nominal)
Polarisation:	Linear Vertical
Coax cable loss:	0.45 dB/m @ 900 MHz 0.71 dB/m @ 2000 MHz 0.79 dB/m @ 2500 MHz 0.9 dB/m @ 3000 MHz
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:	0.04m Micro Cable 1.13
Connector:	SMA male
Voltage:	2.7 - 3.3V
Max. Power-W:	50

Wi-Fi Electrical Specifications

Frequency:	2400-2500 MHz 5000–6000 MHz
Gain (Max):	7 dBi
VSWR:	≤2.5:1 over 95% of the band
Feed power handling:	10 W
Nominal input impedance:	50 Ohm (nominal)
Polarisation:	Linear Vertical
Coax cable loss:	0.45 dB/m @ 900 MHz 0.71 dB/m @ 2000 MHz 0.79 dB/m @ 2500 MHz 0.9 dB/m @ 3000 MHz
Path to Ground:	Yes

Coax Cable & Connector Type -Cellular & Wi-Fi

Cable length:	2m
Coax cable type:	RTK-031
Connector type:	SMA (Male)

Coax Cable & Connector Type - GPS

Cable length:	2m
Coax cable type:	RTK-031
Connector type:	SMA (Male)

The coax cables & connectors are factory mounted to the antenna

Product Box Contents

Antenna:	A-PUCK-0005-V1-01
Mounting bracket:	Threaded Spigots (Up to 60mm clamping thickness), Adhesive Surface Mounting & Optional Magnetic Mount
Adapters:	2x RPSMA(m) To SMA (f)

Ordering Information

Commercial name:	PUCK-5-V1-01
Order product code:	A-PUCK-0005-V1-01
EAN number:	6009880915170

Mechanical Specifications

Product dimensions	Ø99.3 mm x 36 mm
Packaged dimensions:	TBC
Weight:	TBC
Packaged weight:	TBC
Radome material:	PC+ABS (Halogen free)
Radome colour:	Pantone Black
Mounting Type:	Threaded Spigot, Pole, Wall, Surface and Magnetic mount

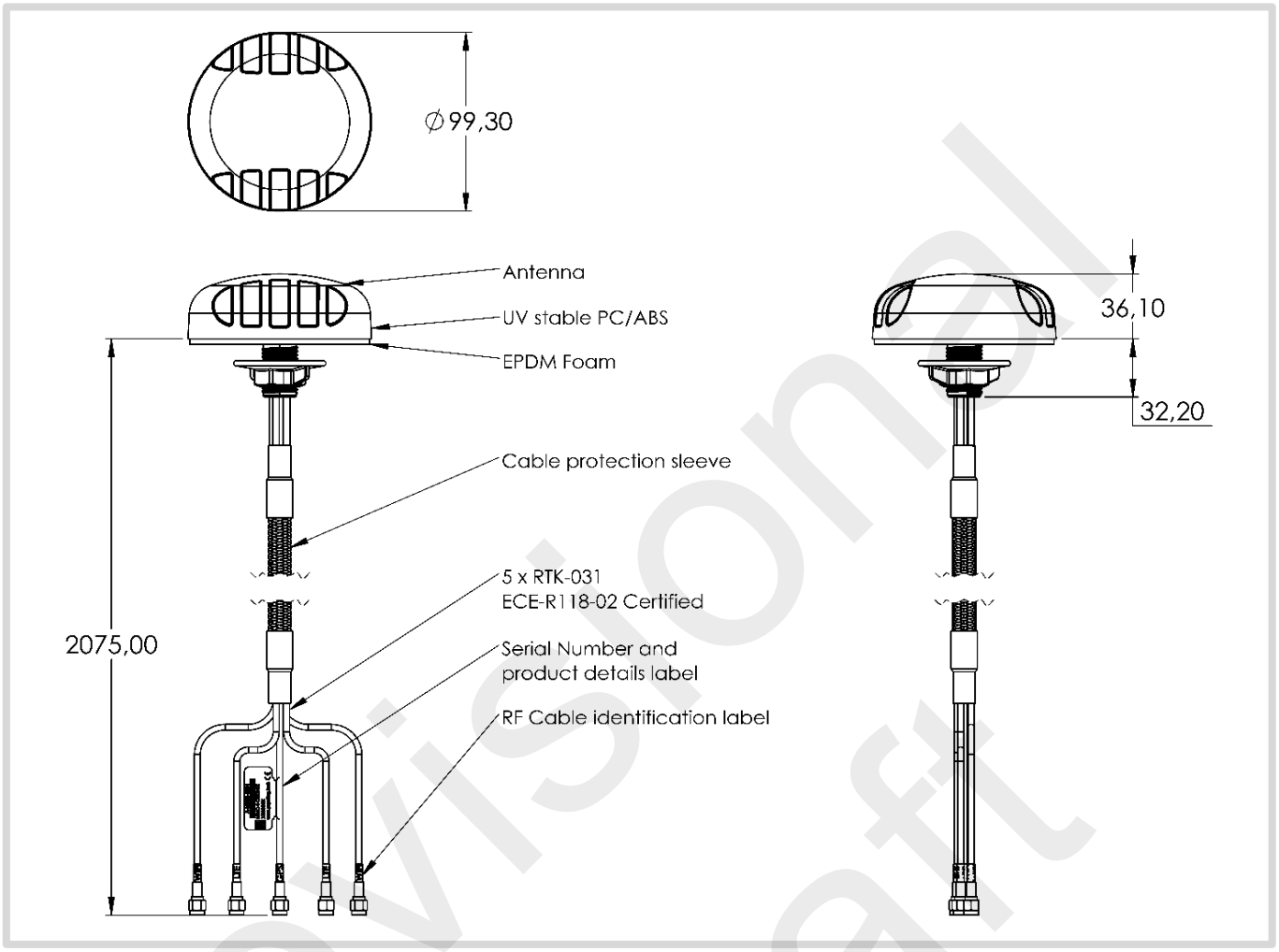
Environmental Specifications, Certification & Approvals

Wind Survival:	<220 km/h
Temperature Range (Operating):	-40°C to +80°C
Environmental Conditions:	Outdoor/Indoor
Water ingress protection ratio/standard:	IP 68
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 +80°C
Flammability Rating:	UL 94-HB, ECE-R118.02 Certified cables
Impact resistance:	IK 10
Product Safety & Environmental:	Complies with CE, EN, CSA, RoHS and IEC standards

Revised: September 2018

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-PUCK-0005-V1-01 REV0.1
www.poynting.tech

Technical Drawings

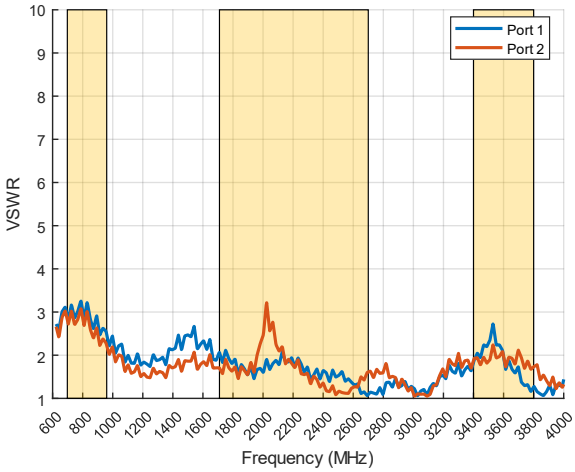


Revised: September 2018

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-PUCK-0005-V1-01 REV0.1
www.poynting.tech

Antenna Performance Plots

VSWR: Cellular Antenna



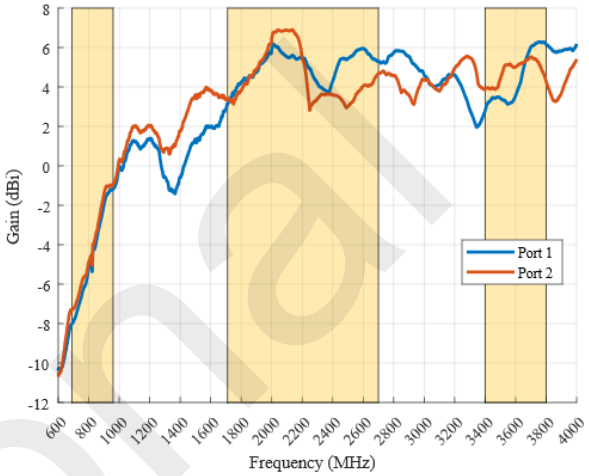
Voltage Standing Wave Ratio (VSWR)*

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 PUCK-5 delivers superior performance across all bands with a VSWR of ≤2.5:1 over 85% of the band

*Measured with 2m low loss cable

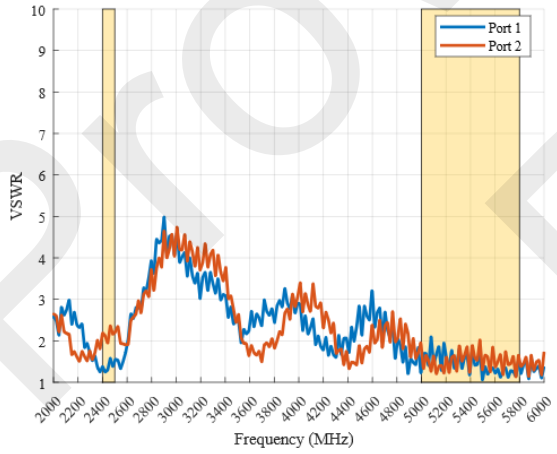
Gain: Cellular Antenna



Gain in dBi

6 dBi is the peak gain across all bands from 690-960, 1710-2700 & 3400-3800 MHz

VSWR: Wi-Fi Antenna



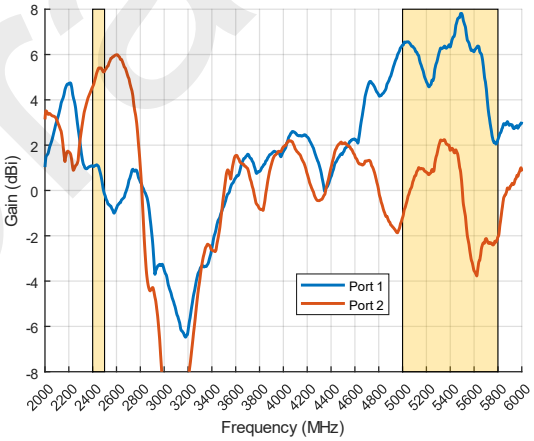
Voltage Standing Wave Ratio (VSWR)*

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 PUCK-5 delivers superior performance across all bands with a VSWR of ≤2.5:1 over 95% of the band

*Measured with 2m low loss cable

Gain: Wi-Fi Antenna



Gain in dBi

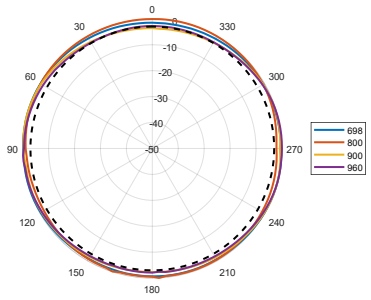
6.2 dBi is the peak gain across all bands from 2400-2500 & 5000 – 6000 MHz

Revised: September 2018

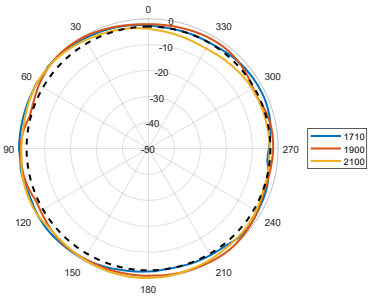
Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-PUCK-0005-V1-01 REV0.1
www.poynting.tech

Radiation Patterns – Cellular

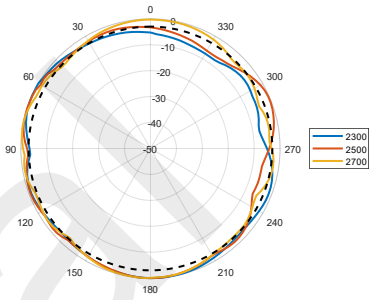
Azimuth (Top View): 690–960 MHz



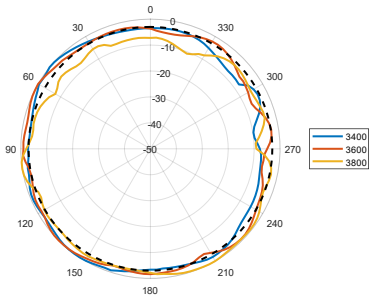
Azimuth (Top View): 1710–2100 MHz



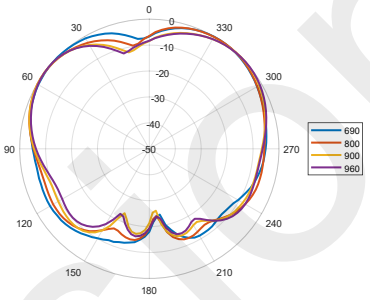
Azimuth (Top View): 2300–2700 MHz



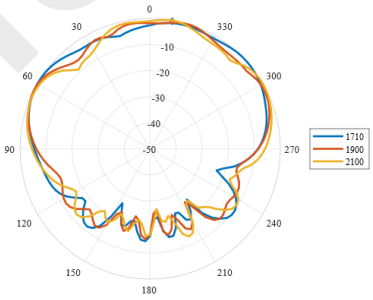
Azimuth (Top View): 3400–3800 MHz



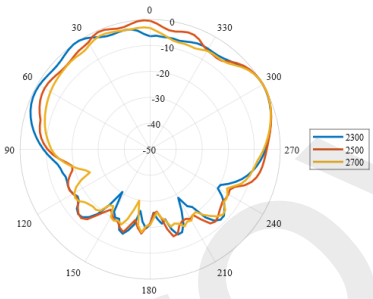
Elevation1 (Side View): 690–960 MHz



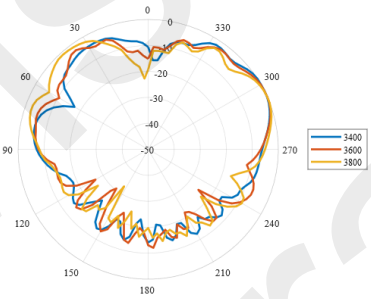
Elevation1 (Side View): 1710–2100 MHz



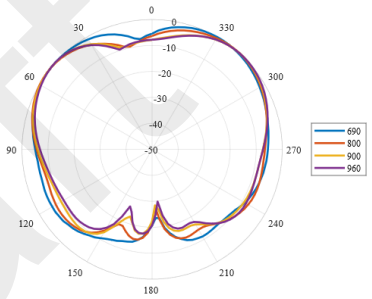
Elevation1 (Side View): 2300–2700 MHz



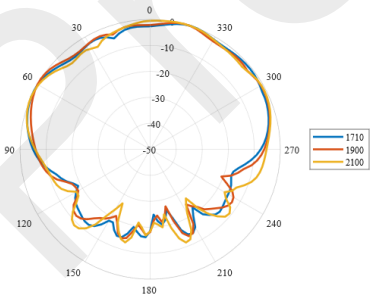
Elevation1 (Side View): 3400–3800 MHz



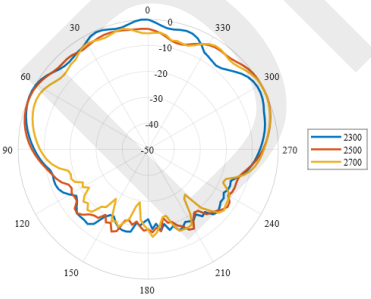
Elevation2 (Side View): 690–960 MHz



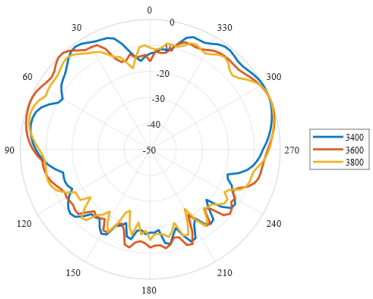
Elevation2 (Side View): 1710–2100 MHz



Elevation2 (Side View): 2300–2700 MHz



Elevation2 (Side View): 3400-3800 MHz

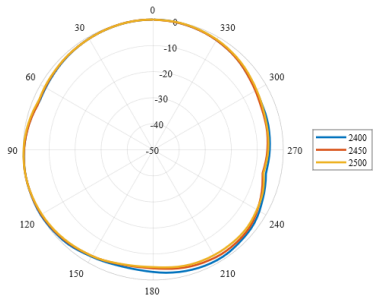


Revised: September 2018

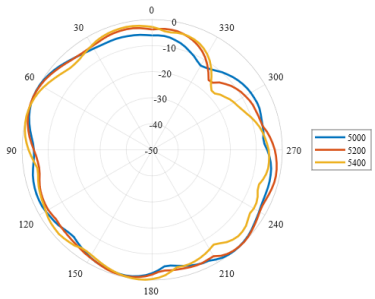
Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-PUCK-0005-V1-01 REV0.1
www.poynting.tech

Radiation Patterns – WiFi

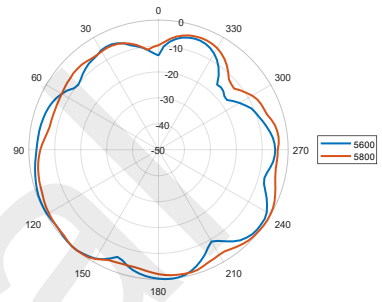
Azimuth (Top View): 2400–2500 MHz



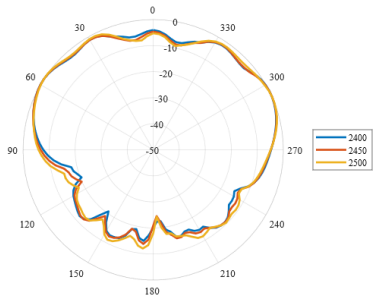
Azimuth (Top View): 5000–5400 MHz



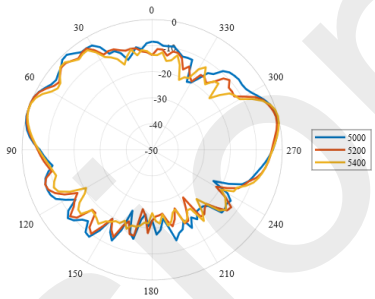
Azimuth (Top View): 5600–5800 MHz



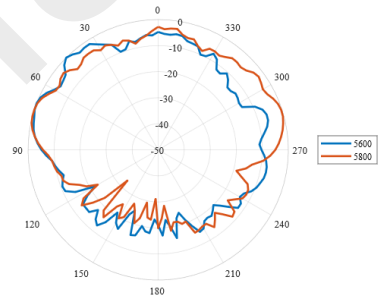
Elevation1 (Side View): 2400–2500 MHz



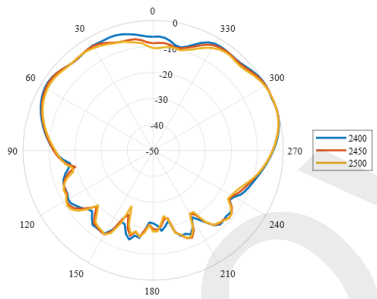
Elevation1 (Side View): 5000-5400 MHz



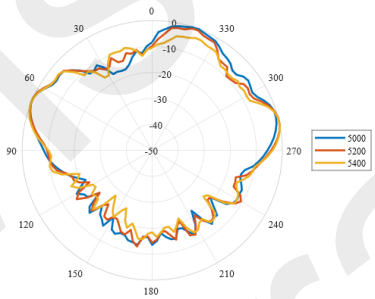
Elevation (Side View): 5600–5800 MHz



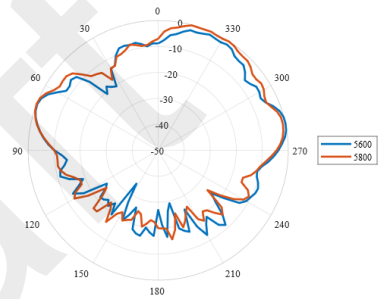
Elevation2 (Side View): 2400–2500 MHz



Elevation2 (Side View): 5000–5400 MHz

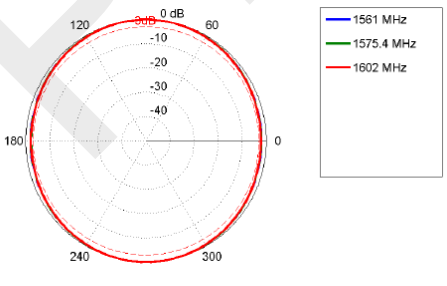


Elevation2 (Side View): 5600–5800 MHz

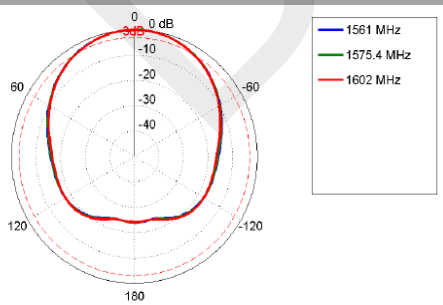


Radiation Patterns – GPS

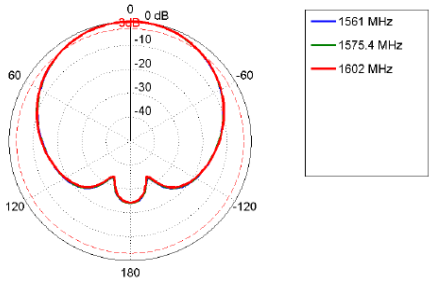
XY Plane: 1561–1602 MHz



XZ Plane: 1561–1602 MHz



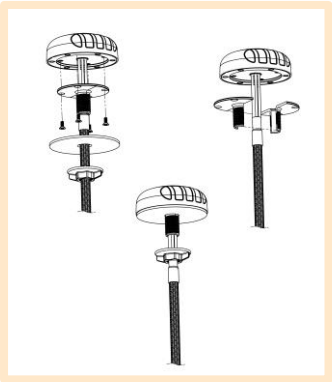
YZ Plane: 1561–1602 MHz



Revised: September 2018

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-PUCK-0005-V1-01 REV0.1
www.poynting.tech

Mounting Options

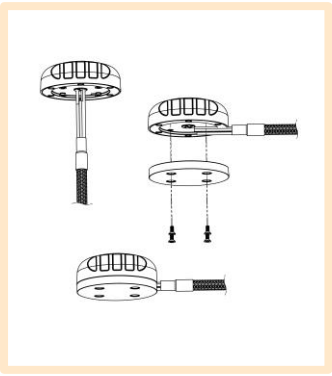


Spigot Mount

Removable 40mm & 80mm threaded spigot (included)

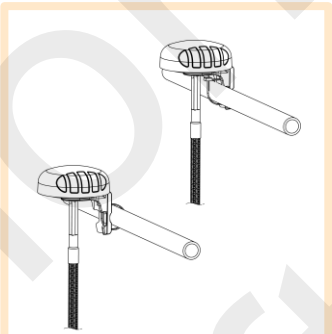
Vertical Pole Mount

Pole/Wall Mounting bracket (included)



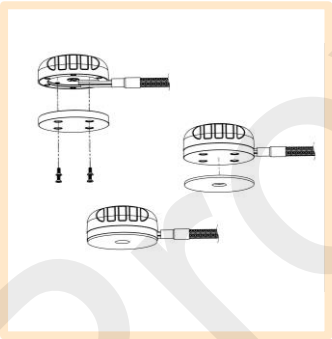
Magnetic Mount

Magnetic Base (included)



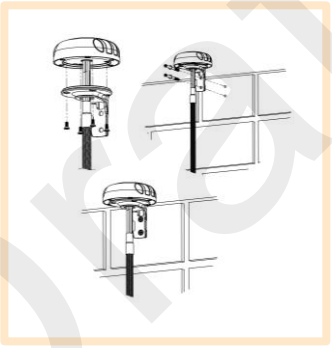
Horizontal Pole Mount

Pole/Wall Mounting bracket (included)



Surface Mount

Adhesive Surface Mounting (included) or can also be directly secured with longer M4 bolts (not included) to the female threaded inserts located in the antenna base



Wall Mount

Pole/Wall Mounting bracket (included)

Revised: September 2018

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-PUCK-0005-V1-01 REV0.1
www.poynting.tech

Additional Accessories

A-CAB-118

5 x 5m Extension cables for 5-in-1 Antennas

A-CAB-119

5 x 3m Extension cables for 5-in-1 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