SWIRL

POYNTING
BEYOND A CONNECTED LIFE

ANTENNAS | RIPPLE SERIES

X-POLARISED, OMNI-DIRECTIONAL 5G/LTE MULTI MIMO ANTENNA ARRAY

617 – 6000 MHz, 6dBi; Cellular 2x (4x4 MIMO); Wi-Fi 4x4 MIMO; 1 x GNSS

617 – 960 MHz
1427 – 1517 MHz
1710 – 2700 MHz
3400 – 6000 MHz

6dBi

Increase X Mb/s

Omni-Directional

5G

617 – 698 MHz

CBRS Band

4x4 MIMO

2.4 – 2.5 GHz
5.0 – 7.2 GHz

GPS Included

-40°C to +80°C

IP69K

APPLICATION AREAS

Marine

Mobility

- **High performance, omni-directional marine & coastal antenna**
- **Up to 8 x 8 MIMO cellular capability for improved performance**
- **Covers contemporary 5G/LTE band from 617 to 6000 MHz**
- **Innovative heat sink design for improved temperature regulation**
- **UV and saltwater protected for marine and coastal conditions**
- **IP 69K weather/dust resistant enclosure**

Product Overview

Poynting Antennas proudly introduces the SWIRL antenna solution, designed for both maritime and mobility applications. The SWIRL series includes two versatile models: the SWIRL-8 and the SWIRL-4. The SWIRL-8 features 8x cross-polarised cellular antennas, covering frequencies from 617 to 6000 MHz with a peak gain of 6dBi, 4x dual-band Wi-Fi antennas (2.4 GHz and 5 to 7.2 GHz), and 1x dual-band GNSS antenna for L1 and L5 constellations. The SWIRL-4 offers 4x cross-polarised cellular antennas, 4x dual-band Wi-Fi antennas, and 1x dual-band GNSS antenna.

Both models boast a compact design with dimensions of 382 mm in diameter and 127 mm in height, and they come with IK08 and IP69K ratings, ensuring durability in harsh environments. While the SWIRL is primarily aimed at maritime applications, it is also suitable for various mobility applications, making it a versatile choice for diverse connectivity needs.

Additionally, the SWIRL can be transformed into a Customer Premises Equipment (CPE) device by incorporating the SWIRL-BASE. This cast aluminium base is specifically designed to house 5G routers, available in sizes of 231 x 193 x 50 mm or 293.5 x 148.5 x 50 mm. Installing the router within the base reduces coaxial cable runs, thereby improving performance by minimizing signal loss.

Experience the future of connectivity with Poynting's SWIRL antenna solution, engineered for seamless integration and superior performance in demanding environments.

Features

- Wide Frequency Range: Cellular antennas (617 to 6000 MHz) and dual-band Wi-Fi (2.4 GHz and 5 to 7.2 GHz).
- High Gain Performance with a peak gain of 6dBi for robust signal strength.
- Durable Construction: IK08 and IP69K ratings for protection against impacts and environmental factors.
- CPE Transformation: Compatible with SWIRL-BASE for integrating 5G routers, enhancing performance with short coaxial cable run

Application Areas

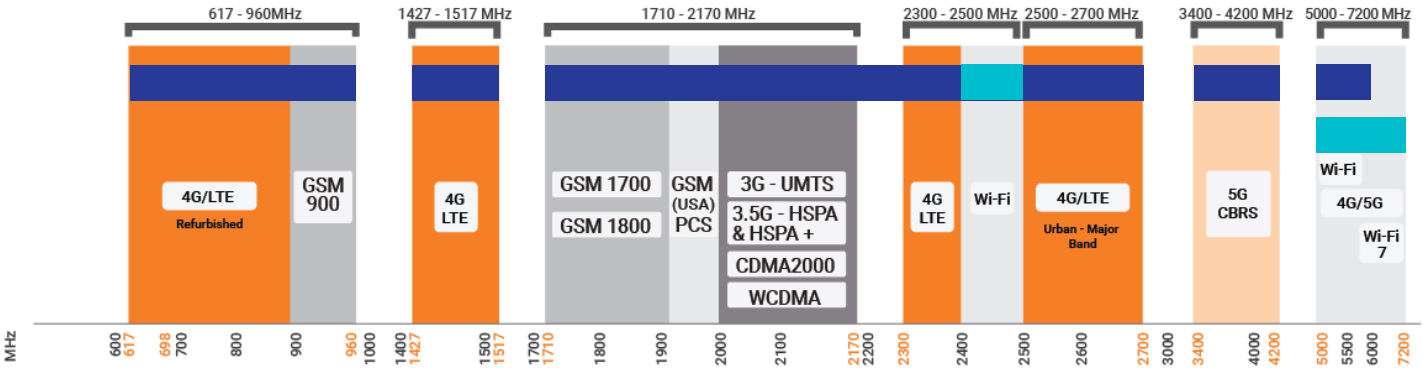
- Reliable connectivity for ships, boats, and other marine vessels.
- Enhanced network performance for vehicles and other mobile platforms.
- Stable connections for remote sites and infrastructure monitoring.
- Robust communication systems for emergency response and public safety services.
- Efficient data transmission for various Internet of Things (IoT) applications in challenging environments.

Revised: September 2024

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-SWRL-V1-01 REV 1.1
www.poynting.tech

Frequency Bands

The SWIRL is an omni-directional antenna array that operates in the following frequency bands: | 617 – 960 MHz | 1427 – 1517 MHz | 1710 – 2700 MHz | 3400 – 4200 MHz | 5000 – 6000 MHz | and the following Wi-Fi frequency bands | 2400 – 2500 MHz | and | 5000 – 7200 MHz |



Indicates the 5G/LTE bands on which SWIRL works Indicates the WI-FI bands on which SWIRL works

Antenna Derivatives

Product Order Code (SKU)	A-SWIRL-0004-V1-01	A-SWIRL-0004-V1-02	A-SWIRL-0008-V1-01	A-SWIRL-0008-V1-02
Integrated Base	No	Yes	No	Yes
Ports	5G- Vertical Polarised (x 2), 5G- Horizontal Polarised (x 2) Wi-Fi- Vertical Polarised (x 2), Wi-Fi- Horizontal Polarised (x 2) GNSS (x 1)	5G- Vertical Polarised (x 2), 5G- Horizontal Polarised (x 2) Wi-Fi- Vertical Polarised (x 2), Wi-Fi- Horizontal Polarised (x 2) GNSS (x 1)	5G- Vertical Polarised (x 4), 5G- Horizontal Polarised (x 4) Wi-Fi- Vertical Polarised (x 2), Wi-Fi- Horizontal Polarised (x 2) GNSS (x 1)	5G- Vertical Polarised (x 4), 5G- Horizontal Polarised (x 4) Wi-Fi- Vertical Polarised (x 2), Wi-Fi- Horizontal Polarised (x 2) GNSS (x 1)
SISO / MIMO	4x4 MIMO- 5G 4x4 MIMO – Wi-Fi	4x4 MIMO- 5G 4x4 MIMO – Wi-Fi	8x8 MIMO- 5G 4x4 MIMO – Wi-Fi	8x8 MIMO- 5G 4x4 MIMO – Wi-Fi
Frequency Bands	617 - 6000 MHz	617 - 6000 MHz	617 - 6000 MHz	617 - 6000 MHz
Polarisation	Vertical & Horizontal	Vertical & Horizontal	Vertical & Horizontal	Vertical & Horizontal
Peak Gain	6dBi	6dBi	6dBi	6dBi
Connector Type	9 x SMA (male)	9 x SMA (male)	13 x SMA (male)	13 x SMA (male)
Coax Cable Type	9 x RG 316 with SMA (male)	9 x RG 316 with SMA (male)	13 x RG 316 with SMA (male)	13 x RG 316 with SMA (male)
Coax Cable Length	650 mm – 5G, Wi-Fi & GPS	650 mm – 5G, Wi-Fi & GPS	650 mm – 5G, Wi-Fi & GPS	650 mm – 5G, Wi-Fi & GPS
Product Dimensions	Ø382 x 127 mm	Ø382 x 224 mm	Ø382 x 127 mm	Ø382 x 224 mm
Packaged Dimension	TBC	TBC	440 x 430 x 190 mm	520 x 420 x 270 mm
Weight	TBC	TBC	2.83 Kg	8.1 Kg
Packaged Weight	TBC	TBC	4.5 Kg	9.26 Kg
EAN	6009710928578	6009710928899	6099710928639	6009710928875

**The coax cables & connectors are factory mounted to the antenna*

Revised: September 2024

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-SWRL-V1-01 REV 1.1
www.poynting.tech

Electrical Specifications - Cellular

Frequency Bands:	617 – 960 MHz 1427 – 1517 MHz 1710 – 2700 MHz 3400 – 4200 MHz 5000 – 6000 MHz
Gain Vertical:	4 dBi @ 617 – 960 MHz 4 dBi @ 1427 – 1517 MHz 6 dBi @ 1710 – 2700 MHz 5.5 dBi @ 3400 – 4200 MHz 4 dBi @ 5000 – 6000 MHz
Gain Horizontal:	2 dBi @ 617 – 960 MHz 2 dBi @ 1427 – 1517 MHz 4 dBi @ 1710 – 2700 MHz 2 dBi @ 3400 – 4200 MHz 4 dBi @ 5000 – 7200 MHz
VSWR Vertical:	≤2.5:1
VSWR Horizontal:	≤2.5:1
Feed Power Handling:	10 W
Input Impedance:	50 Ohm (nominal)
DC Short:	Yes

Electrical Specifications - GNSS

Frequency Range (GPS):	GPS L5: 1176 MHz ± 20 MHz GPS L1: 1575 MHz ± 20 MHz
LNA Gain:	28 ± 3 dBi
VSWR:	≤2
DC Voltage:	3.3 – 5 V
DC Current:	<20 mA
Nominal Impedance:	50 Ω
Polarisation:	RHCP
Out of Band Rejection:	30dBc min
Power Capacity:	33dBm
Coax Cable Loss:	0.71 dB/m @ 1500 MHz

Electrical Specifications - Wi-Fi

Frequency:	2400 - 2500 MHz 5000 – 7200 MHz
Gain (Max):	5 dBi @ 2400 - 2500 MHz 8.5 dBi @ 5000 - 7200 MHz
VSWR:	≤ 2.5:1 over 90% of the band
Feed Power Handling:	10 W
Nominal Input Impedance:	50 Ohm (nominal)
Coax Cable Loss:	0.91 dB/m @ 2400 MHz 1.65 dB/m @ 5800 MHz
Path to Ground:	Yes

Mechanical Specifications

Radome Material:	UV Stable E-Glass
Radome Colour:	Brilliant White Pantone P 179-1 C
Mounting Type:	Surface mount

Environmental Specifications, Certification & Approvals

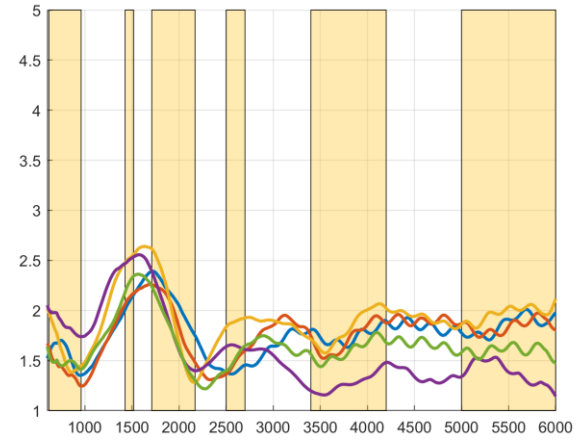
Wind Survival:	≤186 km/h
Temperature Range (Operating):	-40°C to +80°C
Environmental Conditions:	Outdoor/Indoor
Water ingress protection ratio/standard:	IP 65
Salt Spray:	MIL-STD 810G/ASTM B117
Operating Relative Humidity:	Up to 98%
Storage Humidity:	5% to 95% - non-condensing
Storage Temperature:	-40°C to +80°C
Enclosure Flammability Rating:	UL 94-HB
Impact resistance:	IK 08
Product Safety & Environmental:	Complies with CE and RoHS standards

Revised: September 2024

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-SWRL-V1-01 REV 1.1
www.poynting.tech

Antenna Performance Plots

VSWR: Cellular Vertical



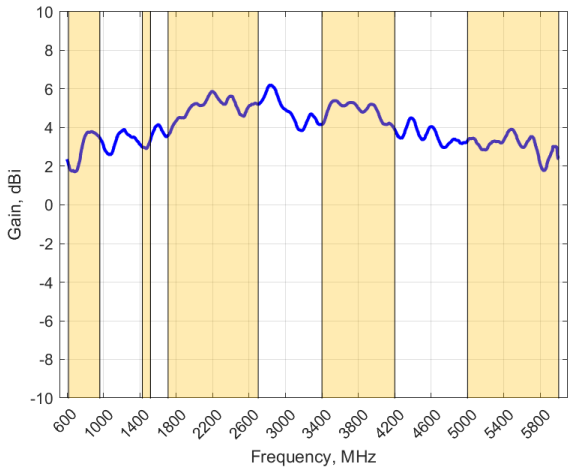
Voltage Standing Wave Ratio (VSWR)*

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 SWIRL delivers superior performance across all bands with a VSWR of ≤2.5:1.

*VSWR measured with a 650mm low loss cable

GAIN (EXCLUDING CABLE LOSS): Cellular Vertical



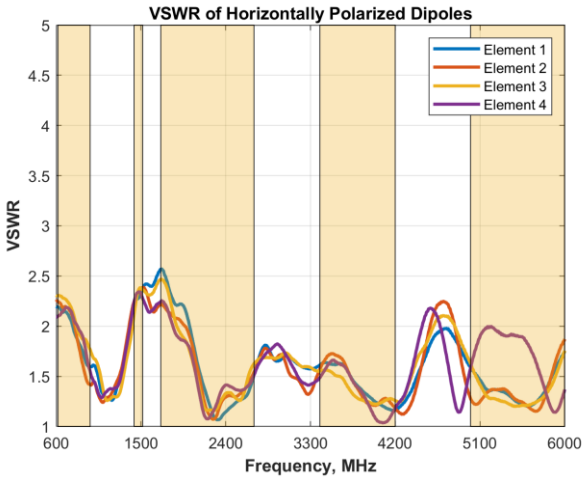
Gain+ in dBi

6 dBi is the peak gain across all bands from 617 – 6000 MHz

Gain @ 617 – 960 MHz:	4 dBi
Gain @ 1427 – 1517 MHz:	4 dBi
Gain @ 1710 – 2700 MHz:	6 dBi
Gain @ 3400 – 4200 MHz:	5.5 dBi
Gain @ 5000 – 6000 MHz:	4 dBi

+Antenna gain measured with polarisation aligned standard antenna

VSWR: Cellular Horizontal



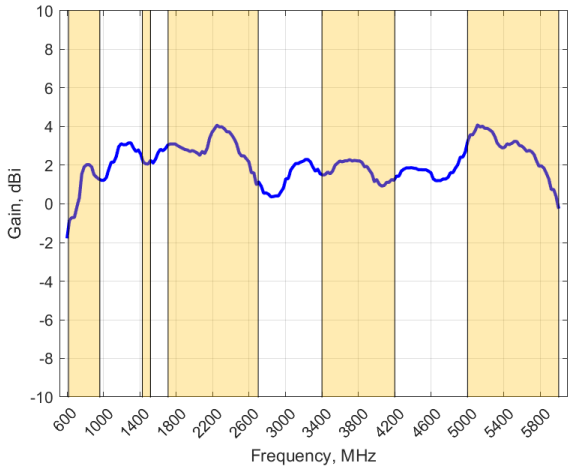
Voltage Standing Wave Ratio (VSWR)*

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 SWIRL delivers superior performance across all bands with a VSWR of 2.5:1 or better.

*VSWR measured with a 650mm low loss cable

GAIN (EXCLUDING CABLE LOSS): Cellular Horizontal



Gain+ in dBi

4 dBi is the peak gain across all bands from 617 – 6000 MHz

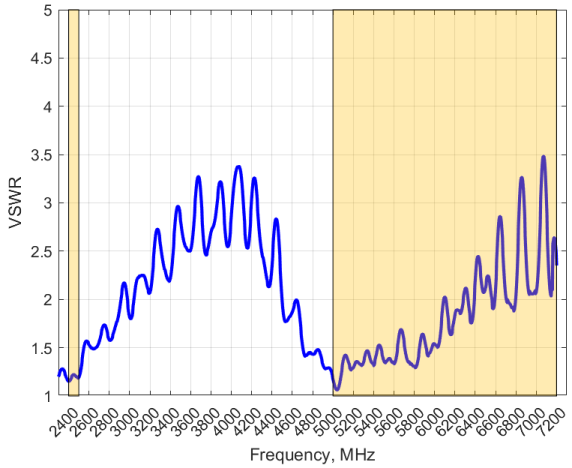
Gain @ 617 – 960 MHz:	2 dBi
Gain @ 1427 – 1517 MHz:	2 dBi
Gain @ 1710 – 2700 MHz:	4 dBi
Gain @ 3400 – 4200 MHz:	2 dBi
Gain @ 5000 – 6000 MHz:	4 dBi

+Antenna gain measured with polarisation aligned standard antenna

Revised: September 2024

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-SWRL-V1-01 REV 1.1
www.poynting.tech

VSWR: WI-FI



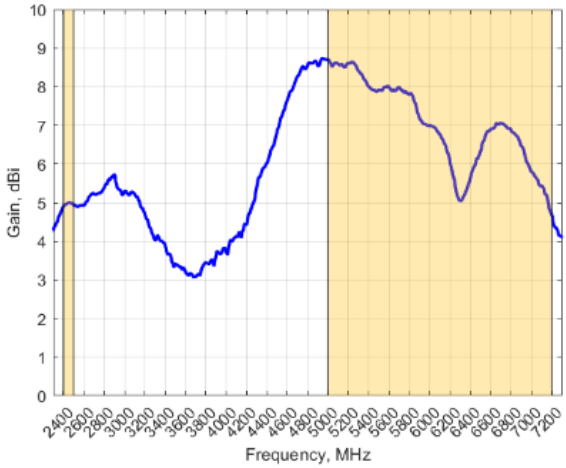
Voltage Standing Wave Ratio (VSWR)*

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 SWIRL delivers superior performance across all bands with a VSWR of ≤2.5:1 across 90% of the bands.

**VSWR measured with a 650mm low loss cable.*

GAIN (EXCLUDING CABLE LOSS): WI-FI



Gain+ in dBi

8.5 dBi is the peak gain across all bands from 2400 – 7200 MHz

Gain @ 2400 – 2500 MHz:	5 dBi
Gain @ 5000 – 7200 MHz:	8.5 dBi

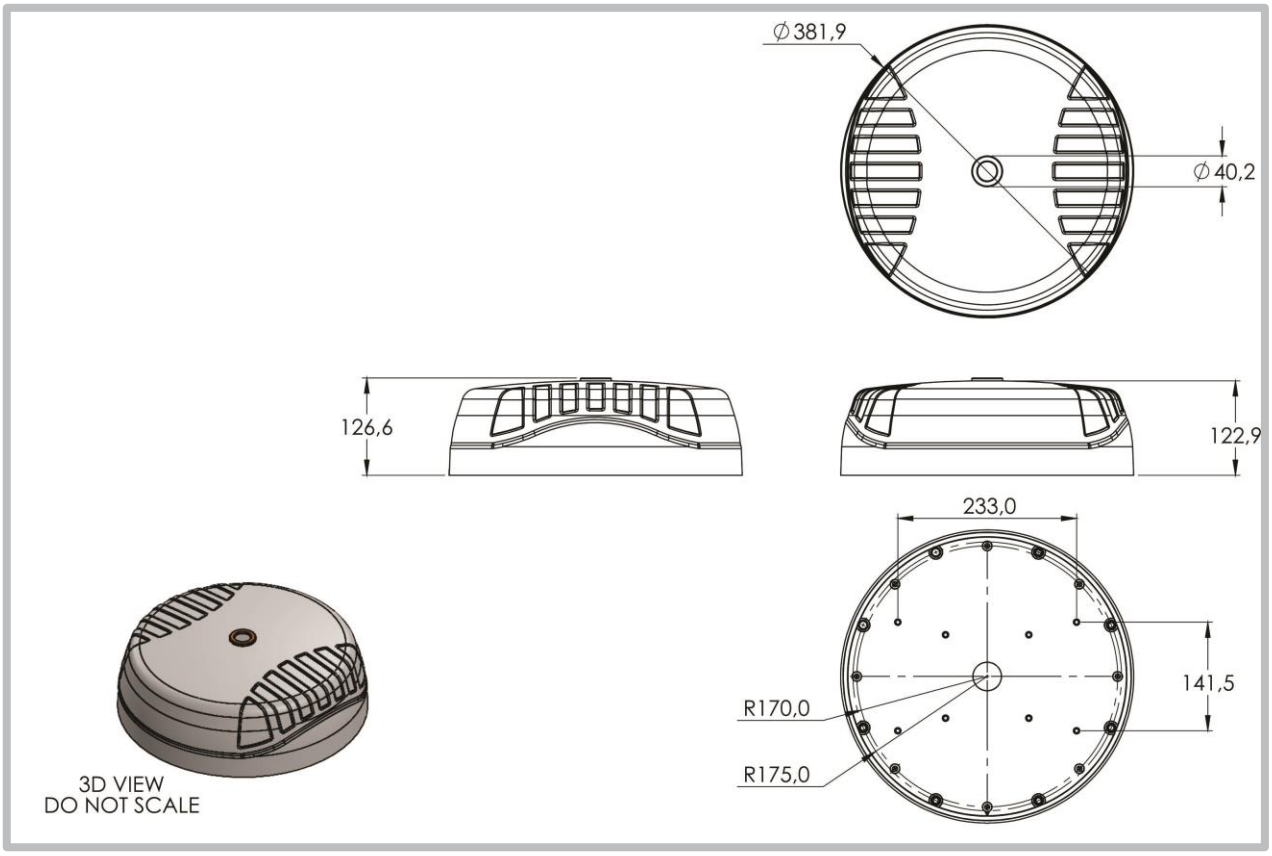
+Antenna gain measured with polarisation aligned standard antenna

Revised: September 2024

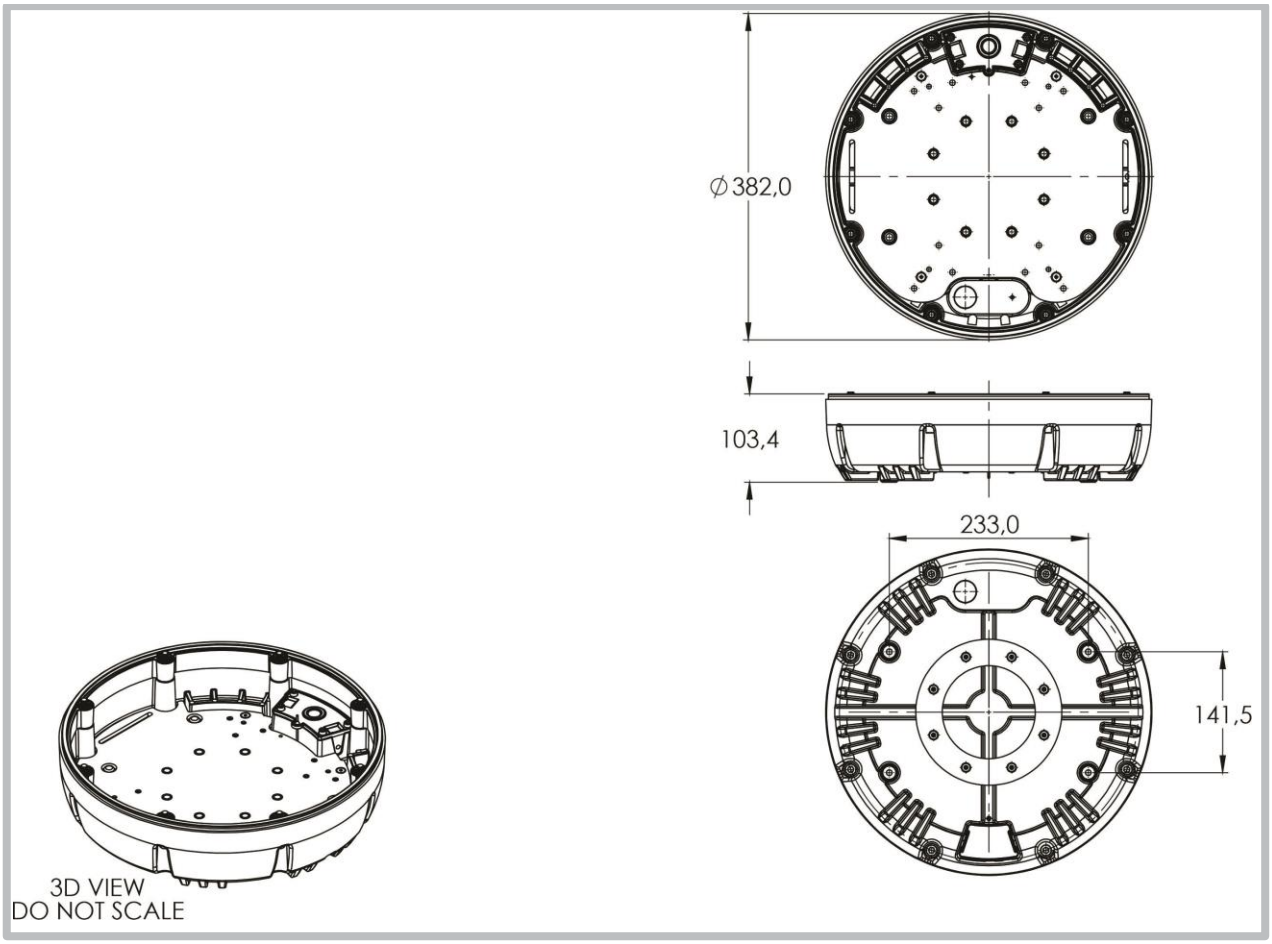
Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-SWRL-V1-01 REV 1.1
www.poynting.tech

Technical Drawings

SWIRL Antenna Solution



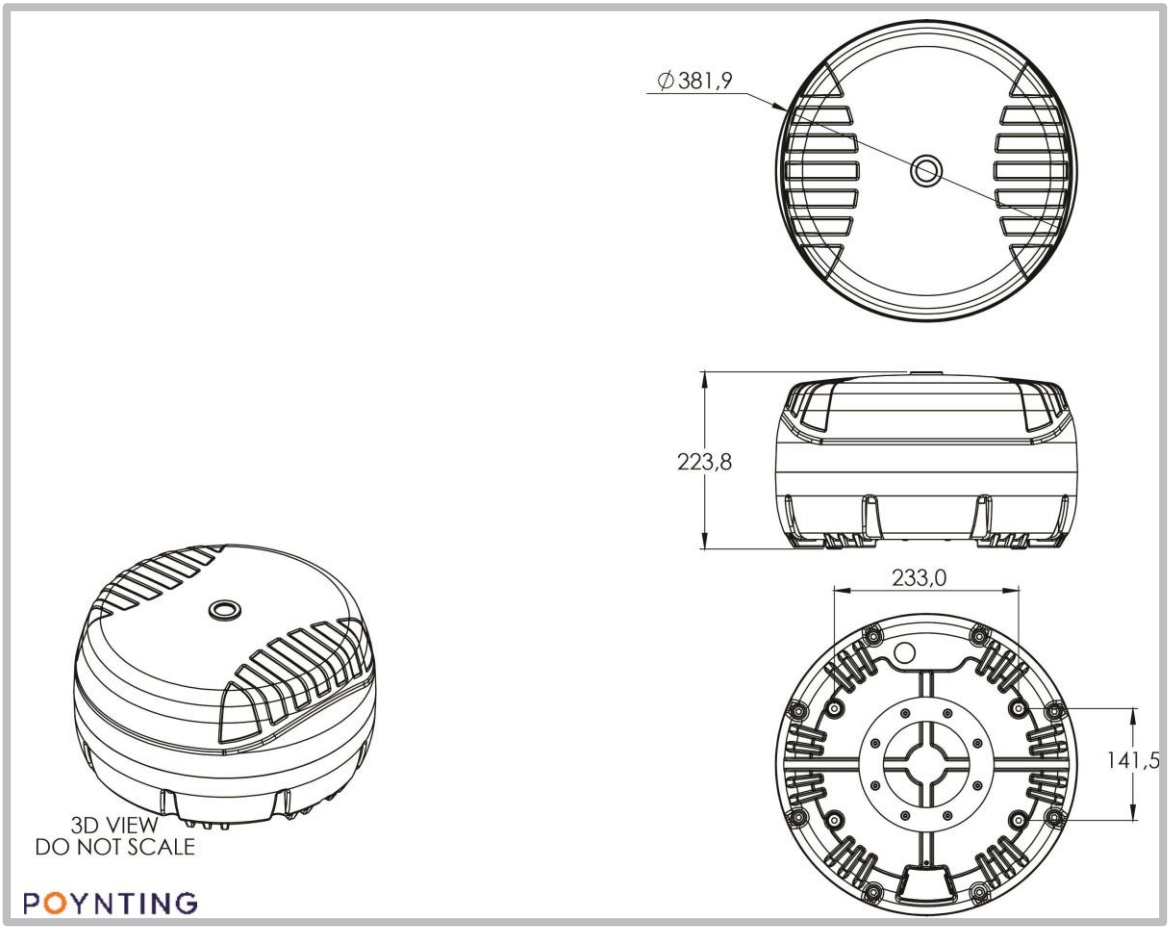
SWIRL Base



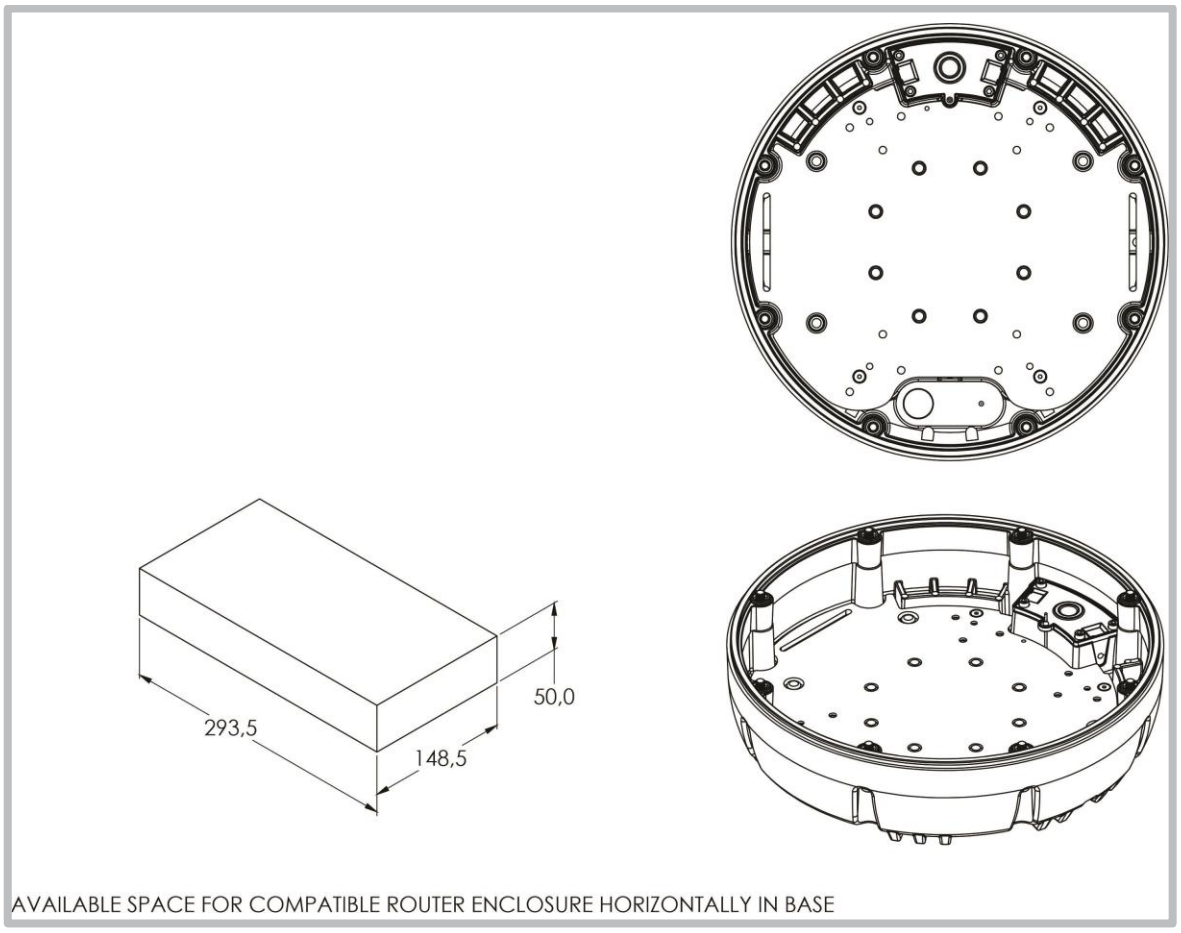
Revised: September 2024

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-SWRL-V1-01 REV 1.1
www.poynting.tech

SWIRL Antenna and Base Solution



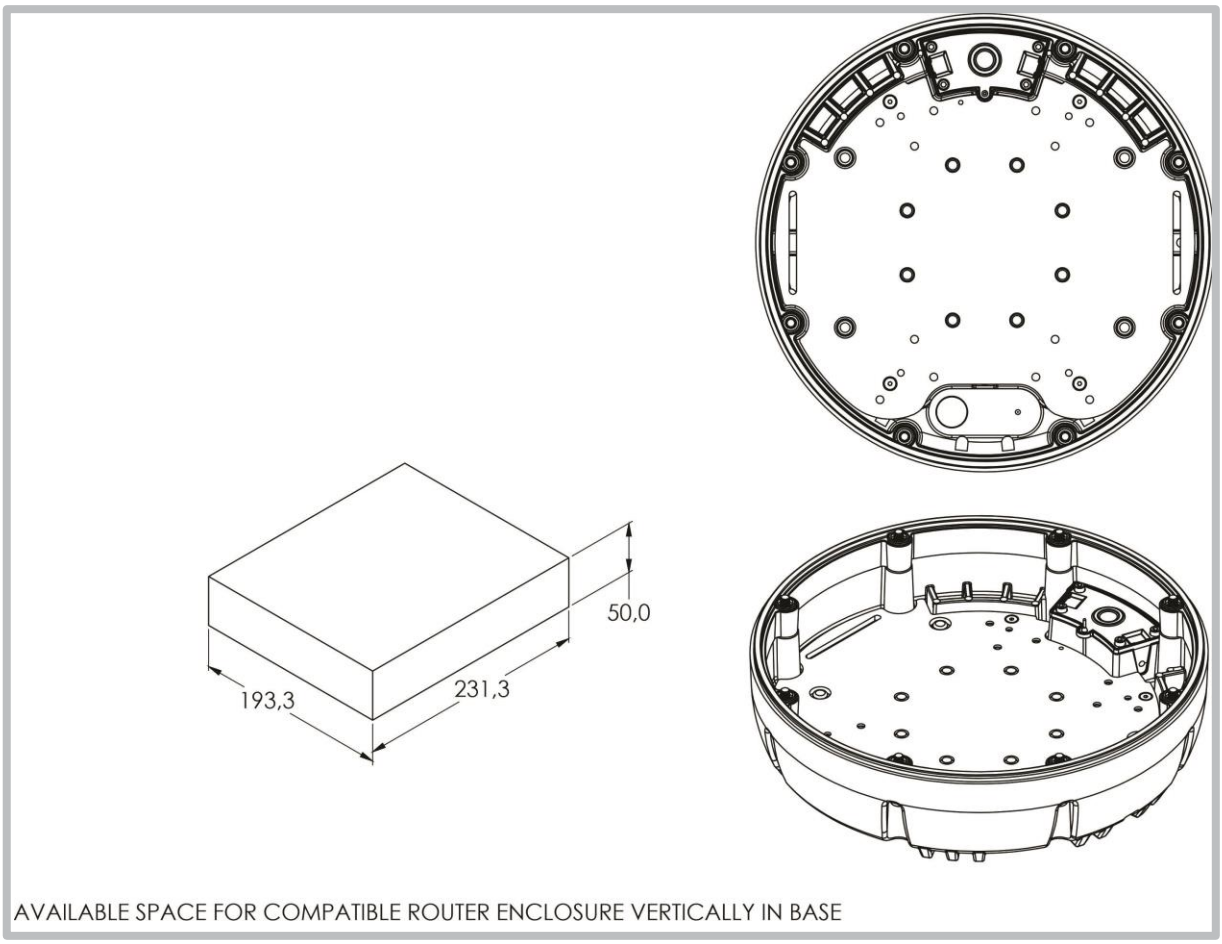
SWIRL Base Available Router Space (Horizontal)



Revised: September 2024

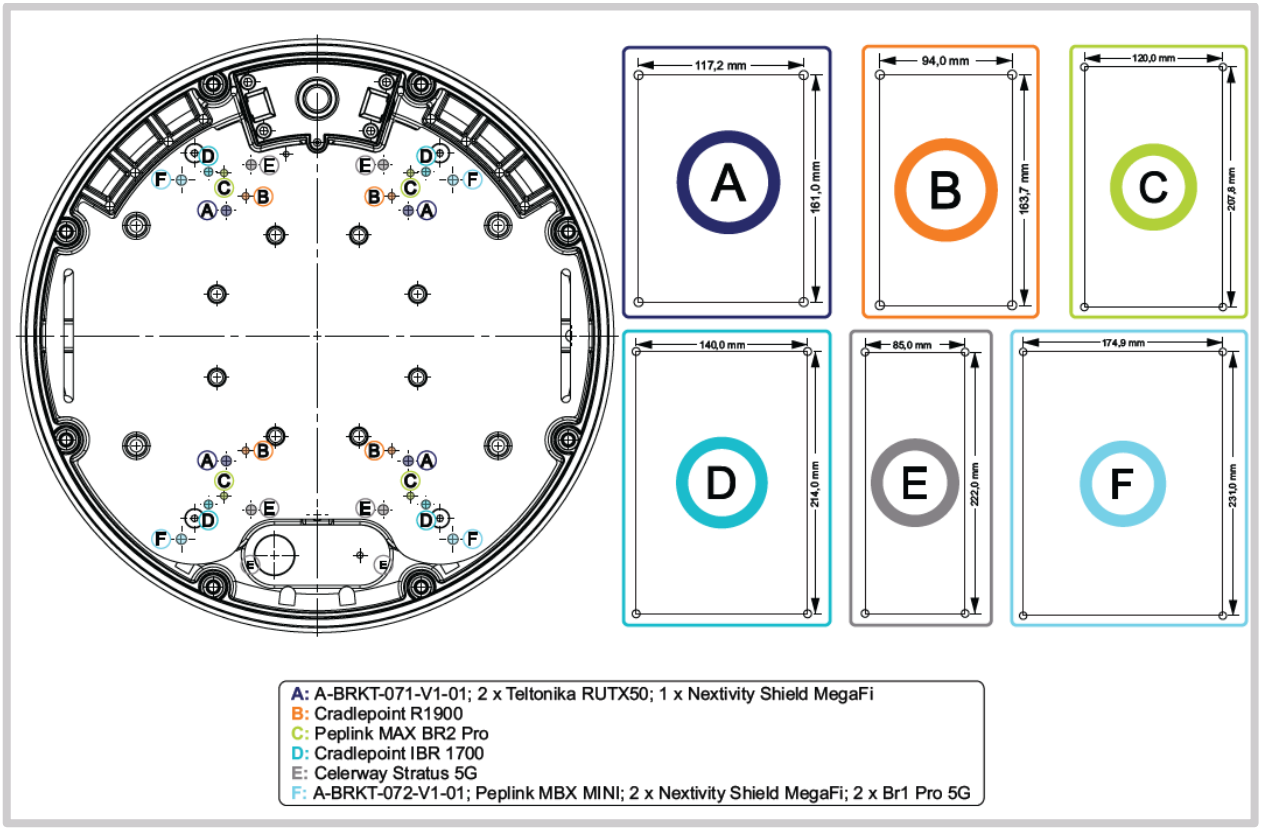
Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-SWRL-V1-01 REV 1.1
www.poynting.tech

SWIRL Base Available Router Space (Vertical)



AVAILABLE SPACE FOR COMPATIBLE ROUTER ENCLOSURE VERTICALLY IN BASE

SWIRL Base Router Hole Configurations



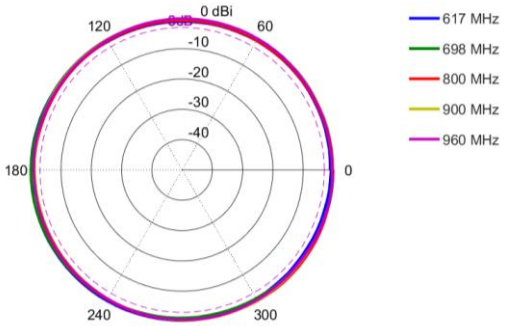
A: A-BRKT-071-V1-01; 2 x Teltonika RUTX50; 1 x Nextivity Shield MegaFi
B: Cradlepoint R1900
C: Peplink MAX BR2 Pro
D: Cradlepoint IBR 1700
E: Celerway Stratus 5G
F: A-BRKT-072-V1-01; Peplink MBX MINI; 2 x Nextivity Shield MegaFi; 2 x Br1 Pro 5G

Revised: September 2024

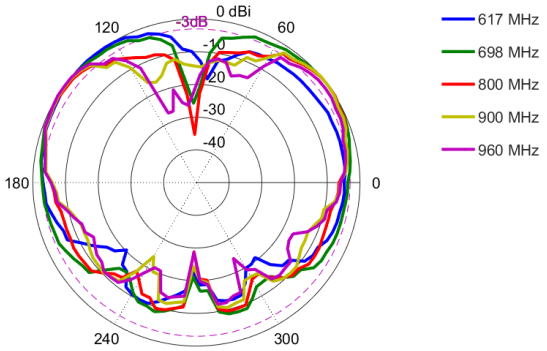
Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-SWRL-V1-01 REV 1.1
www.poynting.tech

Radiation Patterns - Cellular Vertical

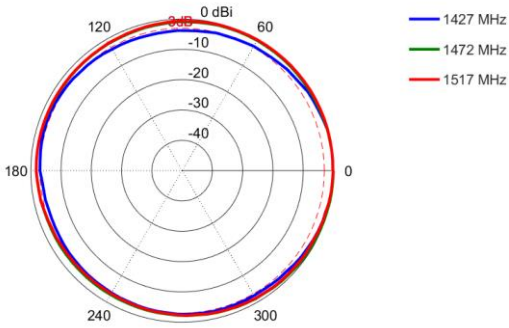
Azimuth: 617 – 960 MHz



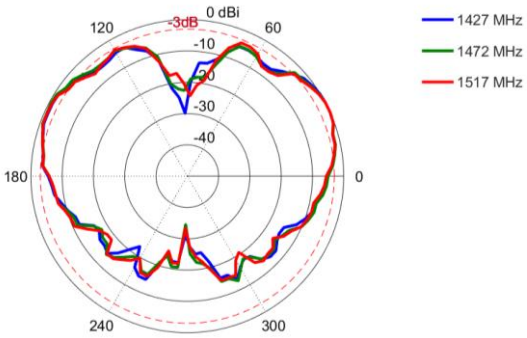
Elevation: 617 – 960 MHz



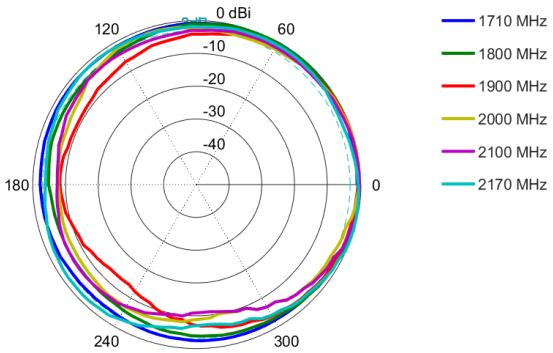
Azimuth: 1427 – 1517 MHz



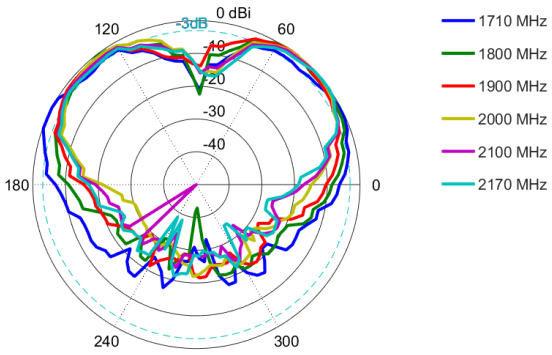
Elevation: 1427 – 1517 MHz



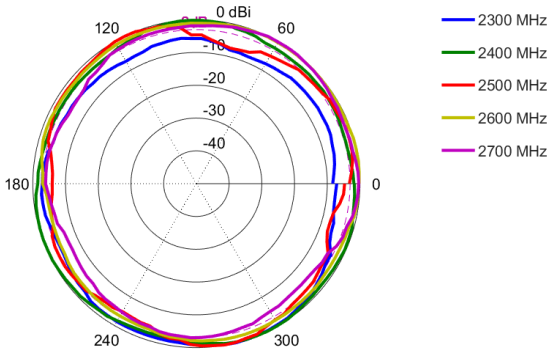
Azimuth: 1710 – 2170 MHz



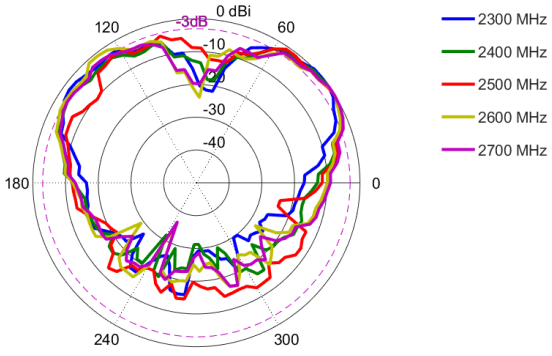
Elevation: 1710 – 2170 MHz



Azimuth: 2300 – 2700 MHz



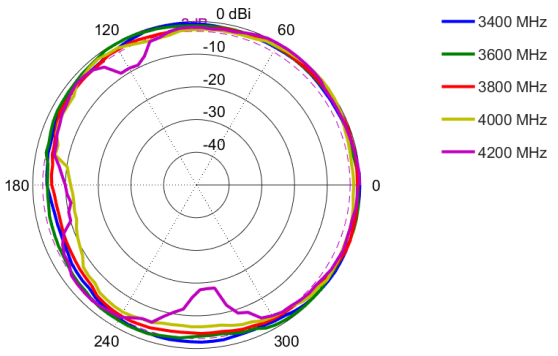
Azimuth: 2300 – 2700 MHz



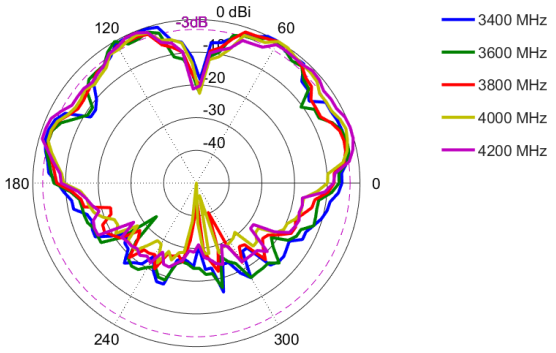
Revised: September 2024

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-SWRL-V1-01 REV 1.1
www.poynting.tech

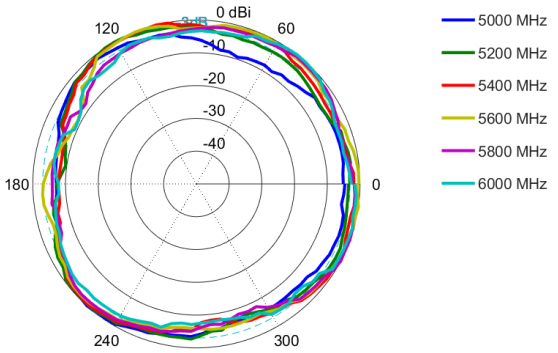
Azimuth: 3400 – 4200 MHz



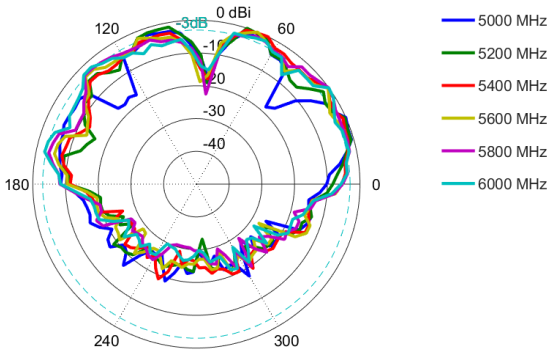
Elevation: 3400 – 4200 MHz



Azimuth: 5000 – 6000 MHz

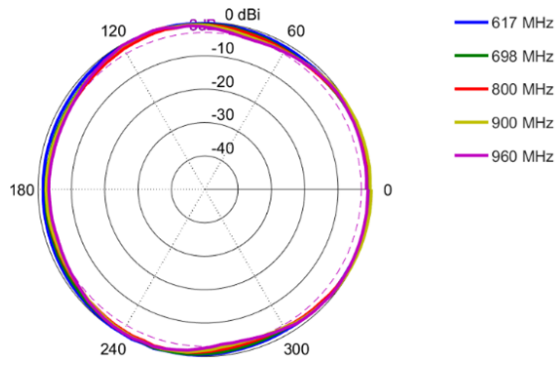


Elevation: 5000 – 6000 MHz

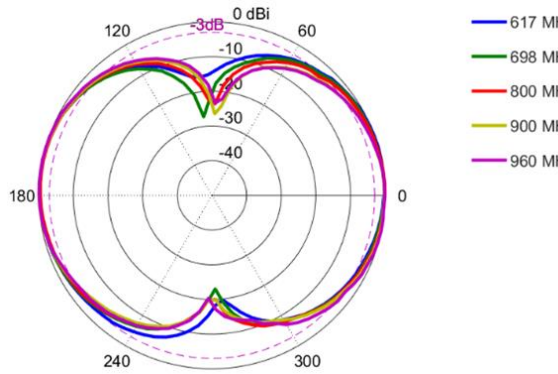


Radiation Patterns - Cellular Horizontal

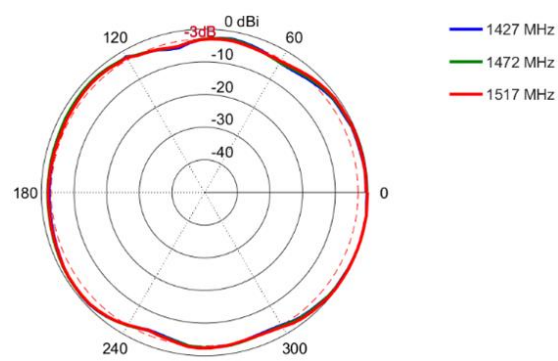
Azimuth: 617 – 960 MHz



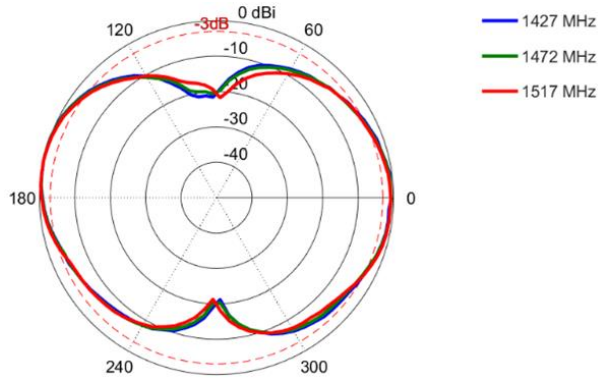
Elevation: 617 – 960 MHz



Azimuth: 1427 – 1517 MHz



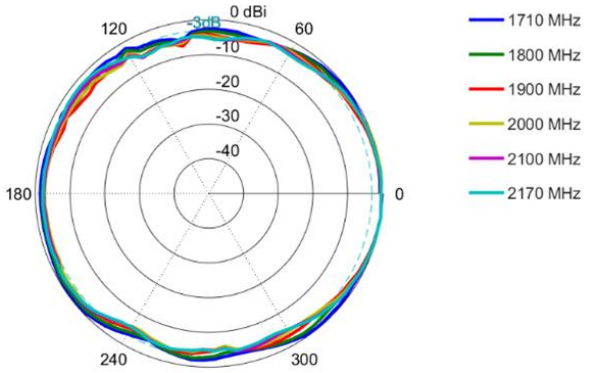
Elevation: 1427 – 1517 MHz



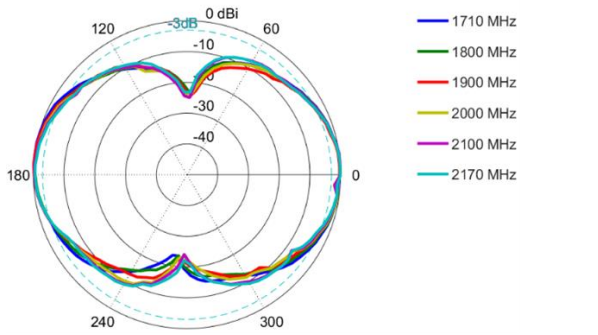
Revised: September 2024

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-SWRL-V1-01 REV 1.1
www.poynting.tech

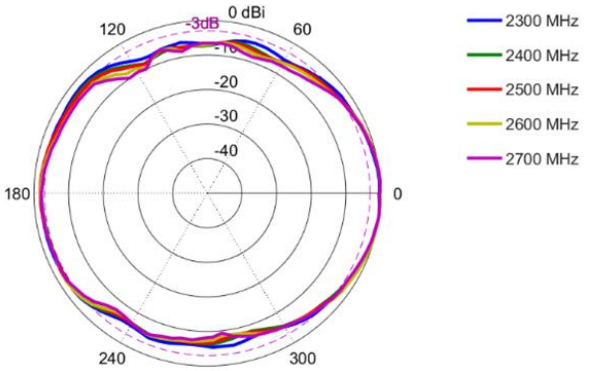
Azimuth: 1710 – 2170 MHz



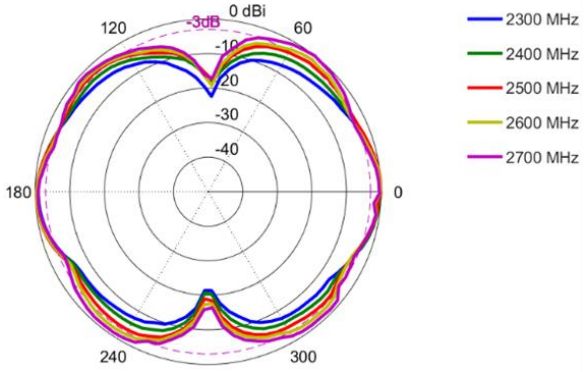
Elevation: 1710 – 2170 MHz



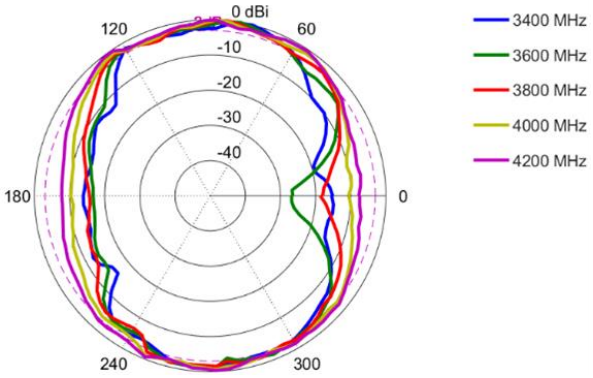
Azimuth: 2300 – 2700 MHz



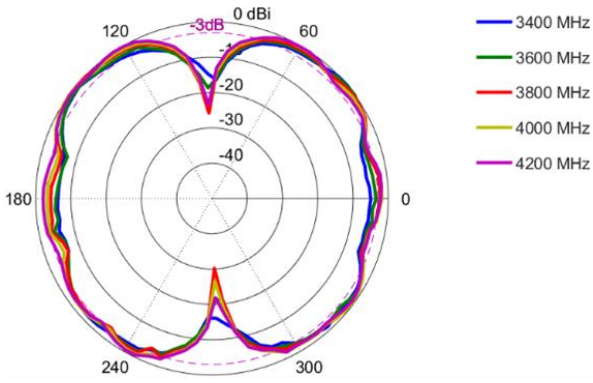
Elevation: 2300 – 2700 MHz



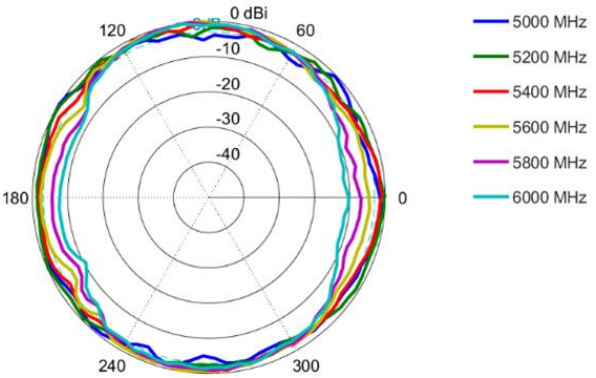
Azimuth: 3400 – 4200 MHz



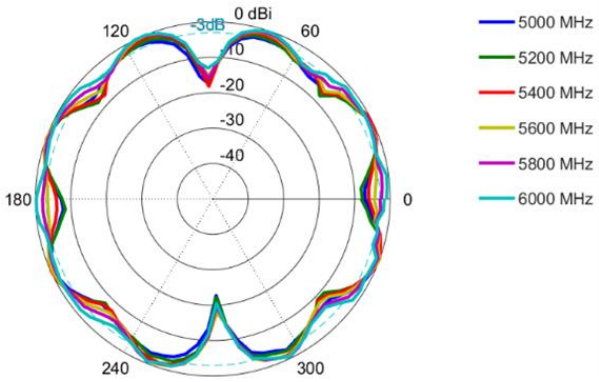
Elevation: 3400 – 4200 MHz



Azimuth: 5000 – 6000 MHz



Elevation: 5000 – 6000 MHz

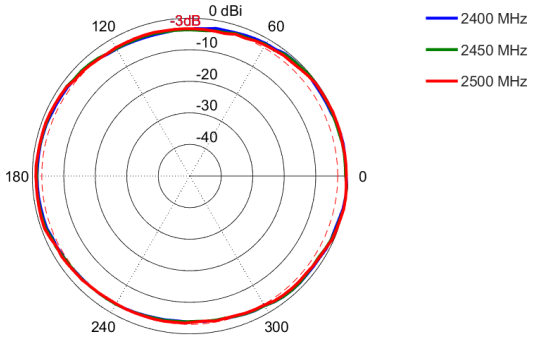


Revised: September 2024

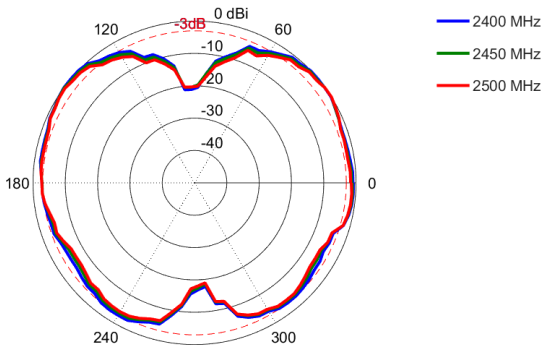
Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-SWRL-V1-01 REV 1.1
www.poynting.tech

Radiation Patterns - WI-FI

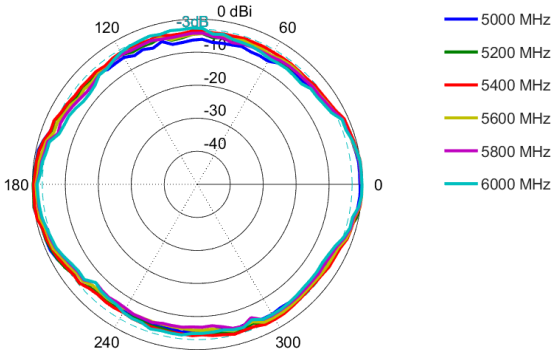
Azimuth: 2400 – 2500 MHz



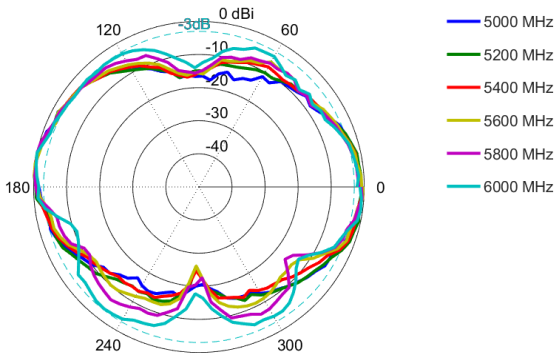
Elevation: 2400 – 2500 MHz



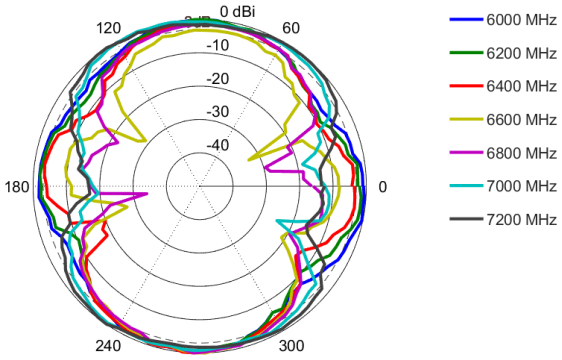
Azimuth: 5000 – 6000 MHz



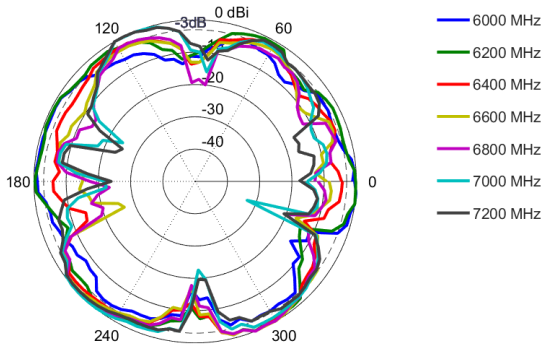
Elevation: 5000 – 6000 MHz



Azimuth: 6000 – 7200 MHz



Elevation: 6000 – 7200 MHz



Revised: September 2024

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-SWRL-V1-01 REV 1.1
www.poynting.tech

Mounting Options

Surface Mount

Adhesive surface mounting (included) to directly secure the antenna to a surface.

Magnet mount

Magnetic Base Kit (MBK-4 not included)
For temporary and low-mobility installations.

Revised: September 2024

Regulatory Compliance: RoHS 2011/65/EU Compliant | ISO 9001:2015
Document version: TS-A-SWRL-V1-01 REV 1.1
www.poynting.tech

Additional Accessories

A-SWIRL-BASE-V1-01

Optional base accessory solution to transform your SWIRL into a CPE-ready solution.

See accessories technical specifications on www.poynting.tech

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: info@poynting.tech
International Email: sales-global@poynting.tech

Poynting Europe
Regus Business Center Neue Messe Riem
Kronstadter Straße 4
81677 München
Germany
Phone: +49 89 7453 9002
E-mail: sales-europe@poynting.tech

Poynting USA
1804 Owen Court, Suite 104,
Mansfield,
TX 76063
USA
Phone: +1 817 533-8130
E-mail: sales-us@poynting.tech