Approved 915MHz antennas list:

Manufacturer	*Antenna*	*Description*	*Type*	*Peak Gain (dBi)*	*Ω*	*Connector Type*	*Notes*
Taiwancast	**ANT-SMA-5CM**	**SMA antenna, quarter wave helical, 50mm long, for 902-928 MHz band**	**Monopole**	**+0**	**50**	**SMA**	**3**
Taiwancast	**ANT-SMA22-915-109.5**	**912 MHz to 918 MHz Omnidirectional Antenna**	**Omni/Monopole**	**+1.3**	**50**	**RP-SMA**	
TE Connectivity Linx	**ANT-915-NUB-SMA**	**RF ANT 915MHZ SHORT WHIP SMA**	**Monopole**	**+3.9**	**50**	**SMA**	**3**
Taiwancast	**TWCAST-915ROD**	**902 MHz to 928 MHz Omnidirectional Antenna**	**Omni/Monopole**	**+5.8**	**50**	**N**	**2**
L-COM	**HGV-906U-NM**	**824 MHz to 960 MHz 6 dBi Omnidirectional Antenna**	**Omni/Monopole**	**+6**	**50**	**N**	**2**
Taoglas Limited	**IS.05.B.301111**	**Low Profile ISM Antenna**	**Dome/Omni**	**+3.14**	**50**	**SMA**	**3**
Taoglas Limited	**TI.19.2113**	**RF ANT 915 MHZ WHIP TILT SMA MALE**	**Dipole**	**+2.5**	**50**	**SMA**	**1, 3**
PCTEL	**MYA9153**	**Aluminum Yagi Antenna, 3 element**	**Yagi**	**+8.1**	**50**	**N**	**2**

NOTES:

1 - *Antenna tested for compliance using SMA RF connector which is not applicable in production hardware. Any equivalent antenna with RP-SMA connector type, same or lower gain, same physical arrangement, and generates the same in-band and out-of-band characteristics in all spatial directions is considered approved by equivalency.*

2 - *Antenna tested for compliance using RP-SMA to N adapter, which will be permanently glued to the antenna in production.*

3 - *Antenna will not be used with SMA connector. Any equivalent antenna with RP-SMA connector type, same or lower gain, same physical arrangement, and generates the same in-band and out-of-band characteristics in all spatial directions is considered approved by equivalency.*

ANT-SMA-5CM

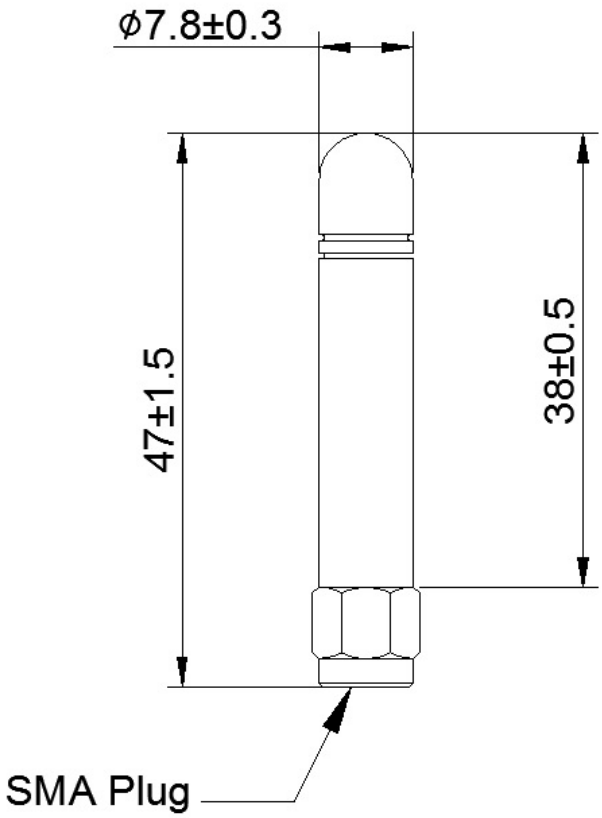
SMA antenna, quarter wave helical, 50mm long, for 902-928 MHz band

Electrical Specification

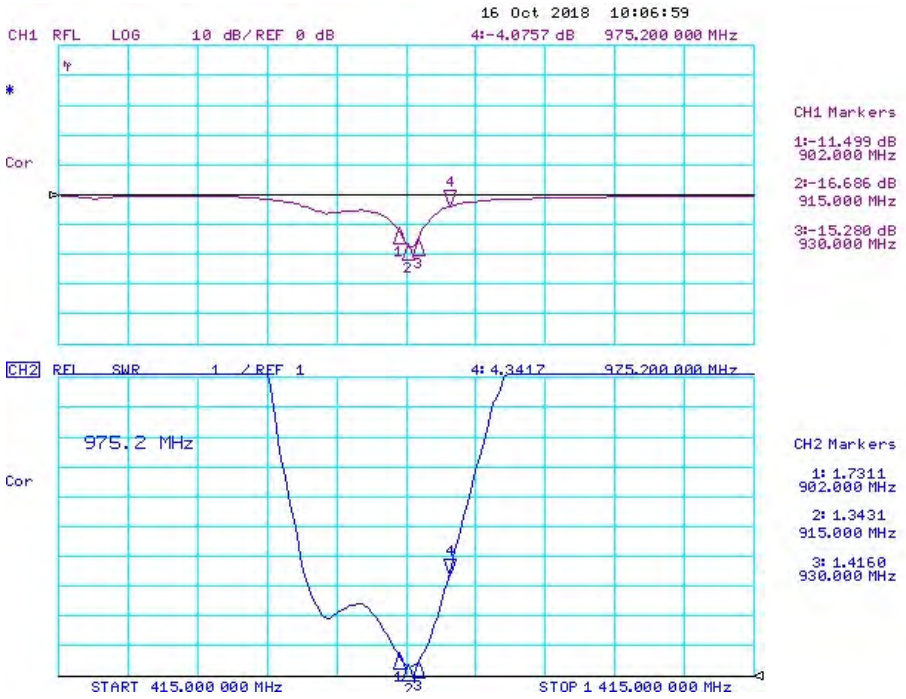
Frequency Range	902~928MHz
VSWR	＜2.0
Impedance	50Ω
Gain	0 dBi
Polarization	Vertical
Power Handling	1 Watt

Environmental & Mechanical

Connector	SMA PLUG
Operation Temp	-30℃ ~ +65℃
Material	Radome: TPR
Dimension (L*W*H)	φ7.8*L47 mm
Weight	
Color	Black

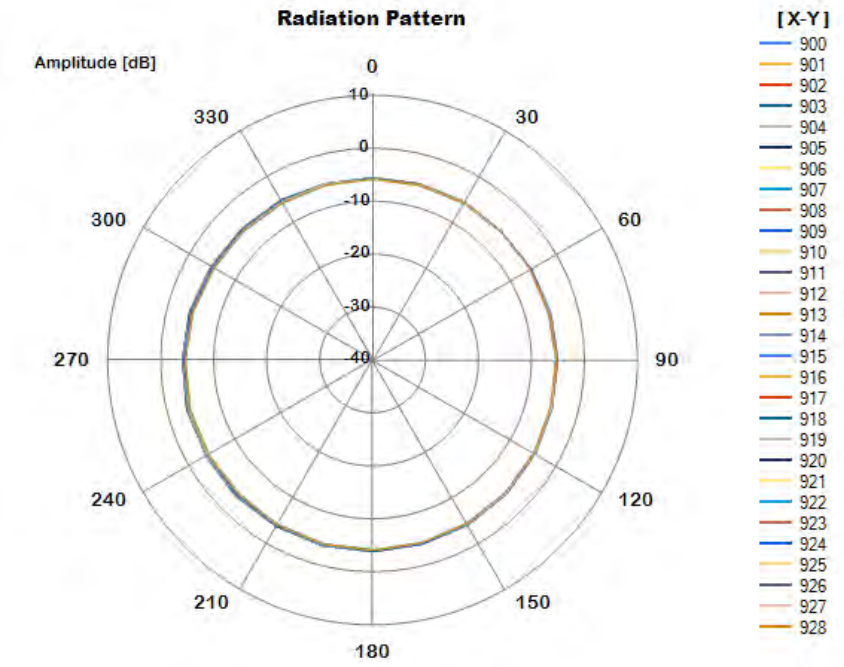


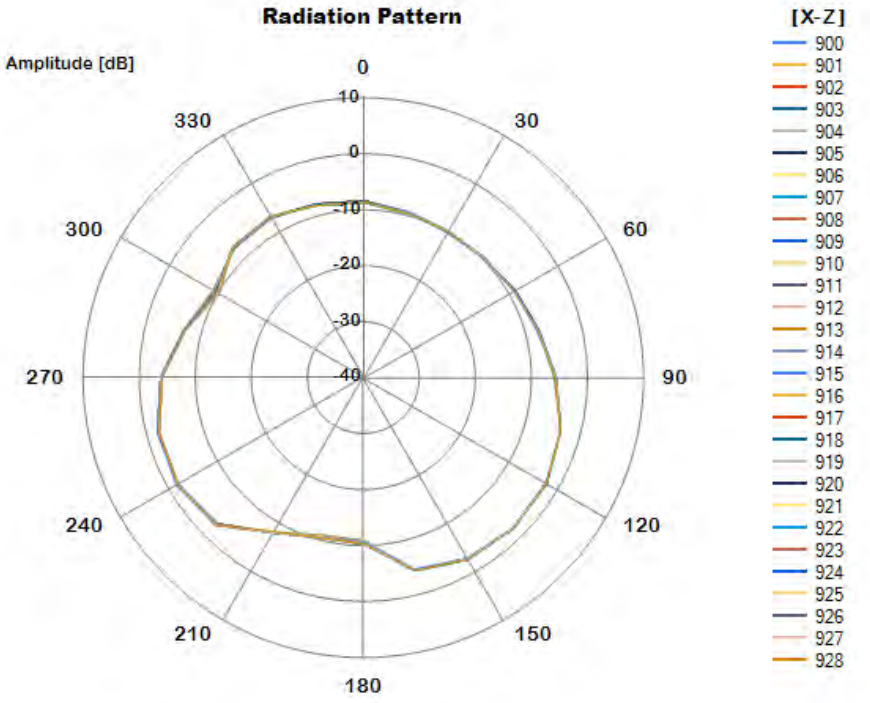
SMA antenna, quarter wave helical, 50mm long, for 902-928 MHz band



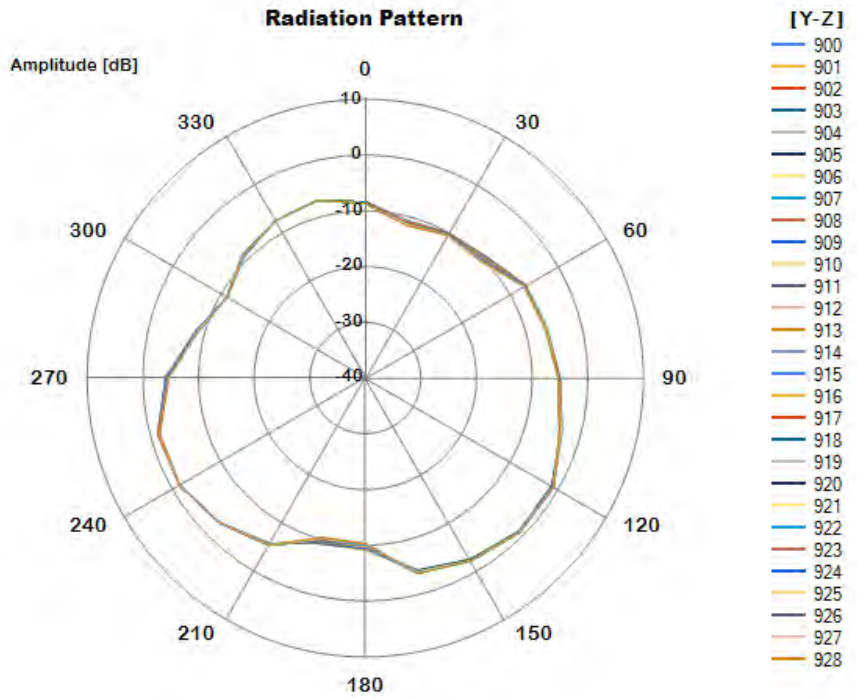
Frequency [MHz]	Efficiency (dBm)	Return Loss (dBm)	Peak EIRP (dBm)	Directivity (dBi)	Efficiency (%)
900	-4.64	0	-0.95	3.69	34.35
901	-4.62	0	-0.92	3.7	34.48
902	-4.61	0	-0.89	3.71	34.6
903	-4.59	0	-0.86	3.73	34.73
904	-4.58	0	-0.84	3.74	34.84
905	-4.56	0	-0.81	3.76	34.96
906	-4.56	0	-0.78	3.78	35.03
907	-4.55	0	-0.76	3.79	35.09
908	-4.54	0	-0.74	3.8	35.13
909	-4.54	0	-0.73	3.81	35.16
910	-4.54	0	-0.71	3.83	35.18
911	-4.53	0	-0.69	3.84	35.22
912	-4.53	0	-0.68	3.85	35.24
913	-4.53	0	-0.66	3.87	35.25
914	-4.53	0	-0.65	3.88	35.25
915	-4.53	0	-0.64	3.89	35.23
916	-4.54	0	-0.63	3.91	35.19
917	-4.54	0	-0.62	3.92	35.14
918	-4.55	0	-0.61	3.94	35.08
919	-4.56	0	-0.62	3.94	34.99
920	-4.57	0	-0.62	3.95	34.88
921	-4.58	0	-0.61	3.96	34.85
922	-4.58	0	-0.6	3.98	34.81
923	-4.59	0	-0.6	3.99	34.74
924	-4.6	0	-0.6	4	34.66
925	-4.61	0	-0.6	4.01	34.57
926	-4.62	0	-0.6	4.02	34.48
927	-4.64	0	-0.6	4.03	34.38
928	-4.65	0	-0.61	4.04	34.27

SMA antenna, quarter wave helical, 50mm long, for 902-928 MHz band



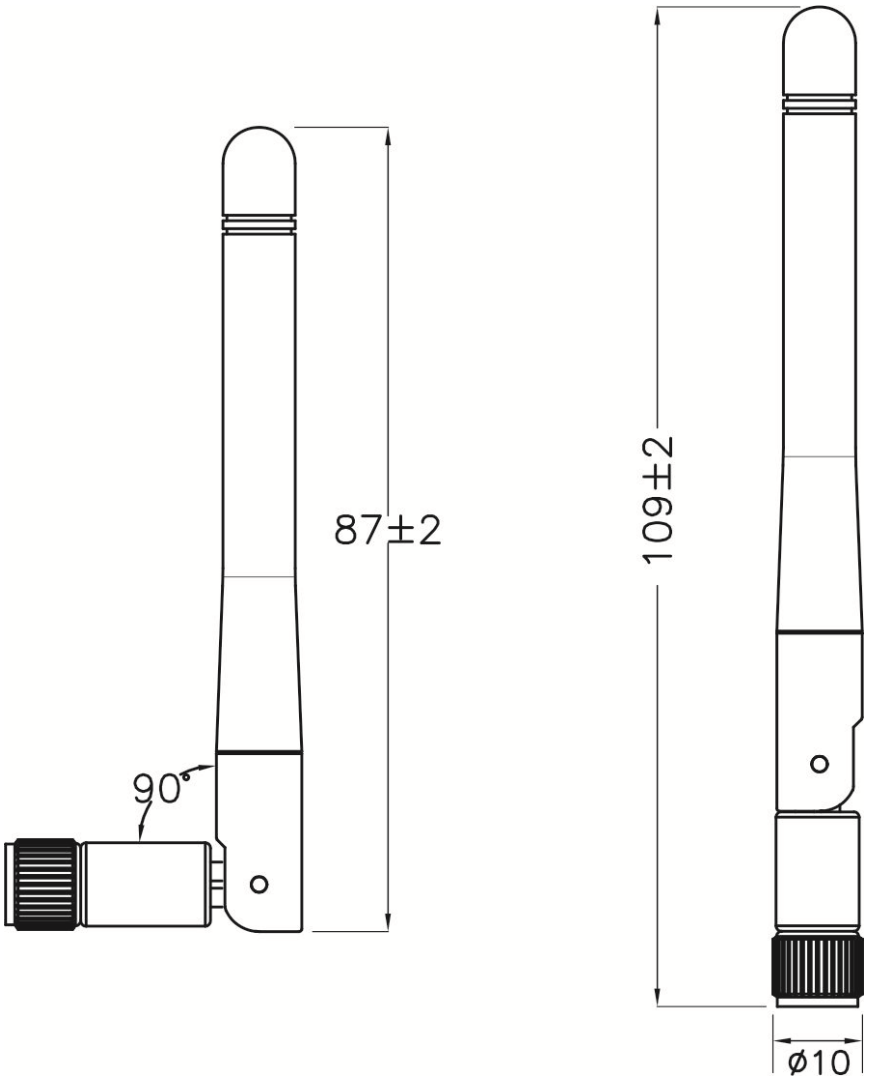


SMA antenna, quarter wave helical, 50mm long, for 902-928 MHz band



TAIWANCAST INC.
PRODUCT SPECIFICATION

1、Structure of Antenna



Unit : mm

Product

REVISION	Part Number:	TITLE	SHEET No.
A	ANT-SMA22-915-109.5	Antenna Specification	1 of 4

DATE	APPROVED BY	CHECKED BY	CREATED/REVISED
2024/01/19	Mark	Gary	Sam

2、General Description

2.1	Application	UHF Band
2.2	Operation temperature	-20～+80℃
2.3	Storage temperature	-30～+85℃
2.4	Testing condition	Standard condition: under temperature range 5~35℃, humidity range 45~65 % RH.)

3、Appearance、Construction、Dimensions

3.1	Construction、dimension	According to R&D drawing。
3.2	Weight	8.9±0.5g

4、Electrical Characteristics

4-1 Antenna Electrical Characteristics)

4-1-1	Outline Dimensions	
4-1-2	Frequency Range	915MHz ±3MHz
4-1-3	Bandwidth	±13MHz
4-1-4	Impedence	50 Ohm
4-1-5	VSWR	2.0 (typical)
4-1-6	Gain	1.3 dBi (typical)
4-1-7	Azimuth	Omni
4-1-8	Connector	RP SMA male

5、Measurement method

5-1 Passive Antenna Reflection Coefficient Measurement

5-1-2 Equipment Network Analyzer (Fig.1)

5-1-3 Item S11 (Return Loss)(VSWR)

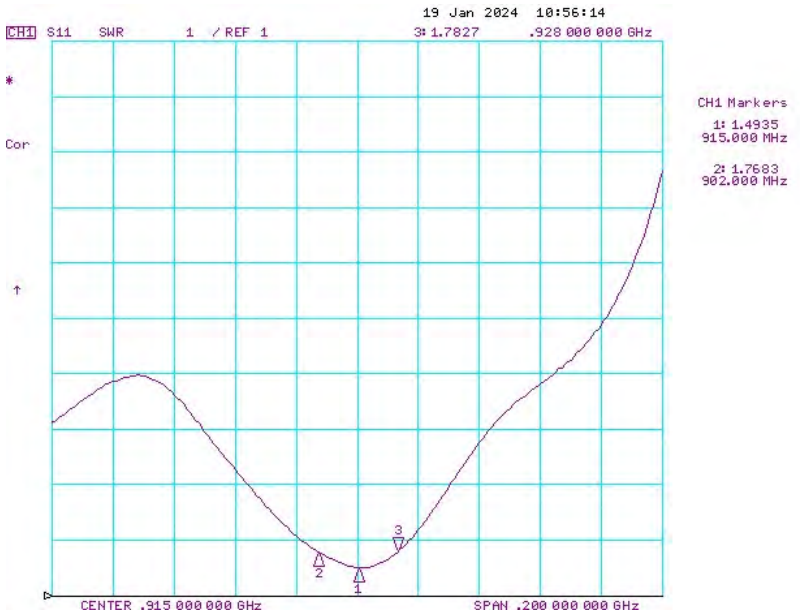
Fig.1 Network Analyzer

S11(Return Loss)

REVISION	Part Number:	TITLE	SHEET No.
A	ANT-SMA22-915-109.5	Antenna Specification	3 of 4

DATE	APPROVED BY	CHECKED BY	CREATED/REVISED
2024/01/19	Mark	Gary	Sam

TAIWANCAST INC.
PRODUCT SPECIFICATION



S11(VSWR)

REVISION	Part Number:	TITLE	SHEET No.
A	ANT-SMA22-915-109.5	Antenna Specification	4 of 4

DATE	APPROVED BY	CHECKED BY	CREATED/REVISED
2024/01/19	Mark	Gary	Sam

ANT-915-NUB-ccc

915 MHz LPWA Whip Antenna

The ANT-915-NUB-ccc is an extremely compact whip-style antenna designed for sub-1 GHz and low-power, wide-area (LPWA) applications including LoRaWAN®, IoT, remote controls, and ISM band applications in the 902 MHz to 930 MHz range.

The ANT-915-NUB-ccc is a rugged monopole antenna with a length of less than 18 mm. The ANT-915-NUB-ccc may be used with metallic and non-metallic enclosures. The antenna connects using an SMA plug (male pin) or RP-SMA plug (female socket) connector.

FEATURES

- Performance at 902 MHz to 930 MHz
  - VSWR: ≤ 2.6
  - Peak Gain: 3.9 dBi
  - Efficiency: 38%
- Compact size
  - Height 17.7 mm (0.70 in)
  - Diameter 7.0 mm (0.28 in)
- AEC-Q200 Grade 2 compliance
- Omnidirectional radiation pattern
- SMA plug (male pin) or RP-SMA plug (female socket) connection

APPLICATIONS

- Low-power, wide-area (LPWA) applications
  - LoRaWAN®, ITU-T Y.4480
- ISM applications
- Drone Antenna
- FPV Antenna
- UAV Antenna
- Remote control, sensing and monitoring
  - Security systems
  - Industrial machinery
  - Automated equipment
  - AMR (automated meter reading)
- Internet of Things (IoT) devices
- Smart Home networking
- Hand-held devices

ORDERING INFORMATION

Part Number	Description
ANT-915-NUB-RPS	915 MHz LPWA whip antenna with RP-SMA plug (female socket) connector
ANT-915-NUB-SMA	915 MHz LPWA whip antenna with SMA plug (male pin) connector

Available from Linx Technologies and select distributors and representatives.

TABLE 1. ELECTRICAL SPECIFICATIONS

ANT-915-NUB	915 MHz		
Frequency Range	902 MHz to 930 MHz		
VSWR (max)	2.6		
Peak Gain (dBi)	3.9		
Average Gain (dBi)	-4.3		
Efficiency (%)	38		
Polarization	Linear	Radiation	Omnidirectional
Max Power	25 W	Wavelength	1/4-wave
Electrical Type	Monopole	Impedance	50 Ω

Electrical specifications and plots measured at the edge of a 102 mm x 102 mm (4 in x 4 in) reference ground plane.

TABLE 2. MECHANICAL SPECIFICATIONS

Parameter	Value
Connection	SMA plug (male pin), RP-SMA plug (female socket)
Dimensions	17.7 mm x Ø7.0 mm (0.70 in x Ø0.28 in)
Weight	2.9 g (0.10 oz)
Operating Temp. Range	-40 °C to +105 °C

PRODUCT DIMENSIONS

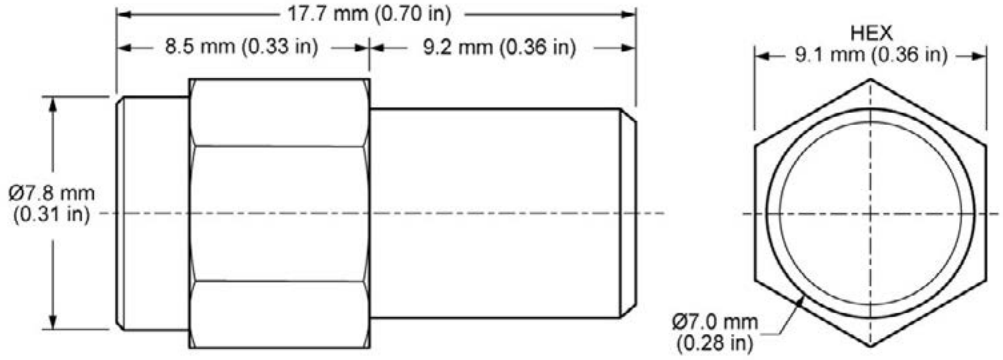


Figure 1. ANT-915-NUB-ccc Antenna Dimensions

PACKAGING INFORMATION

The ANT-915-NUB antenna is individually packaged in a sealed plastic bag, 50 pcs packed in a labeled clear polyethylene bag. Distribution channels may offer alternative packaging options.

COUNTERPOISE

Quarter-wave or monopole antennas require an associated ground plane counterpoise for proper operation. The size and location of the ground plane relative to the antenna will affect the overall performance of the antenna in the final design. When used in conjunction with a ground plane smaller than that used to tune the antenna, the center frequency typically will shift higher in frequency and the bandwidth will decrease. The proximity of other circuit elements and packaging near the antenna will also affect the final performance.

For further discussion and guidance on the importance of the ground plane counterpoise, please refer to Linx Application Note, *AN-00501: Understanding Antenna Specifications and Operation.*

ANTENNA ORIENTATION

The ANT-915-NUB-ccc antenna is characterized in two antenna orientations as shown in Figure 2. The antenna in a free space orientation characterizes use of an antenna attached to an enclosure-mounted connector which is connected by cable to a printed circuit board. Characterization at the edge of the ground plane (102 mm x 102 mm) provides insight into antenna performance when attached to a connector on a metal enclosure. The two orientations represent the most common end-product use cases.

Free Space, without ground plane

On edge of ground plane

Figure 2. ANT-915-NUB-ccc Test Orientation

EDGE OF GROUND PLANE

The charts on the following pages represent data taken with the antenna oriented at the edge of the ground plane, as shown in Figure 3.

Figure 3. ANT-915-NUB-ccc on Edge of Ground Plane

VSWR

Figure 4 provides the voltage standing wave ratio (VSWR) across the antenna bandwidth. VSWR describes the power reflected from the antenna back to the radio. A lower VSWR value indicates better antenna performance at a given frequency. Reflected power is also shown on the right-side vertical axis as a gauge of the percentage of transmitter power reflected back from the antenna.

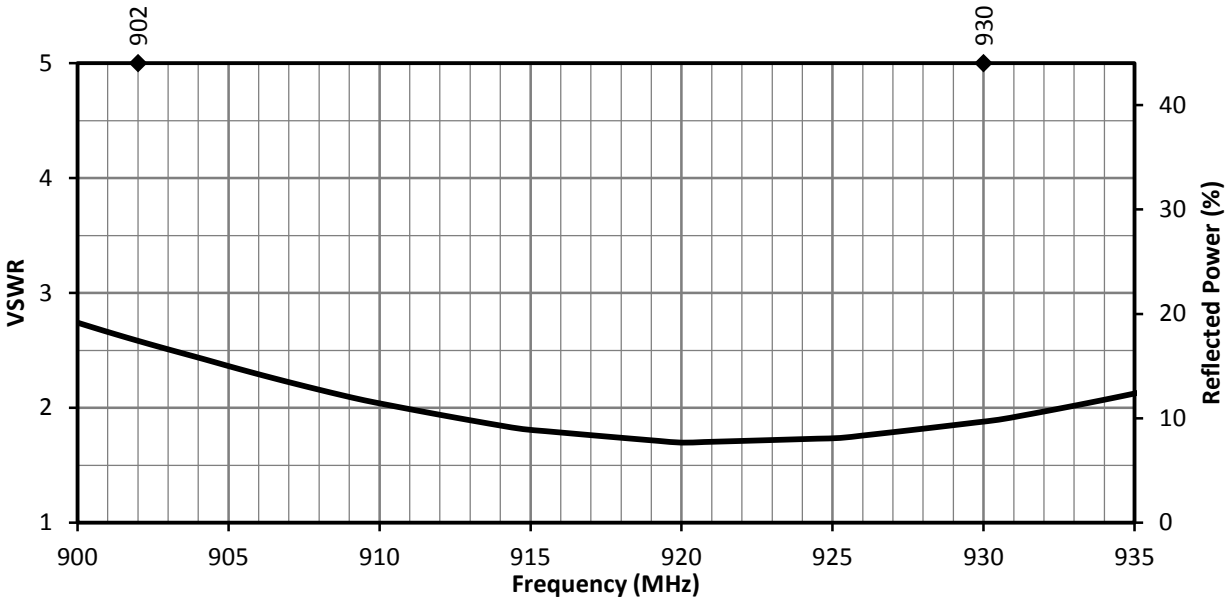


Figure 4. VSWR for ANT-915-NUB-ccc, Edge of ground Plane

RETURN LOSS

Return loss (Figure 5), represents the loss in power at the antenna due to reflected signals. Like VSWR, a lower return loss value indicates better antenna performance at a given frequency.

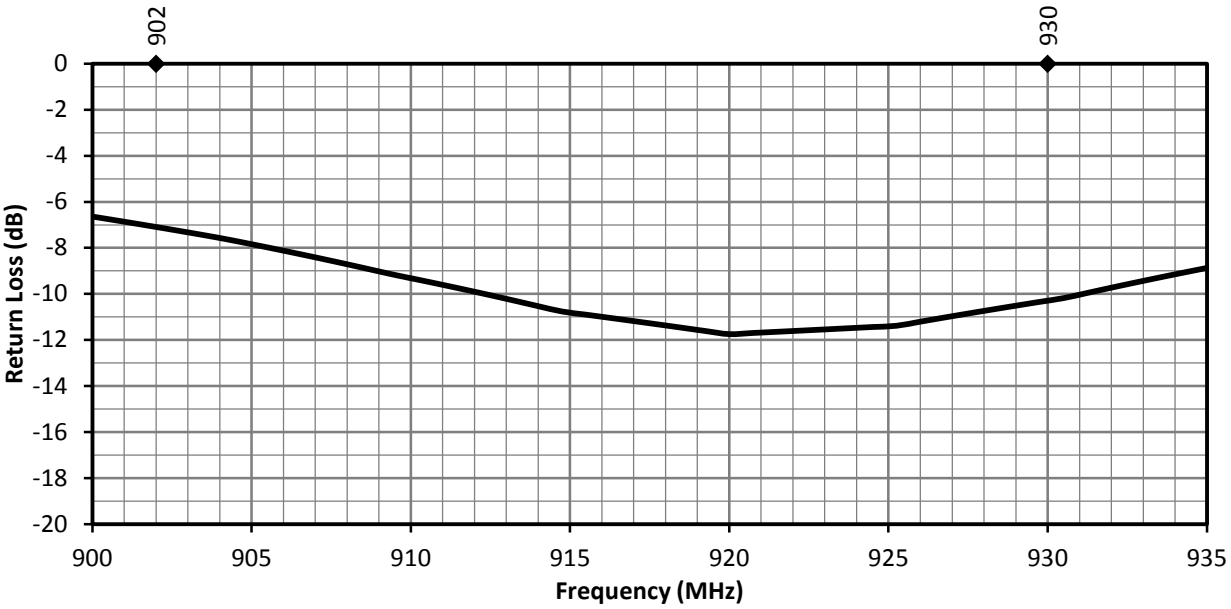


Figure 5. Return Loss for ANT-915-NUB-ccc, Edge of ground Plane

PEAK GAIN

The peak gain across the antenna bandwidth is shown in Figure 6. Peak gain represents the maximum antenna input power concentration across 3-dimensional space, and therefore peak performance, at a given frequency, but does not consider any directionality in the gain pattern.

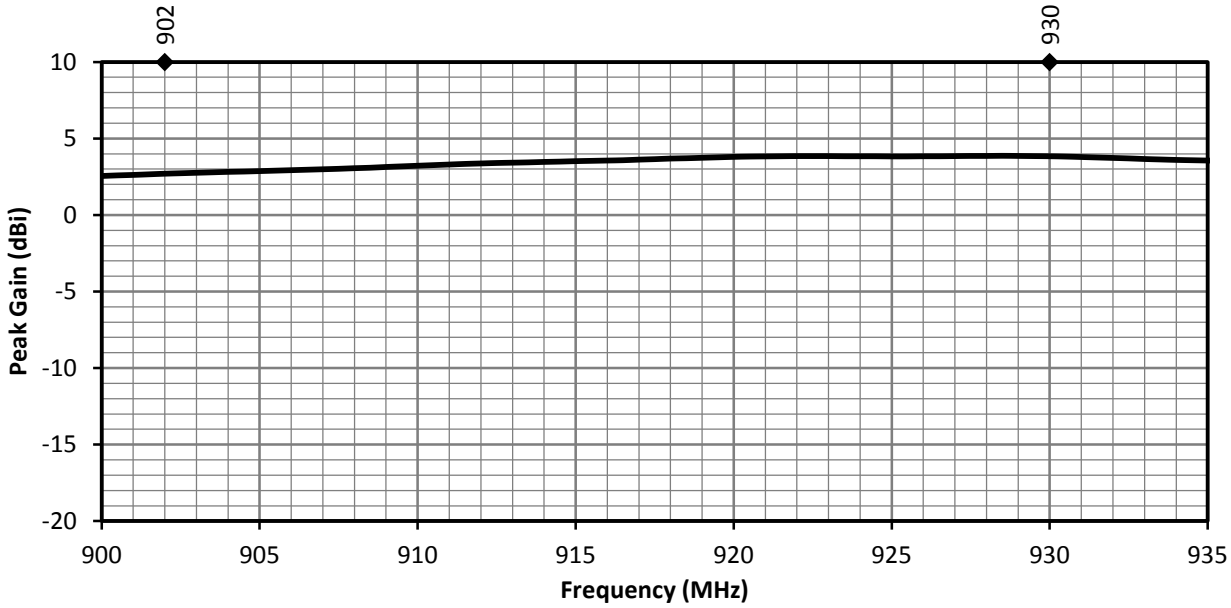


Figure 6. Peak Gain for ANT-915-NUB-ccc, Edge of ground Plane

AVERAGE GAIN

verage gain (Figure 7), is the average of all antenna gain in 3-dimensional space at each frequency, providing an indication of overall performance without expressing antenna directionality.

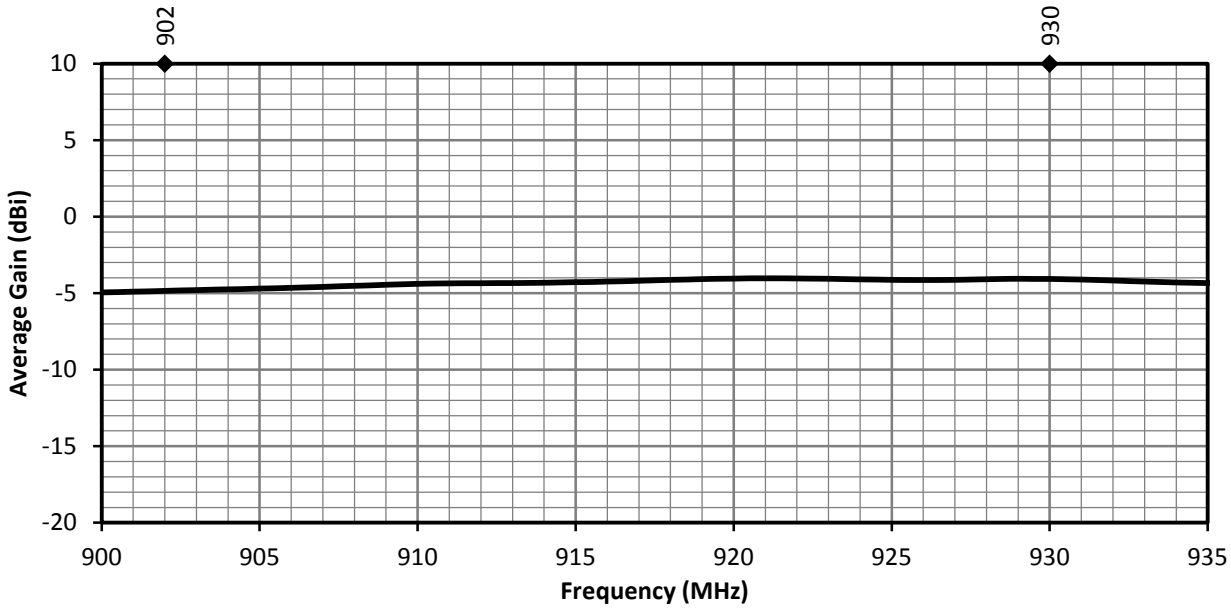


Figure 7. Antenna Average Gain for ANT-915-NUB-ccc, Edge of ground Plane

RADIATION EFFICIENCY

Radiation efficiency (Figure 8), shows the ratio of power delivered to the antenna relative to the power radiated at the antenna, expressed as a percentage, where a higher percentage indicates better performance at a given frequency.

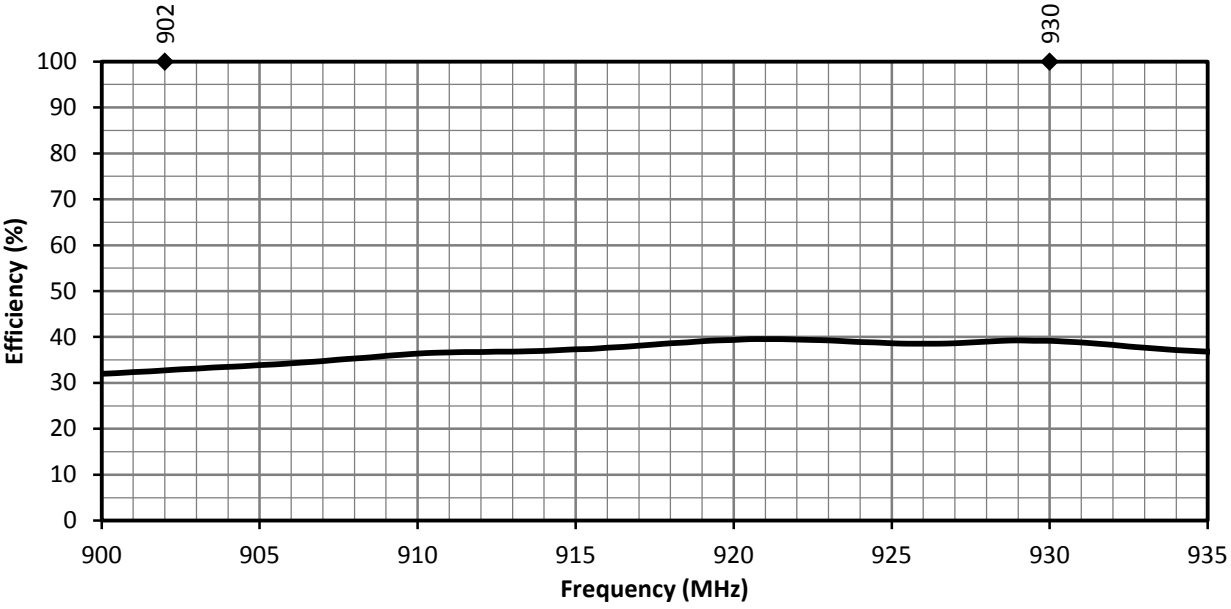
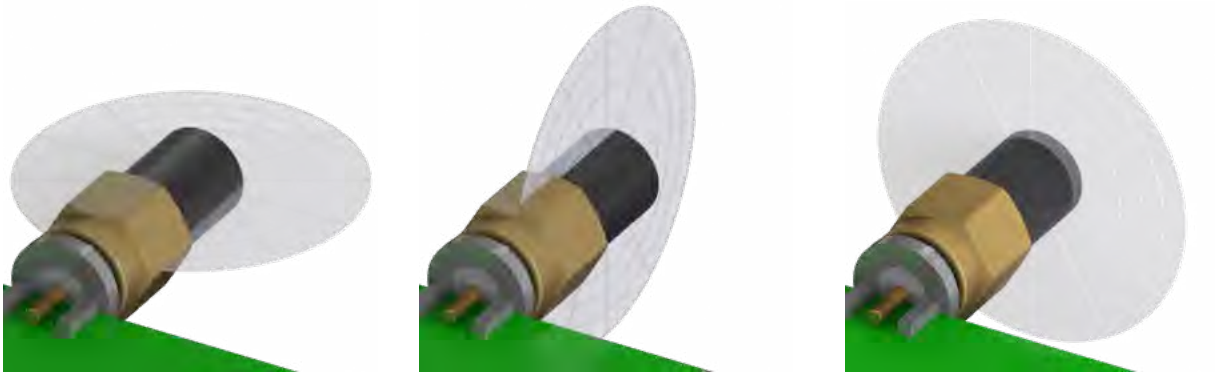


Figure 8. Antenna Radiation Efficiency for ANT-915-NUB-ccc, Edge of ground Plane

RADIATION PATTERNS

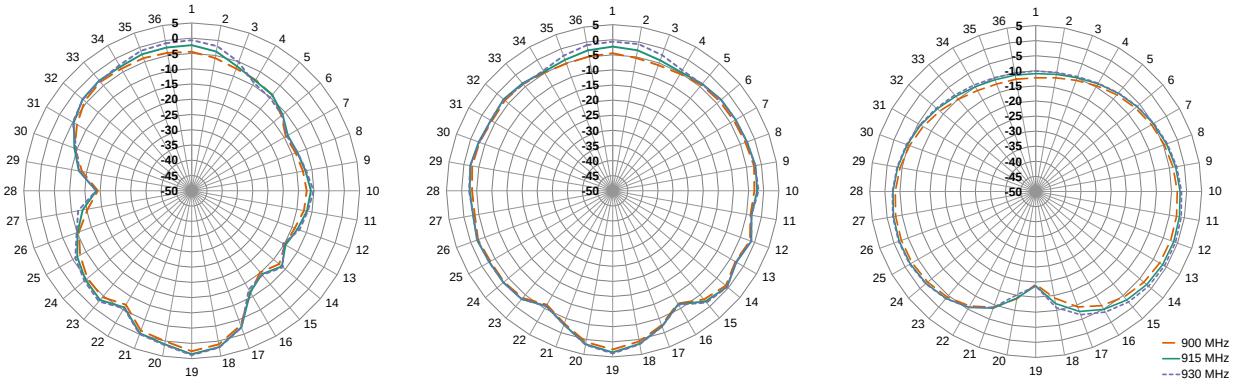
Radiation patterns provide information about the directionality and 3-dimensional gain performance of the antenna by plotting gain at specific frequencies in three orthogonal planes. Antenna radiation patterns (Figure 9), are shown using polar plots covering 360 degrees. The antenna graphic above the plots provides reference to the plane of the column of plots below it. Note: when viewed with typical PDF viewing software, zooming into radiation patterns is possible to reveal fine detail.

RADIATION PATTERNS - EDGE OF GROUND PLANE



XZ-Plane Gain | YZ-Plane Gain | XY-Plane Gain

902 MHz TO 930 MHz (915 MHz)



XZ-Plane Gain | YZ-Plane Gain | XY-Plane Gain

Figure 9. Radiation Patterns for ANT-915-NUB-ccc Antenna, Edge of ground Plane

FREE SPACE - NO GROUND PLANE

The charts on the following pages represent data taken with the antenna in free space, no ground plane, as shown in Figure 10.

Figure 10. ANT-8/9-IPW2-NP at Center of Ground Plane

VSWR

Figure 11 provides the voltage standing wave ratio (VSWR) across the antenna bandwidth. VSWR describes the power reflected from the antenna back to the radio. A lower VSWR value indicates better antenna performance at a given frequency. Reflected power is also shown on the right-side vertical axis as a gauge of the percentage of transmitter power reflected back from the antenna.

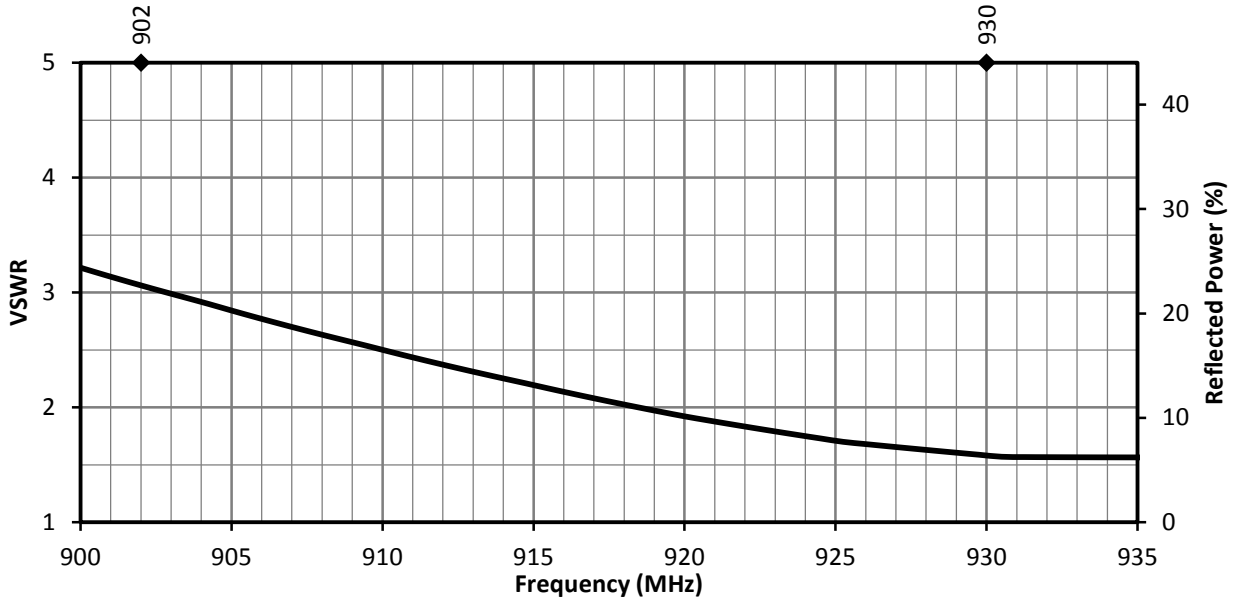


Figure 11. VSWR for ANT-915-NUB-ccc Antenna in Free Space

RETURN LOSS

Return loss (Figure 12), represents the loss in power at the antenna due to reflected signals. Like VSWR, a lower return loss value indicates better antenna performance at a given frequency.

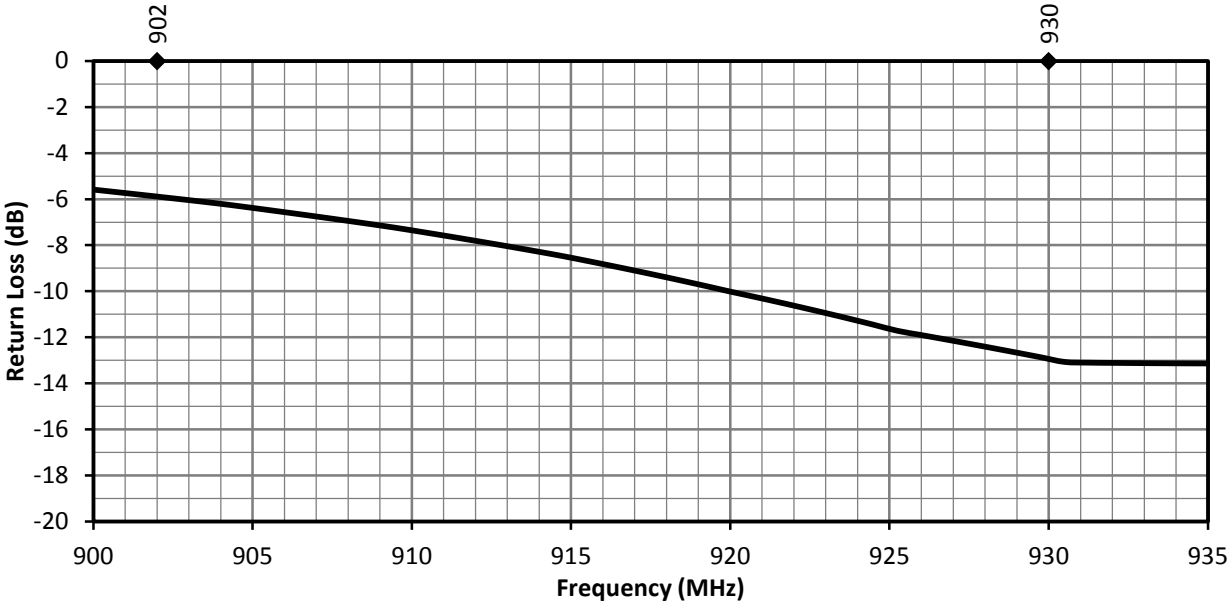


Figure 12. Return Loss for ANT-915-NUB-ccc Antenna in Free Space

PEAK GAIN

The peak gain across the antenna bandwidth is shown in Figure 13. Peak gain represents the maximum antenna input power concentration across 3-dimensional space, and therefore peak performance, at a given frequency, but does not consider any directionality in the gain pattern.

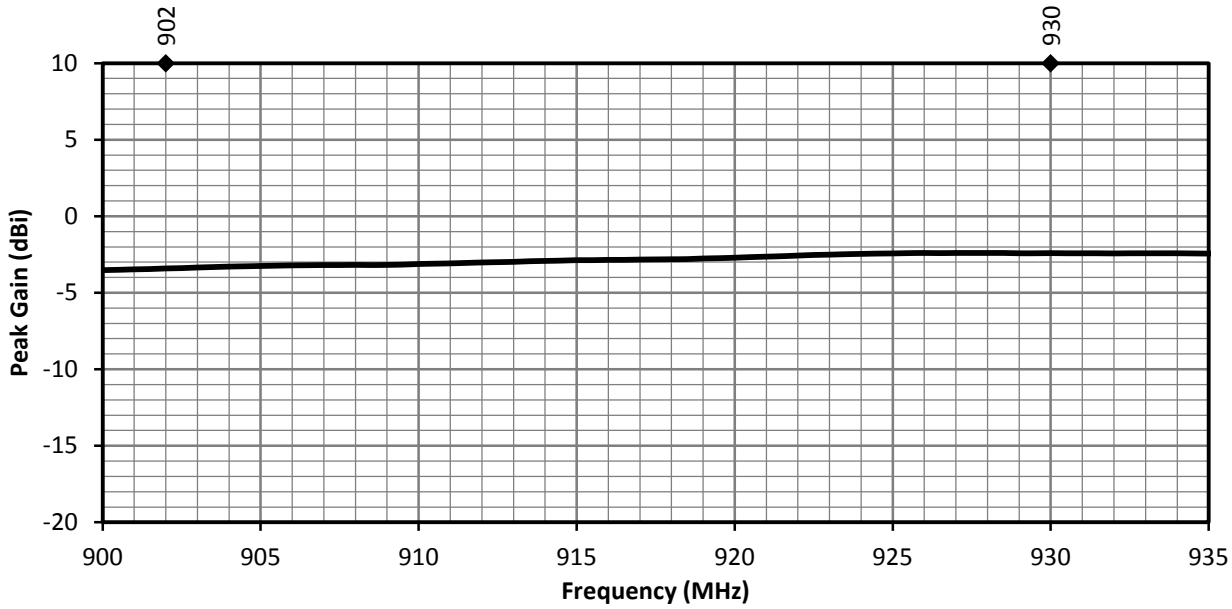


Figure 13. Peak Gain for ANT-915-NUB-ccc Antenna in Free Space

AVERAGE GAIN

Average gain (Figure 14), is the average of all antenna gain in 3-dimensional space at each frequency, providing an indication of overall performance without expressing antenna directionality.

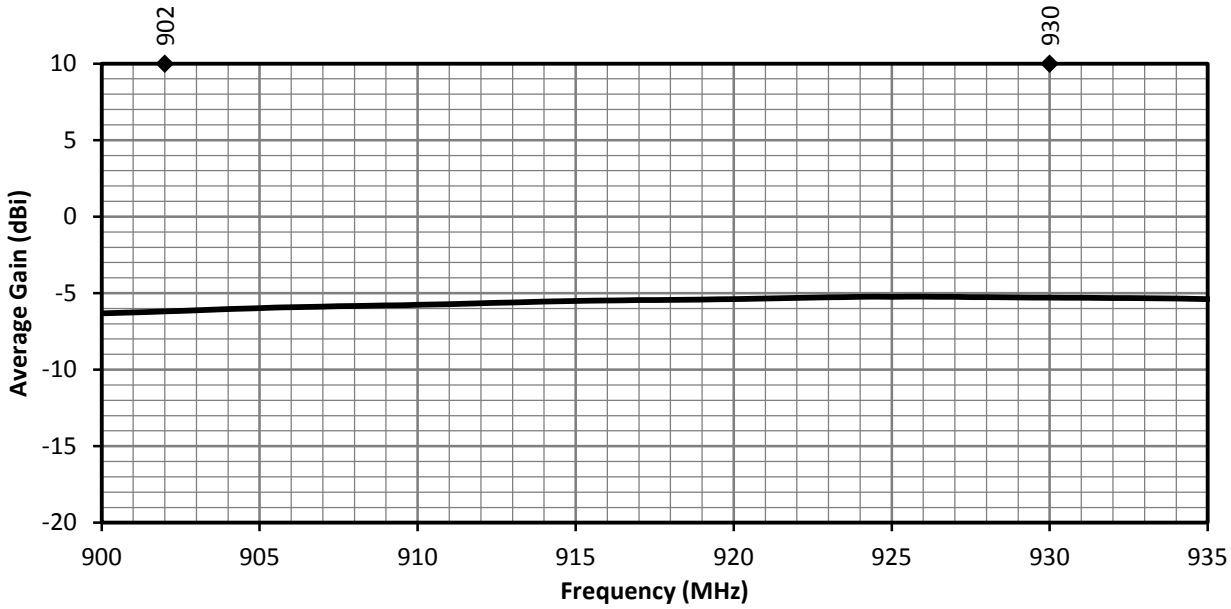


Figure 14. Antenna Average Gain for ANT-915-NUB-ccc Antenna in Free Space

RADIATION EFFICIENCY

Radiation efficiency (Figure 15), shows the ratio of power delivered to the antenna relative to the power radiated at the antenna, expressed as a percentage, where a higher percentage indicates better performance at a given frequency.

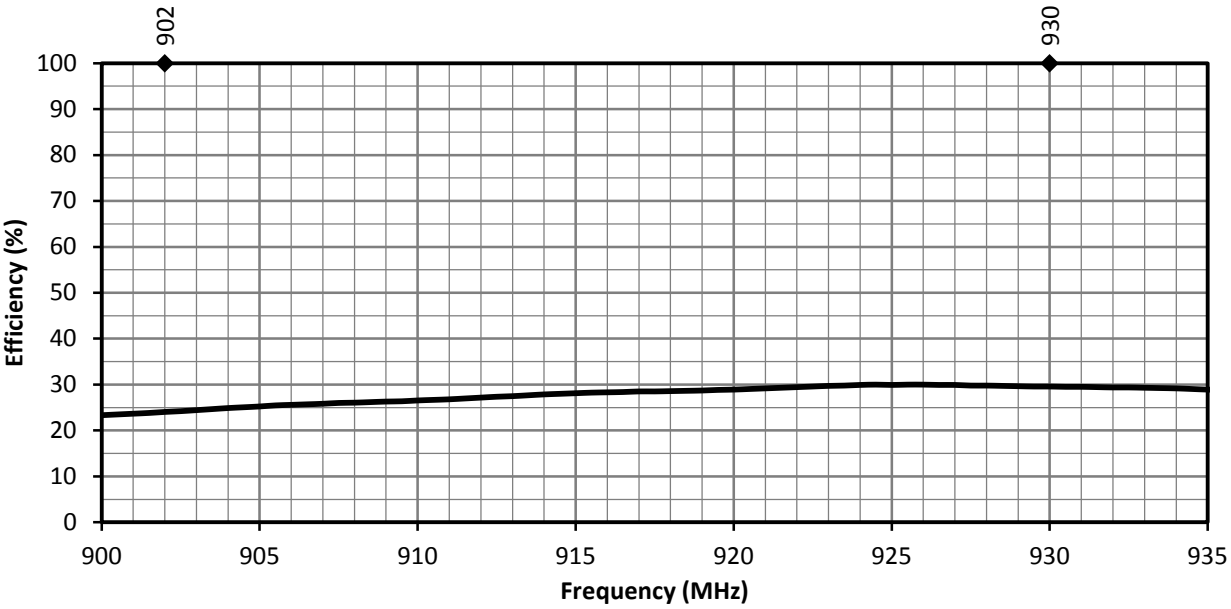


Figure 15. Antenna Radiation Efficiency for ANT-915-NUB-ccc Antenna in Free Space

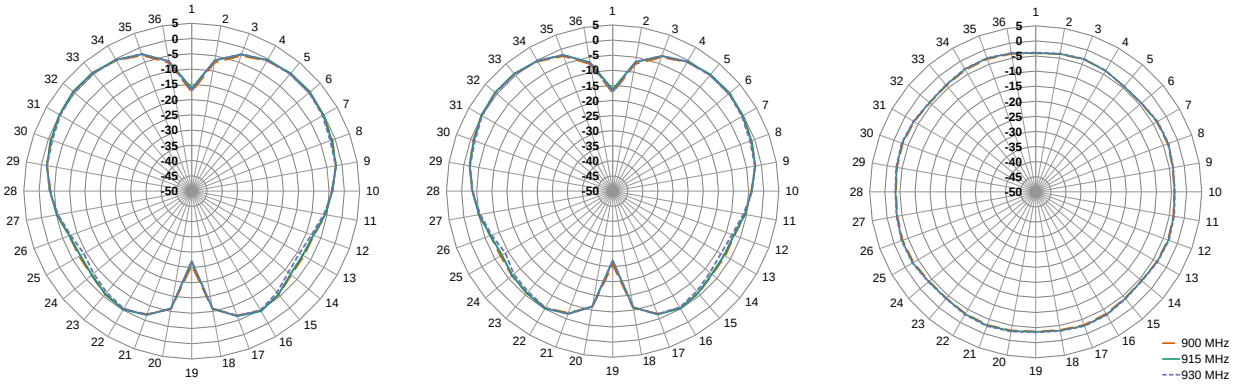
RADIATION PATTERNS

Radiation patterns provide information about the directionality and 3-dimensional gain performance of the antenna by plotting gain at specific frequencies in three orthogonal planes. Antenna radiation patterns (Figure 16), are shown using polar plots covering 360 degrees. The antenna graphic above the plots provides reference to the plane of the column of plots below it. Note: when viewed with typical PDF viewing software, zooming into radiation patterns is possible to reveal fine detail.

RADIATION PATTERNS - FREE SPACE (NO GROUND PLANE)

XZ-Plane Gain | YZ-Plane Gain | XY-Plane Gain

902 MHz TO 930 MHz (915 MHz)



XZ-Plane Gain | YZ-Plane Gain | XY-Plane Gain

Figure 16. Radiation Patterns for ANT-915-NUB-ccc Antenna in Free Space

TE TECHNICAL SUPPORT CENTER

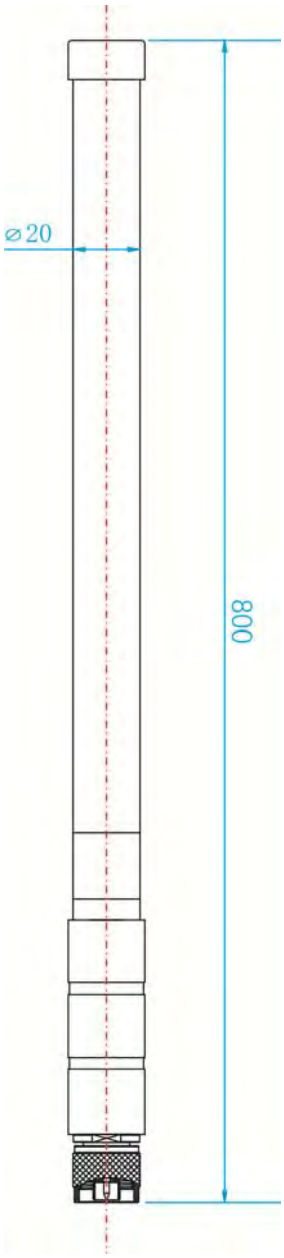
USA:	+1 (800) 522-6752
Canada:	+1 (905) 475-6222
Mexico:	+52 (0) 55-1106-0800
Latin/S. America:	+54 (0) 11-4733-2200
Germany:	+49 (0) 6251-133-1999
UK:	+44 (0) 800-267666
France:	+33 (0) 1-3420-8686
Netherlands:	+31 (0) 73-6246-999
China:	+86 (0) 400-820-6015

te.com

10/22 Original

TAIWANCAST INC.
PRODUCT SPECIFICATION

1、Structure of Antenna



Unit : mm

Product

REVISION	Part Number:	TITLE	SHEET No.
A	Twcast-915ROD	Antenna Specification	1 of 4

DATE	APPROVED BY	CHECKED BY	CREATED/REVISED
2024/01/19	Mark	Gary	Sam

2、General Description

2.1	Application	UHF Band
2.2	Operation temperature	-20～+85℃
2.3	Storage temperature	-30～+85℃
2.4	Testing condition	Standard condition: under temperature range 5~35℃, humidity range 45~65 % RH.)

3、Appearance、Construction、Dimensions

3.1	Construction、dimension	According to R&D drawing。
3.2	Weight	±g

4、Electrical Characteristics

4-1 Antenna Electrical Characteristics)

4-1-1	Outline Dimensions	800 x 23 (mm)
4-1-2	Frequency Range	902~928 MHz ±3MHz
4-1-3	Bandwidth	±13MHz
4-1-4	Impedence	50 Ohm
4-1-5	VSWR	1.8 (typical)
4-1-6	Gain	5.8 dBi (typical)
4-1-7	Azimuth	Omni
4-1-8	Power Handiing	50 W

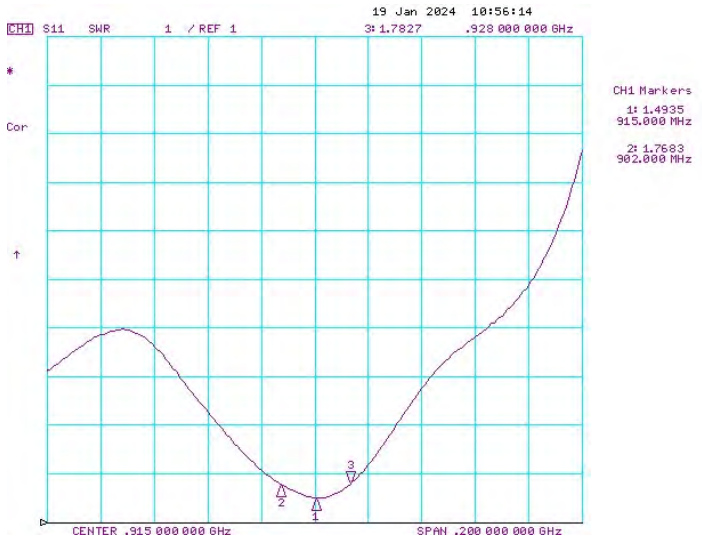
5、Measurement method

5-1 Passive Antenna Reflection Coefficient Measurement

5-1-2 Equipment Network Analyzer

5-1-3 Item S11 (Return Loss)(VSWR)

S11(Return Loss)

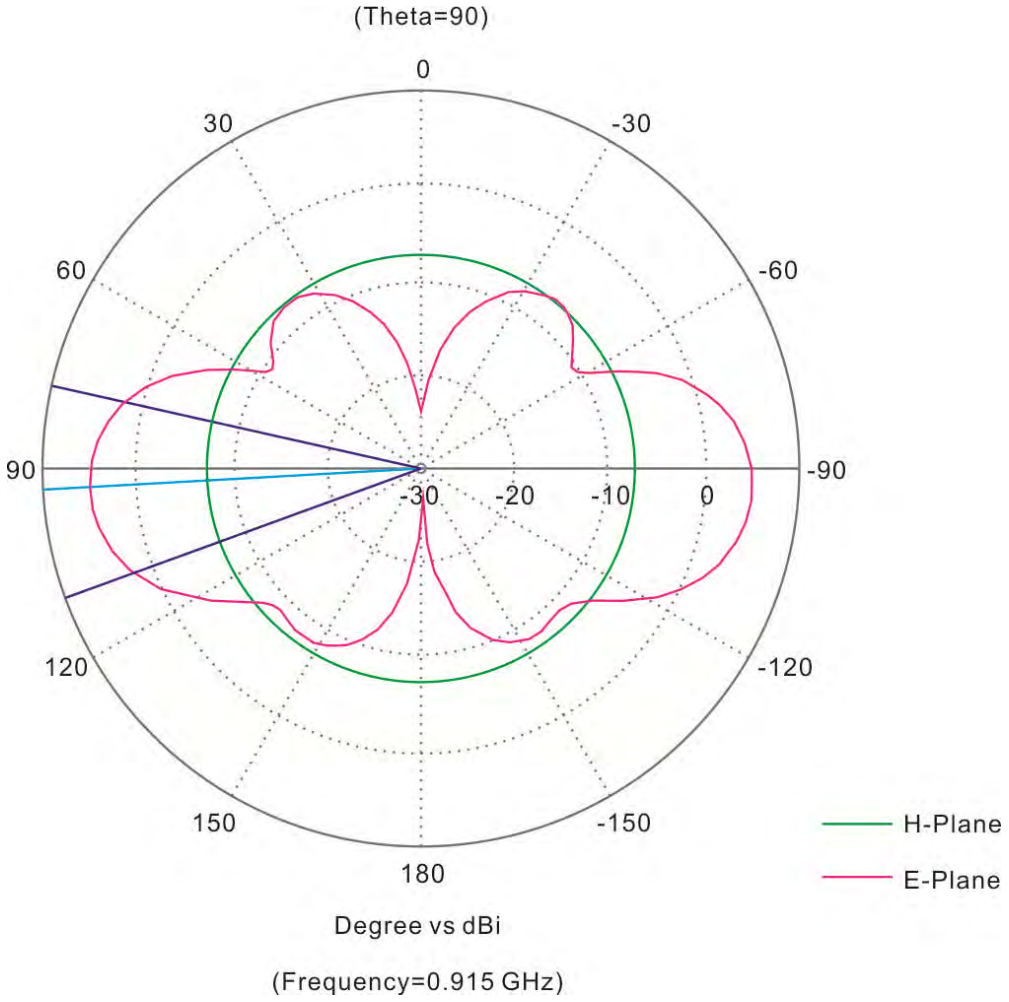


S11(VSWR)

5-2 Passive Antenna Pattern Measurement

5-2-1 Equipment — Anechoic Chamber

5-2-2 Item — Gain pattern



824 MHz to 960 MHz 6 dBi Omnidirectional Antenna, N Type Male Connector

HGV-906U-NM

Features

- Integral N-Male Connector
- Lightweight fiberglass radome
- Superior all weather performance
- Durable mounting direct to the terminal, radio or access point
- Rugged industrial grade design

Applications

- 900 MHz ISM Band & Wireless LAN Systems
- Point to multipoint & Non Line of Sight (NLOS) applications
- RFID & SCADA
- 900 MHz Cellular and GSM
- LPWAN, LoRA, IoT, M2M Applications

Description

The L-com HGV-906U-NM is a high performance omnidirectional antenna designed for the 800 MHz / 900 MHz ISM band. It is ideally suited for multipoint, Non Line of Sight (NLOS) and mobile applications where high gain and wide coverage is desired. Typical applications of the omnidirectional HGV-906U-NM include 900 MHz Wireless LAN, SCADA, Wireless Video Links, LPWAN/IoT/M2M, and 800 MHz as well as 900 MHz Cellular band applications.

This 6 dBi omni antenna features an integral N Type Male connector that mounts directly to a radio or access point. This HGV-906U-NM antenna with omnidirectional patterns from L-com features a rugged 1.3" diameter white high intensity fiberglass radome for durability and aesthetics. It is designed for all weather operation.

This ISM 824 MHz to 960 MHz omnidirectional antenna with a Male N Type connector, as well as our wide selection of superior quality RF parts, ships same day. Contact our knowledgeable and friendly technical support and sales staff for your answers on antennas or other L-com products.

Configuration

Design	Portable
Band Type	Single
Radiation Pattern	Omni Directional
Polarization	Vertical
Connector Type	N Male
Lightning Protection	DC Open

Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Frequency Range	824		960	MHz
Input VSWR			1.5:1	
Impedance		50		Ohms
Gain		6		dBi
Horizontal (Azimuth) HPBW		Omnidirectional		
Vertical (Elevation) HPBW		33		Degrees
Input Power			50	Watts

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications:
824 MHz to 960 MHz 6 dBi Omnidirectional Antenna, N Type Male Connector HGV-906U-NM

824 MHz to 960 MHz 6 dBi Omnidirectional Antenna, N Type Male Connector

HGV-906U-NM

.

Mechanical Specifications

Environmental Specifications

Temperature

Operating Range	-30 to +60 deg C
Wind Survivability	210 MPH [337.96 KPH]

Compliance Certifications (see product page for current document)

Plotted and Other Data

Notes:

824 MHz to 960 MHz 6 dBi Omnidirectional Antenna, N Type Male Connector from L-com has same day shipment for domestic and International orders. Our portfolio includes coaxial cable assemblies, connectors, adapters and custom products as well as lightning and surge protectors, NEMA rated enclosures, and an RF product line which includes antennas, amplifiers, passive, and active components.

SPECIFICATION

Part No.	:	IS.05.B.301111
Product Name	:	915MHz Hercules ISM Band Antenna Screw-mount (Permanent mount)
Features	:	Low Profile Height: 29mm, Diameter: 49mm Heavy Duty Screw Mount UV and Vandal Resistant PC Housing IP65 – Waterproof Standard cable is 3m RG174 with SMA(M)-connector fully customizable ROHS & REACH Compliant

1. INTRODUCTION

The 915MHz Hercules ISM Antenna is a high performance steel thread-mount ISM antenna for external use on vehicles and outdoor assets worldwide. Omni-directional high gain across all bands ensures constant reception and transmission. Durable UV resistant PC housing is IP65 rated, resistant to vandalism and direct attack. At only 29 mm height it complies with the latest EU height restrictions directives for roof-mounted objects, with a diameter of 52 mm. Designed to not catch on tree-branches. The antenna can be mounted on metal structures.

2. SPECIFICATION

ELECTRICAL					
Standard	ISM				
Band (MHz)	915				
Frequency (MHz)	902-928				
Cable Length (m)	0.3	1.0	2.0	3.0	5.0
Return Loss (dB)	-13.68	-13.86	-15.16	-14.61	-17.54
Efficiency (%)	27.49	44.13	38.36	27.09	21.10
Gain (dBi)	1.15	2.75	3.14	1.85	0.25
Polarization	Linear				
Impedance	50 ohms				
Max Input Power	10 watts				
VSWR	<2.5:1				

*Note: The return loss, efficiency and gain in the above table, were measured on 30x30 cm metal plate with RG174 cable. For a specific case performance refers to the below plots.

MECHANICAL	
Dimensions	Height = 29mm and Diameter = 52mm
Cable length	3m RG174 – Fully Customable
Connector	SMA-Male – Fully Customable
Casing	UV Resistant PC
Base and Thread	Nickel plated steel
Thread Diameter	18 mm
Weather proof gasket	Rubber
Sealant	Rubber Stopper
ENVIRONMENTAL	
Corrosion	5% NaCl for 48hrs - Nickel plated steel base and thread
Temperature Range	-40°C to +85°C
Thermal Shock	100 cycles -40°C to +85°C
Humidity	Non-condensing 65°C 95% RH
Shock (Drop Test)	1m drop on concrete 6 axes
Cable Pull	8 Kgf
Recommended Torque Setting for Mounting	24.5N·m
Maximum Torque Setting for Mounting	29.4N·m
Ingress Protection	IP65

*Note: Specifications may be subject to change

3. TEST SET UP

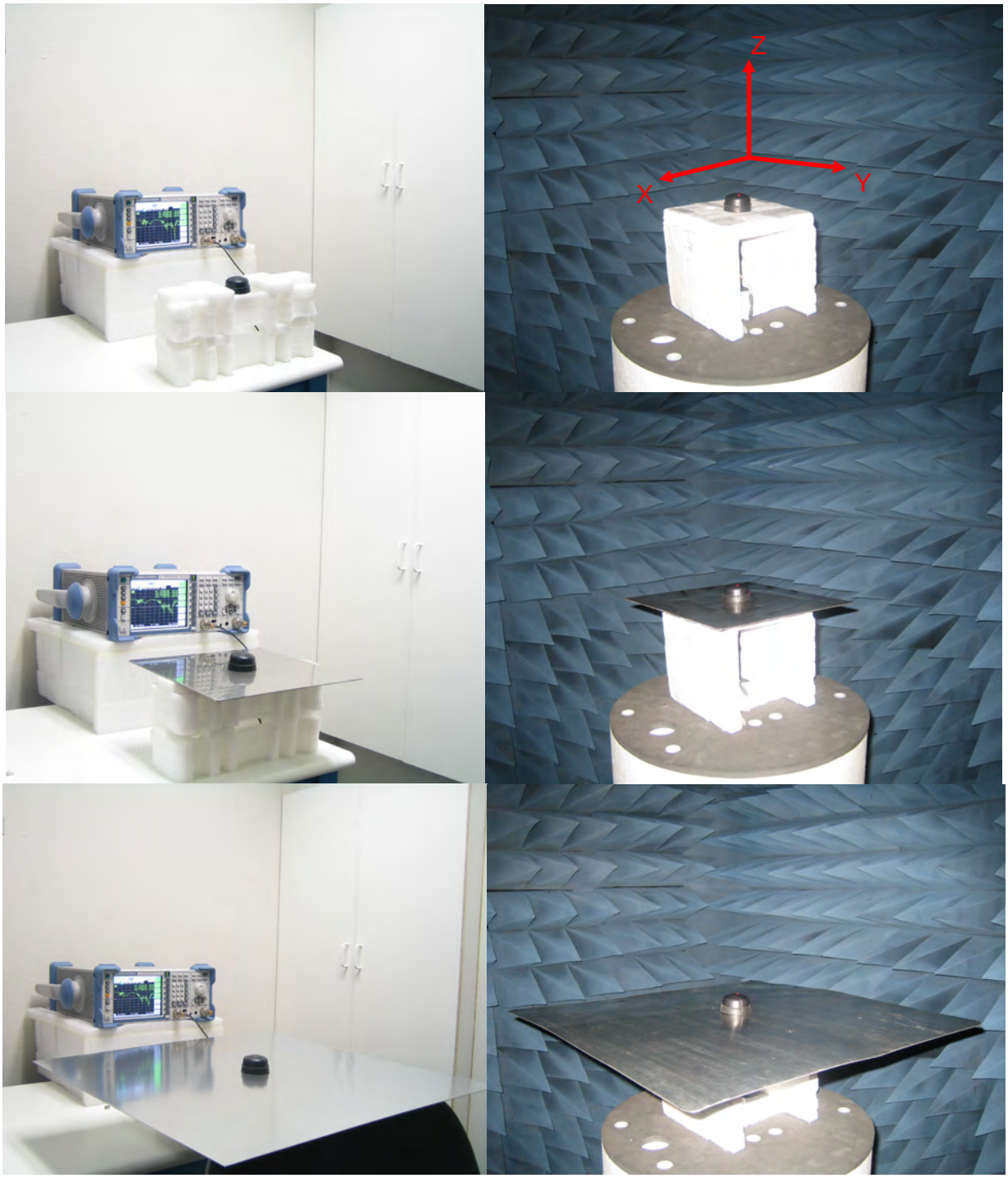


Figure 1. IS.05 Antenna test set up in free space, 30x30cm metal plate and 60x60 cm metal plate, R&SZVL6 VNA (left) and R&S4100 CTIA 3D Chamber (Right).

4. ANTENNA PARAMETERS

4.1 Return Loss

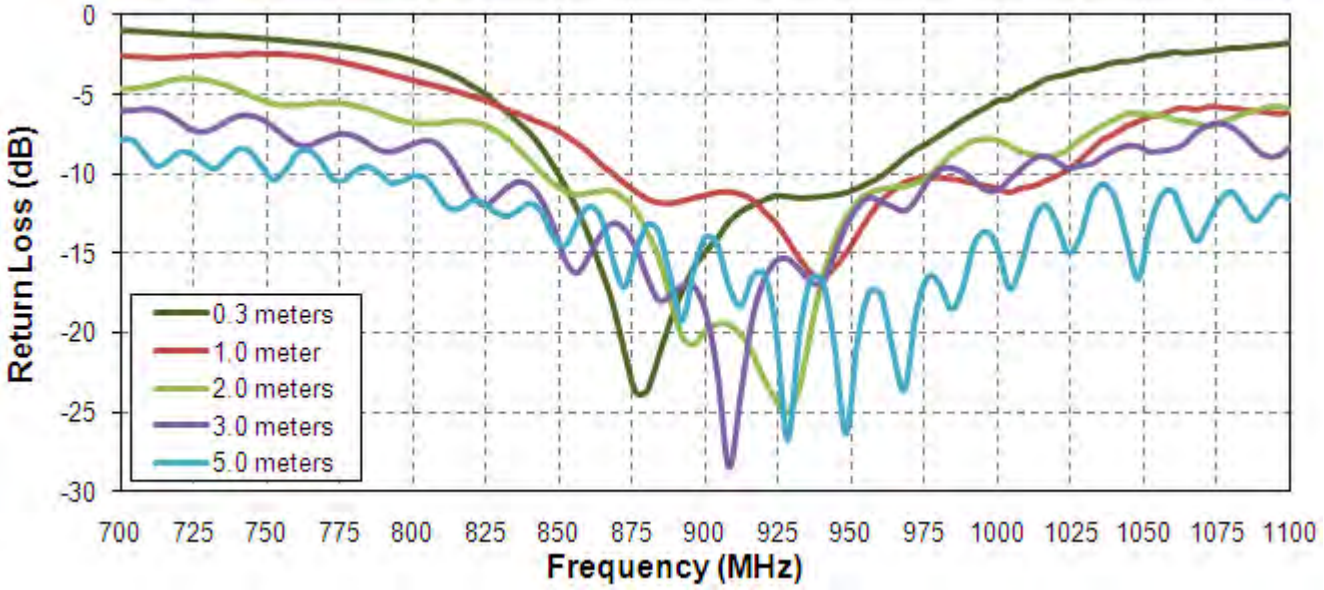


Figure 2. Return Loss of the 915MHz Hercules ISM antenna in free space

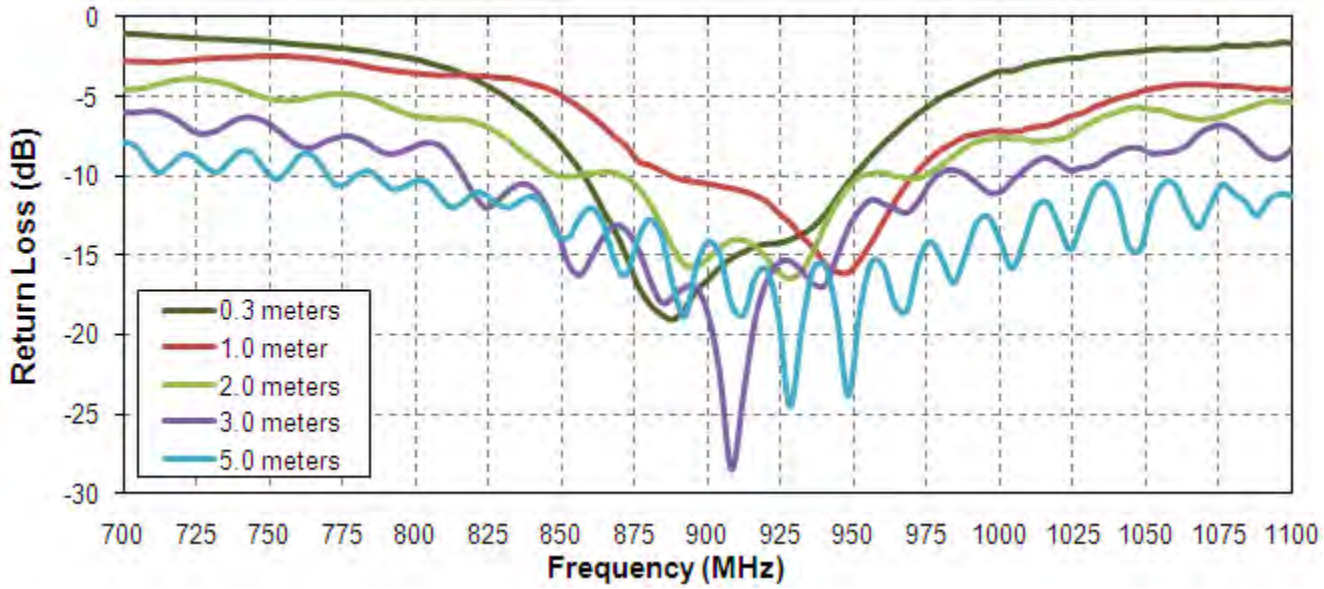


Figure 3. Return loss of the 915MHz Hercules ISM antenna on 30x30 cm metal plate.

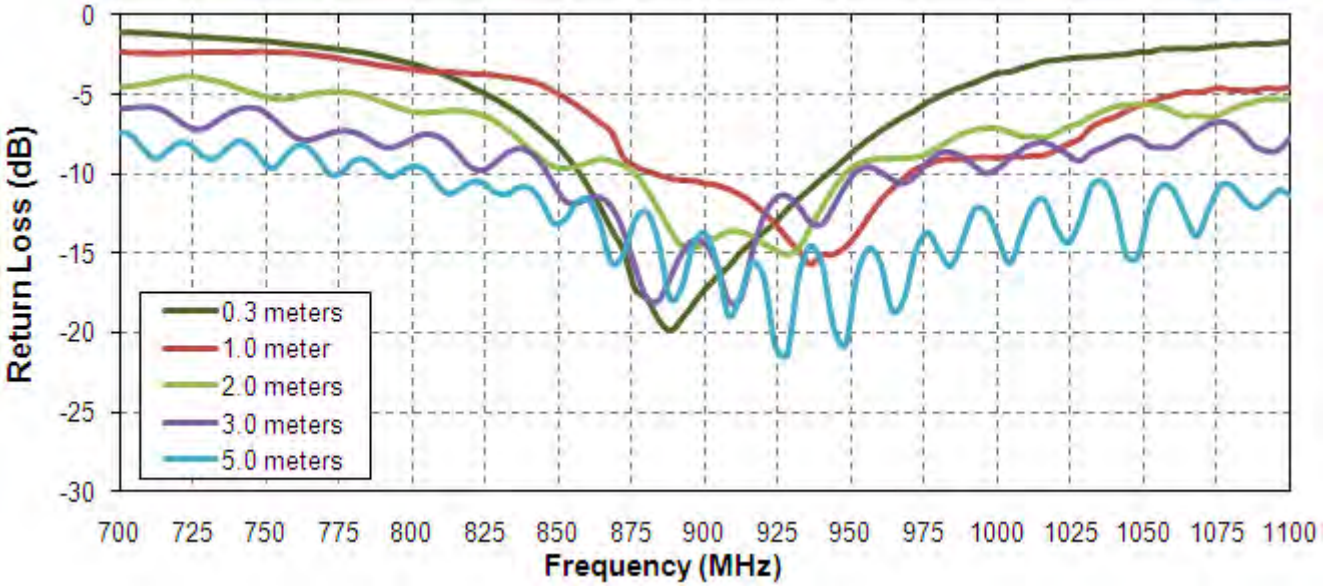


Figure 4. Return loss of the 915Mhz Hercules ISM antenna on 60x60 cm metal plate.

4.2 Efficiency

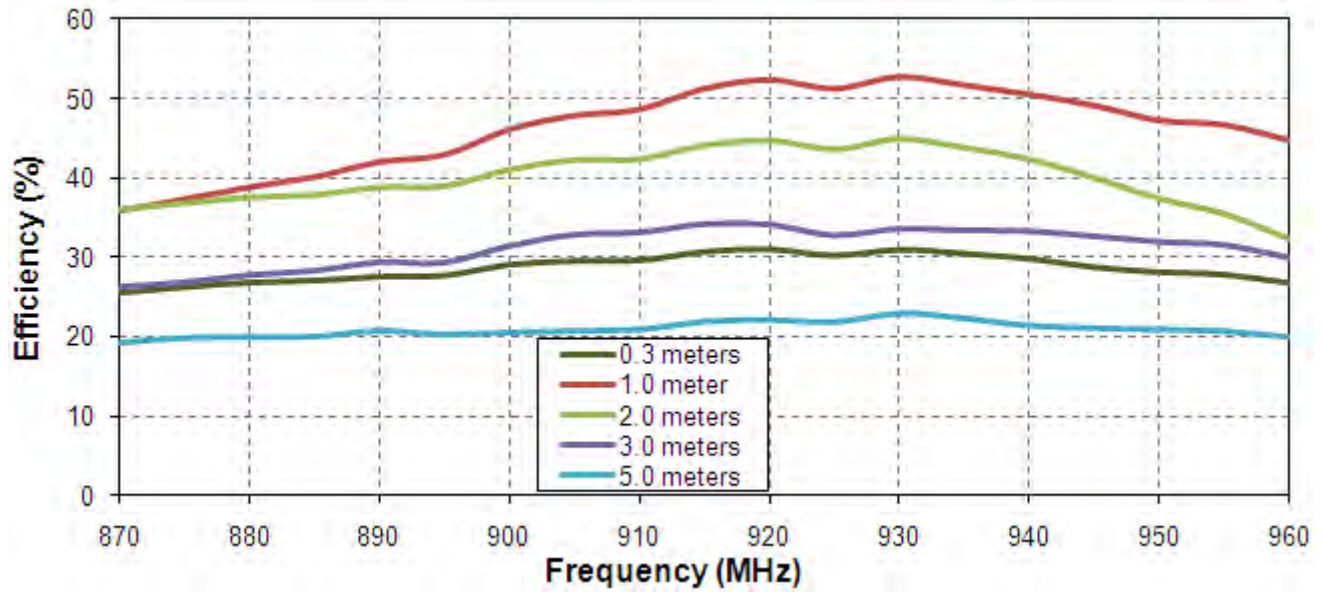


Figure 5. Efficiency of the 915MHz Hercules ISM antenna in free space.

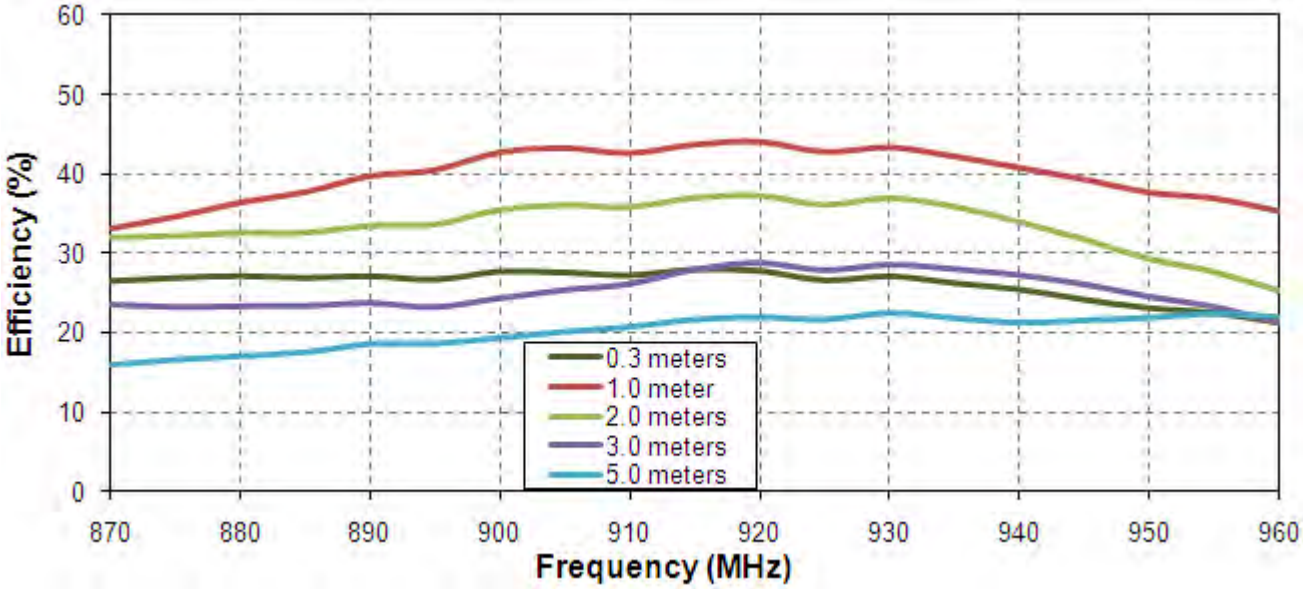


Figure 6. Efficiency of the 915MHz Hercules ISM antenna on 30x30 cm metal plate.

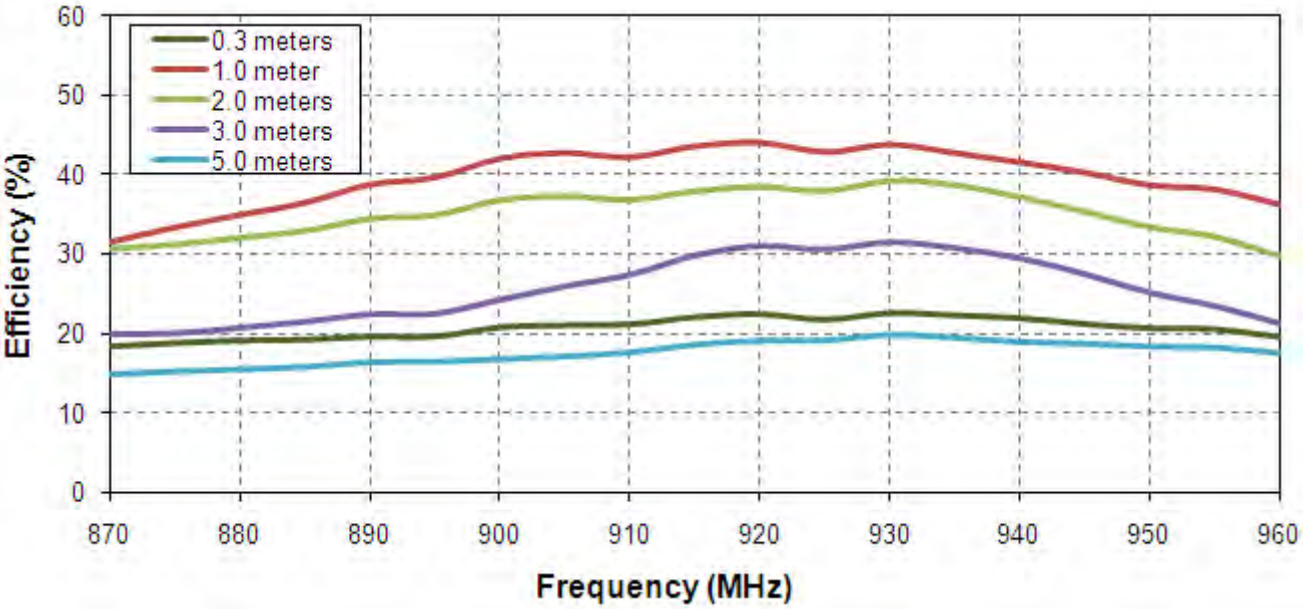


Figure 7. Efficiency of the 915MHz Hercules ISM antenna on 60x60 cm metal plate.

4.3 Gain

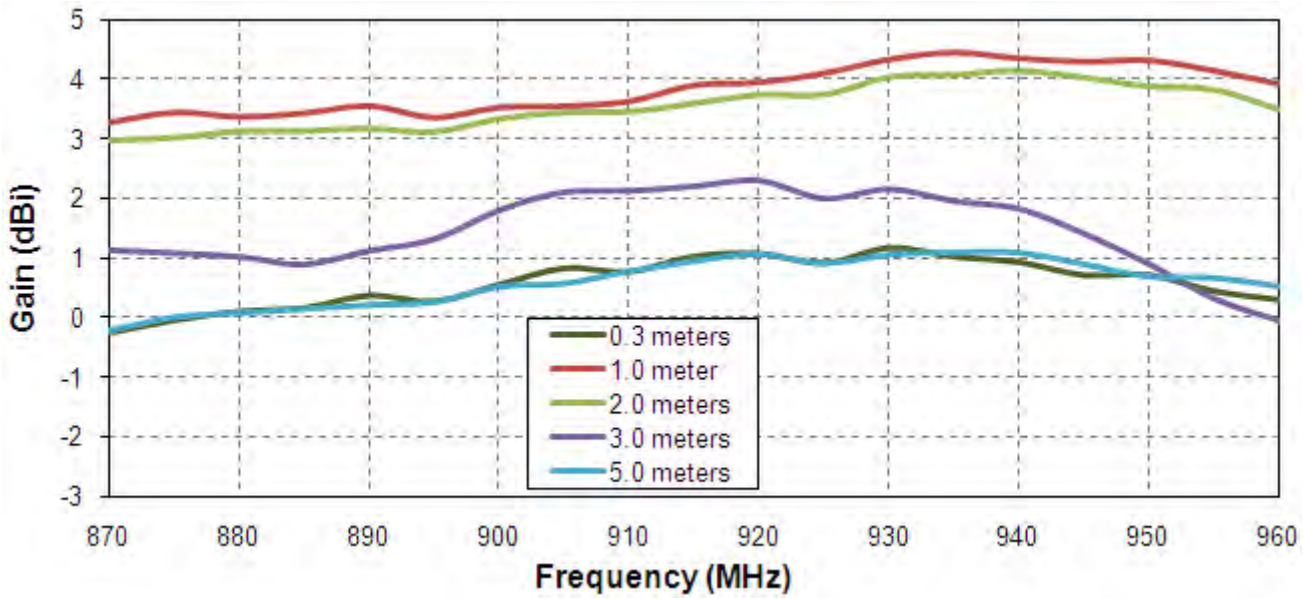


Figure 8. Gain of the 915MHz Hercules ISM antenna in free space.

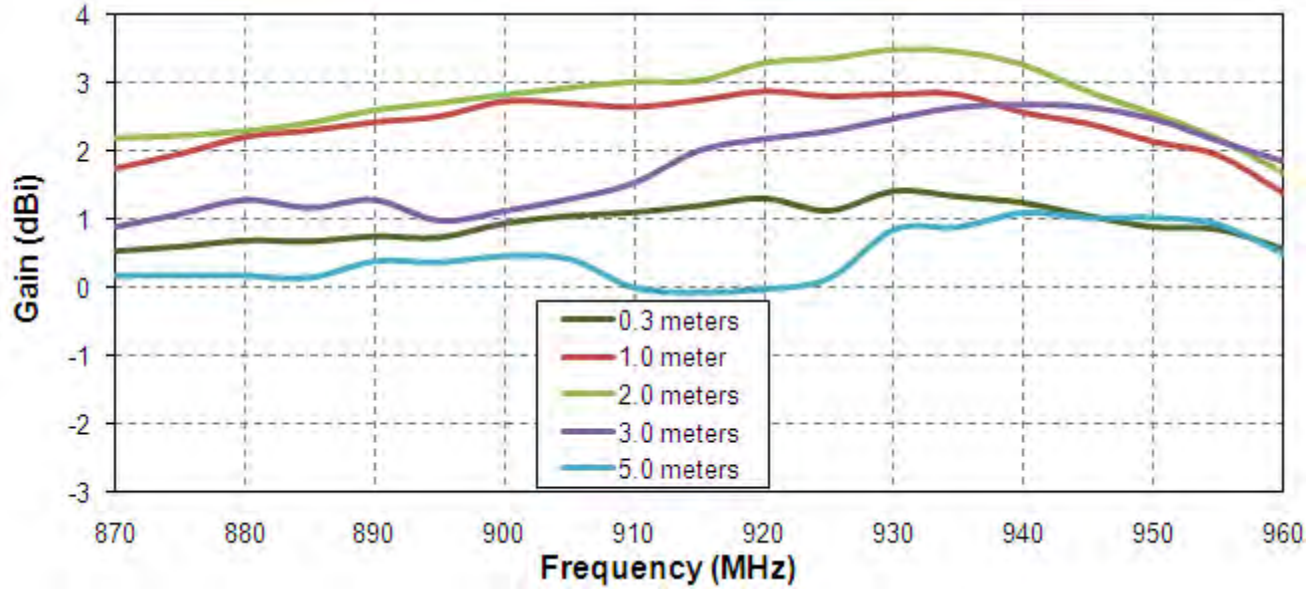


Figure 9. Gain of the 915MHz Hercules ISM antenna on 30 cm metal plate.

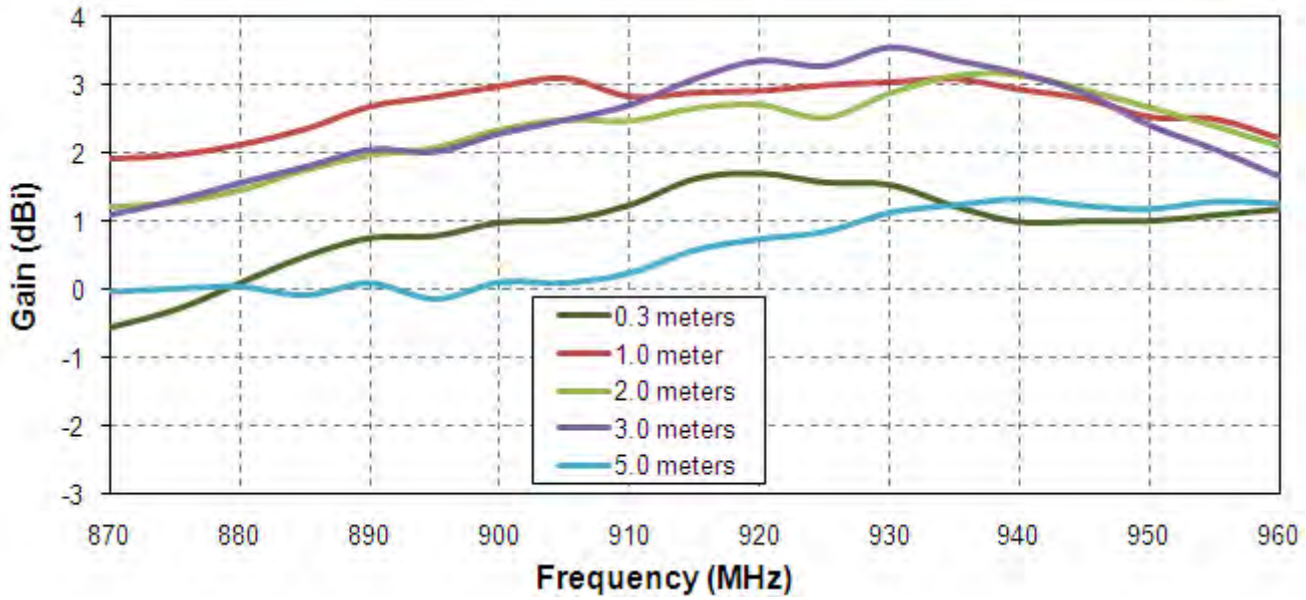


Figure 10. Gain of the 915MHz Hercules ISM antenna on 60 cm metal plate.

4.4. Radiation Pattern

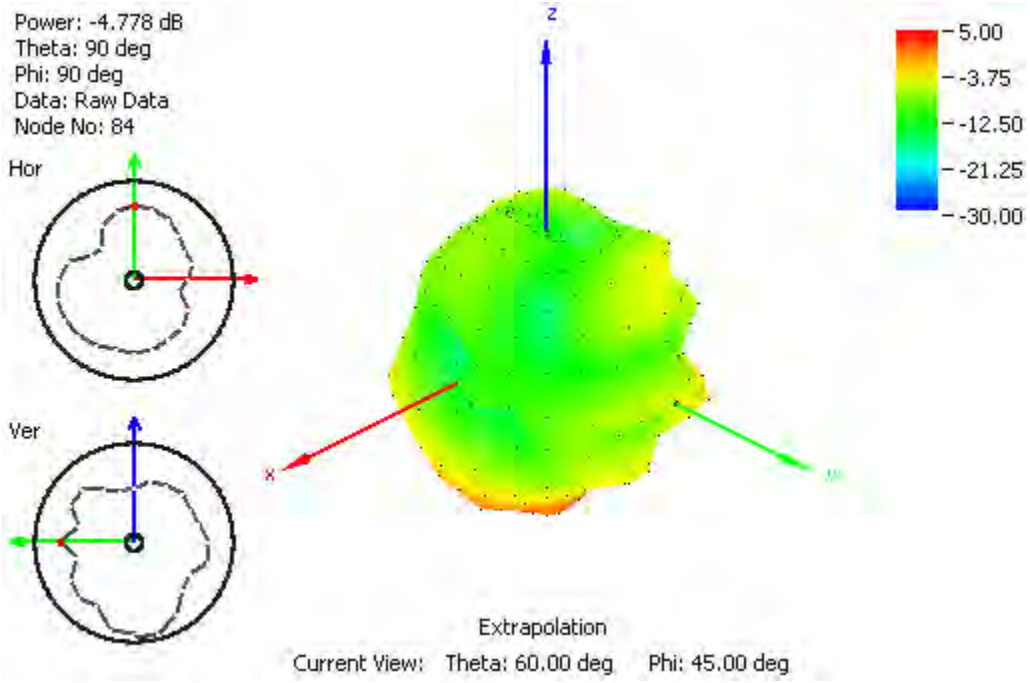


Figure 11. Radiation pattern at 900 MHz, Figure 1 as reference (dB), with 2m RG174 cable and free space.

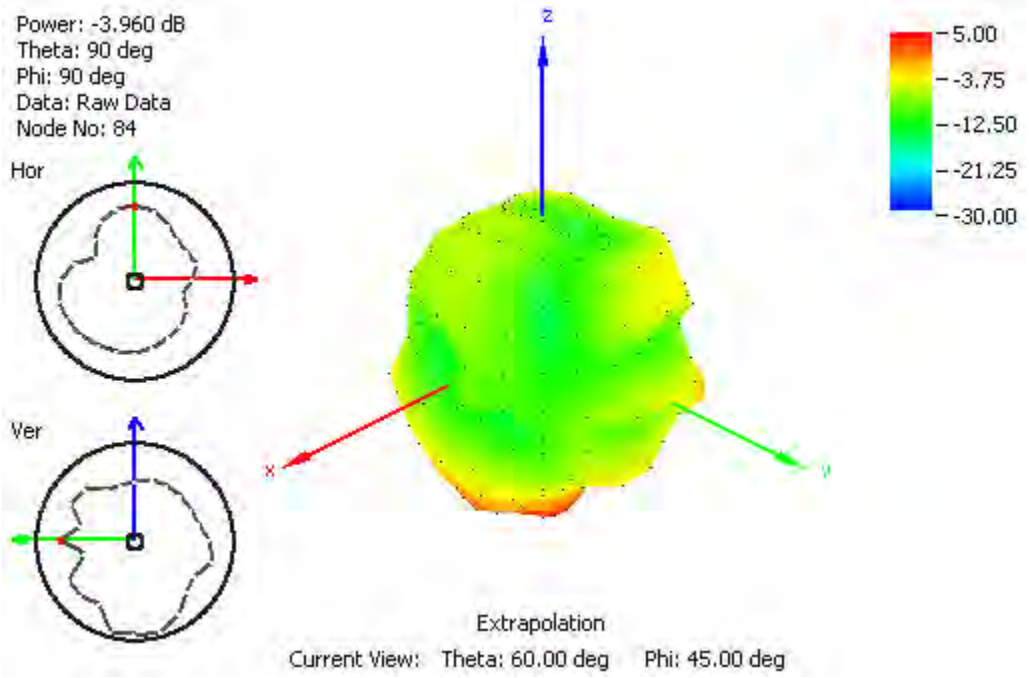


Figure 12. Radiation pattern at 915 MHz, Figure 1 as reference (dB), with 2m RG174 cable and free space.

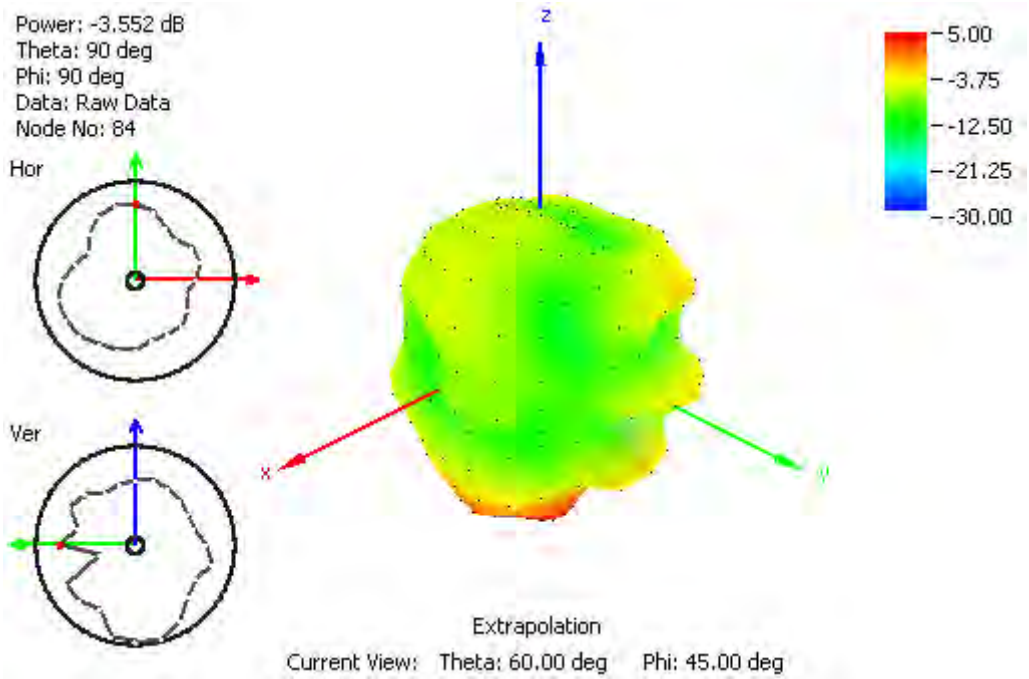


Figure 13. Radiation pattern at 930 MHz, Figure 1 as reference (dB), with 2m RG174 cable free space.

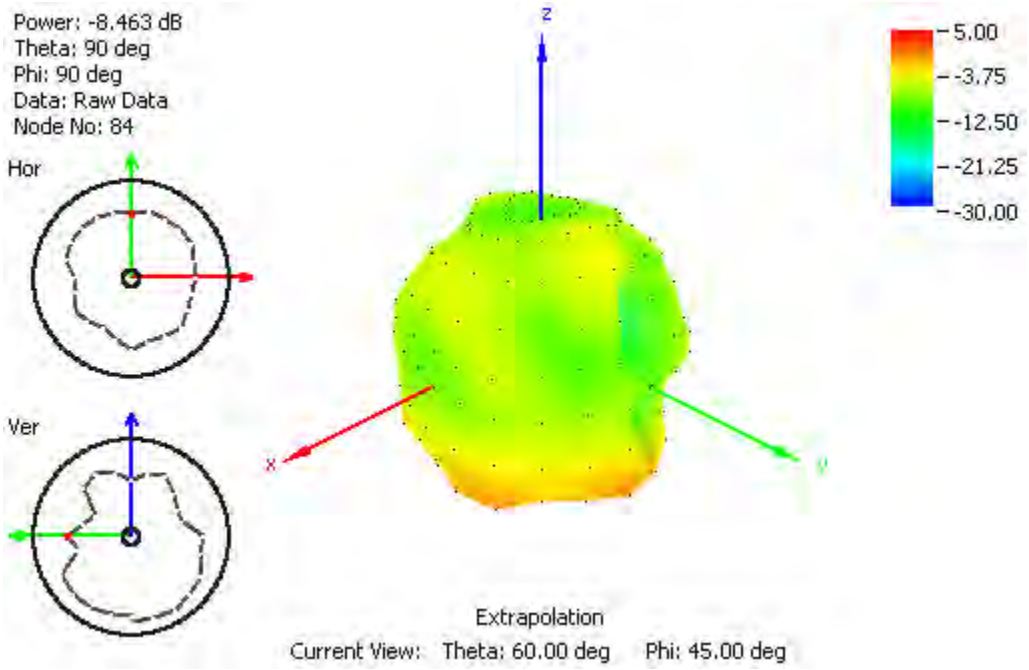


Figure 14. Radiation pattern at 900 MHz, Figure 1 as reference (dB), with 2m RG174 cable and 30x30 cm metal plate.

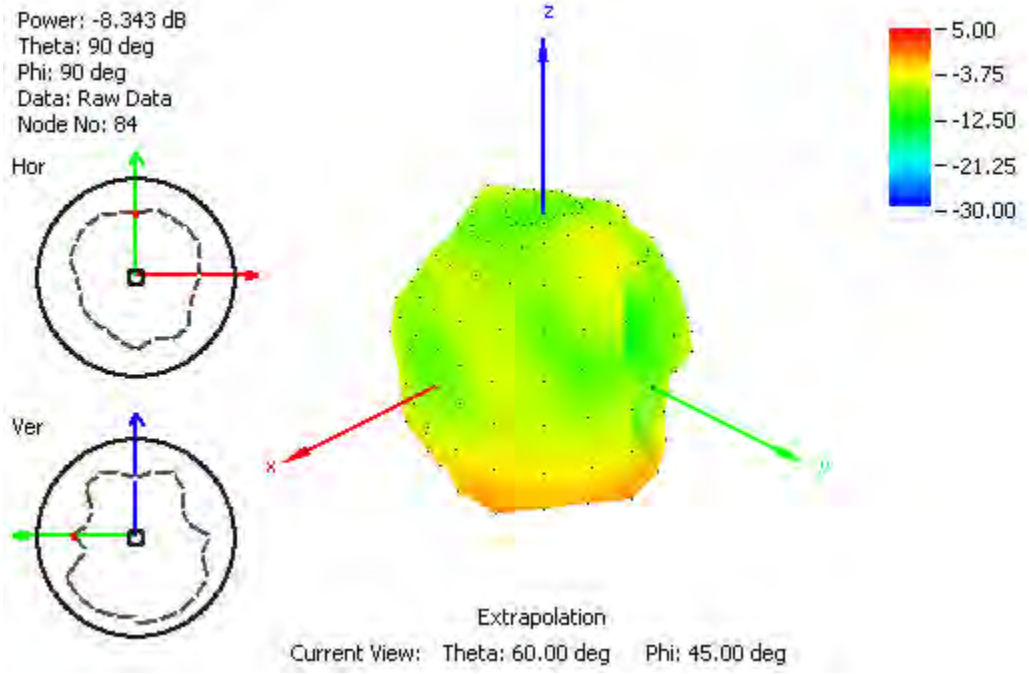


Figure 15. Radiation pattern at 915 MHz, Figure 1 as reference (dB), with 2m RG174 cable and 30x30 cm metal plate.

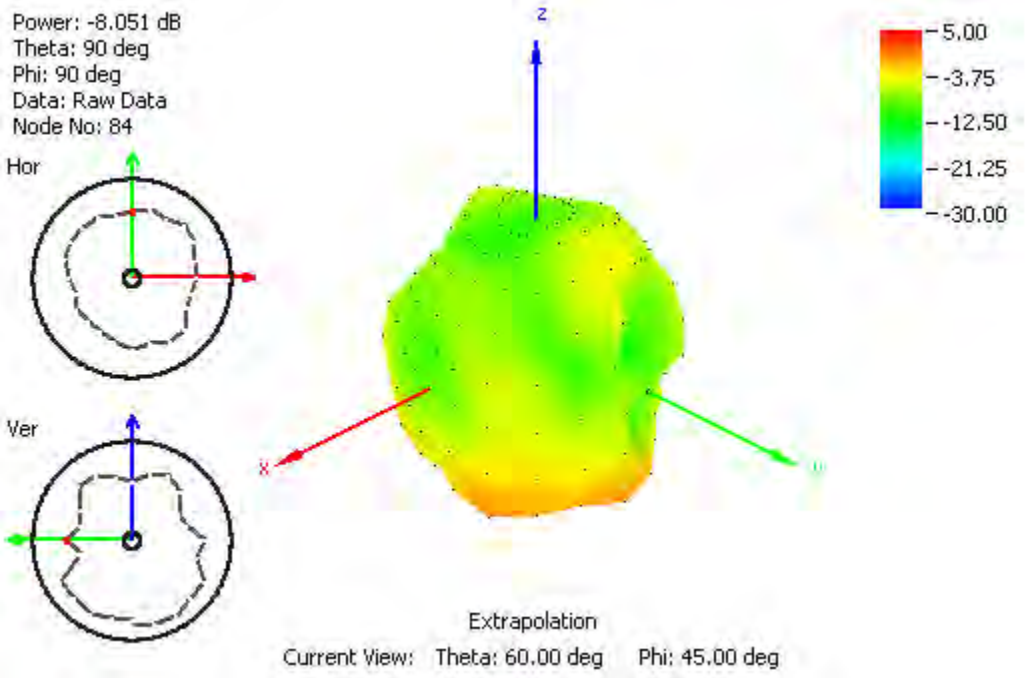


Figure 16. Radiation pattern at 930 MHz, Figure 1 as reference (dB), with 2m RG174 cable 30x30 cm metal plate.

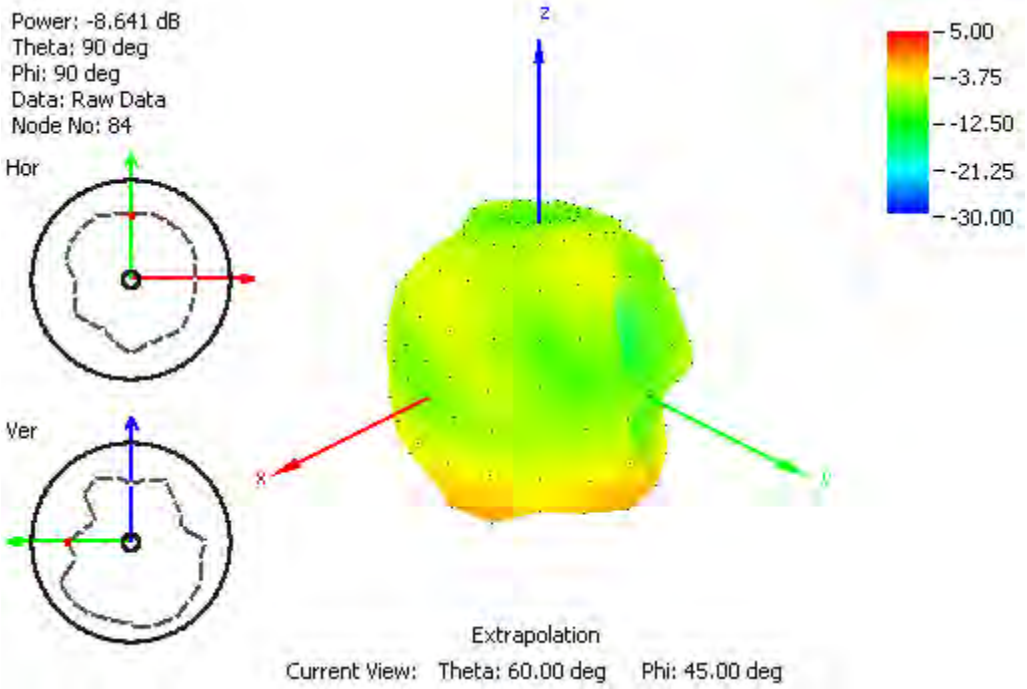


Figure 17. Radiation pattern at 900 MHz, Figure 1 as reference (dB), with 2m RG174 cable and 60x60 cm metal plate.

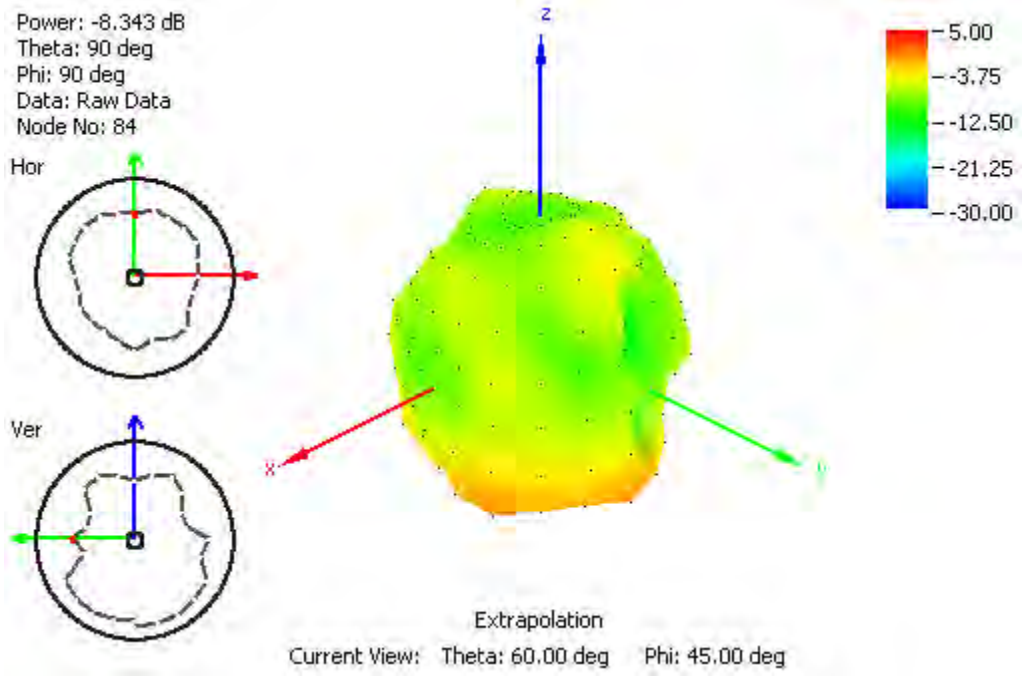


Figure 18. Radiation pattern at 915 MHz, Figure 1 as reference (dB), with 2m RG174 cable and 60x60 cm metal plate.

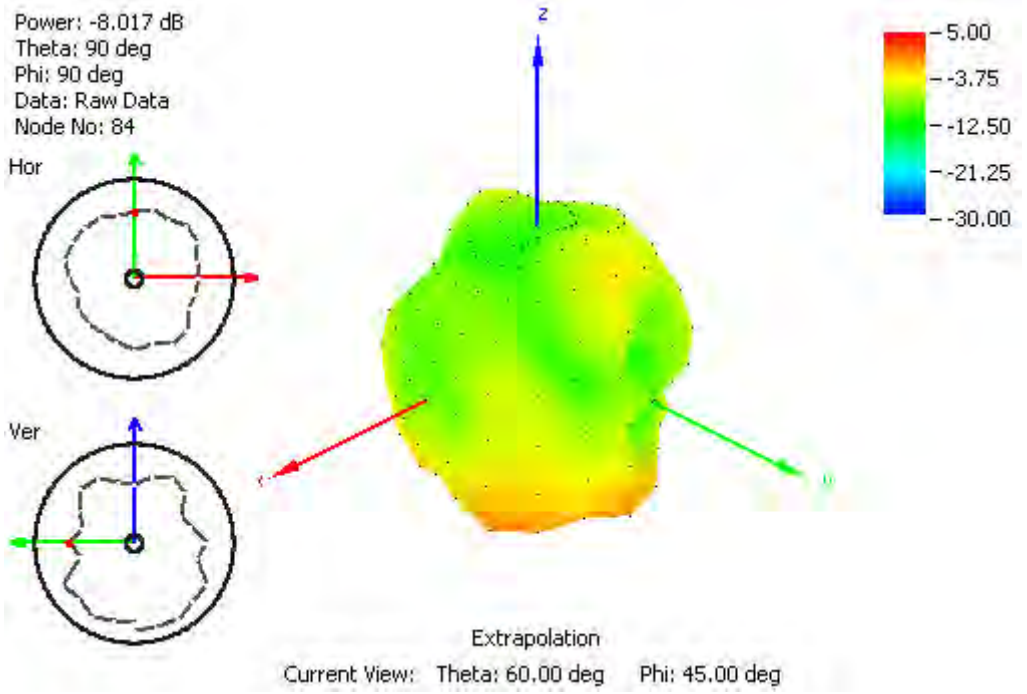
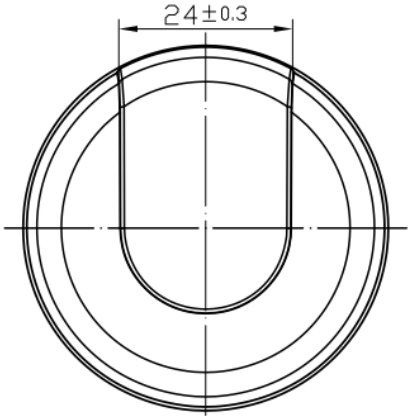


Figure 19. Radiation pattern at 930 MHz, Figure 1 as reference (dB), with 2m RG174 cable 60x60 cm metal plate.

5. DRAWING

Top View



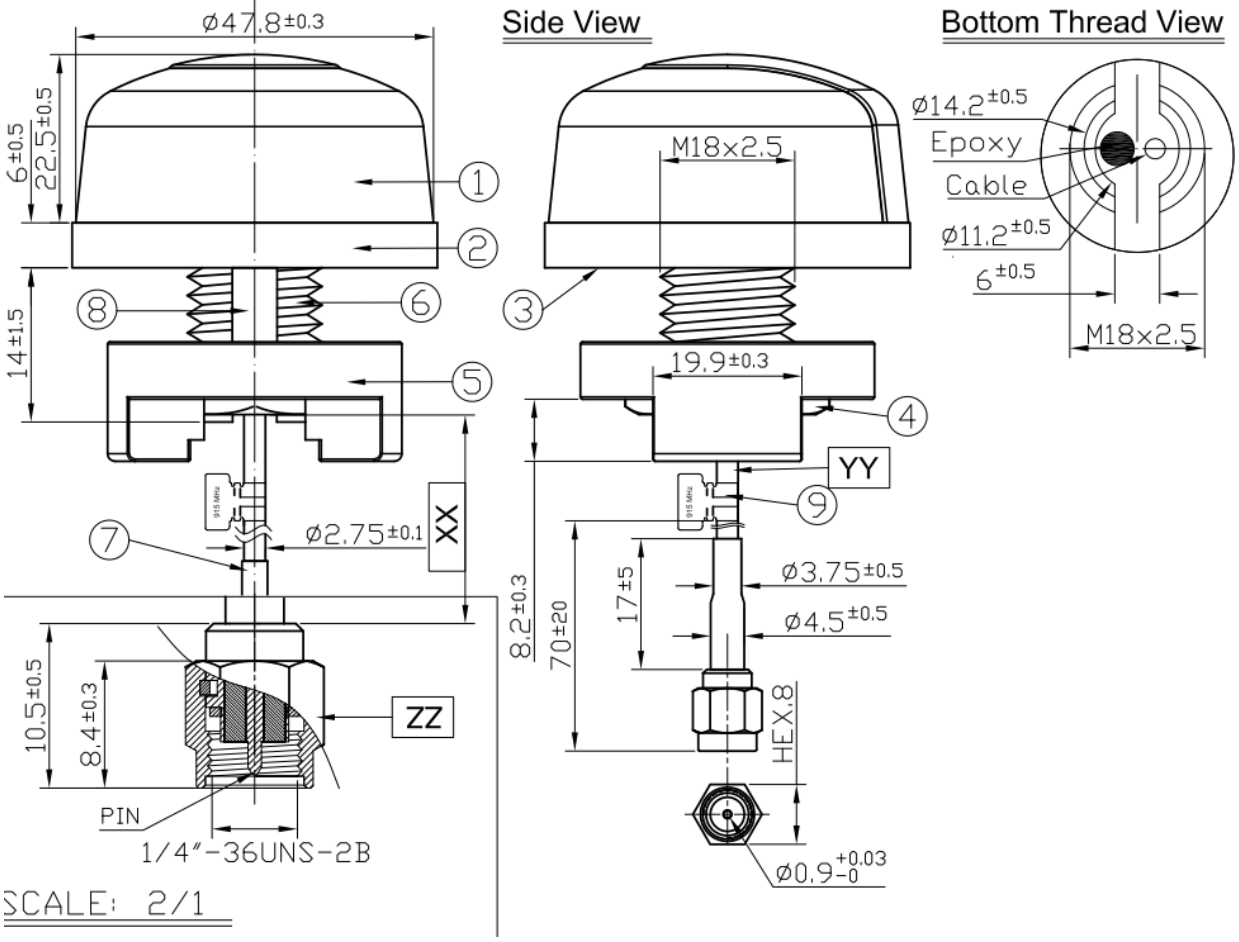
	Name	Material	Finish	QTY
1	Housing	PC	Black	1
2	Closed Cell Foam	CR 4305	Black	1
3	3M Double Adhesive	3M 9448 WC	White Liner	1
4	M18 Inner Nut	Steel Carbon	Ni Plated	1
5	Outer Nut Cover	ABS	Black	1
6	Metal Base	Zinc Alloy	Ni Plated	1
7	Heat Shrink Tube	PE	Black	1
8	Rubber Stopper	Silicon Rubber	Black	1
9	915 MHz Label	Coated Paper	Olive Dra	1

	Name	Spec	Finish	QTY
XX	Cable Length	3000mm±30mm		1
YY	Cable Type	RG174	Black	1
ZZ	Connector Type	SMA(M) ST	Gold	1

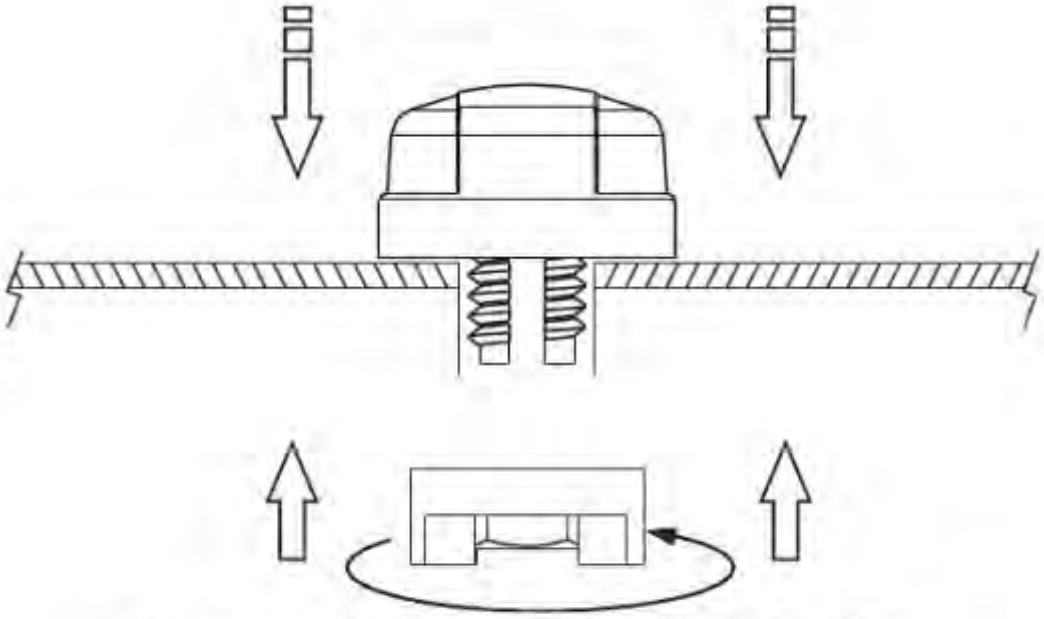
Front View

Side View

Bottom Thread View

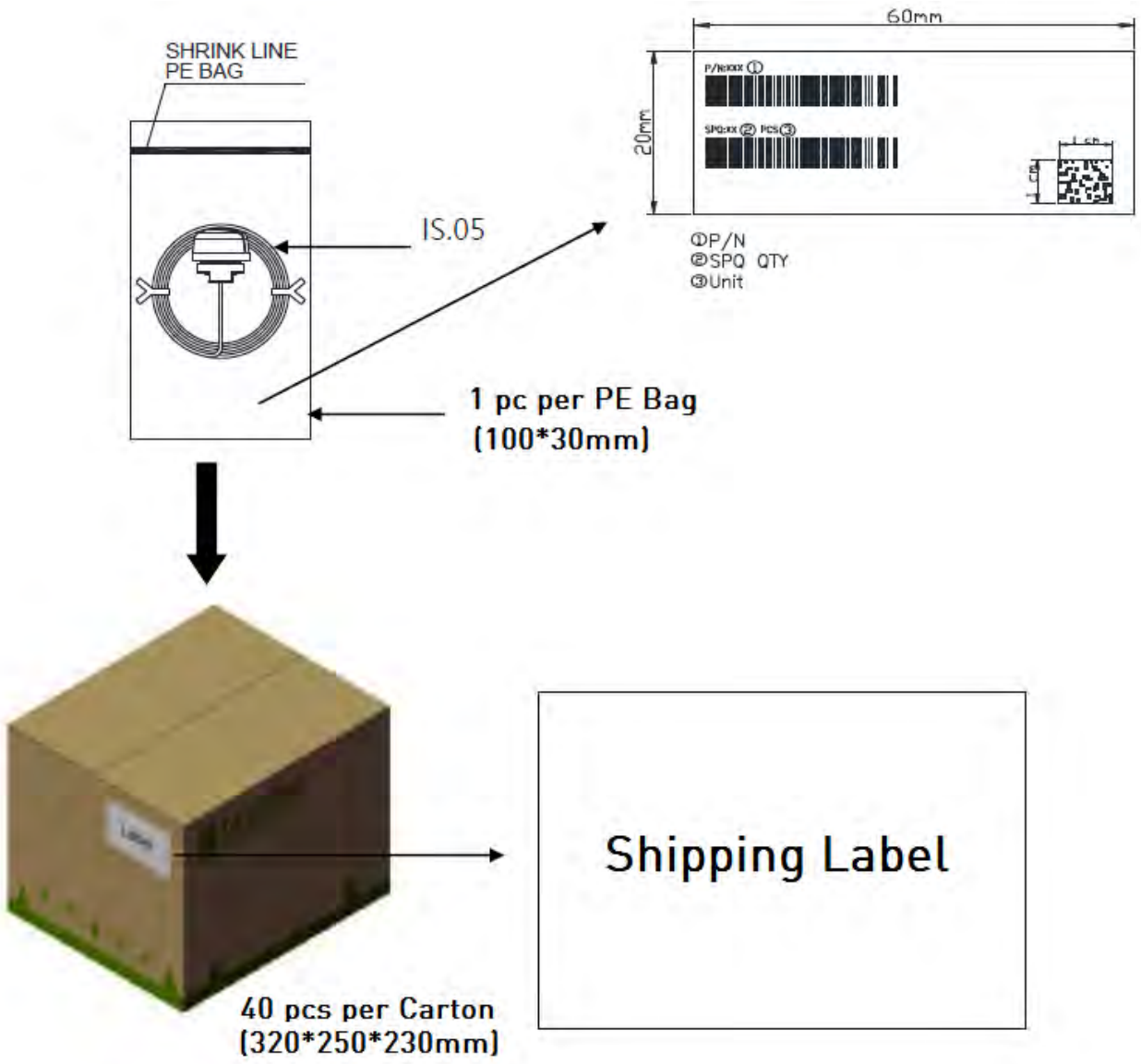


6. INSTALLATION



Recommended torque for Mounting is 24.5N·m
Maximum torque for mounting is 29.4 N·m

7. PACKAGING


SHRINK LINE
PE BAG
IS.05
60mm
20mm
①P/N
②SPQ QTY
③Unit
1 pc per PE Bag
(100*30mm)
40 pcs per Carton
(320*250*230mm)
Shipping Label

SPECIFICATION

Part No. : TI.19.2113

Product Name : 2dBi 915MHz ISM Band Dipole Terminal Antenna, SMA(M) Hinge

Feature : High efficiency dipole terminal antenna
ROHS compliant

1. Introduction

TI.19 is a high performance 915MHz ISM band dipole omnidirectional antenna. The hinged design enables the antenna to be positioned at its most suitable angle. This antenna features a SMA(M) Plug Connector.

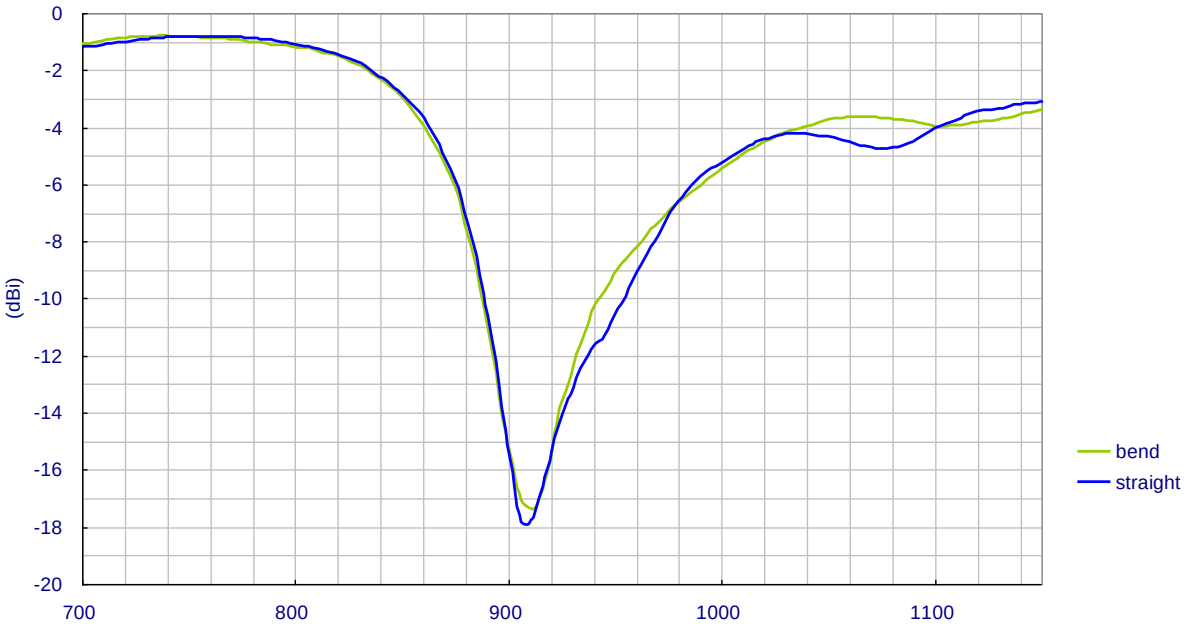
For a lot of antenna applications, such as Wi-Fi Hotspot or cellular Pico-cell, the antenna of the operator's device and the antenna of the user's remote device are not on the same horizontal level. The TI.19 has been designed with a butterfly shape radiation pattern, to help counteract this effect.

2. Specification

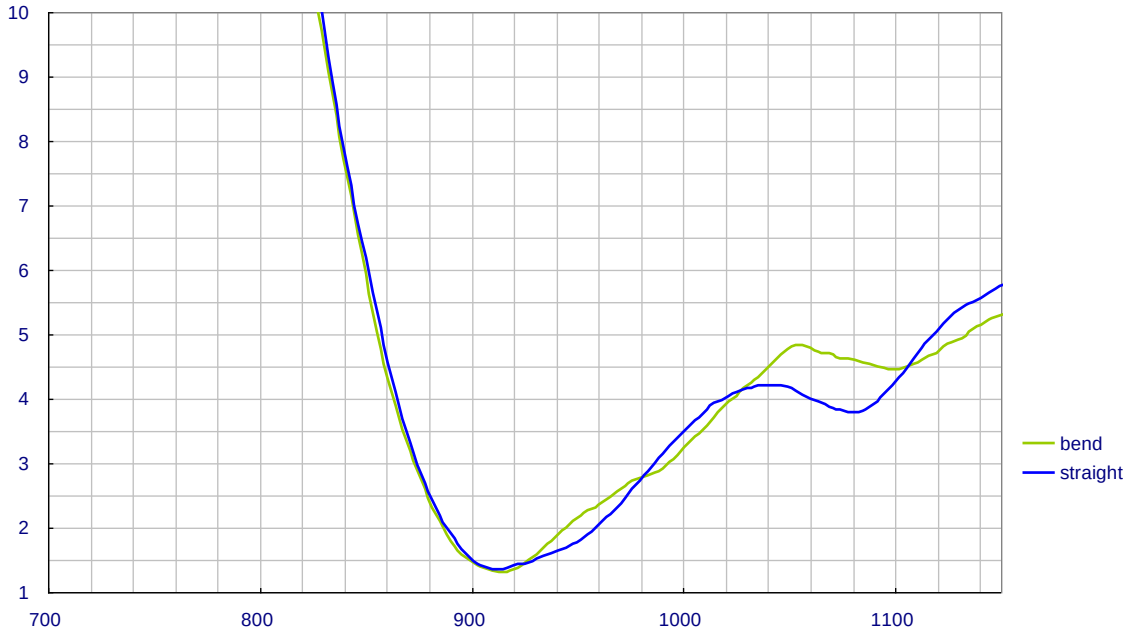
ELECTRICAL	
Frequency	902 ~ 928MHz
Peak Gain (bent)	2.5dBi
Peak Gain (straight)	2.4dBi
Average Gain (bent)	-1.0dBi
Average Gain (straight)	-0.9dBi
Efficiency (bent)	81%
Efficiency (straight)	82%
Impedance	50Ω
VSWR	< 1.9 : 1
Polarization	Linear
Radiation Pattern	Omnidirectional
Input Power	10 W
MECHANICAL	
Antenna Length	389 ± 5 mm
Antenna Diameter	13 ± 0.5 mm
Casing	TPU
Connector	SMA Male
ENVIRONMENTAL	
Temperature Range	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH

3. Antenna S11 Properties

3.1 Return Loss

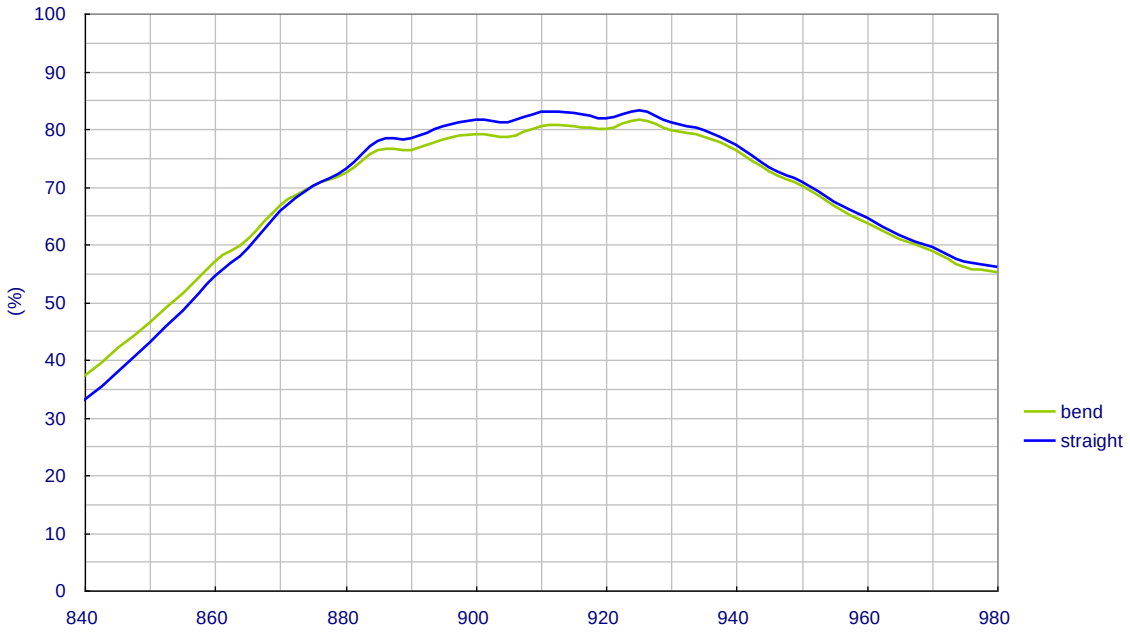


3.2 VSWR

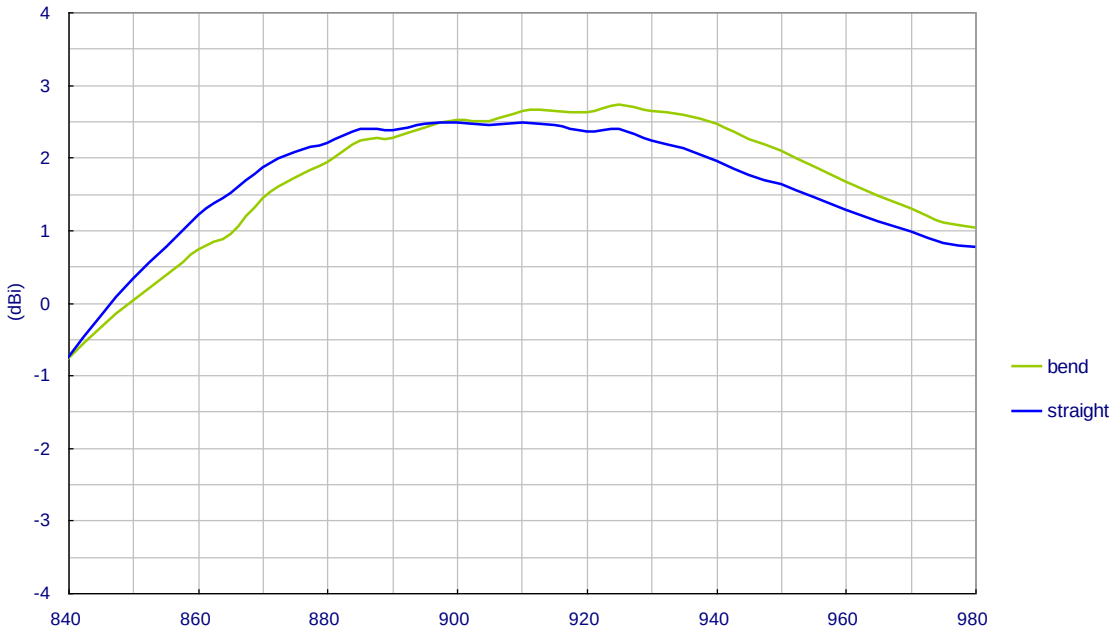


4. Antenna Radiation Properties

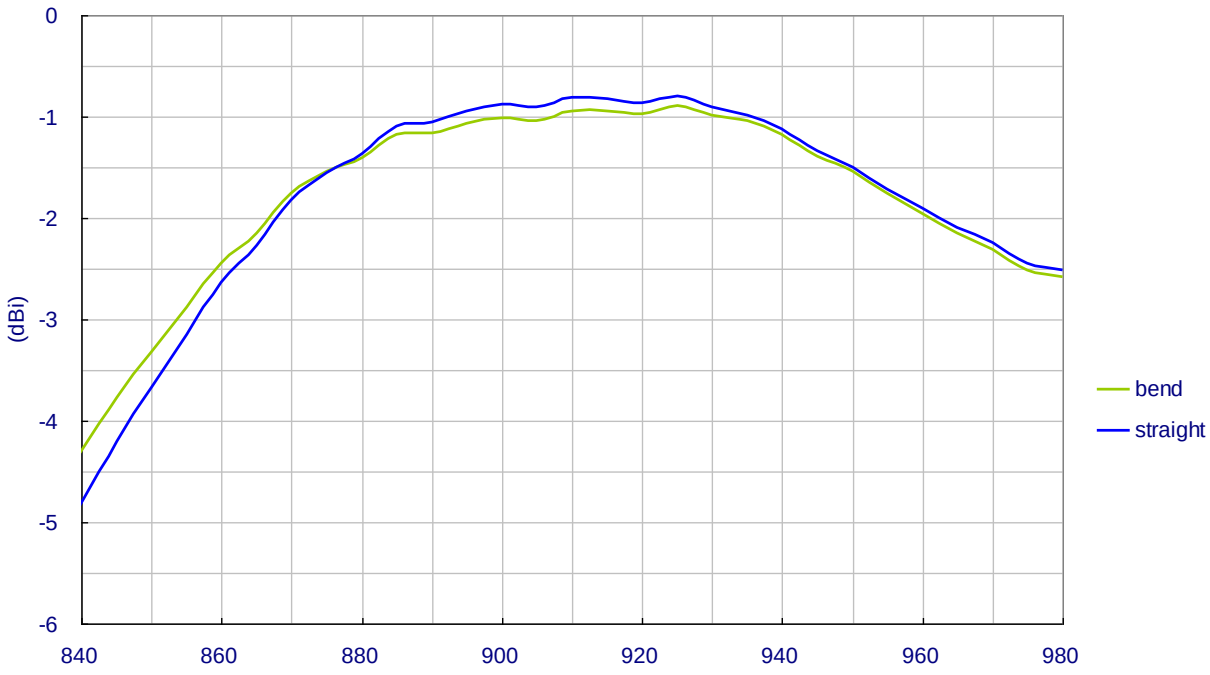
4.1. 3D Radiation Efficiency



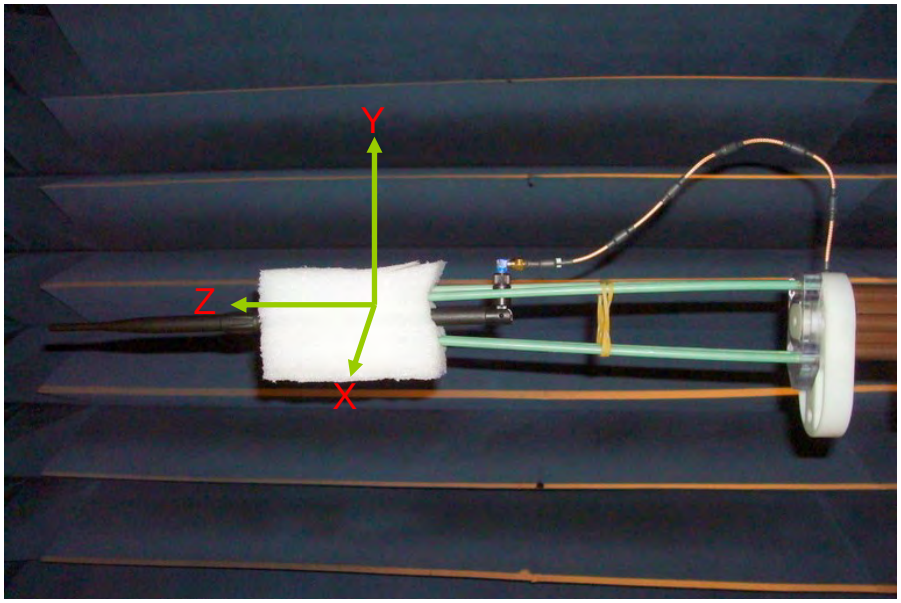
4.2. Peak Gain



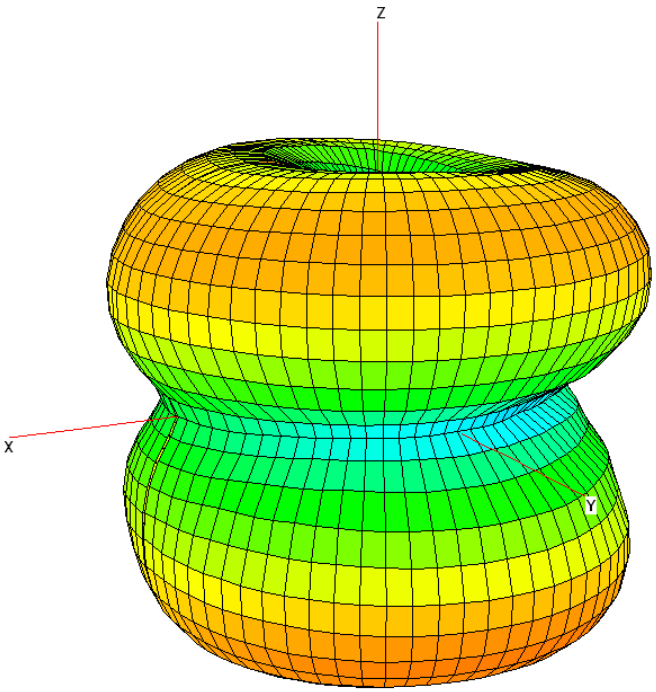
4.3. Average Gain



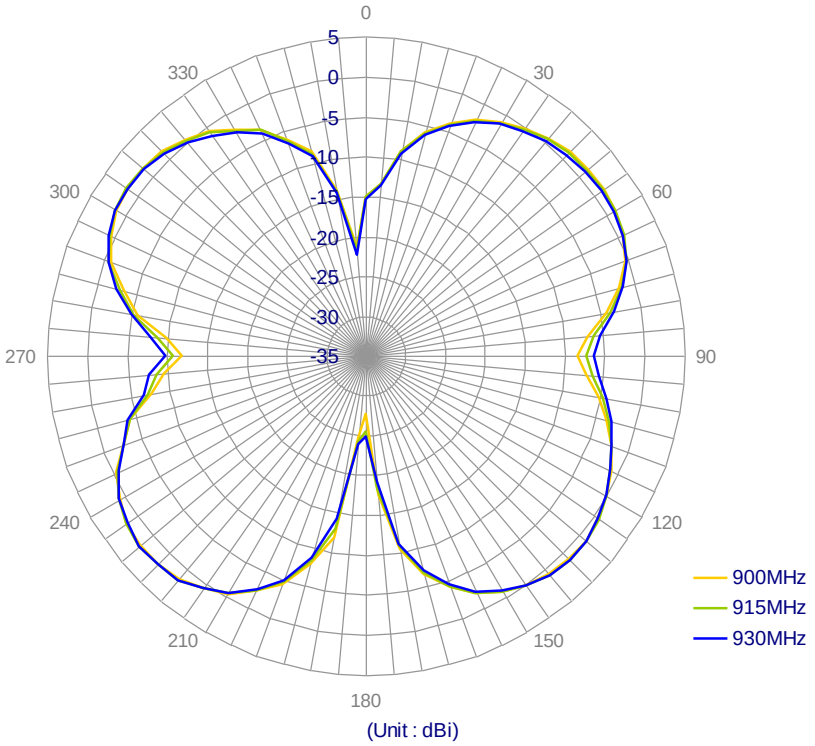
4.4. Radiation Pattern of 90 Degree Bent Position



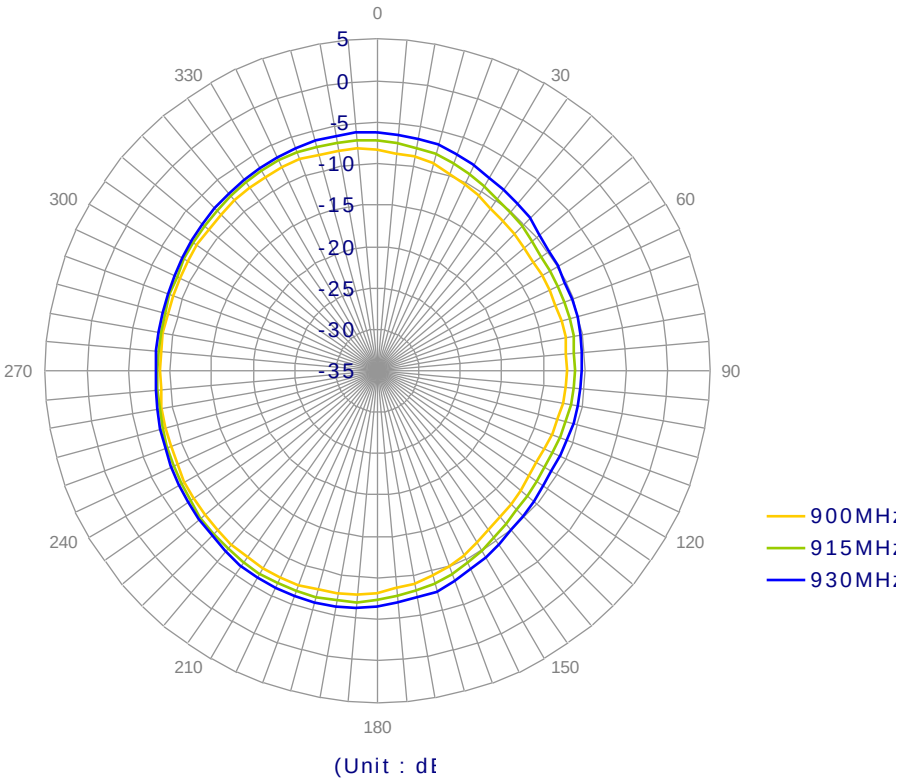
4.4.1 3D Radiation Pattern



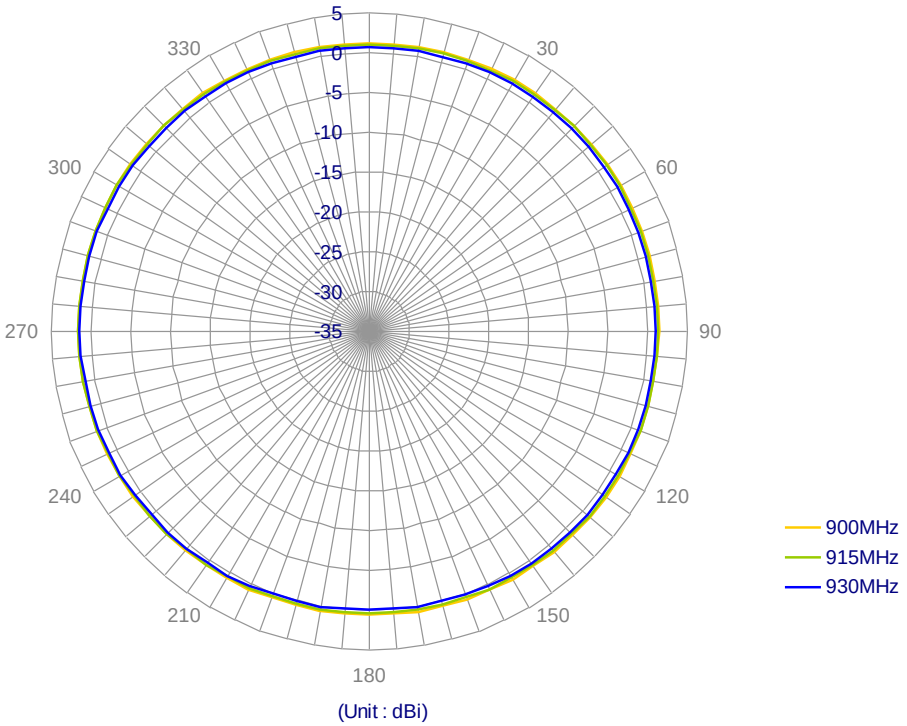
4.4.2 XZ Plane Radiation



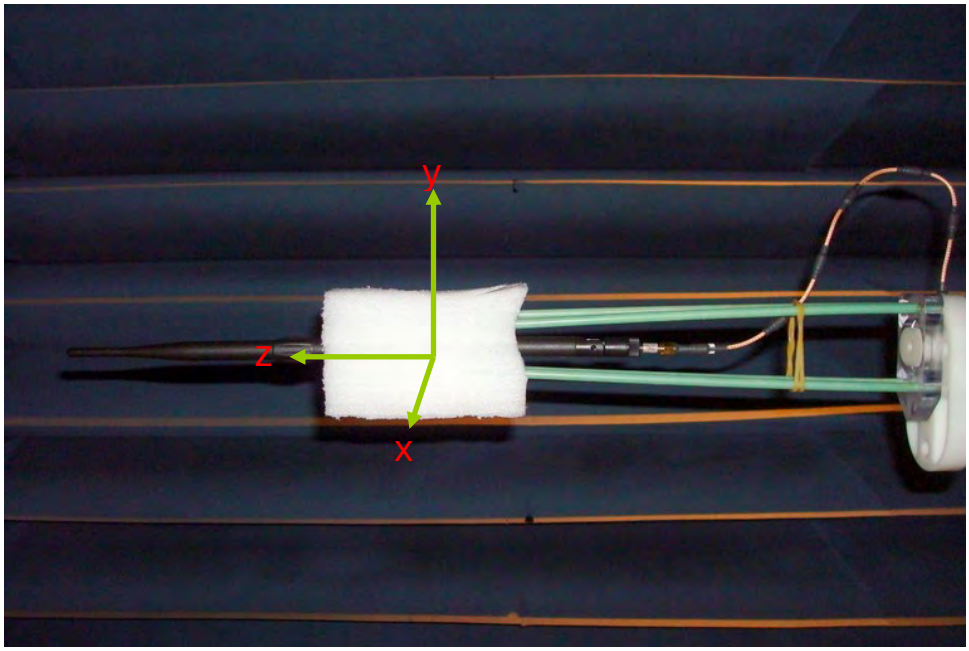
4.4.3 XY Plane Radiation



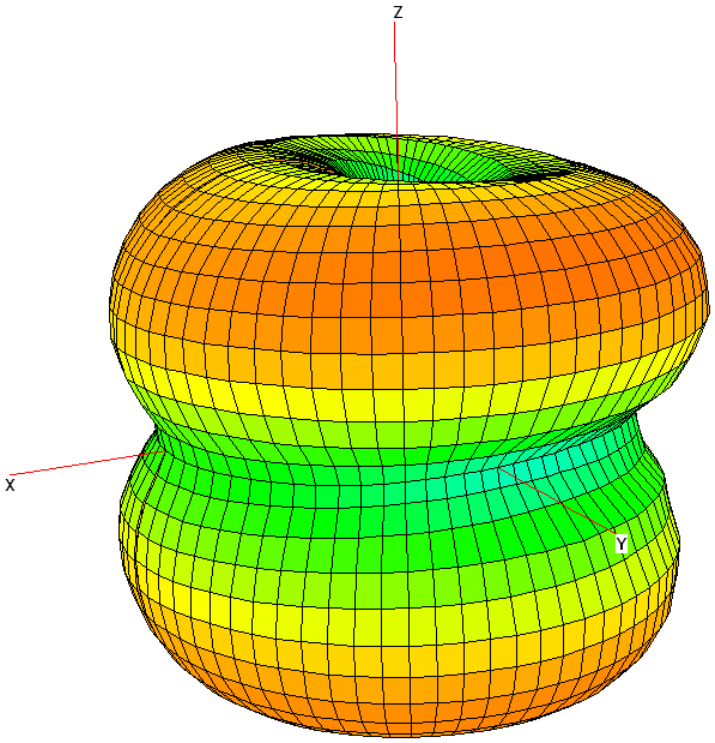
4.4.4 Radiation at 45 Degree from XY Plane



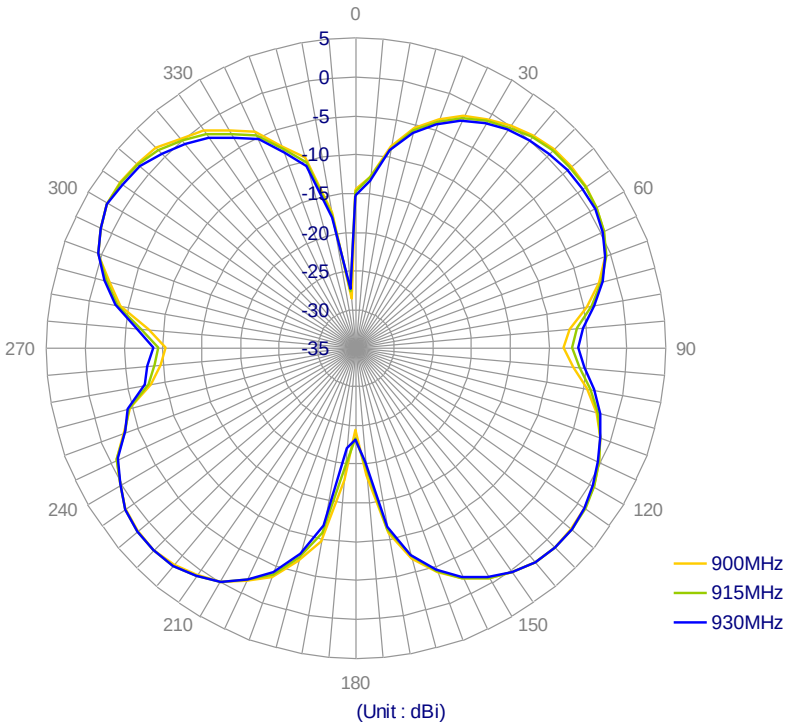
4.5. Radiation Pattern of 180 Degree Straight Position



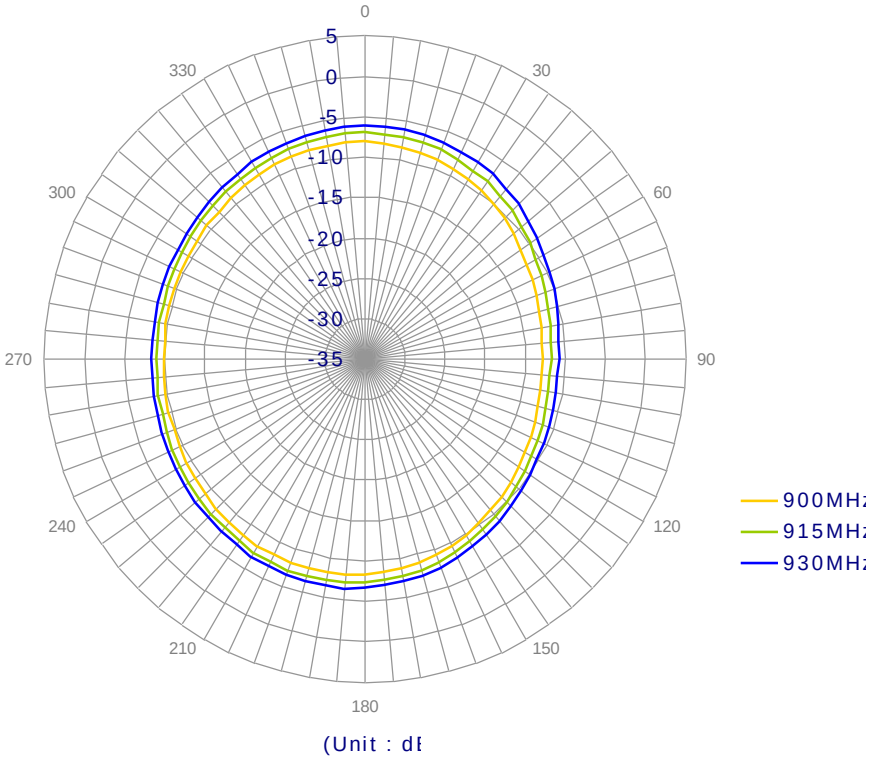
4.5.1 3D Radiation Pattern



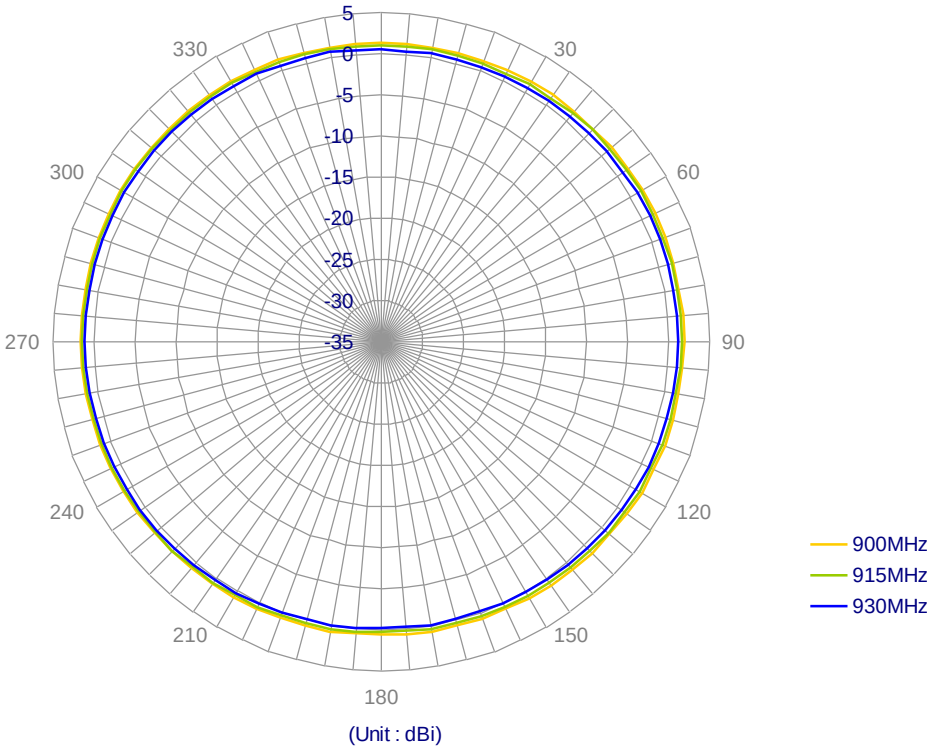
4.5.2 XZ Plane Radiation



4.5.3 XY Plane Radiation



4.5.4 Radiation at 45 Degree from XY Plane



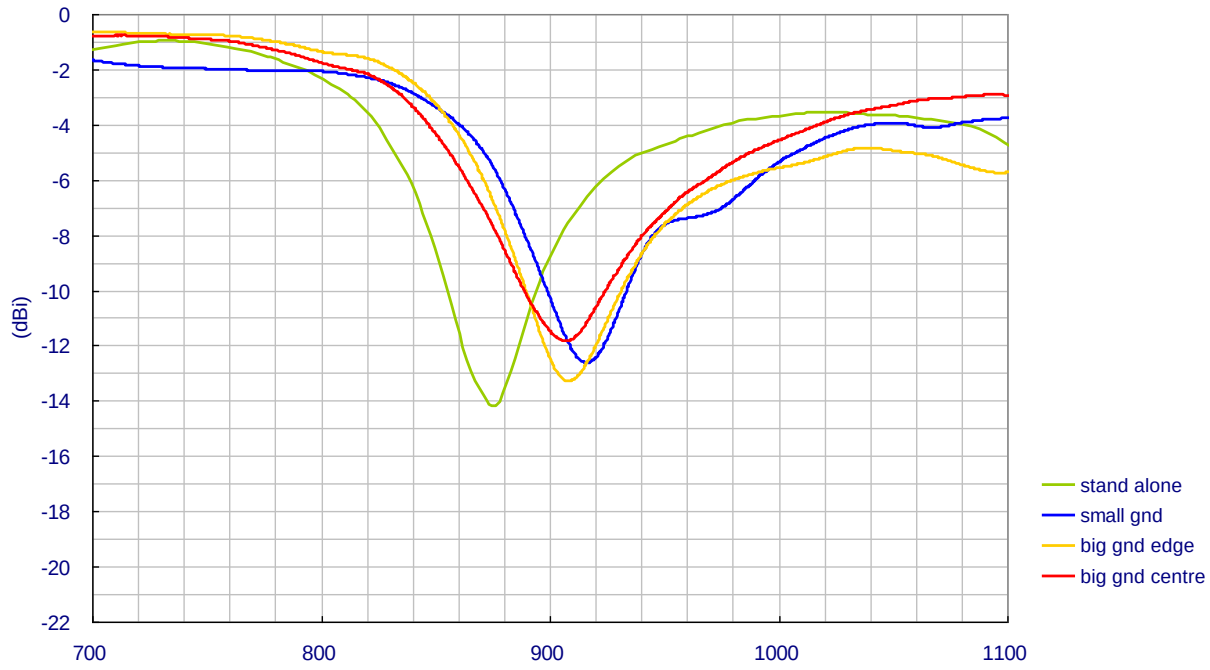
5.Ground Plane Effect

Three ground setups are used to see the affect of positioning TI.19 close to ground -

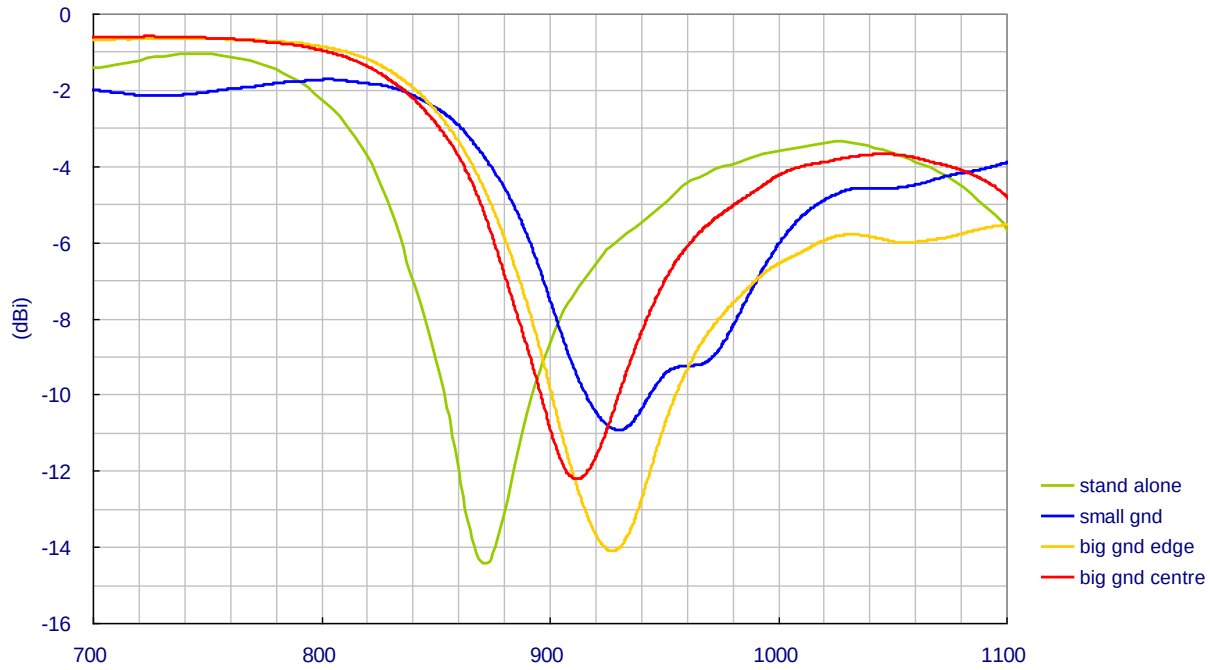
1. Small Ground (15*9cm) – common size of CPE devices. TI.19 is mounted at the longer edge for testing.
2. Big Ground Edge (45*30cm) – simulate the effect of mounting antenna on a base station device. TI.19 is mounted at the centre of the longer edge.
3. Big Ground Centre (45*30cm) – simulate the effect of mounting antenna in a centre of a big ground plane, such as vehicle top.

5.1. S11 Return Loss

Bent

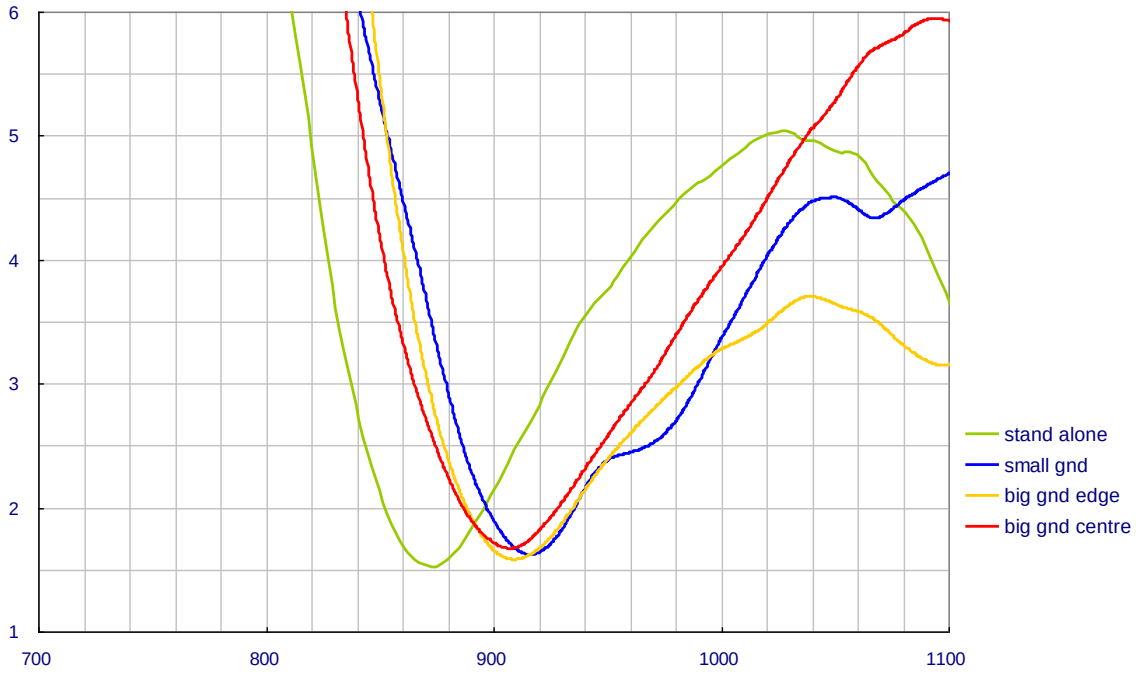


Straight

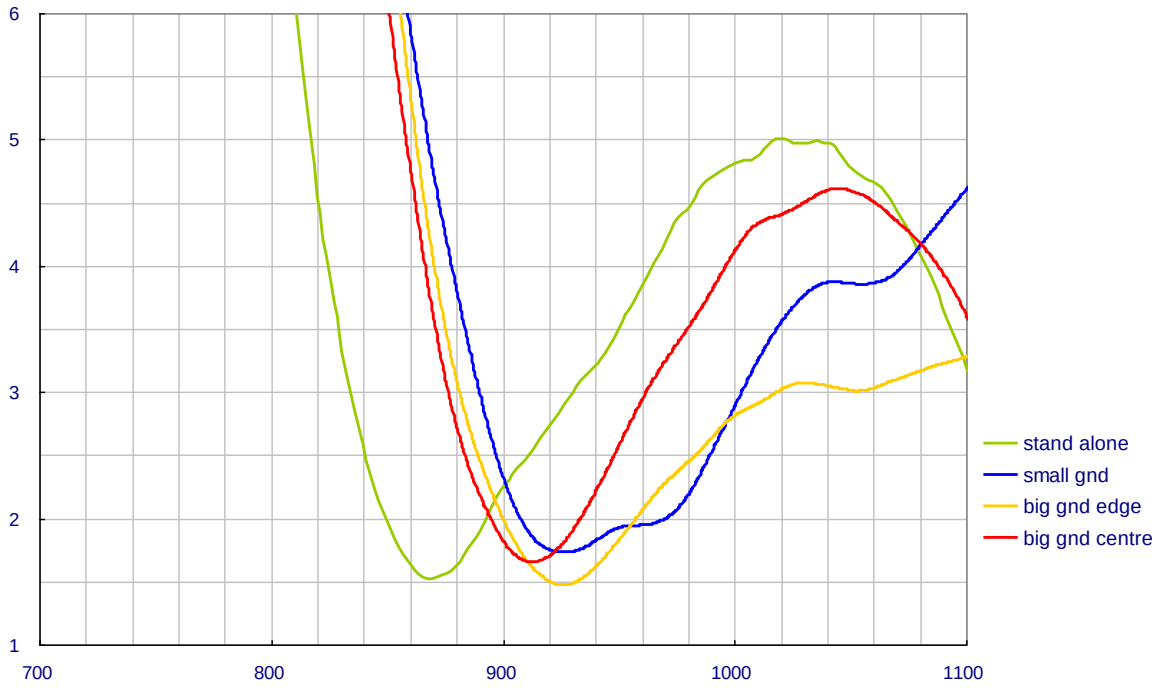


5.2. VSWR

Bent

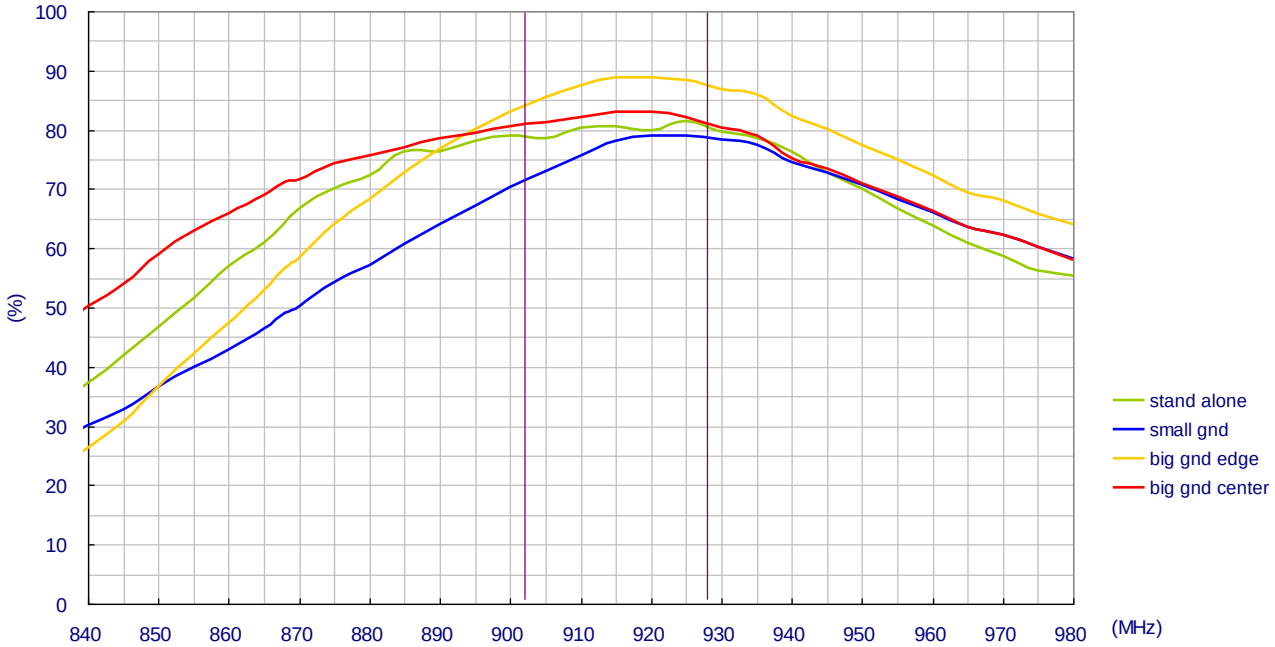


Straight

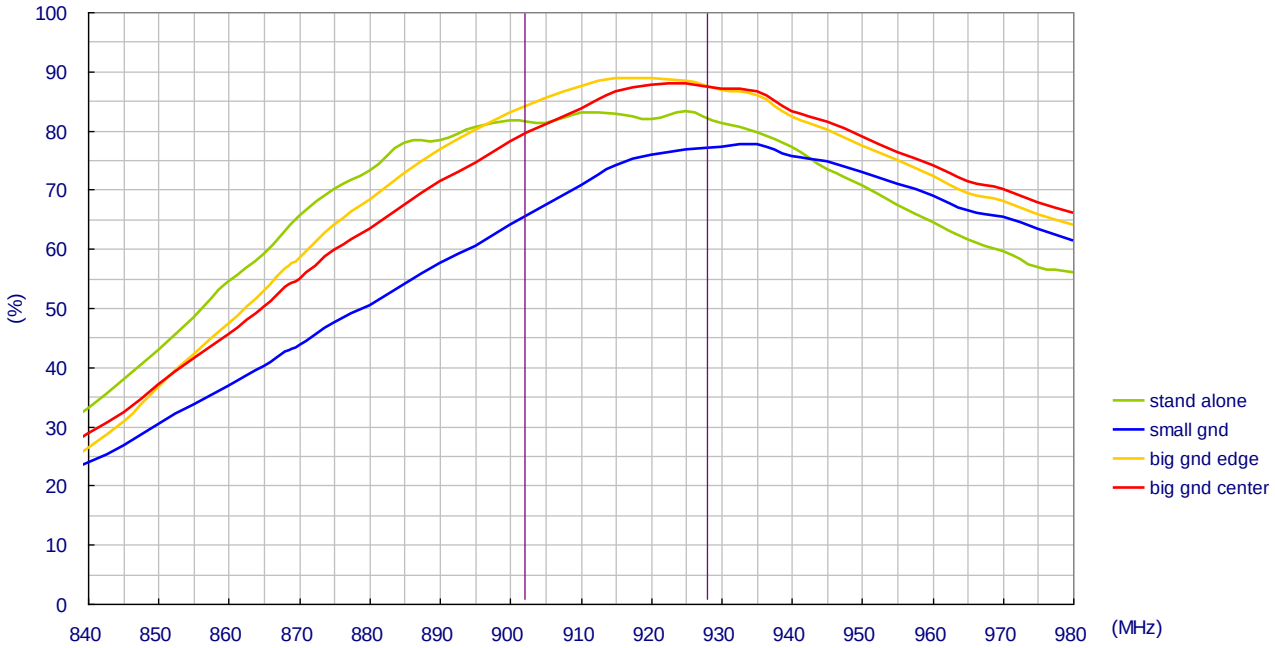


5.3. Radiation Efficiency

Bent

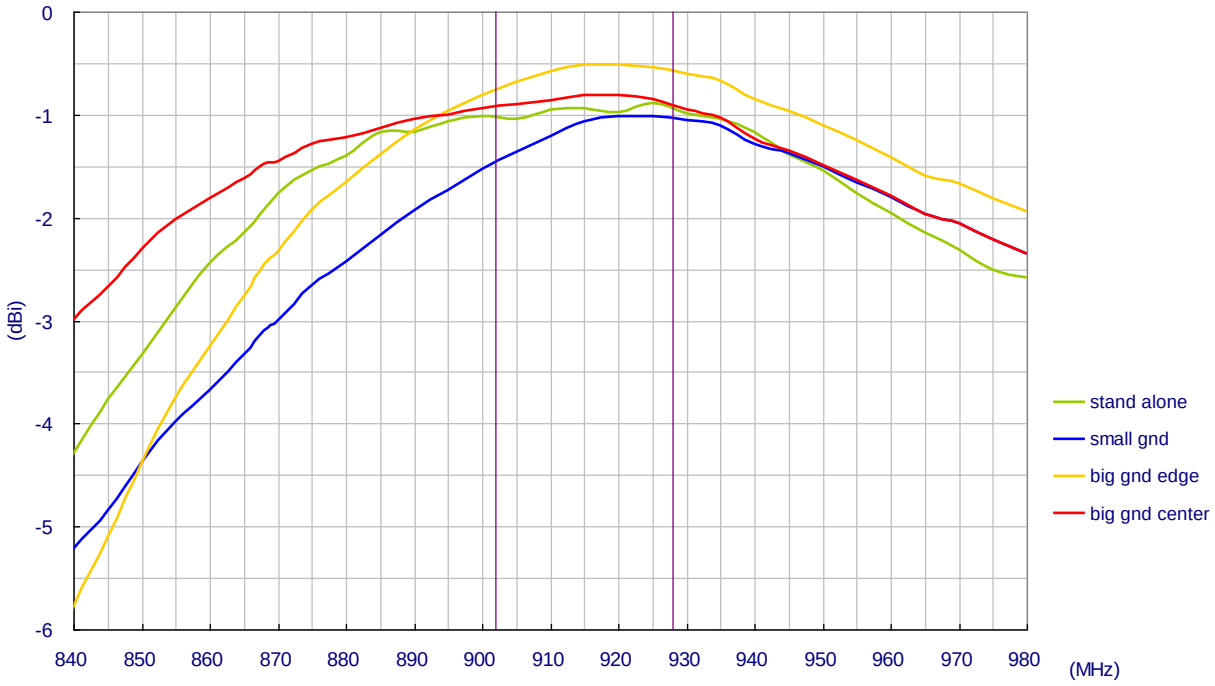


Straight

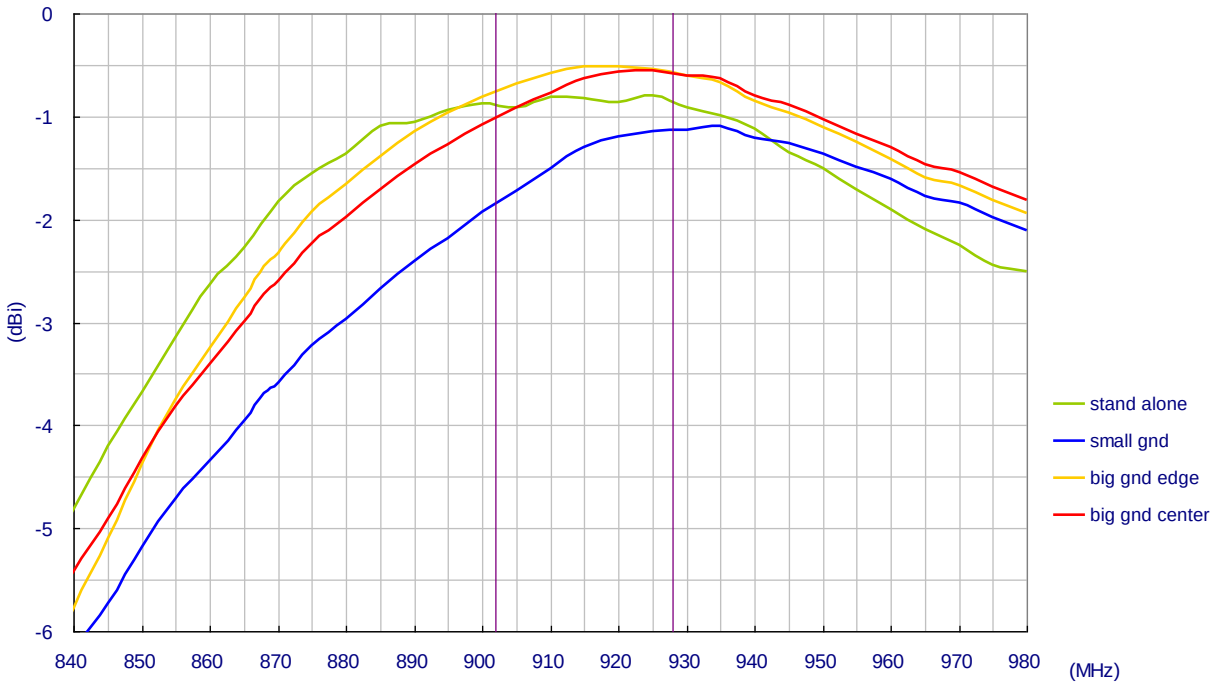


5.4. Average Gain

Bent

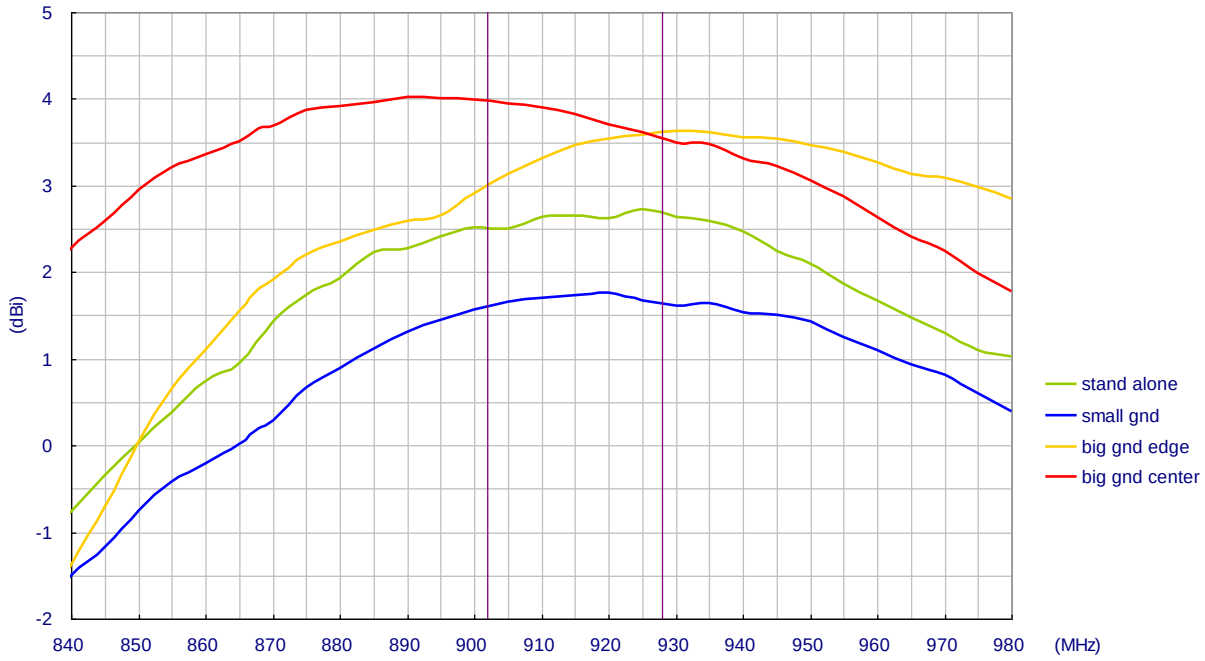


Straight

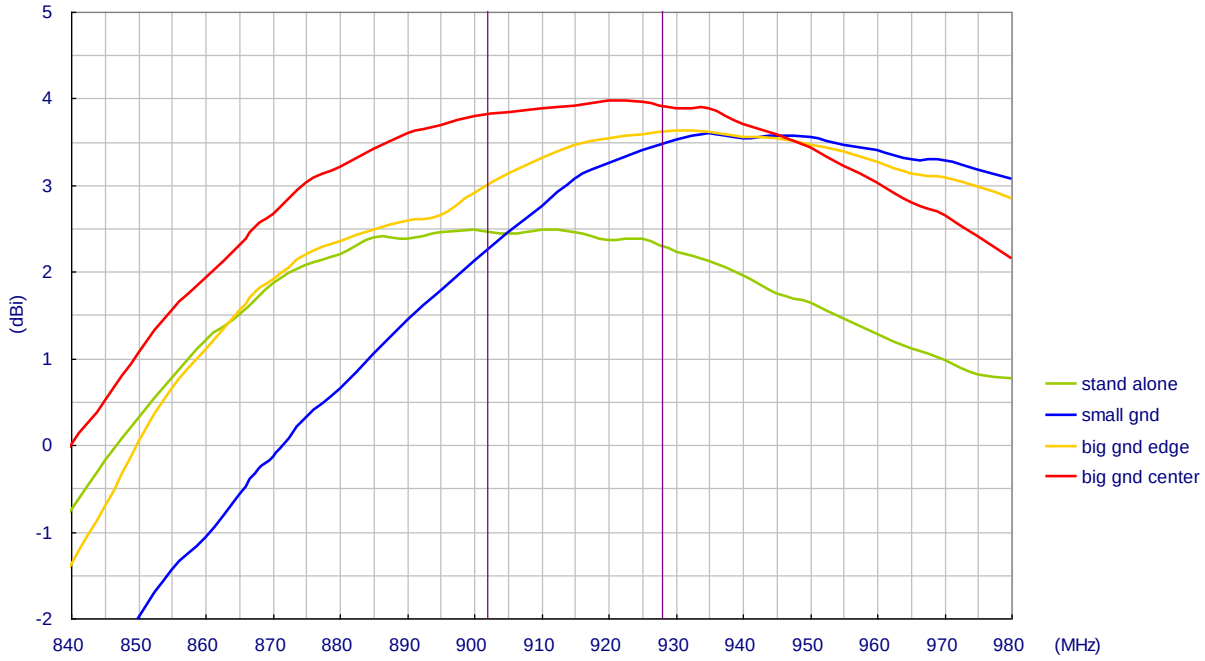


5.5. Peak Gain

Bent

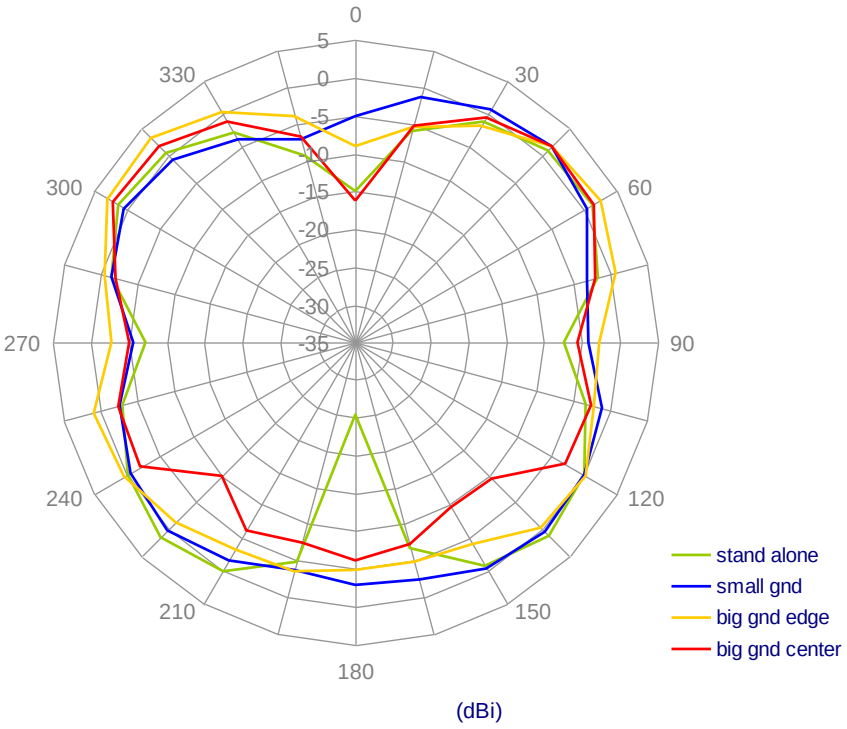


Straight

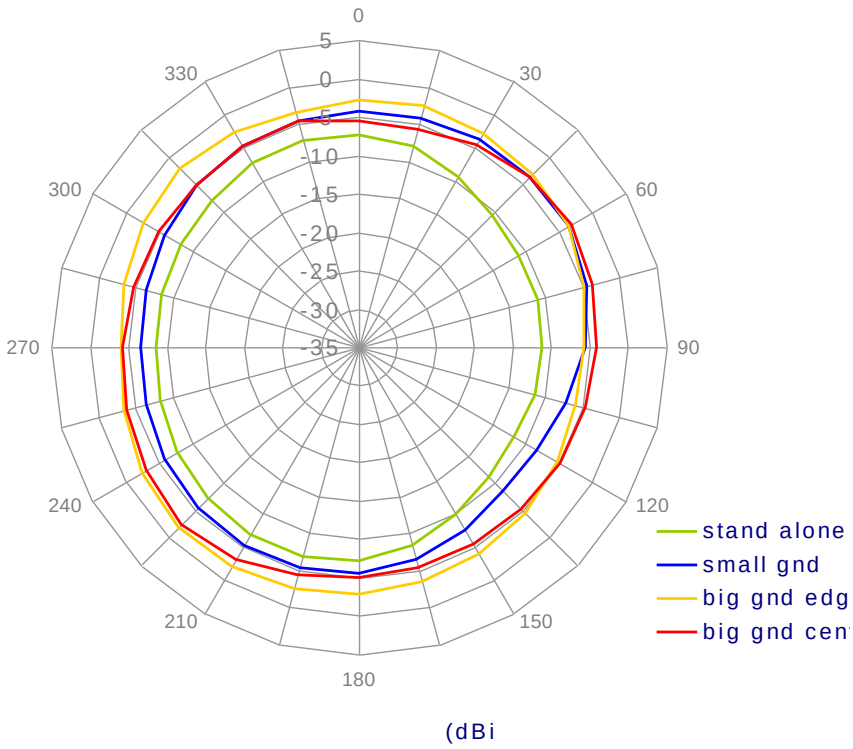


5.6. Radiation Pattern of 90 Degree Bent Position

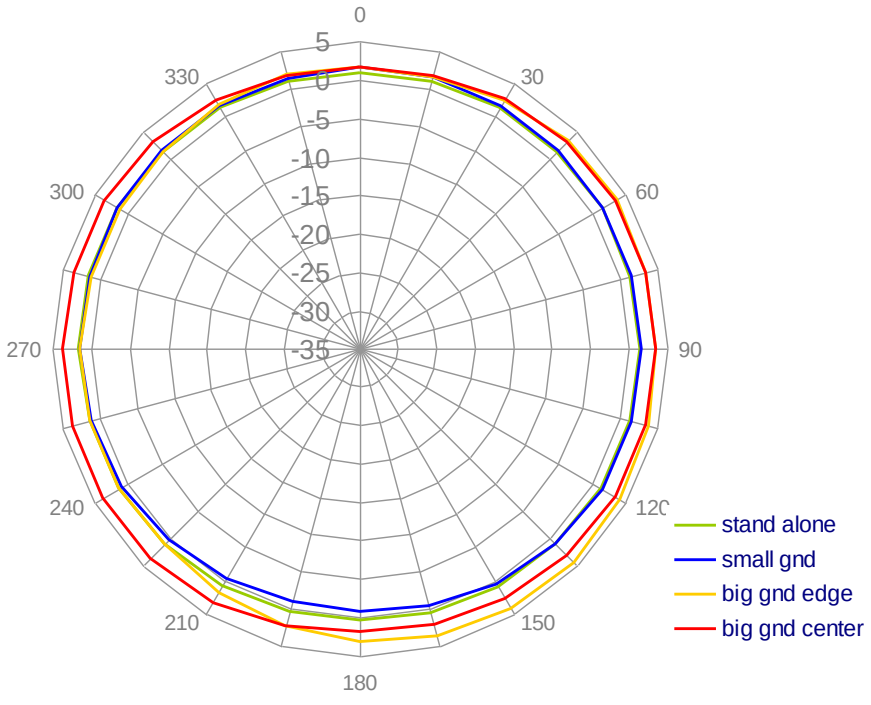
5.6.1 XZ Plane Radiation



5.6.2 XY Plane Radiation

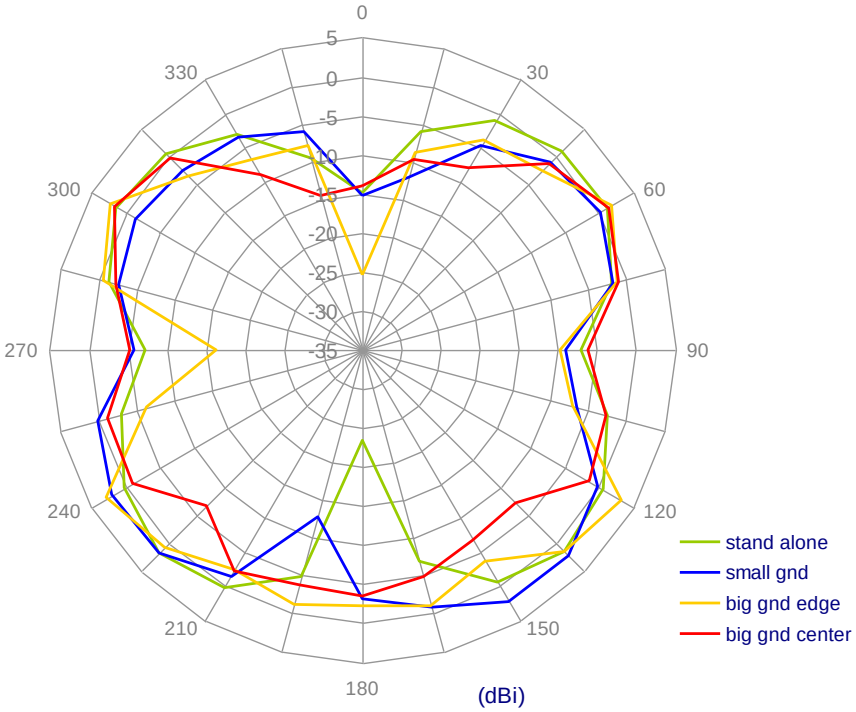


5.6.3 Radiation at 45 Degree from XY Plane

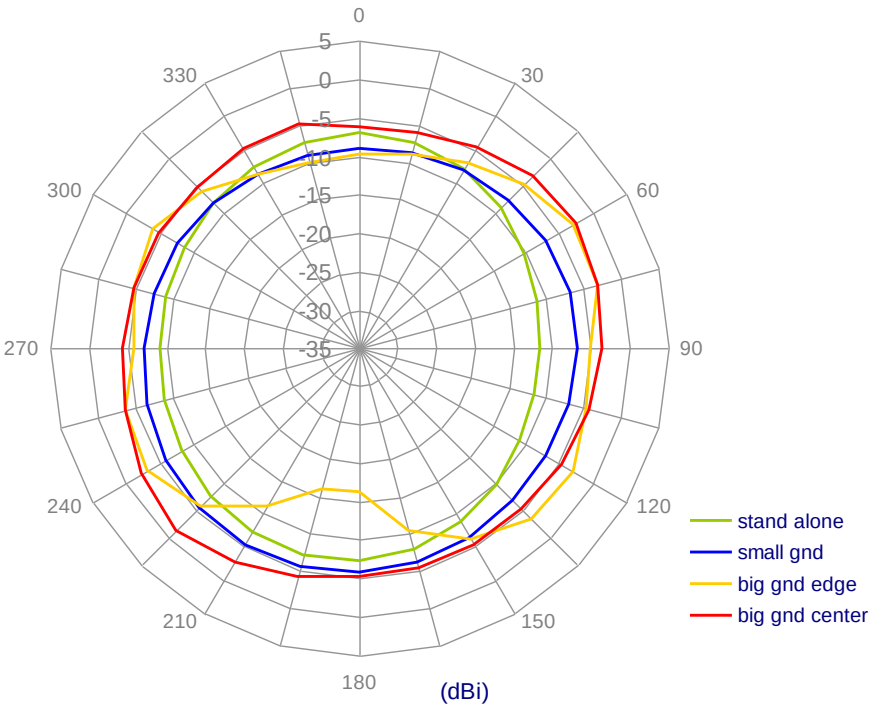


5.7. Radiation Pattern of 180 Degree Straight Position

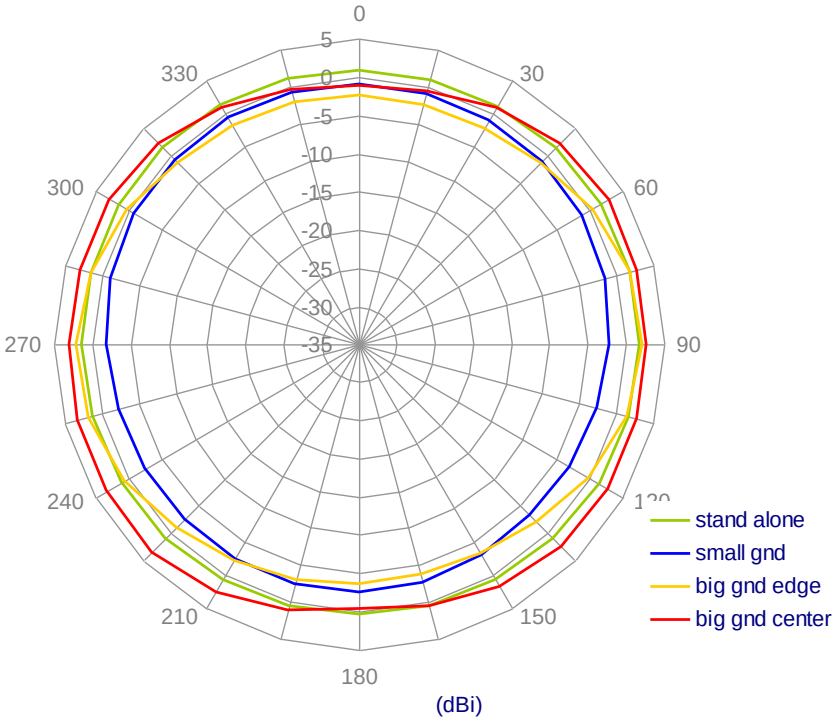
5.7.1 XZ Plane Radiation



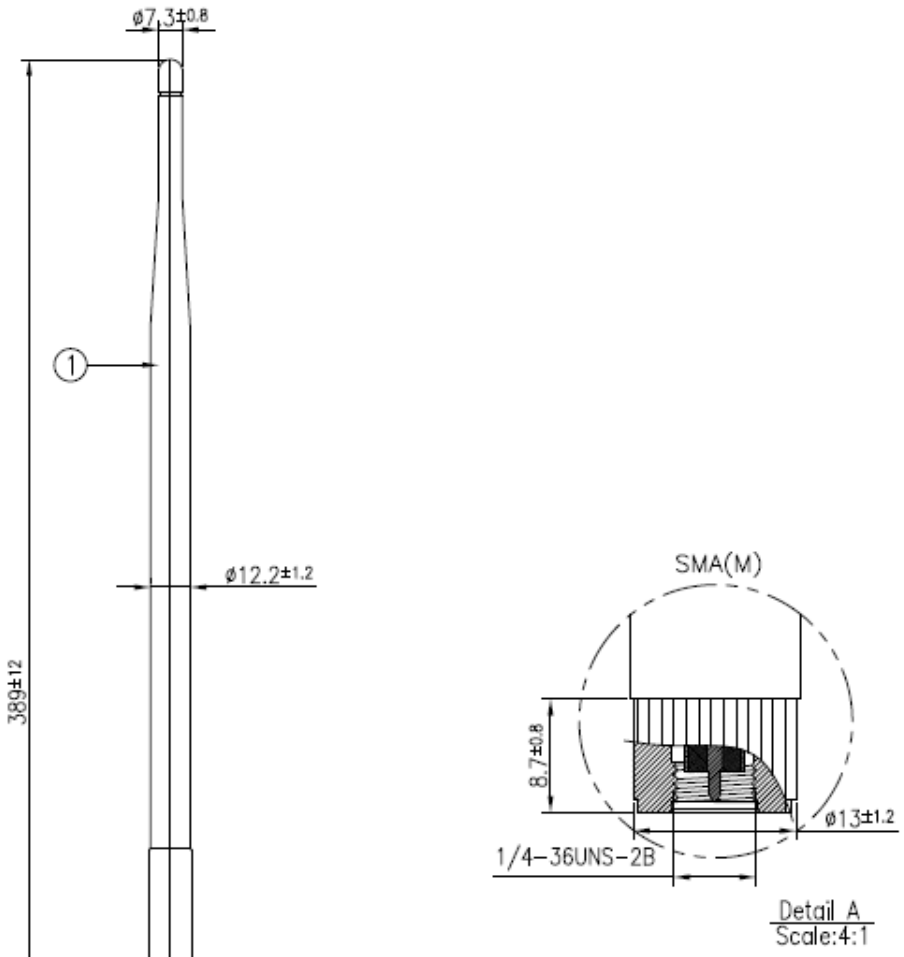
5.7.2 XY Plane Radiation



5.7.3 Radiation at 45 Degree from XY Plane



6. Mechanical Drawing (Unit: mm)



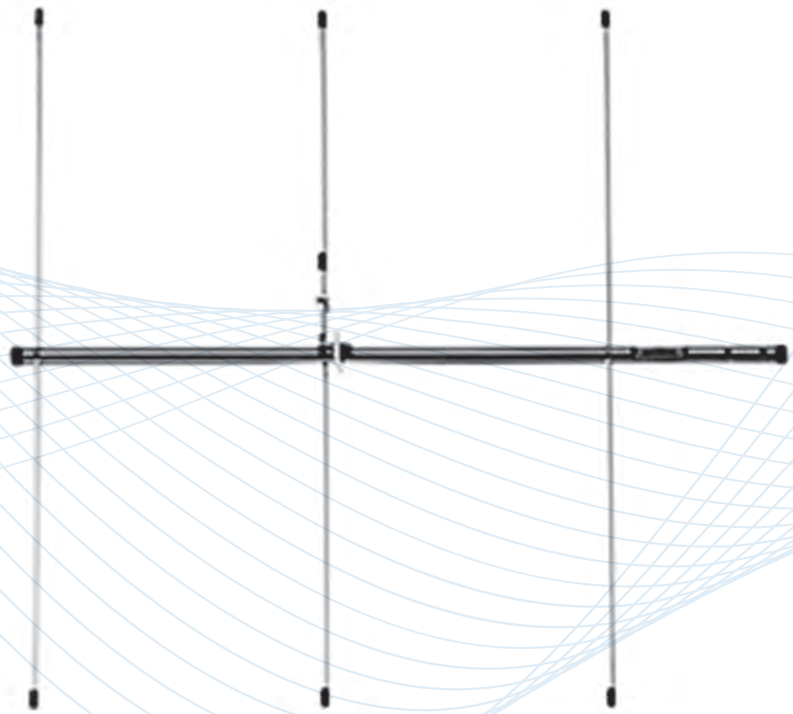
	Name	P/N	Material	Finish	QTY
1	Antenna Housing	000113F010002A	TPU	Black	1
2	Rotary Shaft	000613F010002A	Brass	Black	1
3	Bottom Base	000113F020002A	ABS+PC	Black	1
4	SMA(M)	210213F000002A	Brass	Black	1

DATASHEET ISM / LORA / LPWAN ANTENNAS

Aluminum Yagi Antennas, VHF, UHF & 800/900 MHz

ISM/LoRa/LPWAN Antennas – Yagi

MYA Series



Description

Affordable and durable aluminum Yagi antennas for VFH and UHF industrial wireless applications.

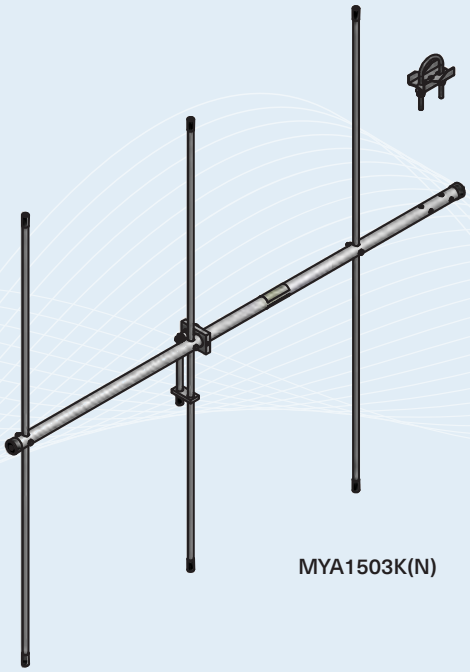
Technologies

- VFH
- UHF

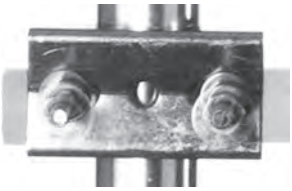
Features

- Wind Load Rating 100 mph stainless steel hardware
- Heavy-duty, double-walled aluminum boom
- DC grounded

PCTEL



MYA1503K(N)



MYK1 Mount

Aluminum Yagi Antennas, VHF, UHF & 800/900 MHz

ISM/LoRa/LPWAN Antennas – Yagi

PCTEL's MYA Series of Yagi antennas are unsurpassed in their price-to-performance ratio. All models feature rugged 6061-T6 seamless aluminum construction, stainless steel hardware, and through-boom mounting of all elements for years of reliable service. Elements are DC grounded to the boom. These antennas are UPS shippable.

Features

- Stainless steel hardware
- Heavy-duty, double-walled aluminum boom
- DC grounded
- MYK1 mount
- Wind Load Rating 100 mph

Certifications

RoHS COMPLIANT

SPECIFICATIONS

Aluminum Yagi Antennas VHF, UHF & 800/900 MHz

ISM/LoRa/LPWAN Antennas – Yagi

Standard Configuration

Model	Connector	Elements
MYA1503K(N)[1]	SO239 standard, N Female is optional	3
MYA1505KN	SO239 standard, N Female is optional	5
MYA1506K	SO239 standard, N Female	6
MYA45012	SO239 standard, N Female is optional	12
MYA4503(N)	SO239 standard, N Female is optional	3
MYA4505(N)	SO239 standard, N Female is optional	5
MYA4506N	SO239 standard, N Female	6
MYA8063	N Female	3
MYA8066	N Female	6
MYA9153	N Female	3
MYA93012	N Female	12
MYA9303	N Female	3
MYA9306	N Female	6

Electrical Specifications - RF Antenna

Model	Frequency Range	Factory Tuned Frequency	Gain	Bandwidth @ 1.5:1 VSWR	Azimuth Half Power Beamwidth	Elevation Half Power Beamwidth	Front to Back Ratio	Maximum Power	Nominal Impedance
MYA1503K(N)[1]	150-174 MHz	150 MHz	9.2 dBi	0.7 MHz	72°	57°	17 dB	250 watts	50 ohms
MYA1505KN	150-174 MHz	150 MHz	11.3 dBi	1.3 MHz	56°	48°	20 dB	250 watts	50 ohms
MYA1506K	150-174 MHz	150 MHz	12.3 dBi	1.5 MHz	42°	40°	20 dB	250 watts	50 ohms
MYA45012	450-470 MHz	460 MHz	14.3 dBi	20 MHz	36°	34°	25 dB	250 watts	50 ohms
MYA4503(N)	450-470 MHz	460 MHz	9.2 dBi	20 MHz	72°	57°	17 dB	300 watts	50 ohms
MYA4505(N)	450-470 MHz	460 MHz	11.3 dBi	20 MHz	56°	48°	20 dB	300 watts	50 ohms
MYA4506N	450-470 MHz	460 MHz	12.3 dBi	20 MHz	42°	40°	20 dB	300 watts	
MYA8063	806-866 MHz	813 MHz	8.1 dBi	60 MHz	72°	57°	15 dB	100 watts	50 ohms
MYA8066	806-866 MHz	813 MHz	11.1 dBi	60 MHz	42°	40°	16 dB	100 watts	50 ohms
MYA9153	896-940 MHz	915 MHz	8.1 dBi	75 MHz	72°	57°	15 dB	100 watts	50 ohms
MYA93012	896-970 MHz	930 MHz	13.1 dBi	75 MHz	40°	42°	20 dB	100 watts	50 ohms
MYA9303	896-970 MHz	930 MHz	8.1 dBi	50 MHz	72°	57°	15 dB	100 watts	50 ohms
MYA9306	896-970 MHz	930 MHz	11.1 dBi	75 MHz	48°	56°	20 dB	100 watts	50 ohms

[1] Field tunable antennas. Suffix "N" indicates "N" connector.

SPECIFICATIONS

Aluminum Yagi Antennas
VHF, UHF & 800/900 MHz

ISM/LoRa/LPWAN Antennas – Yagi

Mechanical and Environmental Specifications

Model	Boom Length	Boom Diameter	Weight	Bending Moment at Rated Wind	Lateral Thrust at Rated Wind	Equivalent Flat Plate Area
MYA1503K(N)[1]	42"	7/8"	3 lbs (1.4 kg)	25.3 ft-lbs	14.5 lbs	.36 ft^2
MYA1505KN	72"	1-1/4"	4 lbs (1.8 kg)	82.7 ft-lbs	27.6 lbs	.71 ft^2
MYA1506K	104"	1-1/4"	5 lbs (2.27 kg)	160.6 ft-lbs	37.1 lbs	.96 ft^2
MYA45012	72"	1-1/4"	5 lbs (2.27 kg)	74.6 ft-lbs	24.9 lbs	.62 ft^2
MYA4503(N)	23"	7/8"	1.5 lbs (0.7 kg)	5.9 ft-lbs	6.1 lbs	.15 ft^2
MYA4505(N)	35.5"	7/8"	2.0 lbs (0.9 kg)	12.6 ft-lbs	9.3 lbs	.23 ft^2
MYA4506N	42"	7/8"	2.5 lbs (1.1 kg)	21.4 ft-lbs	12.2 lbs	.29 ft^2
MYA8063	17"	7/8"	1.5 lbs (0.7 kg)	4.6 ft-lbs	6.5 lbs	.10 ft^2
MYA8066	28"	7/8"	2 lbs (0.9 kg)	12.5 ft-lbs	10.7 lbs	.17 ft^2
MYA9153	17"	7/8"	1.5 lbs (1.5 kg)	4.2 ft-lbs	5.9 lbs	.09 ft^2
MYA93012	48"	7/8"	2.5 lbs (1.1 kg)	23.3 ft-lbs	16.6 lbs	.27 ft^2
MYA9303	17"	7/8"	1.5 lbs (0.7 kg)	4.2 ft-lbs	5.9 lbs	.09 ft^2
MYA9306	23"	7/8"	1.5 lbs (0.7 kg)	10.6 ft-lbs	9.1 lbs	.16 ft^2

CONTACT US

For more information about this product contact your sales representative or visit
> pctel.com/antenna-products

Solving Complex Wireless Challenges

PCTEL is a leading global provider of wireless technology solutions, including purpose-built Industrial IoT devices, antenna systems, and test and measurement products. Trusted by our customers for 29 years, we solve complex wireless challenges to help organizations stay connected, transform, and grow.

PCTEL, Inc.

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