TAOGLAS

Datasheet

Shockwave 868/915MHz

Part No:
TLS.90.205111

Description:

Shockwave 868/915MHz Permanent Mount External Antenna

With 2m TGC-200 Cable & SMA(M) Connector

Features:

High Efficiency 868/915MHz Permanent Mount Antenna

Mechanically Robust for Indoor/Outdoor Applications

Vandal Resistant

Height: 79.5mm (3.13")

Diameter: 42mm (1.65")

IP69K Rating

Connector: SMA Male

Cable: 2m Low loss TGC-200

RoHS & REACH Compliant

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Ireland ISO 9001: 2015 Certified

Taiwan ISO 9001: 2015 Certified

1. Introduction

The Shockwave TLS.90.205111 is a mechanically robust, IP69K rated, external antenna operating at both 868MHz and 915MHz with 2 meter of low loss TGC-200 and SMA(M) connector. It has been designed to be used on a Ground Plane.

Typical applications include:

- Public safety
- Smart meters
- Mesh networks
- Transportation

The antenna has greater than 60% efficiency and 1.58dBi peak gain at 868MHz 64% efficiency and 1.9dBi peak gain at ISM 915MHz on a 30x30 cm ground plane. Stable radiation patterns over low angles provide consistent gain in the horizontal plane, meaning that it is especially suitable for mesh networks or hot spots.

A unique indent tab on the base of the antenna allows a wrench to be used to solidly lock the antenna on top of its mounting location while tightening up the nut beneath the metal panel. Waterproof O-rings around the bottom base prevent water from leaking under the antenna. The TLS.90 antenna is IP69K rated against high pressure water jets in commercial cleaning environments, which makes the antenna ideal for 868 & 915MHz applications in harsh outdoor environments.

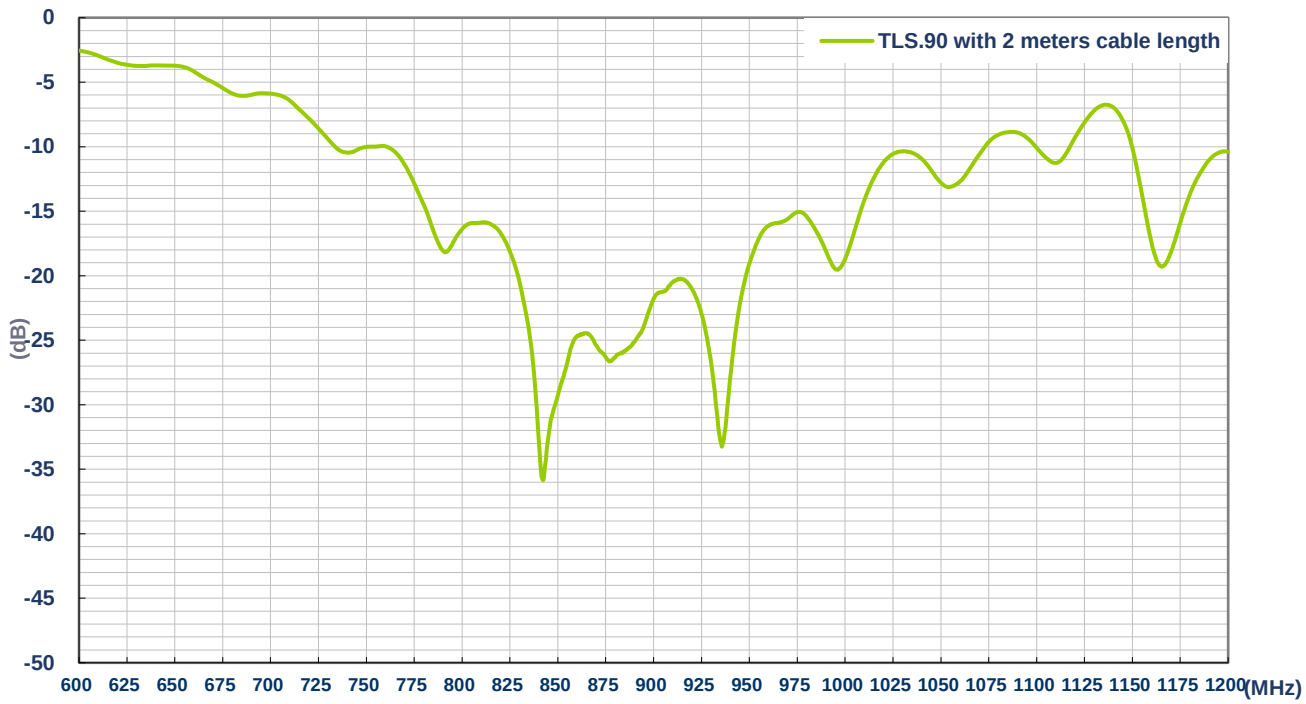
The Cable and Connector are fully customizable, for more information or installation instructions please contact your regional Taoglas Customer Support Team.

2. Specifications

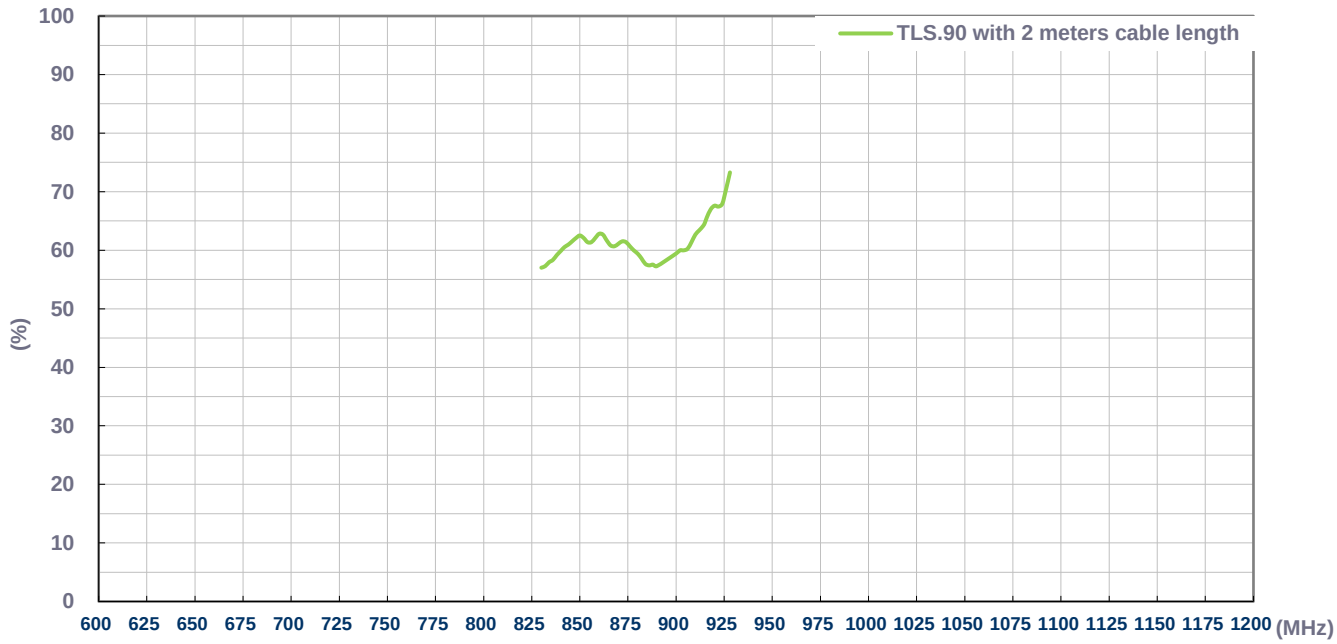
Electrical						
Frequency (MHz)	**850**	**868**	**880**	**902**	**915**	**928**
Peak Gain (dBi)						
With Ground plane(30x30cm)	1.67	1.58	1.57	1.61	1.9	2.46
Average Gain (dBi)						
With Ground plane(30x30cm)	-2.04	-2.17	-2.26	-2.22	-1.89	-1.35
Efficiency (%)						
With Ground plane(30x30cm)	62.52	60.67	59.43	59.98	64.71	73.28
Return Loss (dB)	< -20					
Impedance	50Ω					
Polarization	Linear					
Radiation Pattern	Omni-Directional					
Input Power	100W					
Mechanical						
Height	Height: 79.45mm (3.13")					
Base Diameter	42mm (1.65")					
Weight (g)	245g					
Material	Housing: UV Resistant ABS, Base: Nickel Plated Zinc Alloy					
Connector	SMA Male					
Cable	2 meters TGC-200					
Rec. Torque for Mounting	4.018N.m					
Max. Torque for Mounting	9.8N.m					
Environmental						
Waterproof Rating	IP67 and IP69K					
Temperature Range	-40°C to 85°C					
Humidity	Non-condensing 65°C 95% RH					

3. Antenna Characteristics

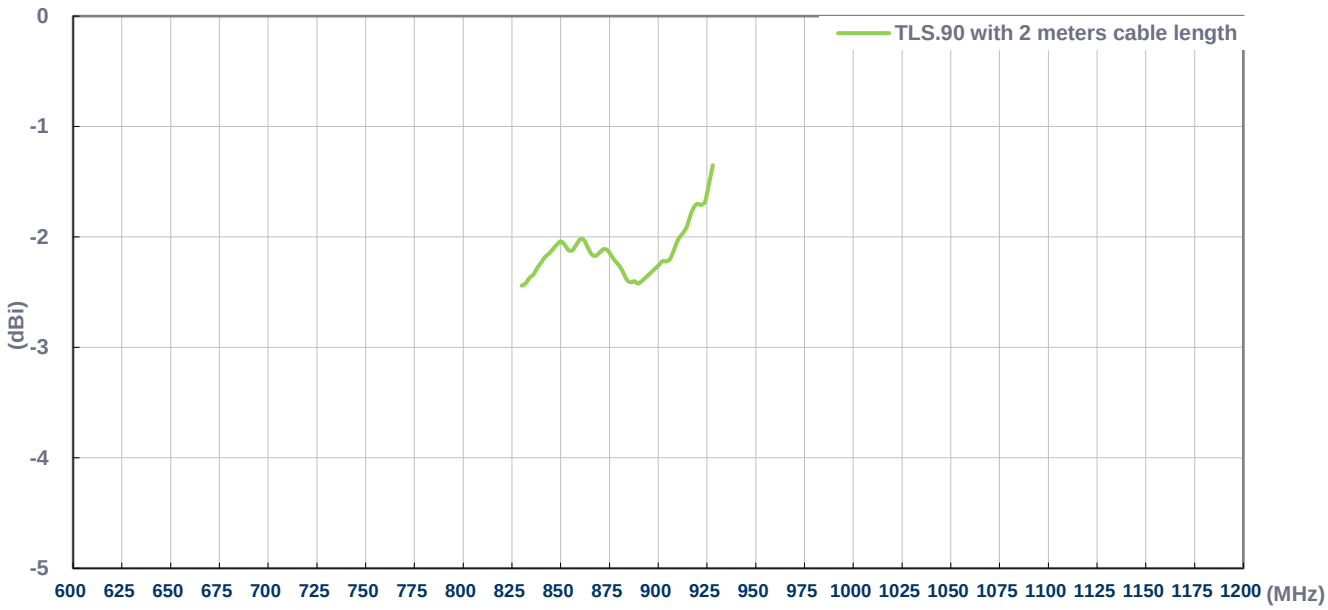
3.1 Return Loss



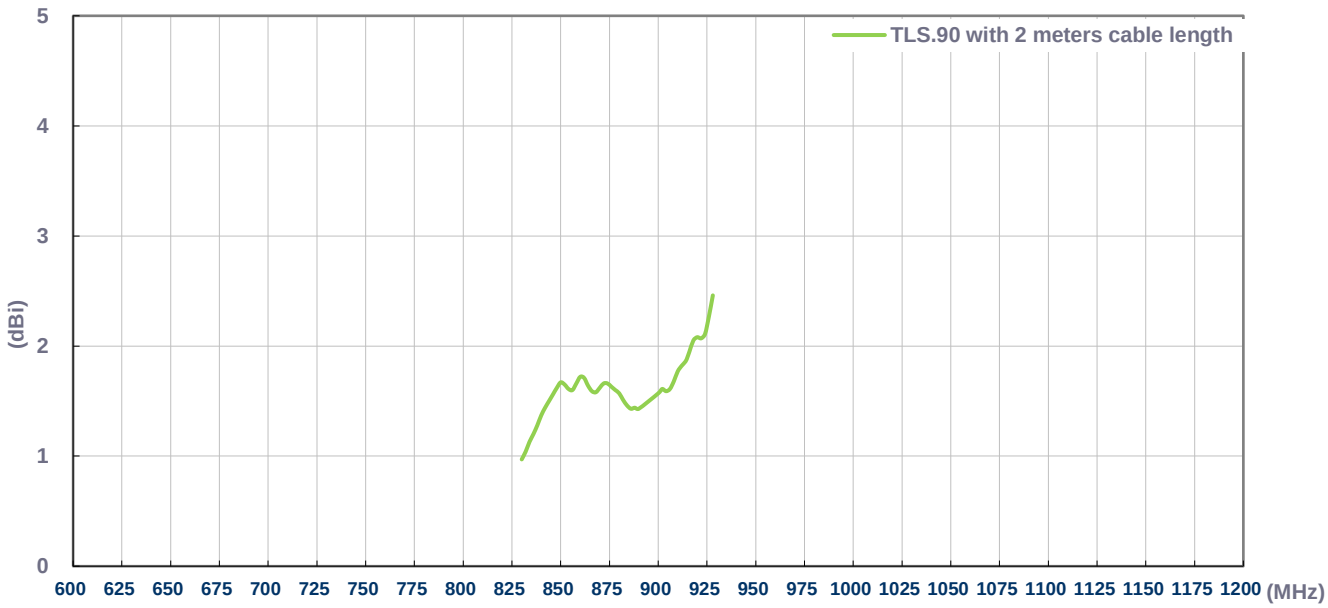
3.2 Efficiency



3.3 Average Gain

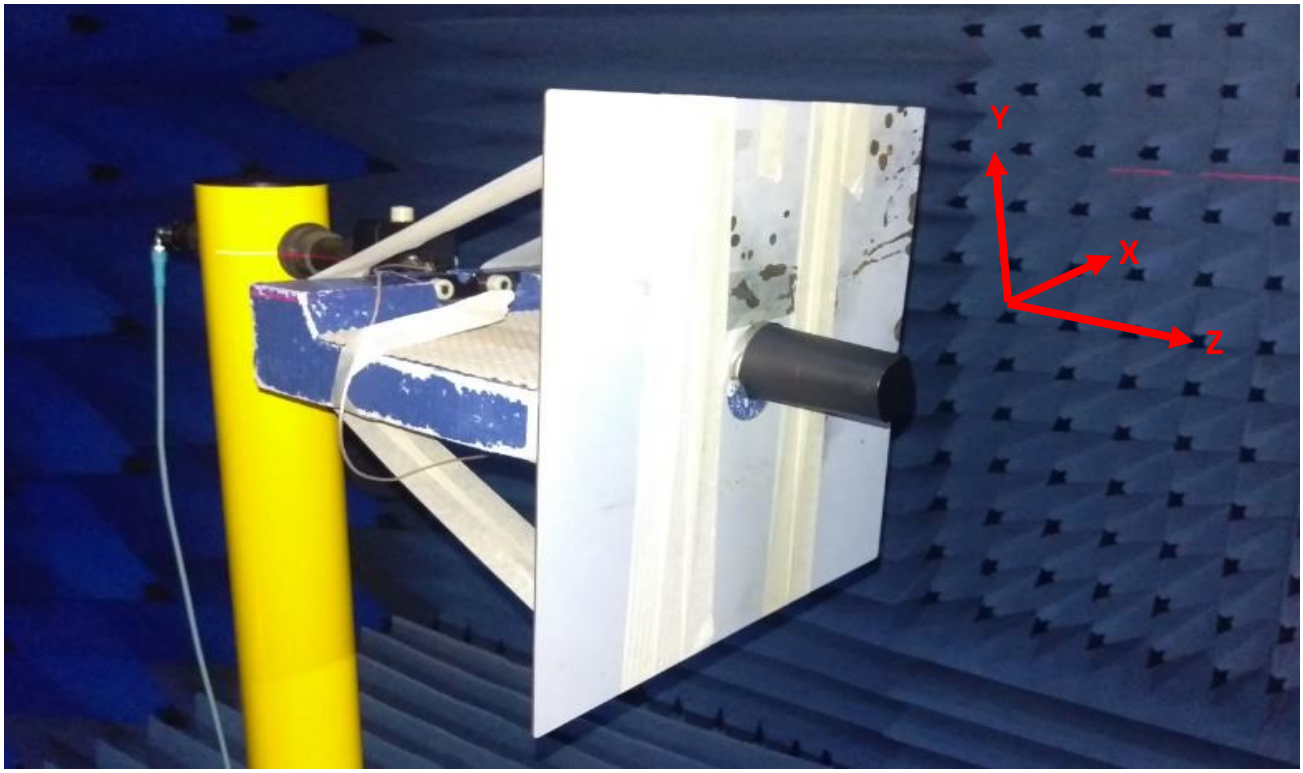


3.4 Peak Gain



4. Radiation Patterns

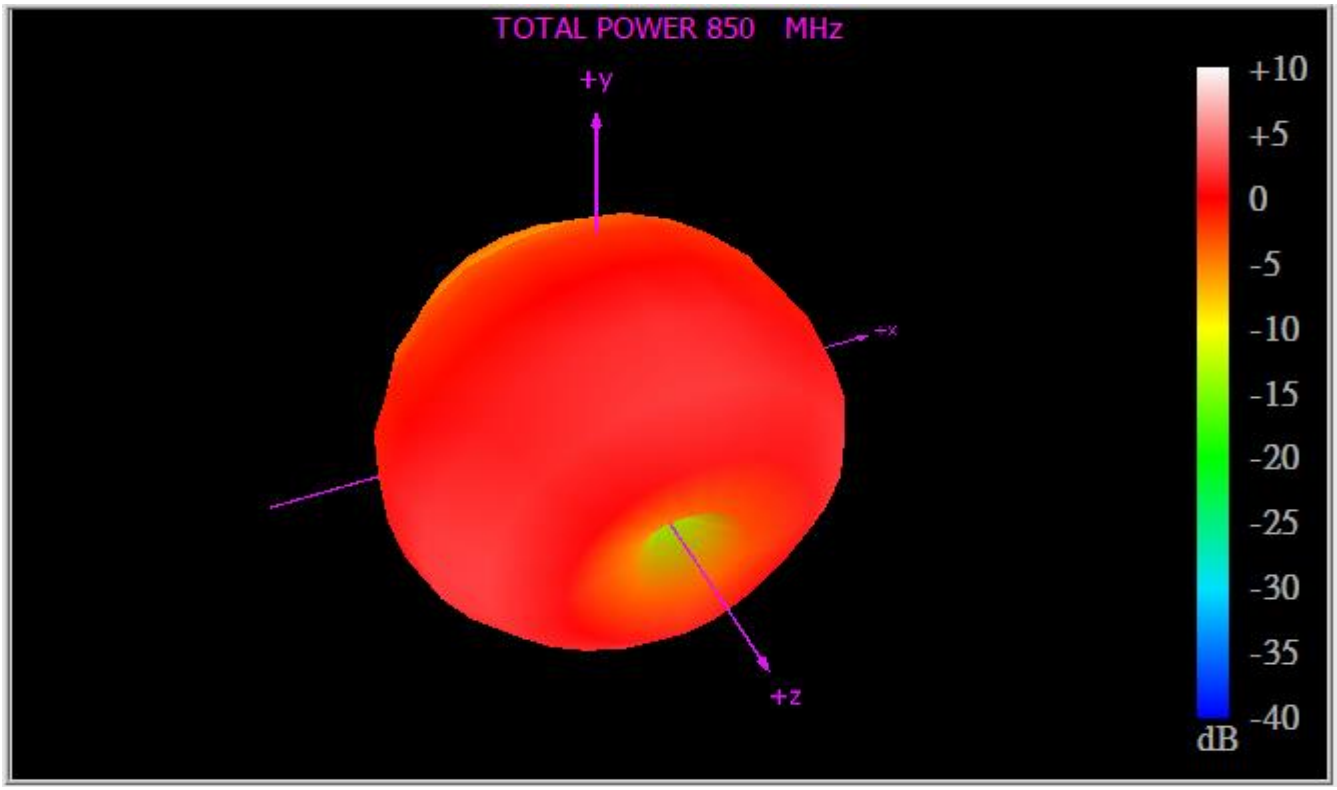
4.1 Test Setup



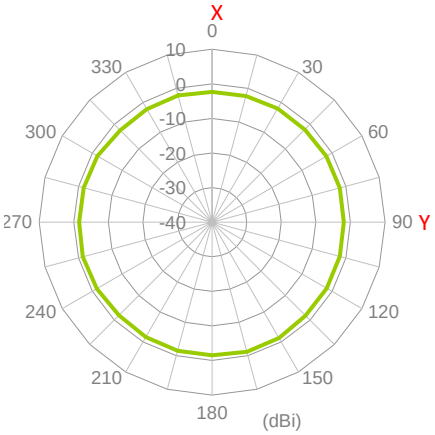
300*300mm Metal Ground Plane

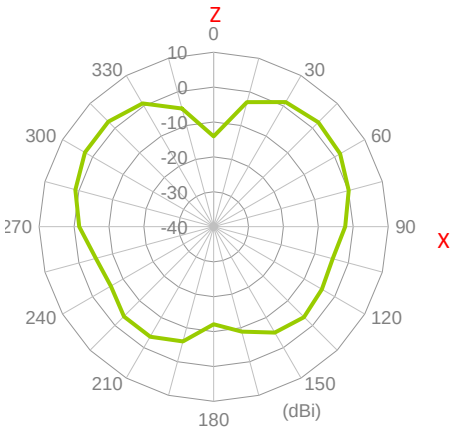
4.2 2D & 3D Radiation Patterns

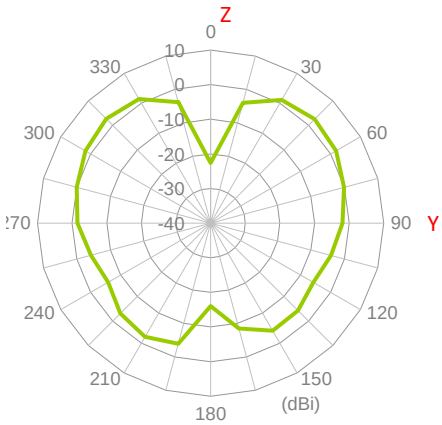
850MHz



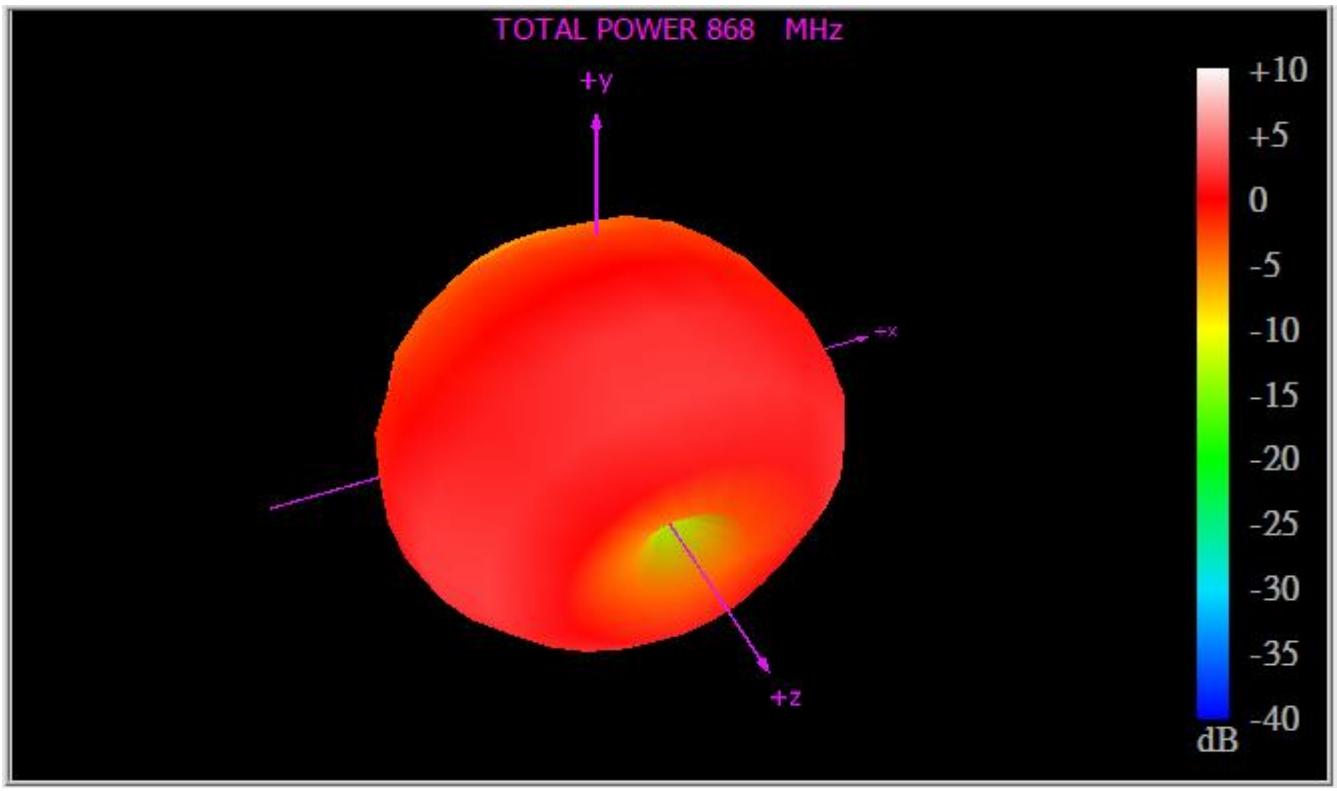
XY Plane	XZ Plane	YZ Plane



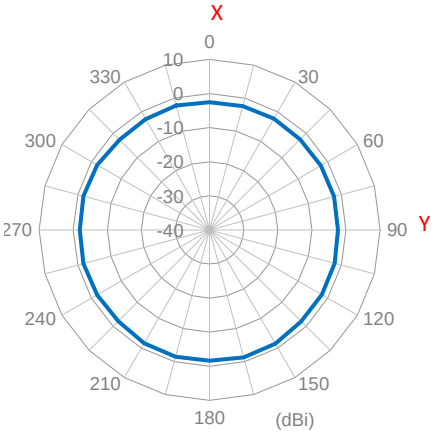


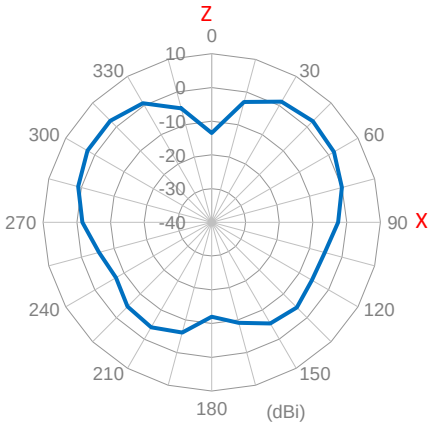


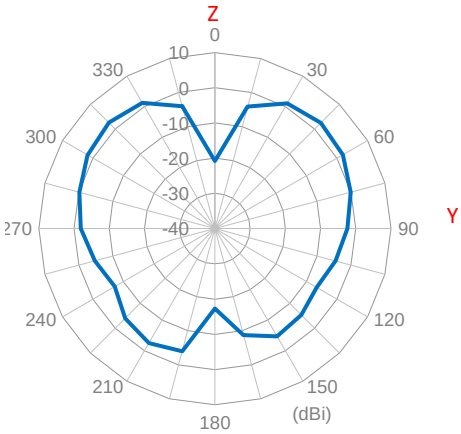
868MHz



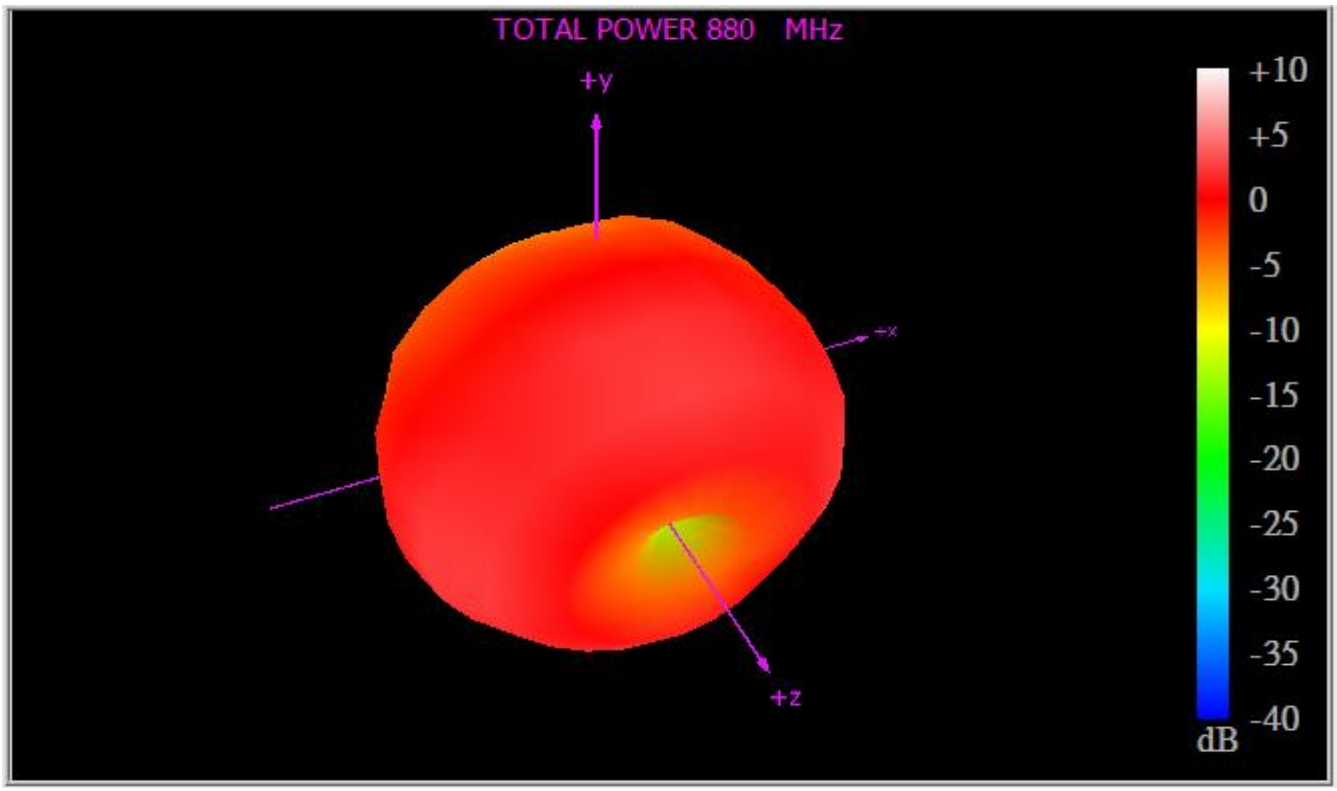
XY Plane	XZ Plane	YZ Plane



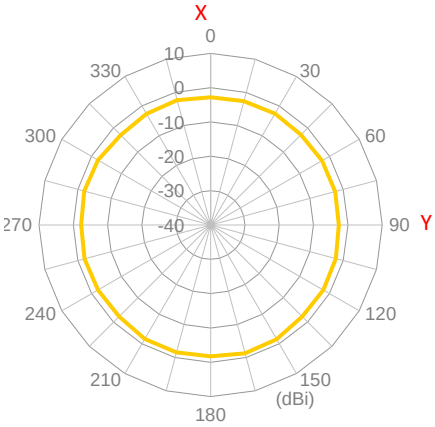


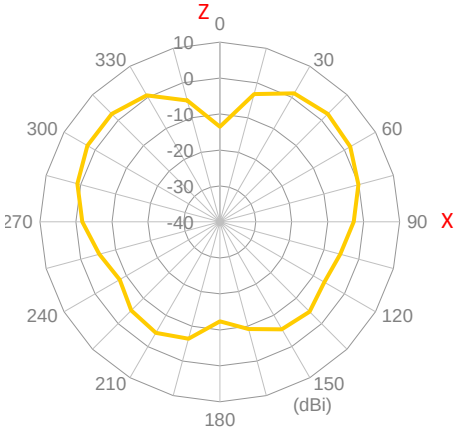


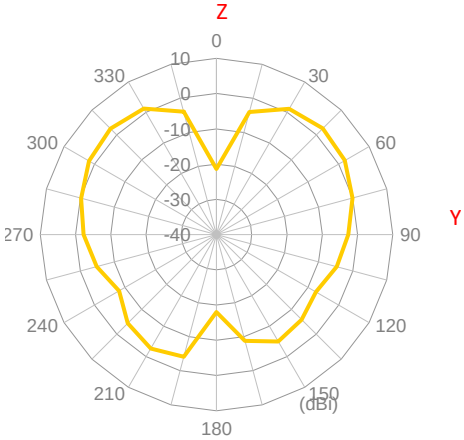
880MHz



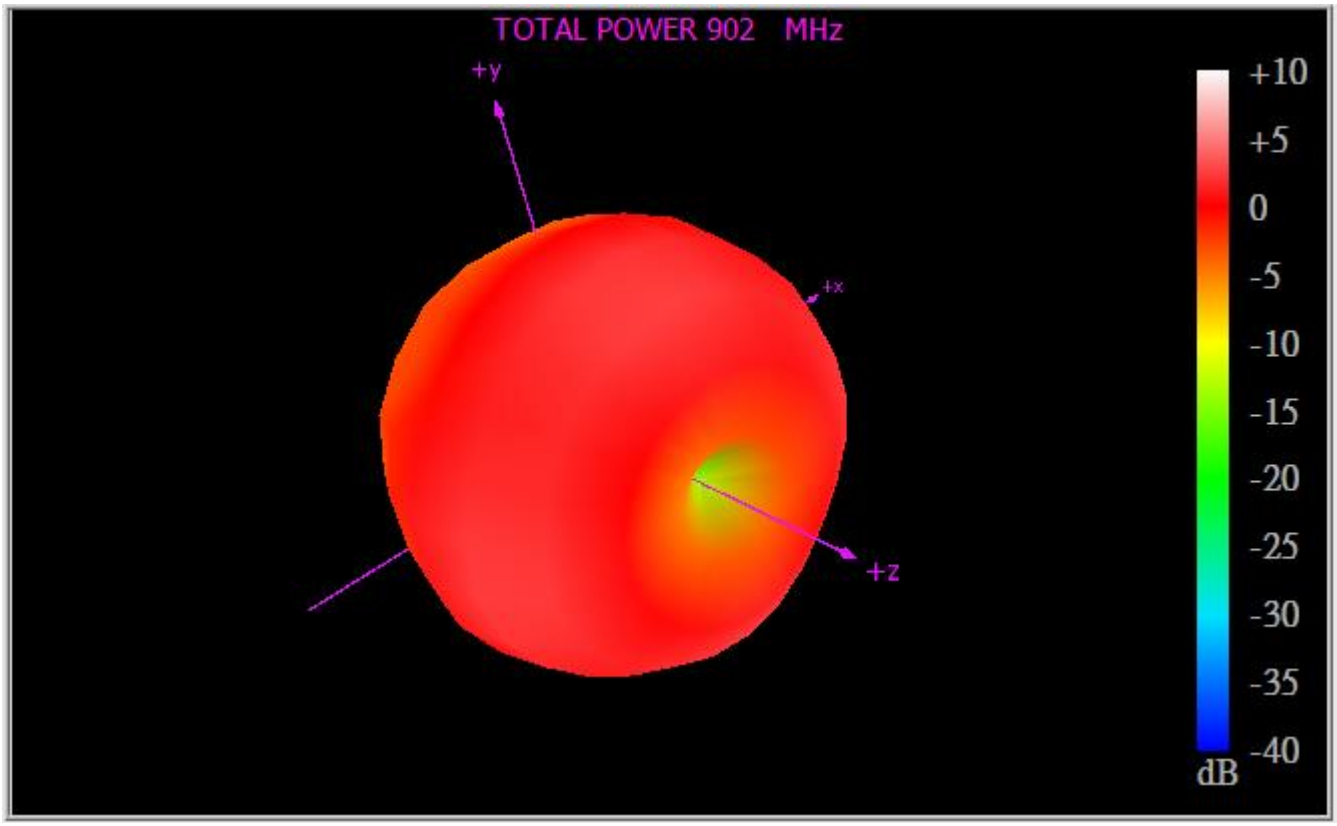
XY Plane	XZ Plane	YZ Plane



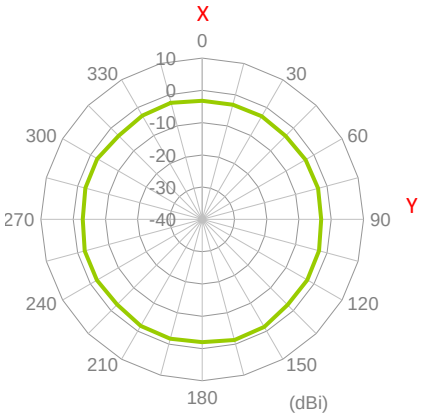


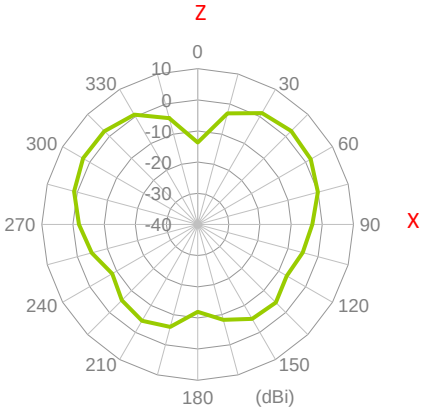


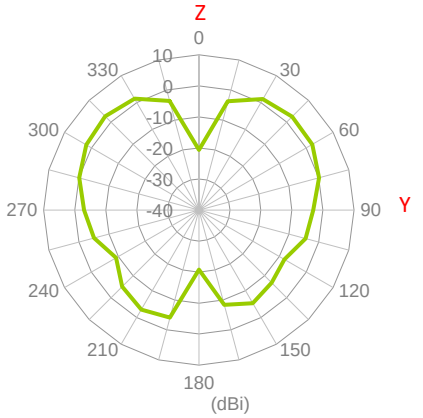
902MHz



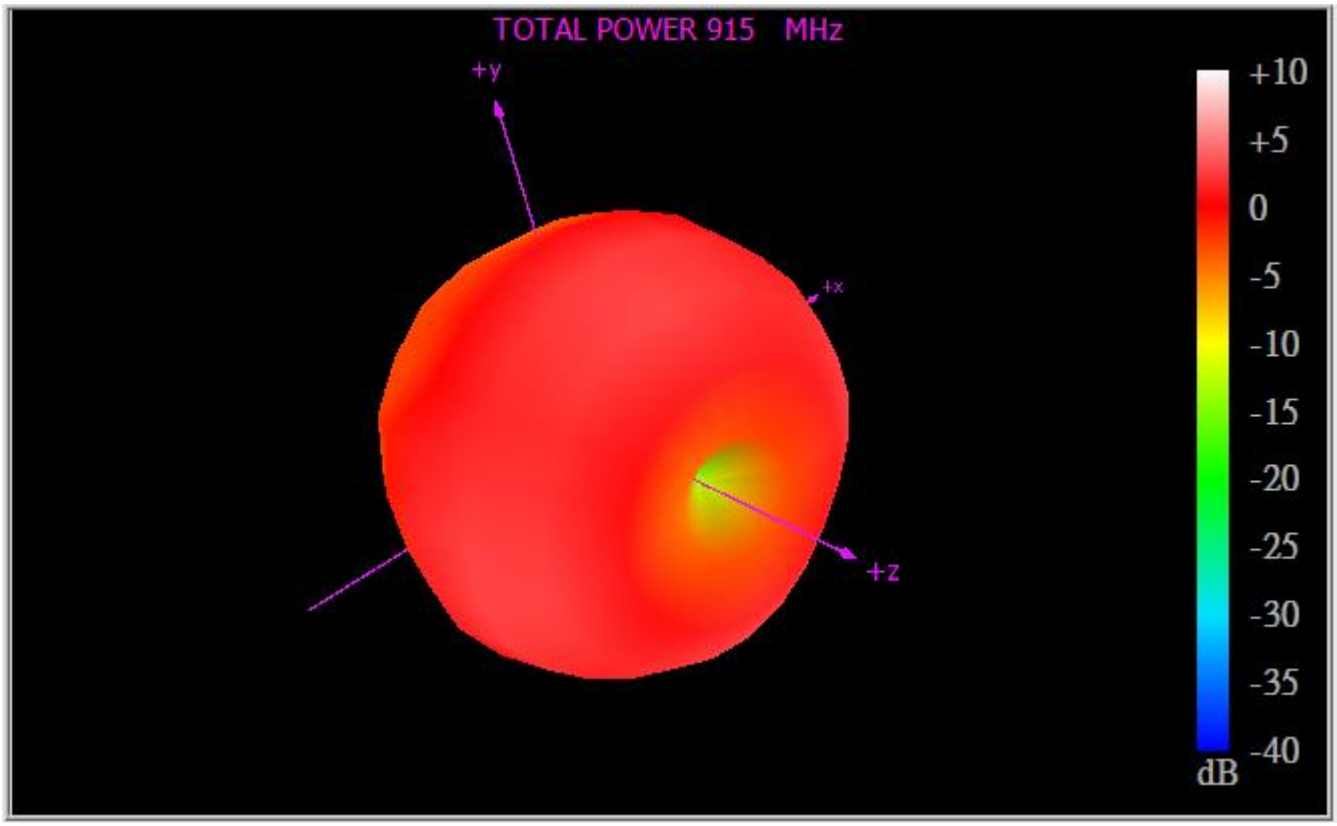
XY Plane	XZ Plane	YZ Plane



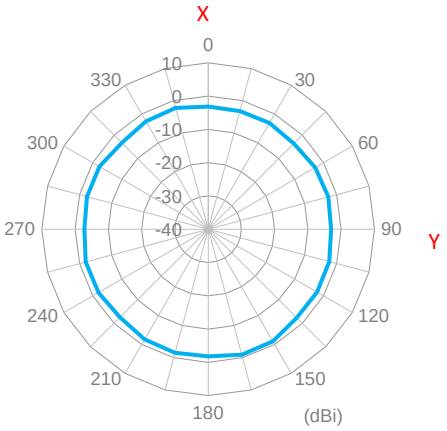


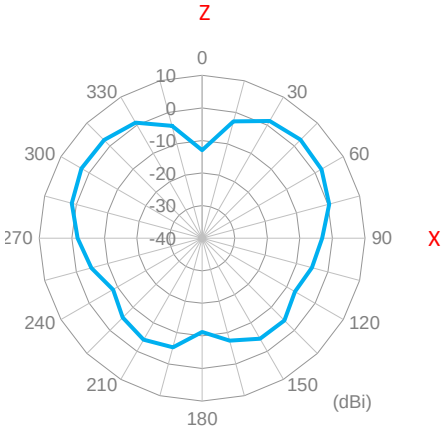


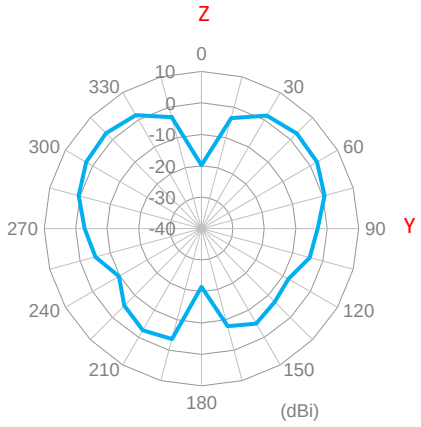
915MHz



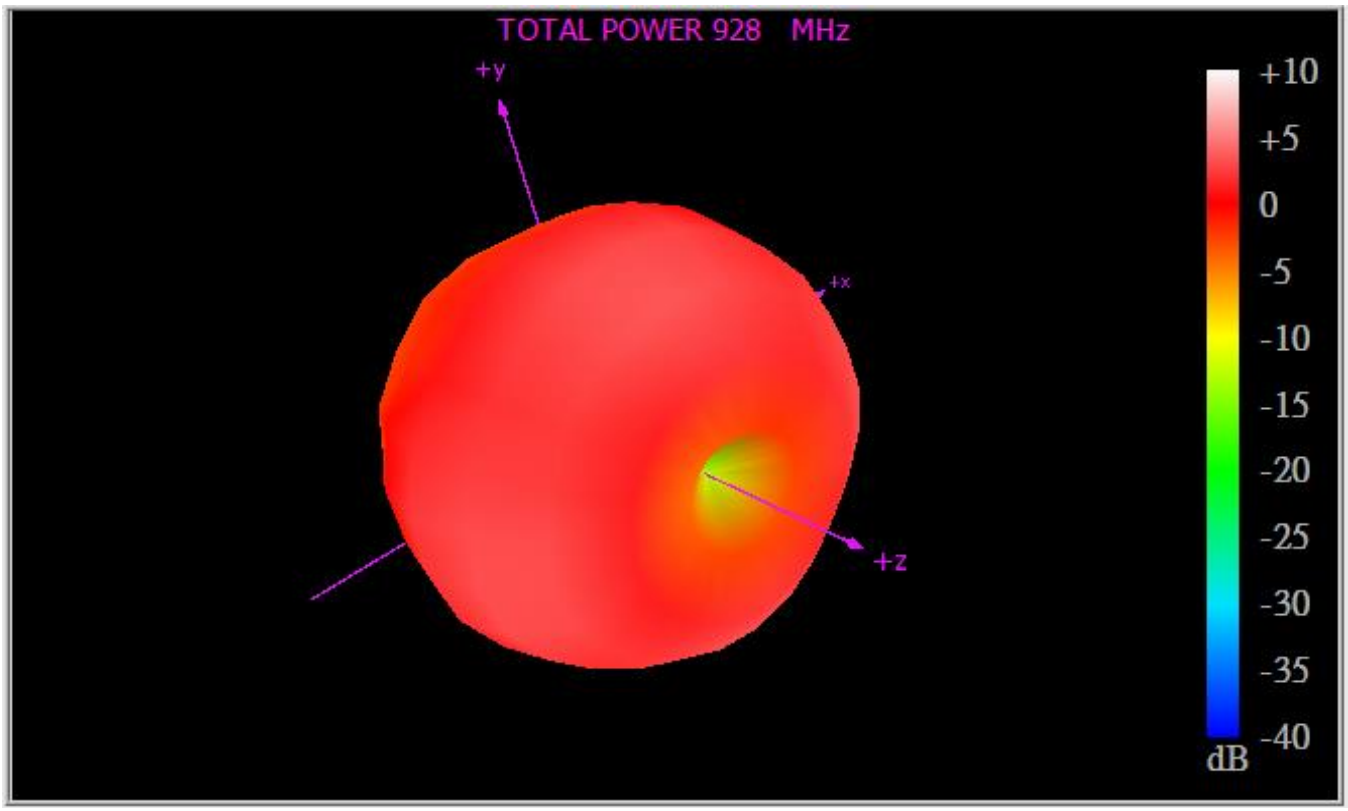
XY Plane	XZ Plane	YZ Plane



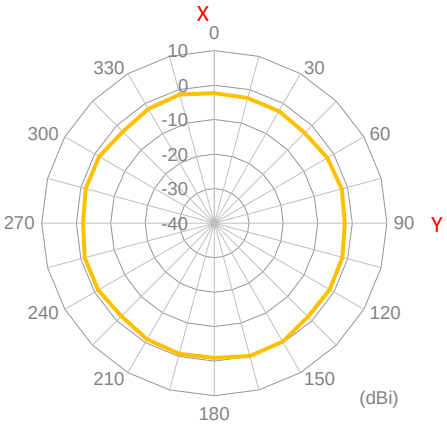


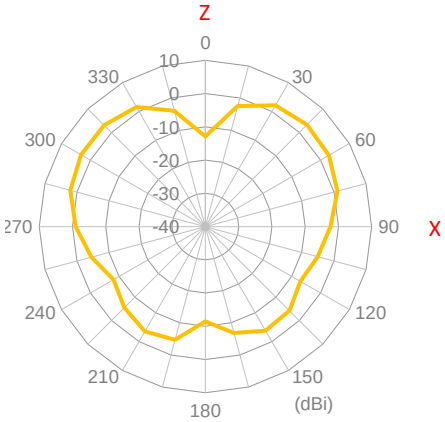


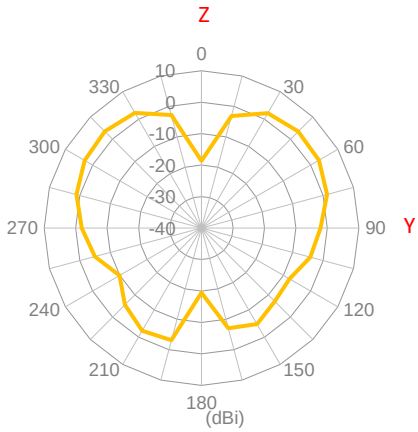
928MHz



XY Plane	XZ Plane	YZ Plane





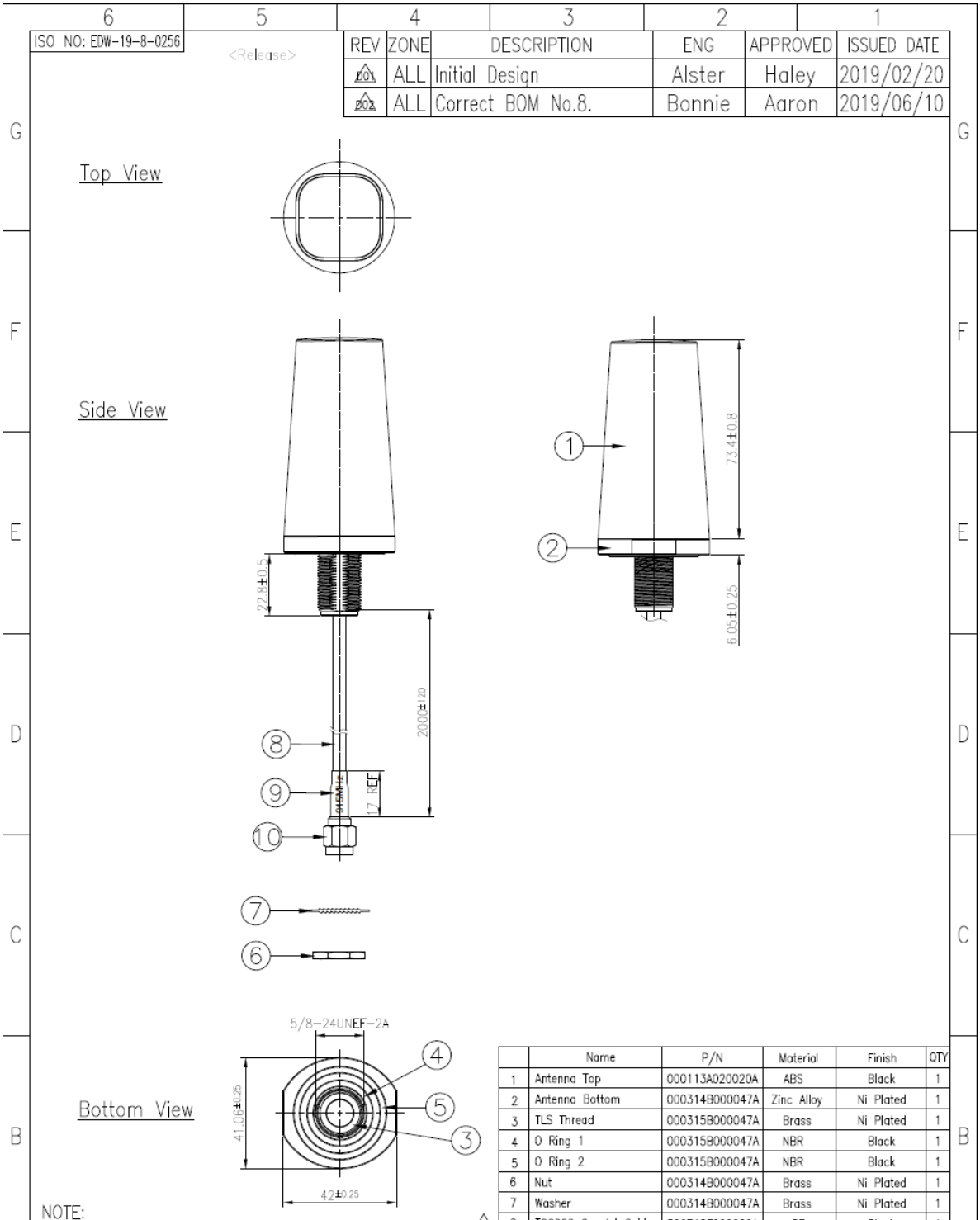


5. Mechanical Drawing (Units: mm)

ISO NO: EDW-19-8-0256

<Release>

REV	ZONE	DESCRIPTION	ENG	APPROVED	ISSUED DATE
D01	ALL	Initial Design	Alster	Haley	2019/02/20
D02	ALL	Correct BOM No.8.	Bonnie	Aaron	2019/06/10



	Name	P/N	Material	Finish	QTY
1	Antenna Top	000113A020020A	ABS	Black	1
2	Antenna Bottom	000314B000047A	Zinc Alloy	Ni Plated	1
3	TLS Thread	000315B000047A	Brass	Ni Plated	1
4	O Ring 1	000315B000047A	NBR	Black	1
5	O Ring 2	000315B000047A	NBR	Black	1
6	Nut	000314B000047A	Brass	Ni Plated	1
7	Washer	000314B000047A	Brass	Ni Plated	1
8	TGC200 Coaxial Cable	306718E000000A	PE	Black	1
9	Heat Shrink Tube(915 MHz)	001316L040000A	PE	Yellow Tube/Black Text	1
10	SMA(M)ST	200212G020002A	Brass	Au Plated	1

NOTE:
1. All Material Must Be RoHS Compliant.

UNLESS OTHERWISE SPECFIED TOLERANCES ON: .X± 0.2 XX.± 0.5 .XX± 0.1 X.± 0.3 .XXX± 0.05

DATE: 2019/02/20 | MAT'L:
UNIT: mm | FINISH:
THIRD ANGLE PROJECTION | SCALE: 1/2

APPROVED BY: Haley | CHECKED BY: Haley | DRAWN BY: Alster | CUSTOMERS SIGNATURE / DATE

TAOGLAS. TW Design Centre
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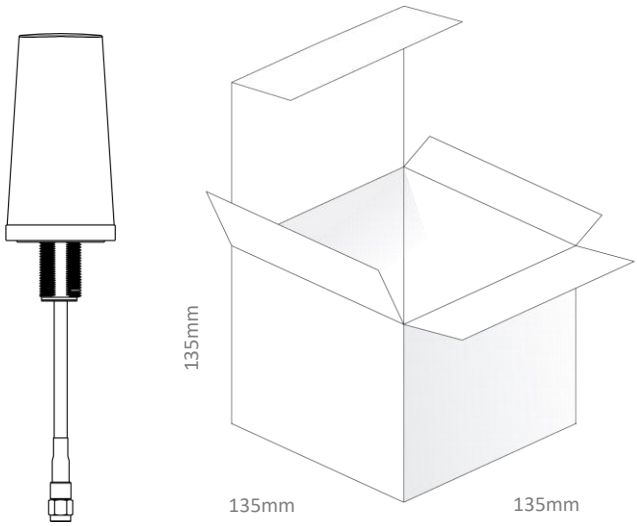
REV D02

TITLE. : Shockwave 915MHz Terminal Robust Antenna 2M TGC-200 SMA(M)

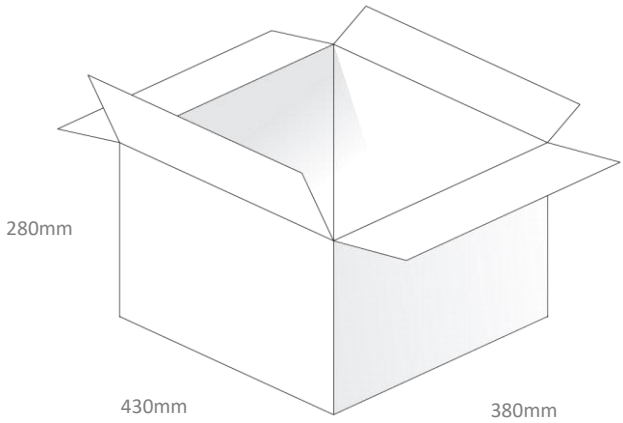
PART NO. : TLS.90.205111

6. Packaging

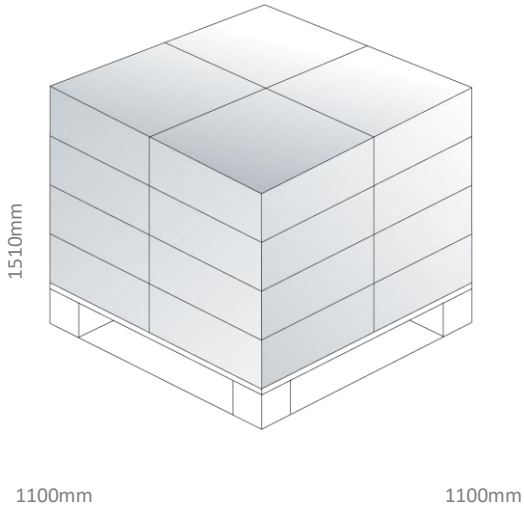
1pc TLS.90.205111 per Small Box
Dimensions: 135*135*135mm
Weight: 370g



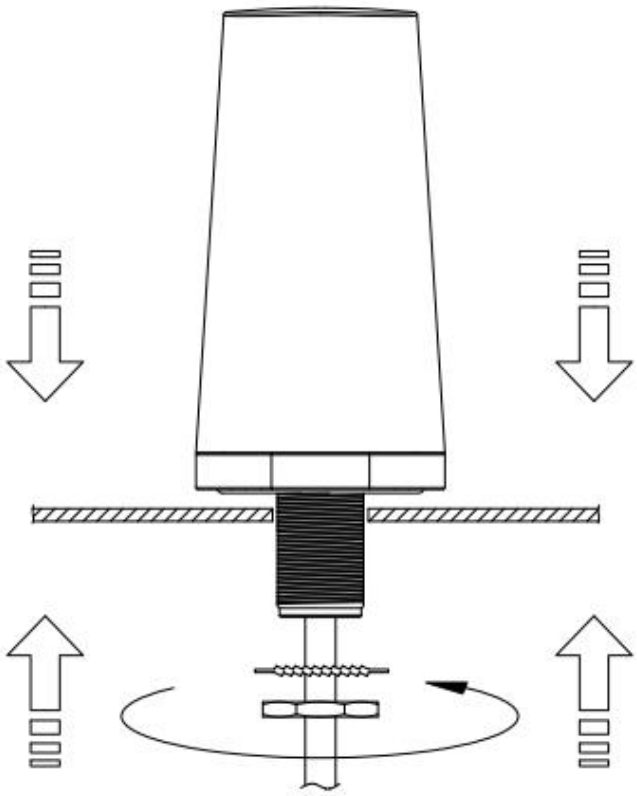
24pcs TLS.90.205111 per Carton
Carton Dimensions: 430*380*280mm
Weight: 10.2Kg



Pallet Dimensions:
1100*1100*1510mm
16 Cartons per Pallet
4 Cartons per layer, 4 Layers



7. Installation

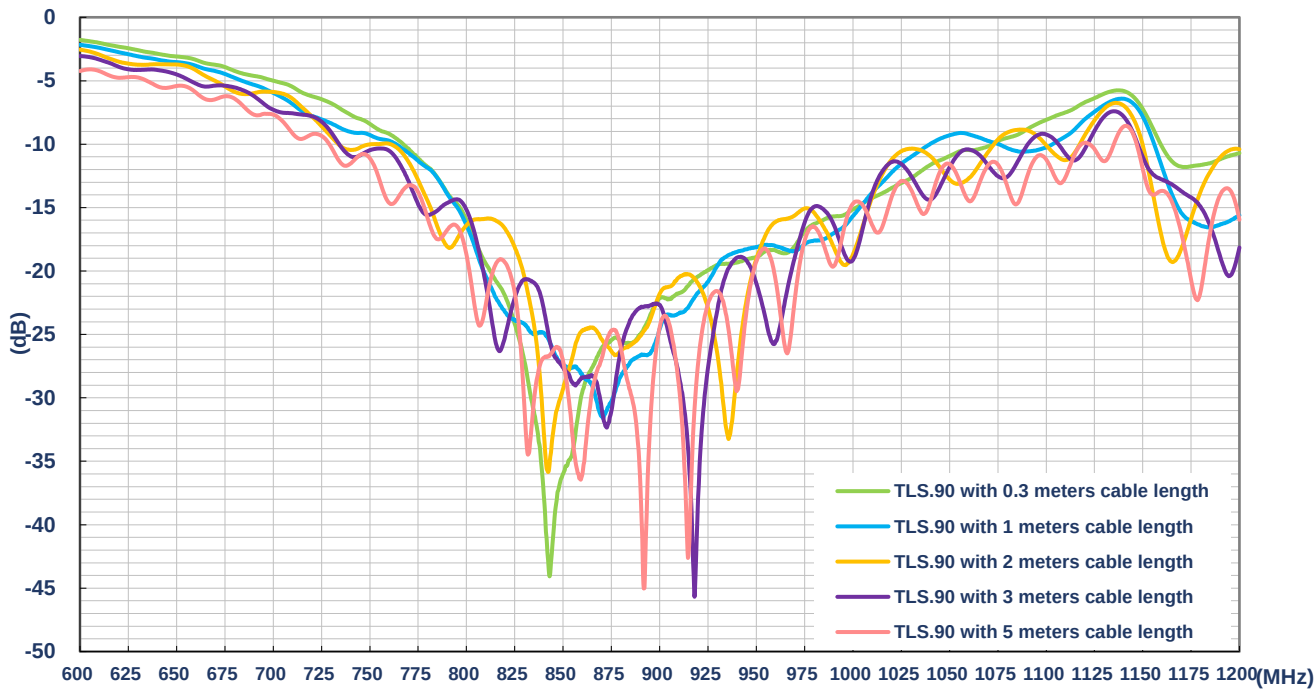


Recommended torque for mounting is 4.018 N.m or 41 kgf.cm

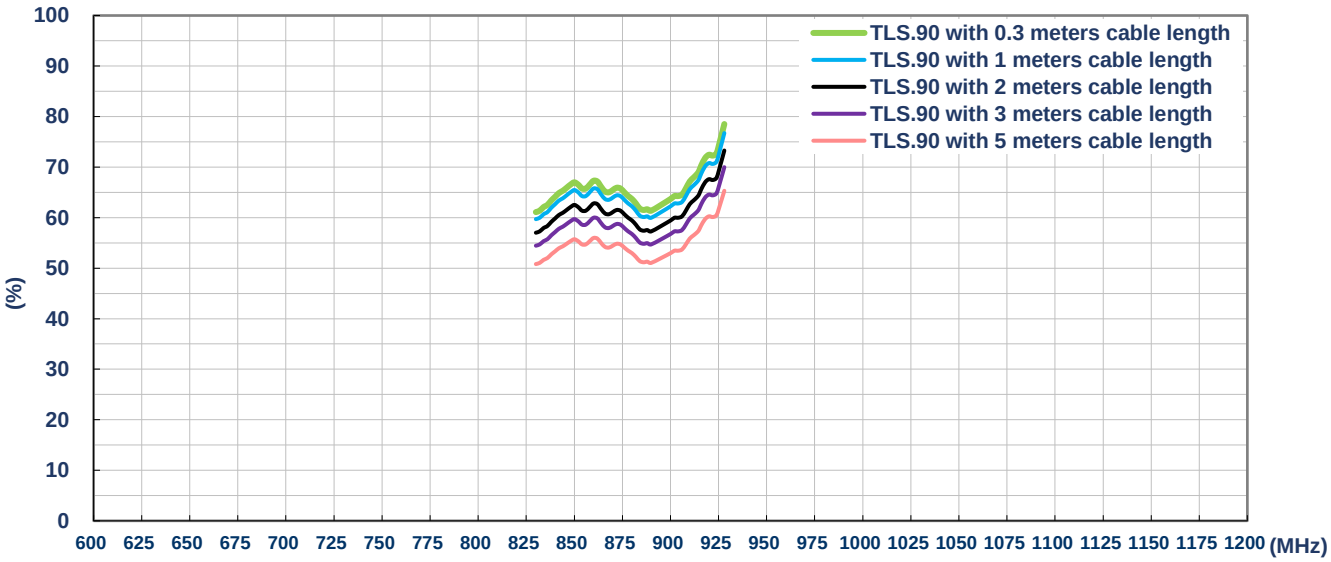
Maximum torque for mounting is 9.8 N.m or 100 kgf.cm

8. Application Note(with different cable length)

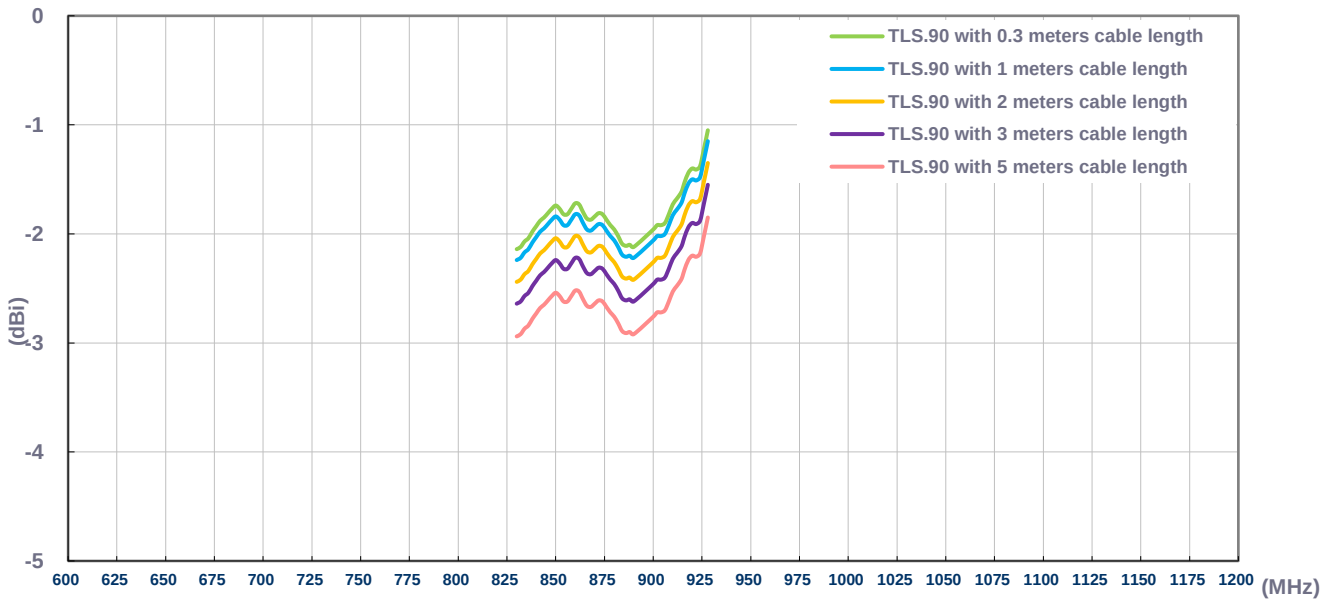
8.1 Return Loss



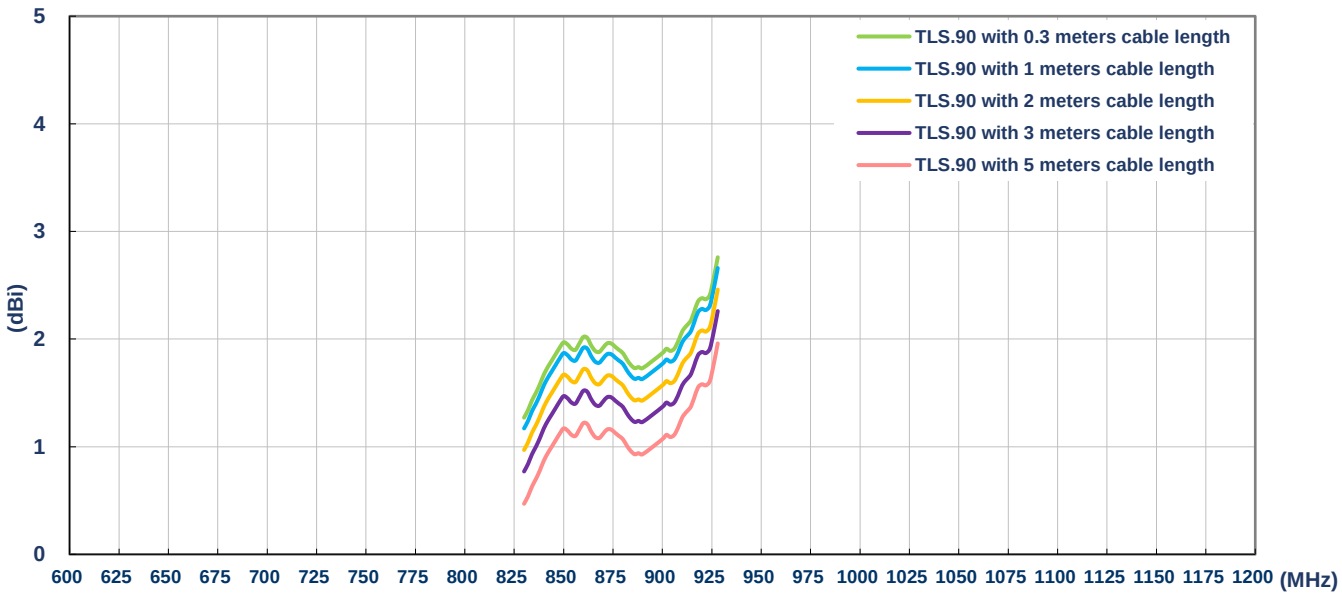
8.2 Efficiency



8.3 Average Gain



8.4 Peak Gain



Changelog for the datasheet

SPE-19-8-096 – TLS.90.205111

Revision: A (Original First Release)	
Date:	2019-08-01
Notes:	
Author:	Jack Conroy

Previous Revisions

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www.taoglas.com

Mouser Electronics

Authorized Distributor

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