

## **SPECIFICATION**

Part No. : TLS.30.1F11

**Description**: Shockwave 433MHz

Permanent Mount External Antenna

N Type(M) connector

**Features** : ISM 433MHz with 52% efficiency

Mechanically robust for indoor/outdoor applications Height: 79.45mm(3.13"); Diameter: 42mm(1.65")

IP67 and IP69K Waterproof

N type(M) connector

RoHS compliant







### 1. Introduction

The Shockwave TLS.30.1F11 is a mechanically robust, waterproof, external antenna operating at the 433MHz band with an N type female connector. It has been designed to be used on a Ground Plane.

Common applications are, for example:

- Mesh networks
- Indoor/outdoor asset monitoring
- Security systems
- Remote control systems
- Heavy-duty equipment/vehicle communication in harsh environments

The antenna has 51% efficiency and -1.1 dBi peak gain at ISM 433MHz on a 30x30 cm ground plane. Stable radiation patterns over low angles provides 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, where an N type female connector juts out from a metal panel. Waterproof O-rings around the bottom base prevent water from leaking under the antenna.

The TLS.30 antenna is IP67 waterproof and IP69K resistant against high pressure water jets in commercial cleaning environments, which makes the antenna ideal for ISM 433MHz applications in harsh outdoor environments.



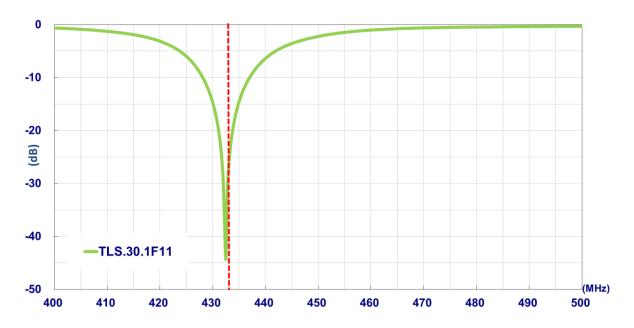
# 2. Specification

ELECTRICAL	
Application Band	ISM433
Operation Frequency	433 MHz
	On 30 x 30 cm ground plane
Efficiency (%)	51.67%
Peak Gain (dBi)	-1.19
Average Gain (dBi)	-2.87
Return Loss (dB)	< -15
Impedance	50 Ω
Polarization	Vertical
Radiation Property	Omni-Directional
Max Input Power	100 W
MECHANICAL	
	Height: 79.45mm(3.13"); Diameter:
Dimension (mm)	42mm(1.65")
Connector	N type (M)
	,
	Housing: UV Resistant ABS,
Material	., , ,
Material Weight (g)	Housing: UV Resistant ABS,
	Housing: UV Resistant ABS, Base: Nickel Plated Zinc Alloy
Weight (g)	Housing: UV Resistant ABS, Base: Nickel Plated Zinc Alloy 130
Weight (g) Rec. Torque for Mounting Max. Torque for Mounting	Housing: UV Resistant ABS, Base: Nickel Plated Zinc Alloy 130 4.018 N.m
Weight (g) Rec. Torque for Mounting Max. Torque for Mounting	Housing: UV Resistant ABS, Base: Nickel Plated Zinc Alloy 130 4.018 N.m 9.8 N.m
Weight (g)  Rec. Torque for Mounting  Max. Torque for Mounting  ENV	Housing: UV Resistant ABS, Base: Nickel Plated Zinc Alloy 130 4.018 N.m 9.8 N.m IRONMENTAL

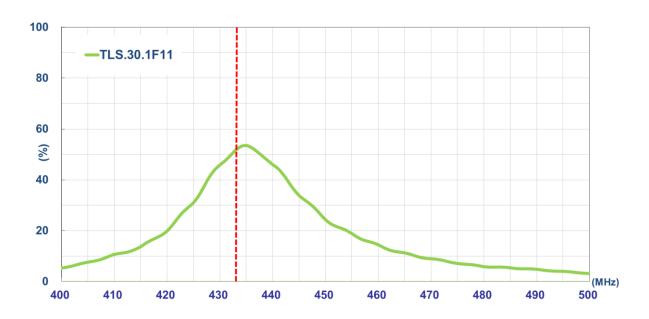


### 3. Antenna Characteristcs

#### 3.1. Return Loss

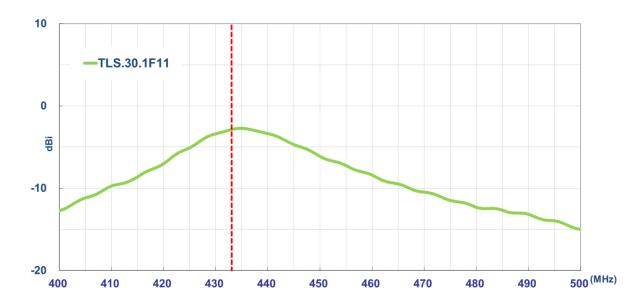


### 3.2. Efficiency

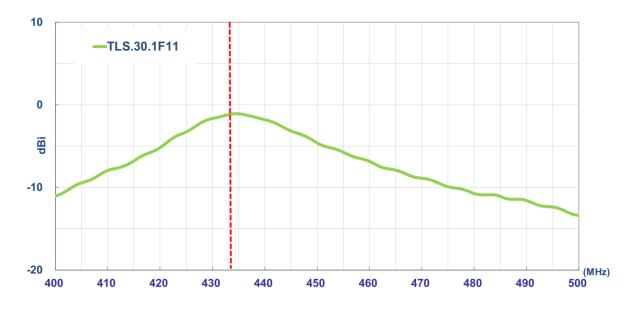




## 3.3. Average Gain



#### 3.4. Peak Gain

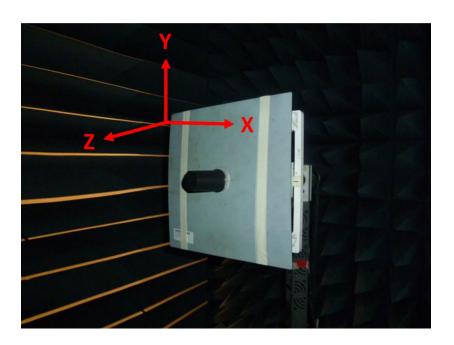




### **4. Antenna Radiation Pattern**

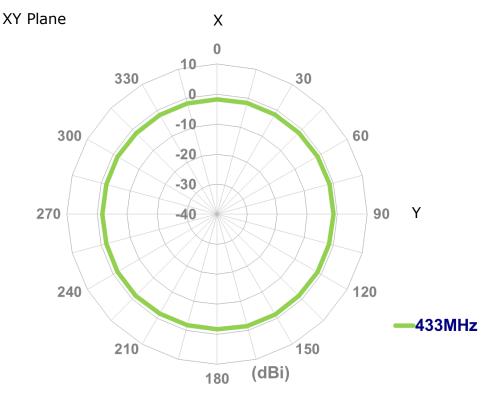
### 4.1. Measurement Setup

The TLS.30 antenna is tested in a CTIA certified ETS-Lindgren Anechoic Chamber. The test setup is shown below.

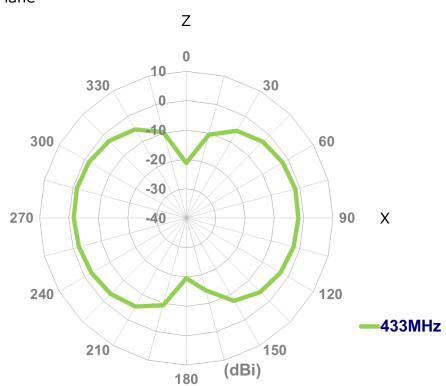




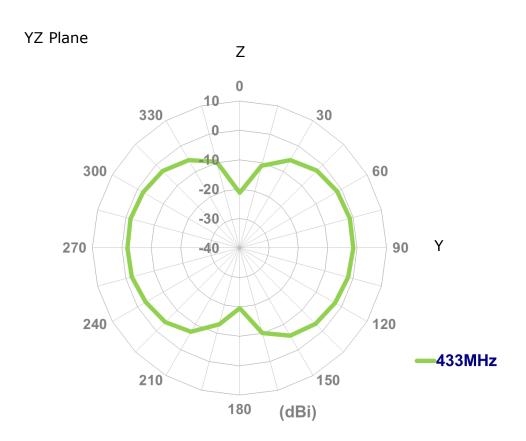
#### 4.2. 2D Radiation Pattern







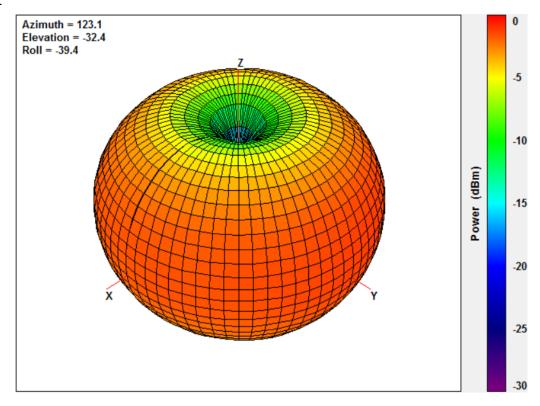






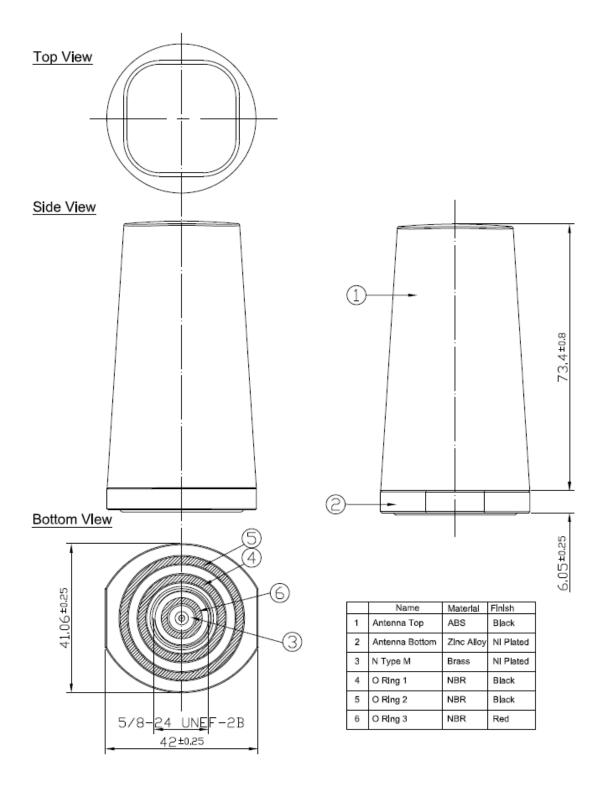
#### 4.3. 3D Radiation Pattern

#### @433MHz





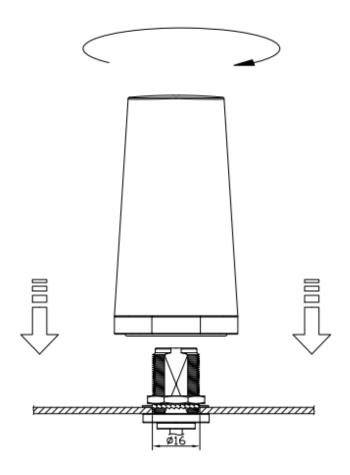
# 5. Mechanical Drawing



Unit: mm



### 6. 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

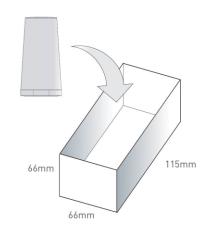


## 7. Packaging

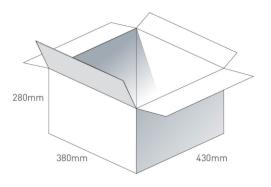
#### TLS.30.1F11

#### **Packaging Specifications**

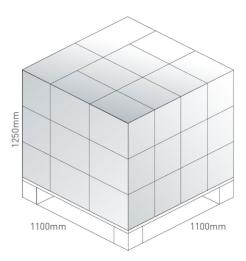
1 No. TLS.30.1F11 per small box Box Dimensions - 66 x 66 x 115mm Weight - 170g



1 Outer Carton Carton Dimensions - 430 x 380 x 280mm 60 pcs TLS.30.1F11 per carton Weight - 10.59Kg



Pallet Dimensions 1100\*1100\*1250mm 30 Cartons per Pallet 10 Cartons per layer 3 Layers





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