



TAOGLAS®



Datasheet

Shockwave GPS Direct Mount

Part No:
TLS.40.1F11

Description:

Shockwave GPS Direct Mount Antenna
With N-Type Male connector

Features:

Covering Bands:

- GPS L1
- Galileo E1

Connector: N-Type Male

25dB LNA

Wide Input Voltage 1.8V to 5.5V

Dimensions: 79.45 x 42 mm

IP69K Waterproof Rated

RoHS & REACH Compliant

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1. Introduction



The Shockwave TLS.40.1F11 is a direct mount GPS L1/Galileo E1 antenna designed to be mounted directly onto a device. With a robust external enclosure, the Shockwave antenna is IP69K water resistant meaning it is ideal for some of the harshest applications worldwide.

Typical Applications Include:

- Transportation
- Navigation
- Connected Enterprise
- Remote Asset Tracking

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. A waterproof O-ring around the base prevents water ingress under the antenna.

The connector is customizable subject to NRE and MOQ. For further information please contact your regional Taoglas customer support team.

2. Specifications

GNSS Frequency Bands Covered							
GPS/QZSS	L1 1575.42MHz	L2 1227.6MHz	L5 1176.45MHz	L6 1278.75MHz			
	■	□	□	□			
GLONASS	L5R 1176.45MHz	L3PT 1201.5MHz	L2PT 1246MHz	L1CR 1575.42MHz	L1PT 1602MHz		
	□	□	□	■	□		
Galileo	E5a 1176.45MHz	E5b 1201.5MHz	E4 1215MHz	E3 1256MHz	E6 1278.75MHz	E2 1561MHz	L1 1575.42MHz
	□	□	□	□	□	□	■
BeiDou	B1 1561MHz	B2 1207.14MHz	B3 1268.52MHz				
	□	□	□				
Compass	E5B(B2)/ E6(B3) 1268.56MHz	E2(B1) 1561MHz					
	□	□					
SBAS	Omnistar 1542.5MHz	WAAS/EGN OS 1575.42MHz					
	□	■					

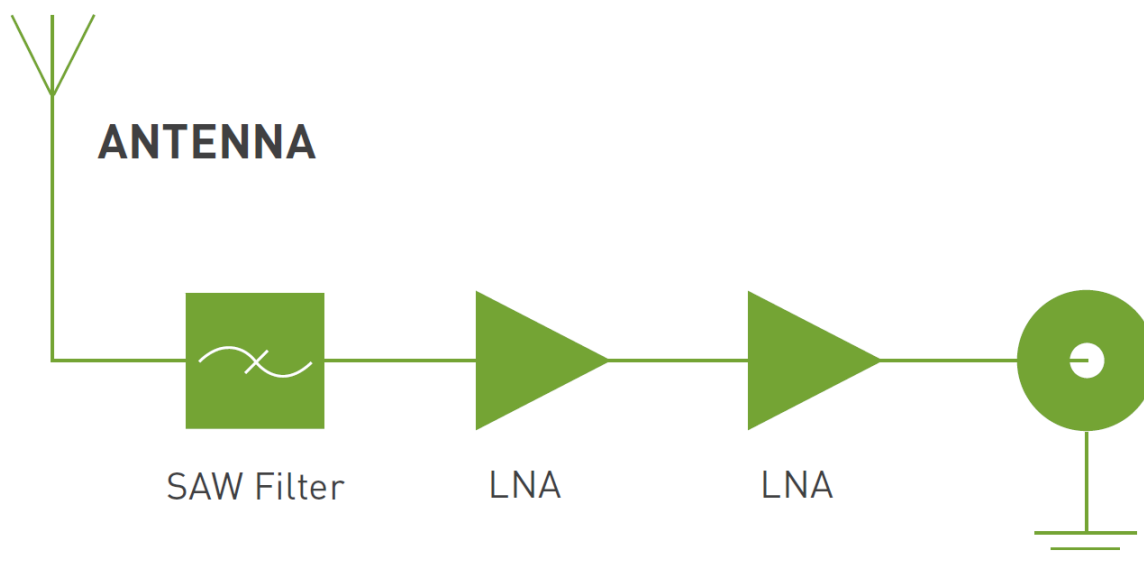
GNSS Electrical	
Frequency (MHz)	1575.42
Efficiency (%)	27
Average Gain (dB)	-5.7
Peak Gain (dBi)	-0.1
Polarization	Linear
Impedance	50Ω
Radiation Pattern	Omni
Gain	Typ. -10dBi @ Zenith
Gain@3.0V (With LNA)	Typ.25 ± 4dBi @ 90°
Input Voltage	Min. 1.8V, Typ. 3.0V, Max. 5.5V
ESD Capability	Direct Discharge: 4KV Min.

LNA and Filter Electrical Properties	
Frequency (MHz)	1575.42
VSWR (max.)	2:1
Gain@1.8V (Typ.)	20dB
Gain@3.0V (Typ.)	25dB
Gain@5.5V (Typ.)	25dB
Noise@1.8V (Typ.)	2.7dB
Noise@3.0V (Typ.)	2.5dB
Noise@5.5V (Typ.)	2.7dB
Power consumption@1.8V (Typ.)	5mA
Power consumption@3.0V (Typ.)	10mA
Power consumption@5.5V (Typ.)	23mA
Outer Band Attenuation	F0=1575.42MHz F0±30MHz 5dB min. F0±50MHz 20dB min. F0±100MHz 25dB min.
Pout at 1dB Gain Compression point	Typ. 8dBm Min. 11dBm

Mechanical	
Dimensions	41*42*73.4 mm
Material	Housing: ABS Base: Nickel Plated Zinc Alloy
Connector	N Type(M)
Weight	130g
Waterproof Rating	IP67 and IP69K
Environmental	
Temperature Range	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH

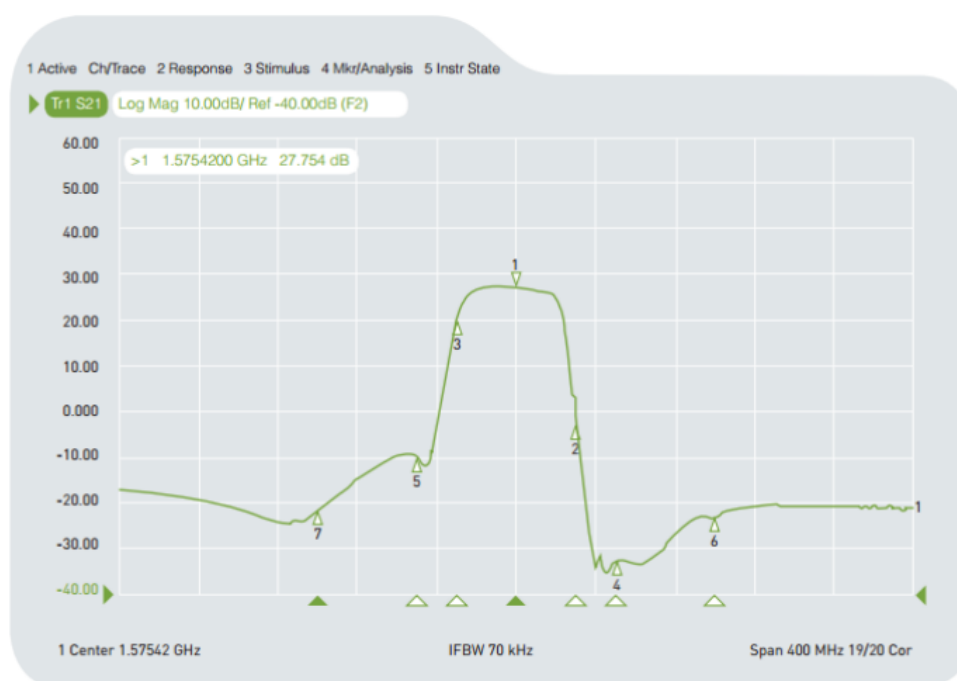
3. LNA Characteristics

3.1 Block Diagram (Active Antenna)

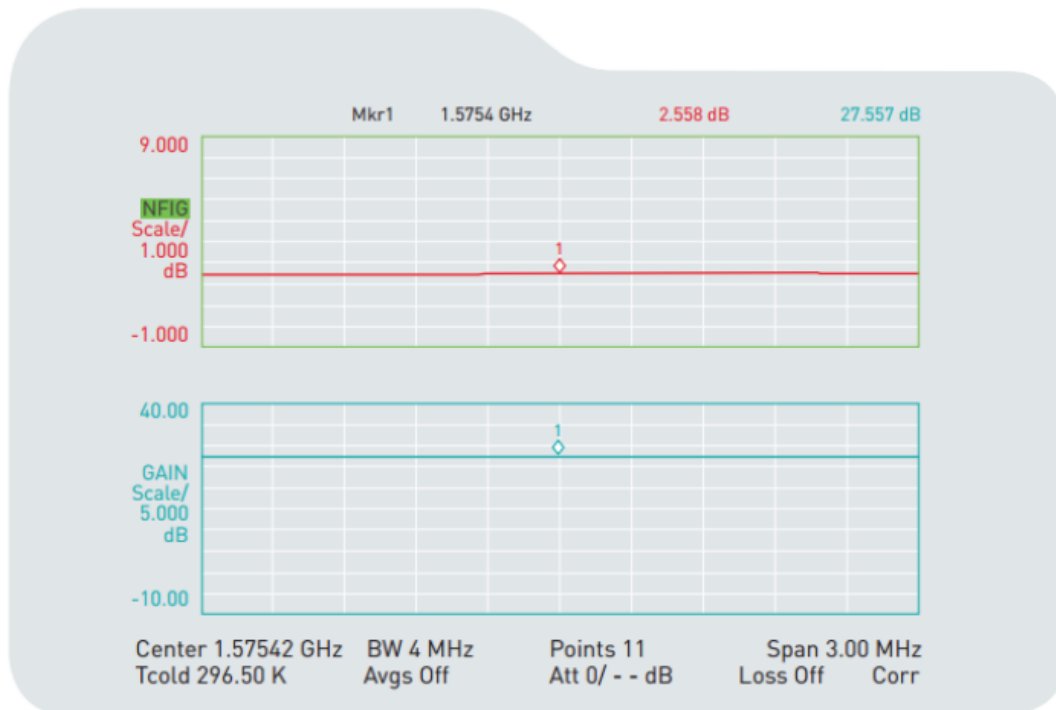


3.2 LNA Gain

LNA Gain and Out Band Rejection @3.0V

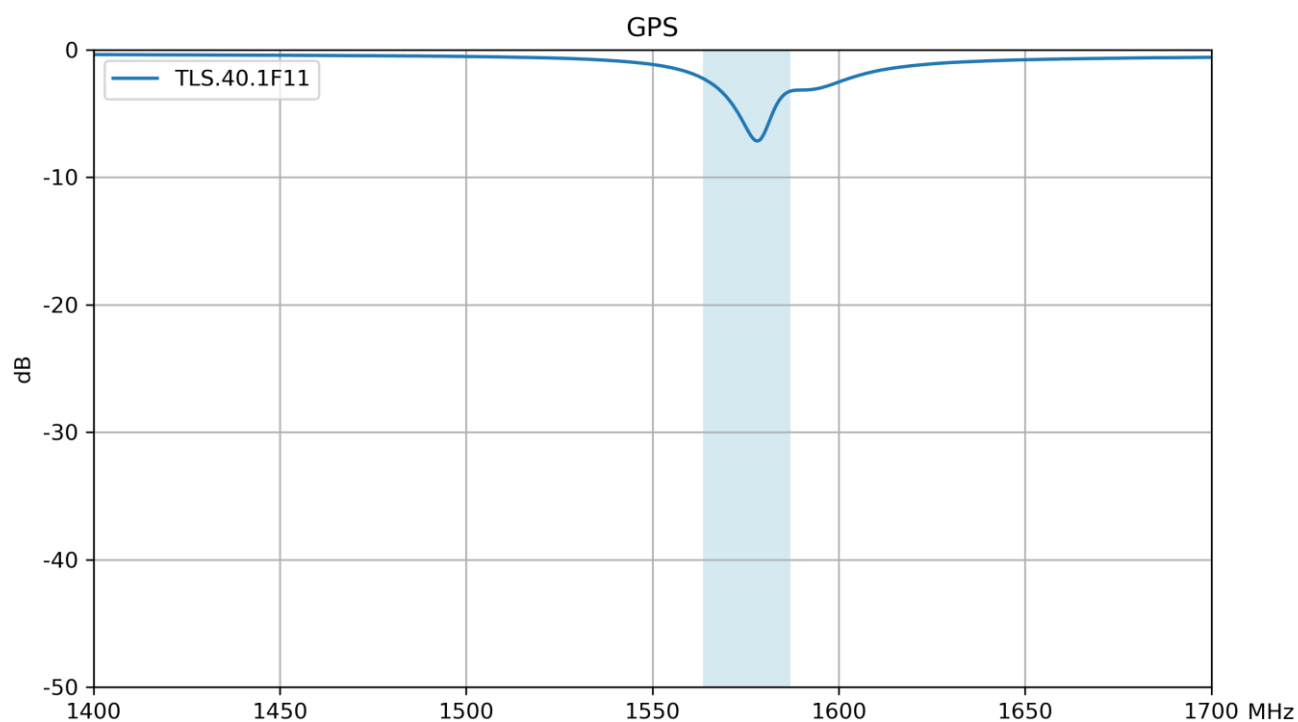


Noise Figure @ 3.0V

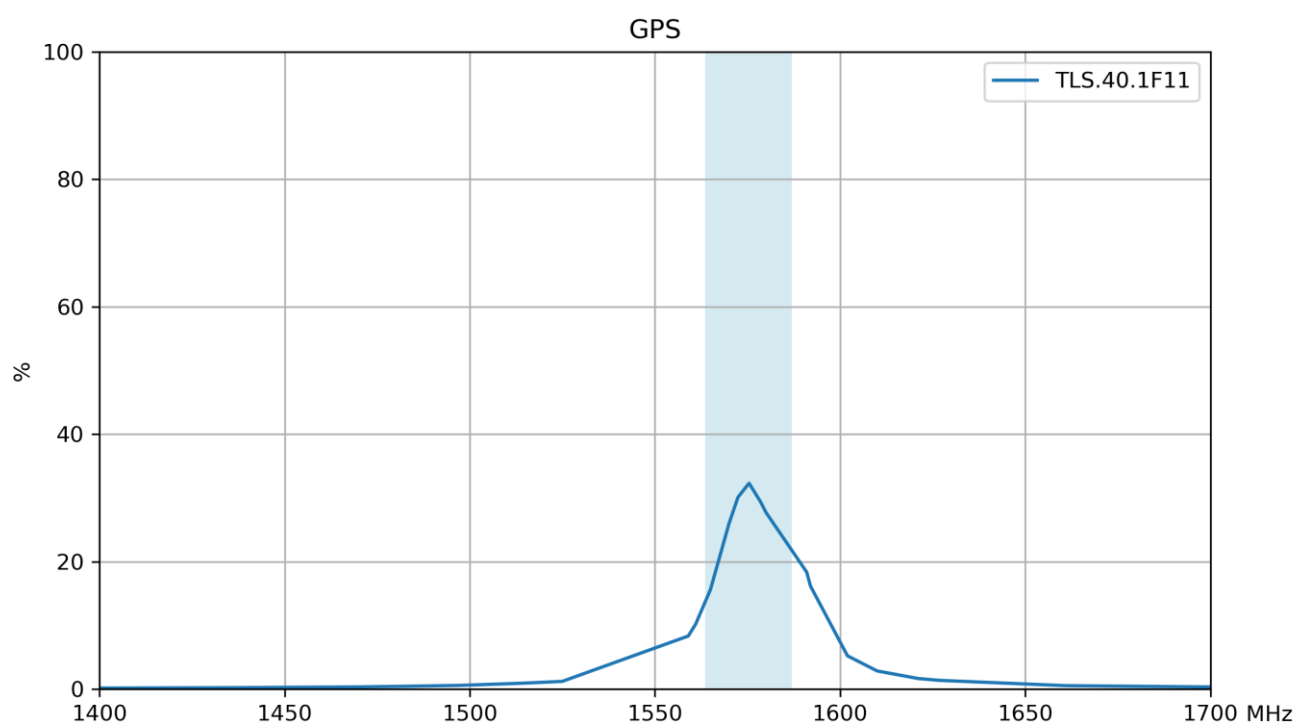


4. Antenna Characteristics

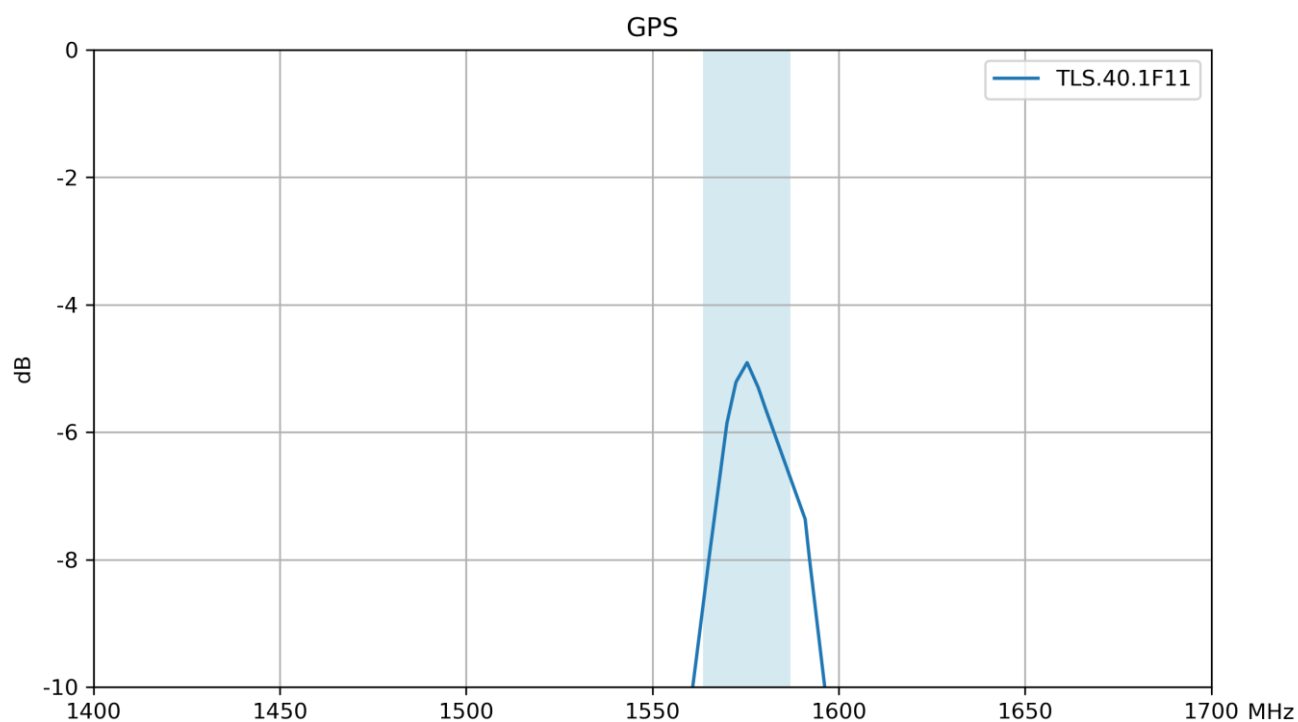
4.1 Return Loss



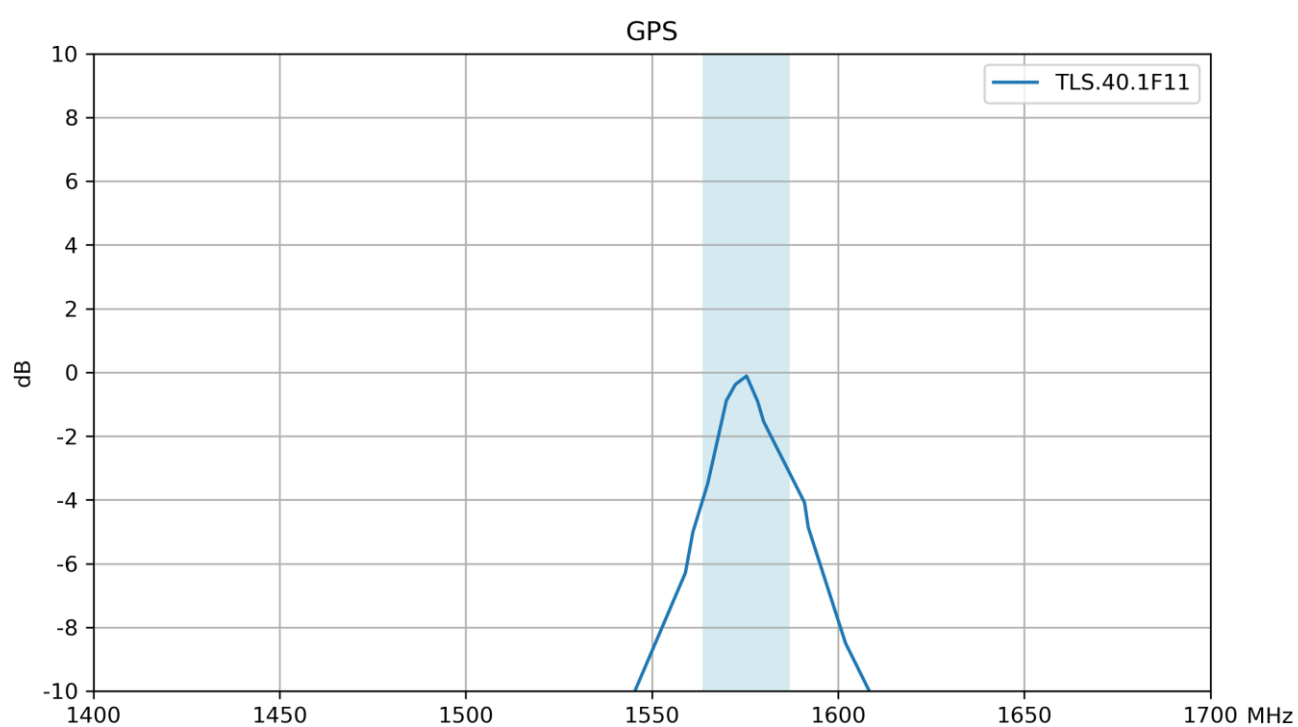
4.2 Efficiency



4.3 Average Gain

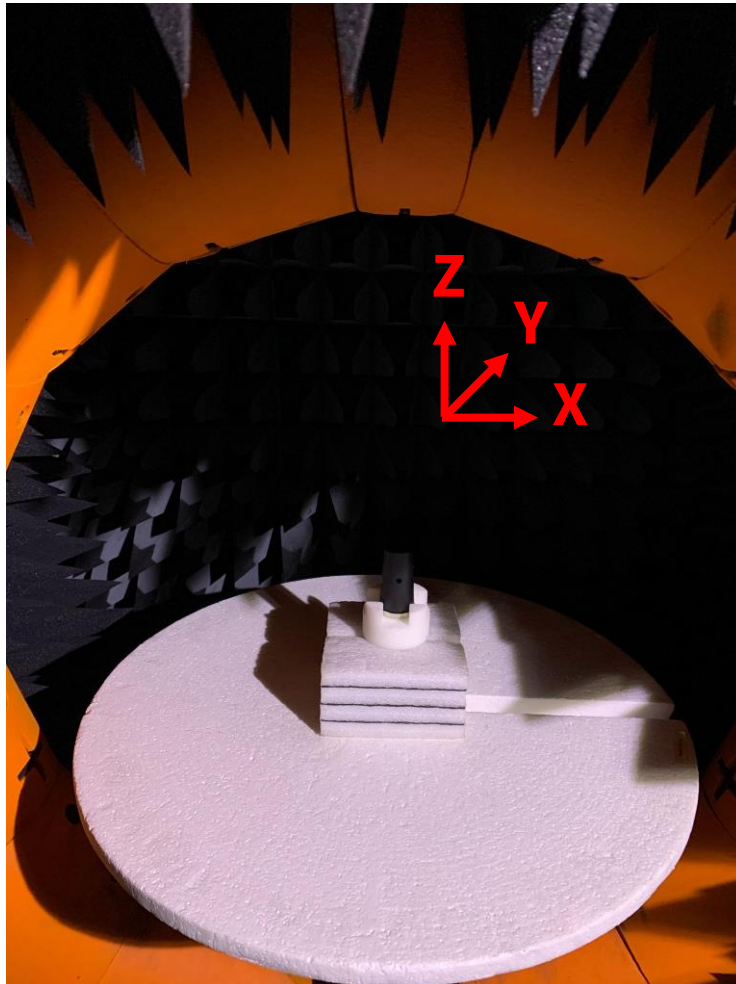


4.4 Peak Gain



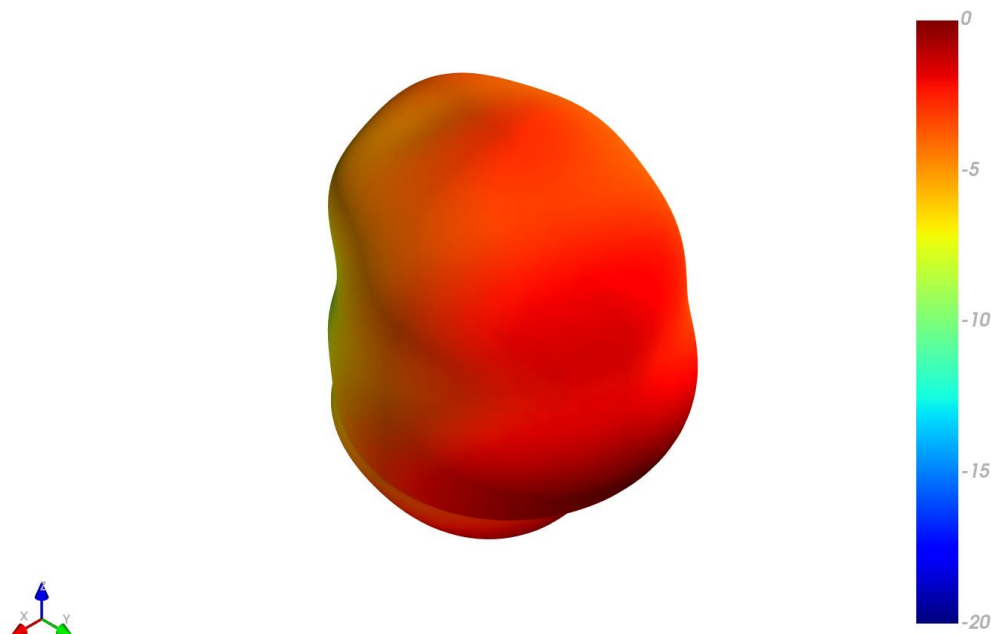
5. Radiation Patterns

5.1 Test Setup

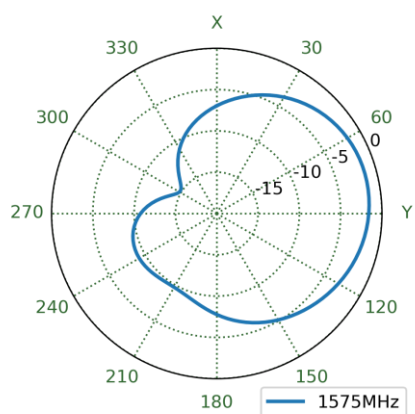


5.2 GPS/Galileo 3D and 2D radiation Patterns

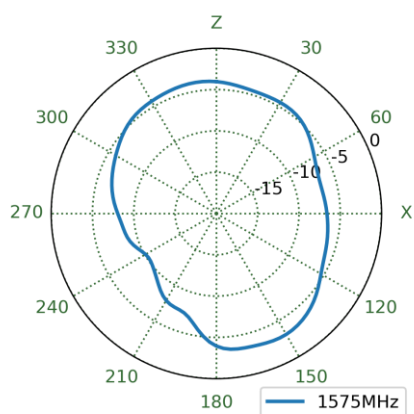
1575.42MHz



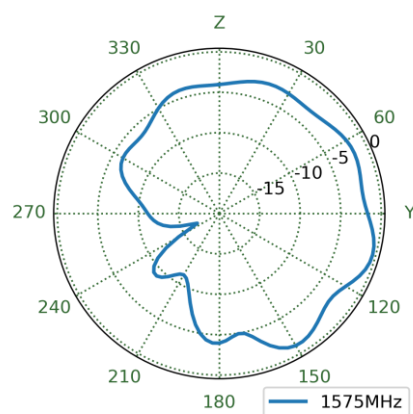
XY Plane



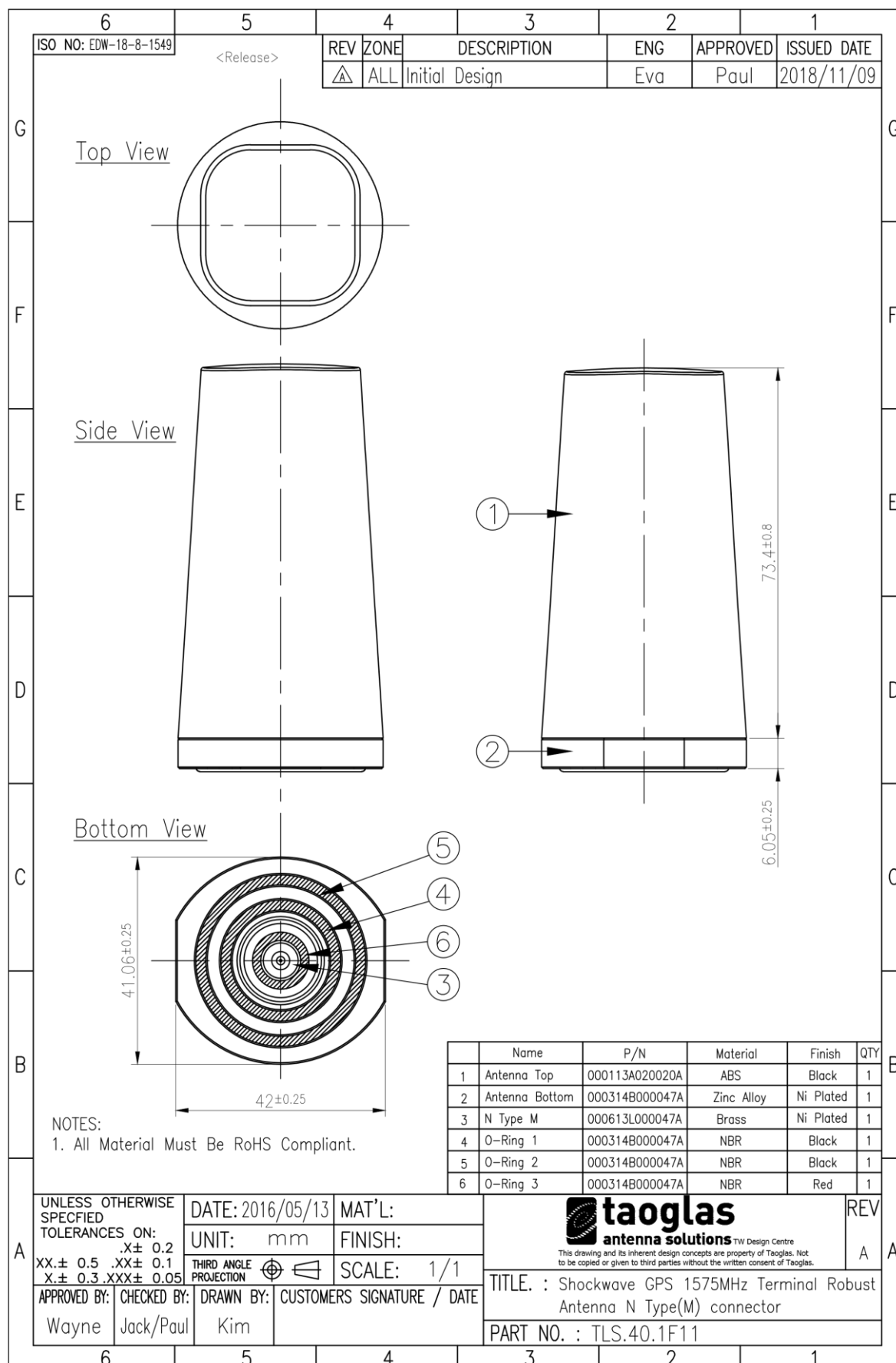
XZ Plane



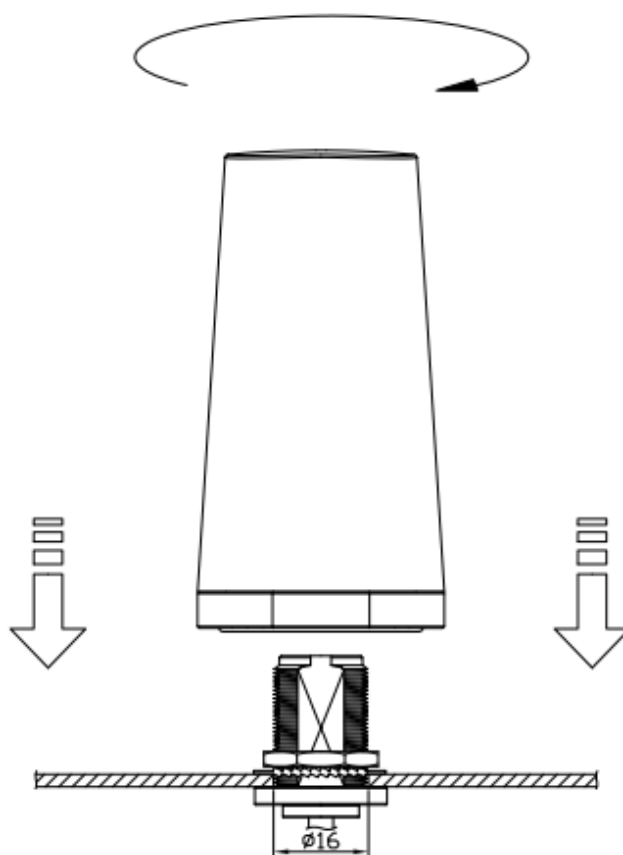
YZ Plane



6. Mechanical Drawing (Units: mm)

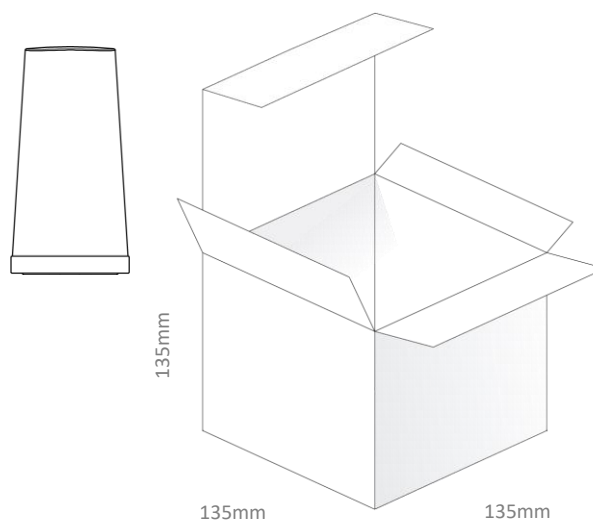


7. Installation Guidelines

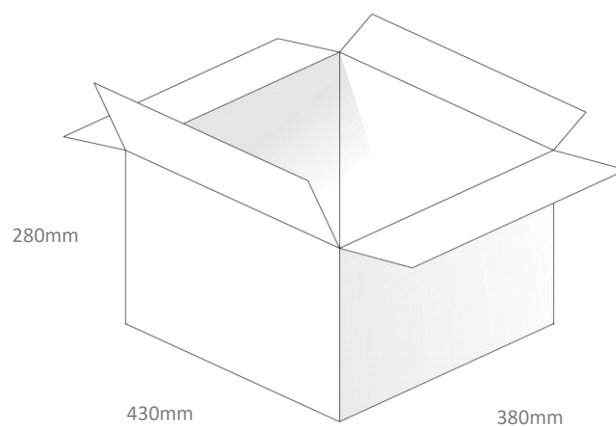


8. Packaging

1pc TLS.40.1F11 per Small Box
Dimensions: 135*135*135mm
Weight: 150g



24pcs TLS.40.1F11 per Carton
Carton Dimensions: 430*380*280mm
Weight: 4Kg



Changelog for the datasheet

SPE-21-8-090 – TLS.40.1F11

Revision: A (Original First Release)	
Date:	2021-09-28
Notes:	
Author:	Jack Conroy

Previous Revisions



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