



TAOGLAS®



Datasheet

Part No:
AP.17E.07.0064A

Description:

17mm One Stage GPS/Galileo Active Patch Antenna Module
with Front End SAW Filter

Features:

17mm*17mm*6.3mm
64mm 1.13 I-PEX MHF® I
Wide Voltage 1.8V~5.5V
15dB LNA
Tested in Free space
CE Certified
RoHS and REACH Compliant

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1. Introduction



The AP.17E is a one stage 17mm active patch antenna that has been designed specifically for embedded (inside device) integration with GPS/Galileo receiver modules.

The AP.17E combines a 17*17*4mm advanced low profile ceramic patch antenna with a one stage LNA and a front-end SAW filter with ultra thin coaxial cable. It comes with it's own integrated ground-plane. The front end SAW filter reduces the risks where there is a cellular transmitter nearby of interference from out of band frequencies which can cause LNA burn-out, saturation, or radiated spurious emissions.

Typical Applications Include:

- Navigation Systems
- Asset Tracking
- Performance Trackers/Wearables

The antenna can work on a wide input voltage from 1.8V to 5.5V with best in class power consumption figures.

If further tuning and optimization specific to a customer device is required Taoglas offers a custom tuned and optimized part service.

Cables and connectors can be customized according to request. 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	E1 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					
	□	■					

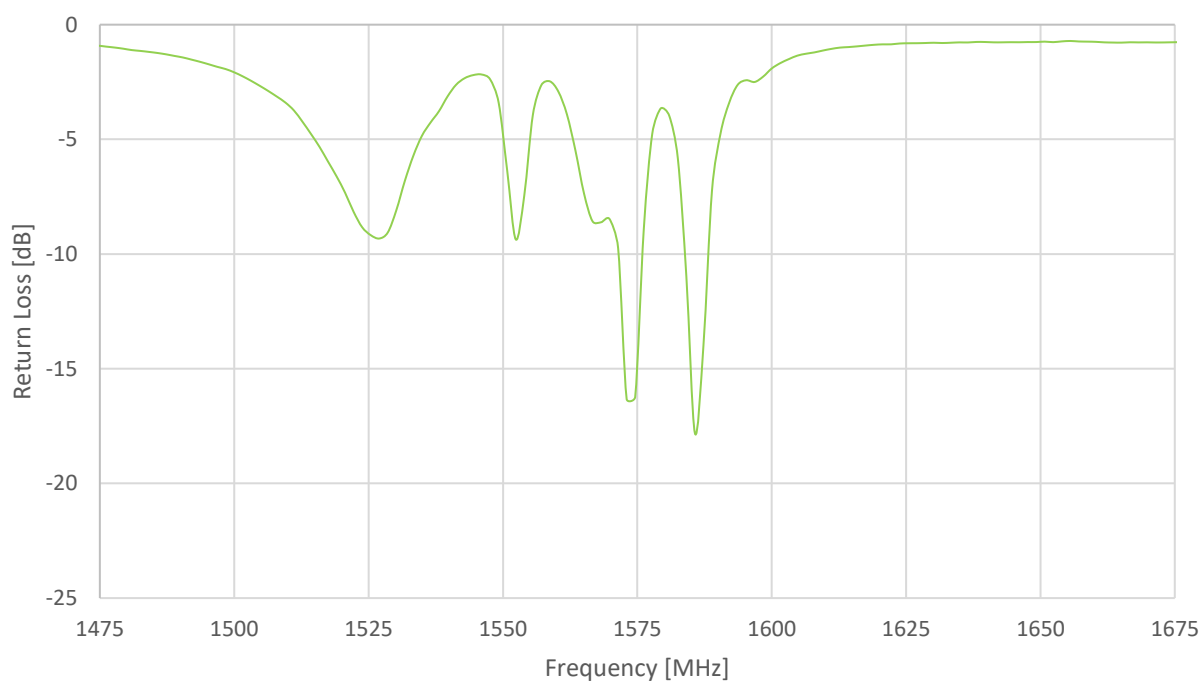
GNSS Electrical	
Input Voltage	Min:1.8V Typ.: 3.0V Max: 5.5V
Frequency Range	1575.42MHz +/- 1.023 MHz
Gain	-1.0dBic Typ. @zenith
Polarization	RHCP
Axial ratio	Max 3.0dB@zenith
Frequency Range	1575.42MHz +/- 1.023 MHz
Gain (With LNA)	At 90° At 5.5V 16 ± 3dBic At 3.0V 15 ± 3dBic At 1.8V 12 ± 3dBic
Output Impedance	50Ω

LNA and Filter Electrical Properties			
Frequency	1575.42 ± 1.023MHz		
Outer Band Attenuation	F0=1575.42MHz		
Gain@1.8V (Typ.)	F0±30MHz 2dB min.		
Gain@3.0V (Typ.)	F0±50MHz 18dB min.		
Gain@5.5V (Typ.)	F0±100MHz 25dB min.		
Output Impedance	50Ω		
Output VSWR	2.0 Max		
Pout at 1dB Gain Compression point	Typ. -2dBm		
	Min. -6dBm		
LNA Gain, Power Consumption and Noise Figure			
Voltage	LNA Gain (Typ)	Power Consumption	Noise Figure Typ
		(mA) Typ	
Min. 1.8V	13dB	1.6mA	2.5dB
Typ. 3.0V	16dB	3.5mA	2.5dB
Max. 5.5V	17dB	7.6mA	2.6dB

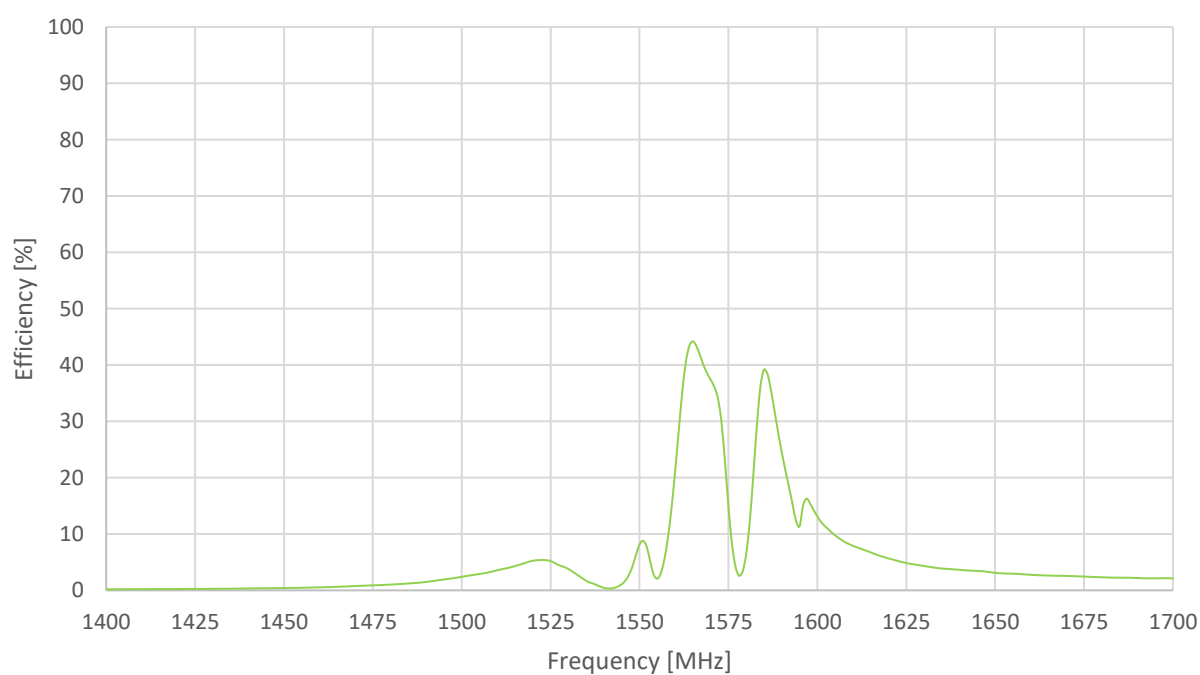
Mechanical	
Dimensions	17mm*17mm*6.3mm
RF Cable	Ø1.13 RF Coaxial Cable L=64mm±2.5mm
RF Connector	I-PEX MHF® I
Environmental	
Operation Temperature	-40°C to + 85°C
Storage Temperature	-40°C to + 85°C
Relative Humidity	40% to 95%

3. Passive Antenna Characteristics

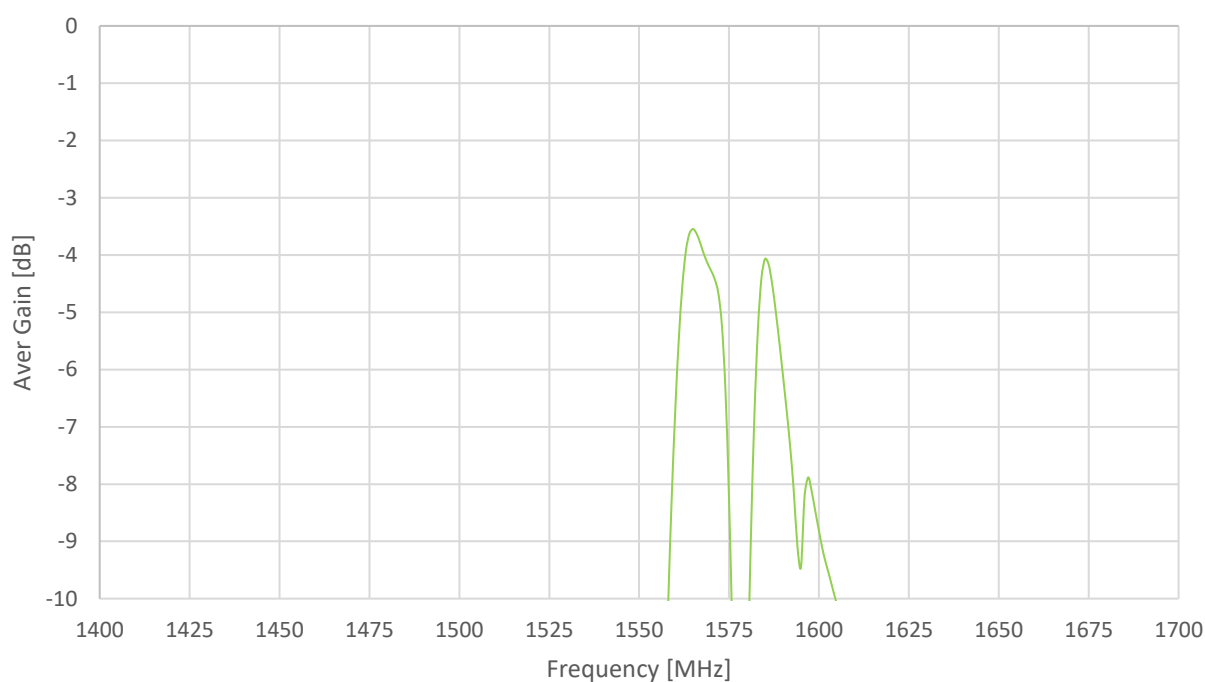
3.1 Return Loss



3.2 Efficiency



3.3 Average Gain

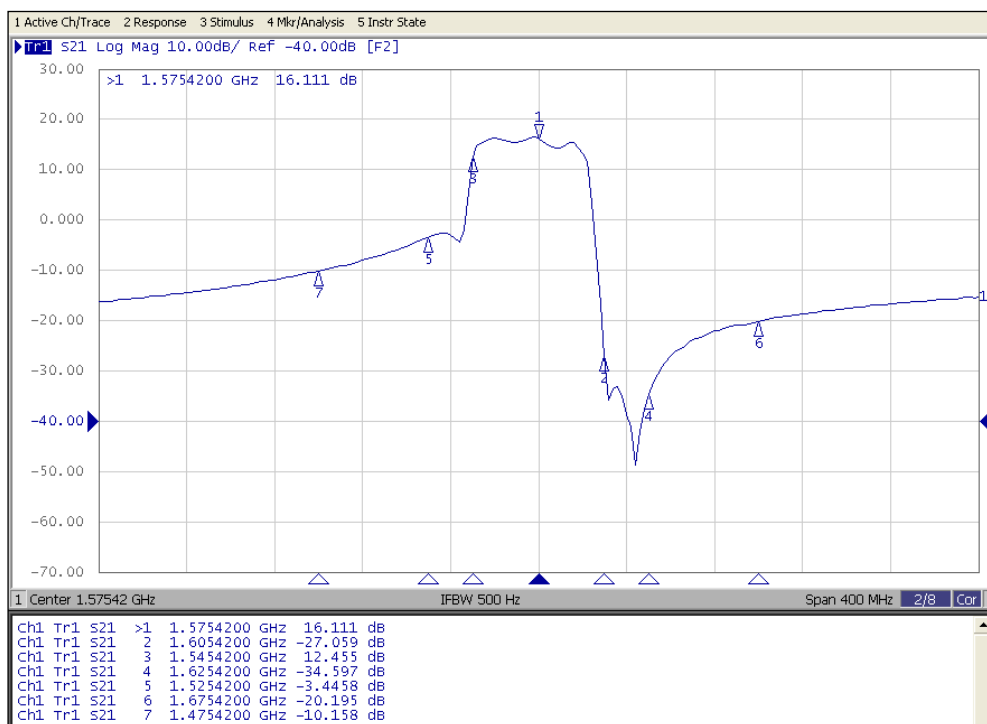


3.4 Peak Gain

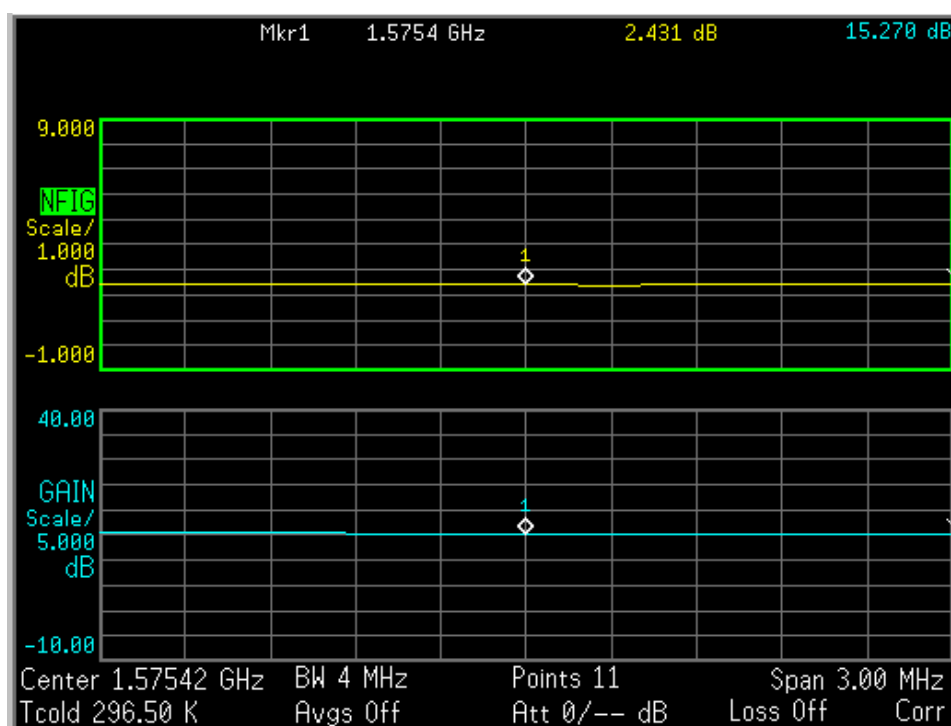


4. Active Antenna Characteristics

4.1 LNA Gain and Out Band Rejection @3.0V

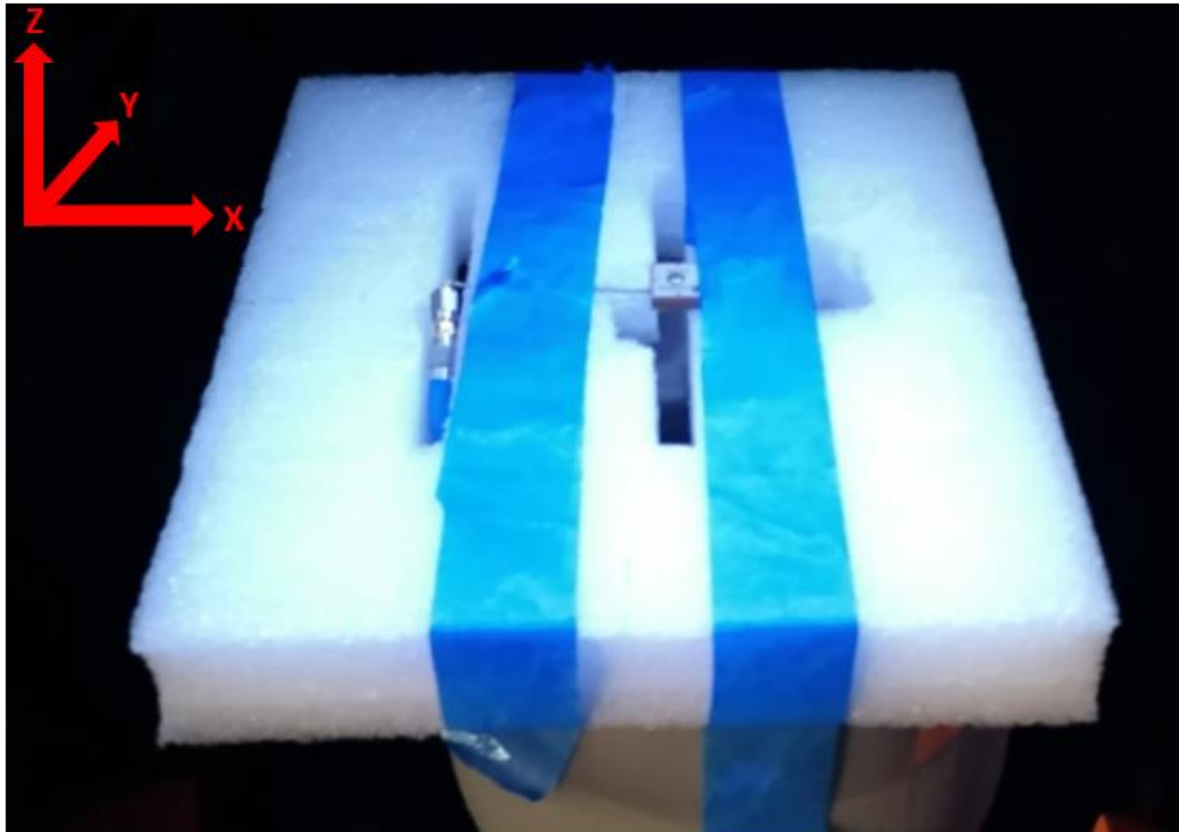


4.2 LNA Noise Figure @3.0V

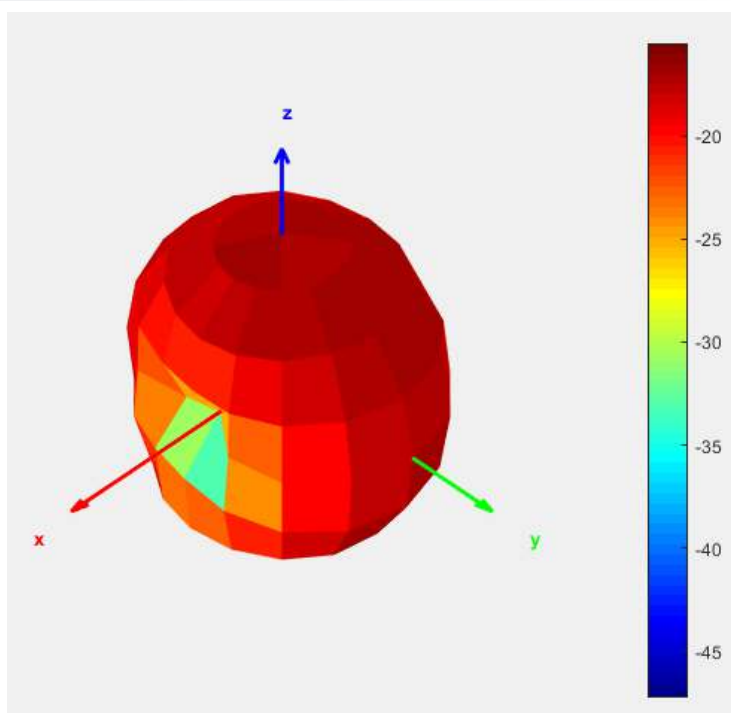


5. Radiation Patterns

5.1 Test Setup



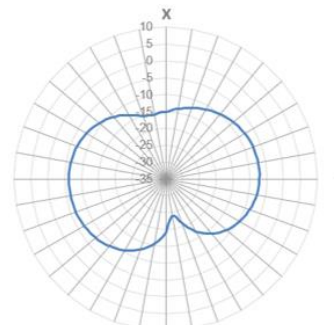
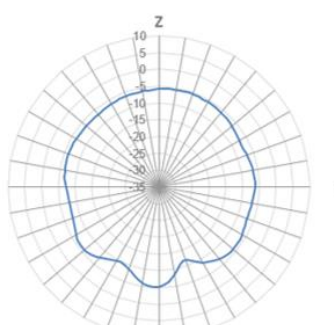
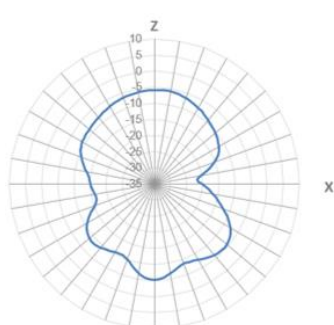
5.2 1575MHz 3D and 2D Radiation Patterns



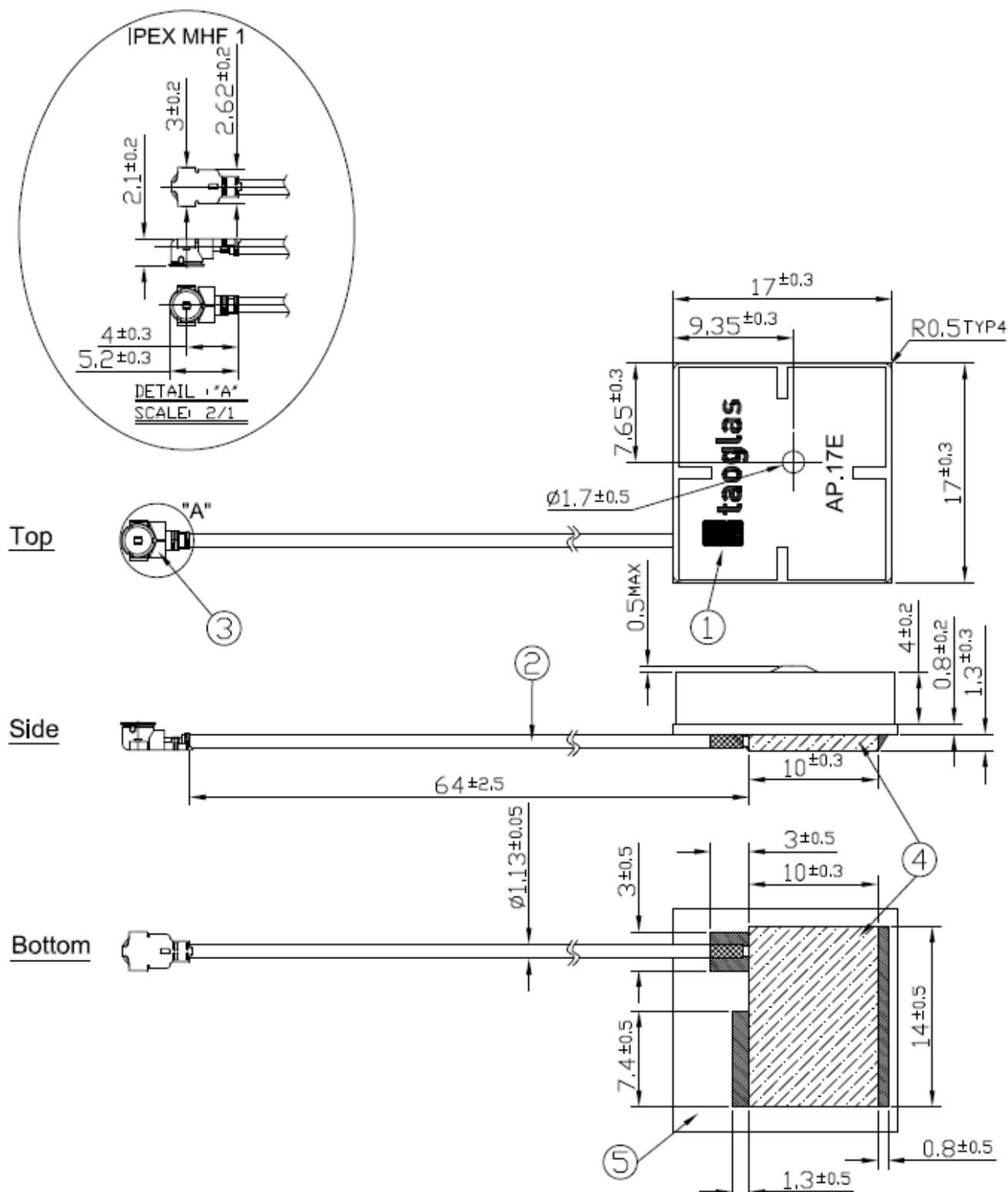
XY Plane

XZ Plane

YZ Plane

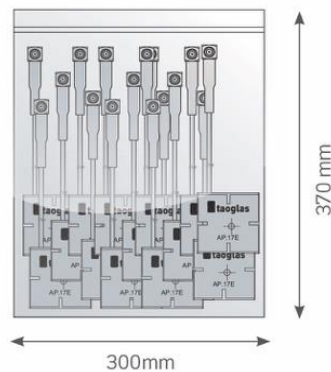


6. Mechanical Drawing (Units: mm)

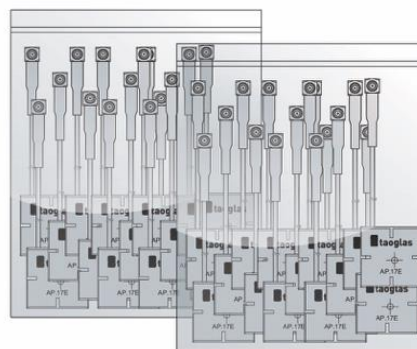


7. Packaging

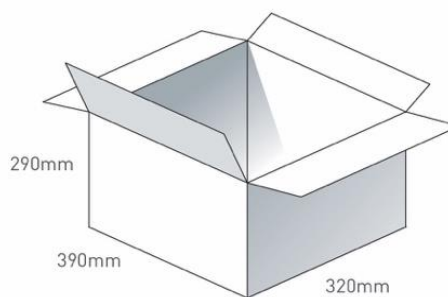
60 pc AP.17E.07.0064A in Vacuum Bag
Dimensions - 370*300mm
Weight - 534Kg



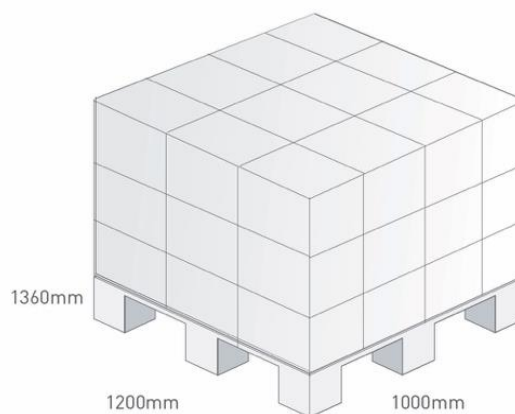
Batch of 2, 120pc AP.17E.07.0064A in Vacuum Bags
Dimensions - 370*300mm
Weight - 1.1Kg



10 Vacuum Bags
600 pcs in one carton
Carton Dimensions - 390*320*290mm
Weight - 6.3Kg



Pallet Dimensions 1200*1000*1360mm
36 Cartons per Pallet
9 Cartons per layer
4 Layers



Changelog for the datasheet

SPE-11-8-144 – AP.17E.07.0064A

Revision: D (Current Version)

Date:	2021-11-29
Changes:	Update datasheet template & data.
Changes Made by:	Gary West

Previous Revisions

Revision: C

Date:	2017-06-19
Changes:	Amended Packaging
Changes Made by:	Peter Monahan

Revision: B

Date:	2011-01-16
Changes:	
Changes Made by:	Technical Writer

Revision: A (Original First Release)

Date:	2011-11-30
Notes:	
Author:	Technical Writer



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