



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 x 17mm x 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

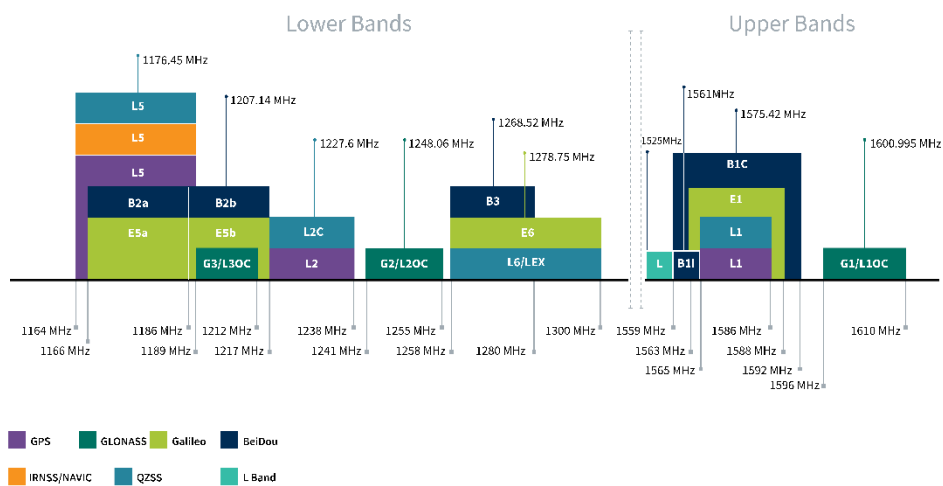
The antenna can work on a wide input voltage from 1.8V to 5.5V with best in class power consumption figures.

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. Specification

| GNSS Frequency Bands | | | | | |
|----------------------|-------------------------|---------------------------|--------------------|--------------------|-------------------|
| GPS | L1 1575.42 MHz | L2 1227.6 MHz | L5 1176.45 MHz | | |
| | ■ | □ | □ | | |
| GLONASS | G1 1602 MHz | G2 1248 MHz | G3 1207 MHz | | |
| | □ | □ | □ | | |
| Galileo | E1 1575.24 MHz | E5a 1176.45 MHz | E5b 1201.5 MHz | E6 1278.75 MHz | |
| | ■ | □ | □ | □ | |
| BeiDou | B1C 1575.42 MHz | B1I 1561 MHz | B2a 1176.45 MHz | B2b 1207.14 MHz | B3 1268.52 MHz |
| | ■ | □ | □ | □ | □ |
| L-Band | L-Band 1542 MHz | | | | |
| | □ | | | | |
| QZSS (Regional) | L1 1575.42 MHz | L2C 1227.6 MHz | L5 1176.45 MHz | L6 1278.75e6 | |
| | ■ | □ | □ | □ | |
| IRNSS (Regional) | L5 1176.45 MHz | | | | |
| | □ | | | | |
| SBAS | L1/E1/B1 1575.42 MHz | L5/B2a/E5a 1176.45 MHz | G1 1602 MHz | G2 1248 MHz | G3 1207 MHz |
| | ■ | □ | □ | □ | □ |



GNSS Bands and Constellations

| GNSS Electrical | |
|---|--|
| Frequency (MHz) | 1575.42 |
| Passive Antenna Efficiency (%) (Without cable loss) | 33.39 |
| Polarization | RHCP |
| Impedance | 50 Ω |
| Cable | \varnothing 1.13 RF Coaxial Cable L=64mm \pm 2.5mm |
| Connector | I-PEX MHF [®] I |

| LNA and Filter Electrical Properties | |
|--------------------------------------|---------|
| Frequency (MHz) | 1575.42 |
| VSWR (max.) | <2.0 |
| Gain@1.8V (dBic) | 12.8 |
| Gain@3.0V (dBic) | 15.3 |
| Gain@5.5V (dBic) | 16.7 |
| Noise@1.8V (dBic) | 2.2 |
| Noise@3.0V (dBic) | 2.1 |
| Noise@5.5V (dBic) | 2.3 |
| Current consumption@1.8V (mA) | 1.6 |
| Current consumption@3.0V (mA) | 3.5 |
| Current consumption@5.5V (mA) | 7.6 |
| P1dB Compression Point (dBm) | -15.0 |

Mechanical

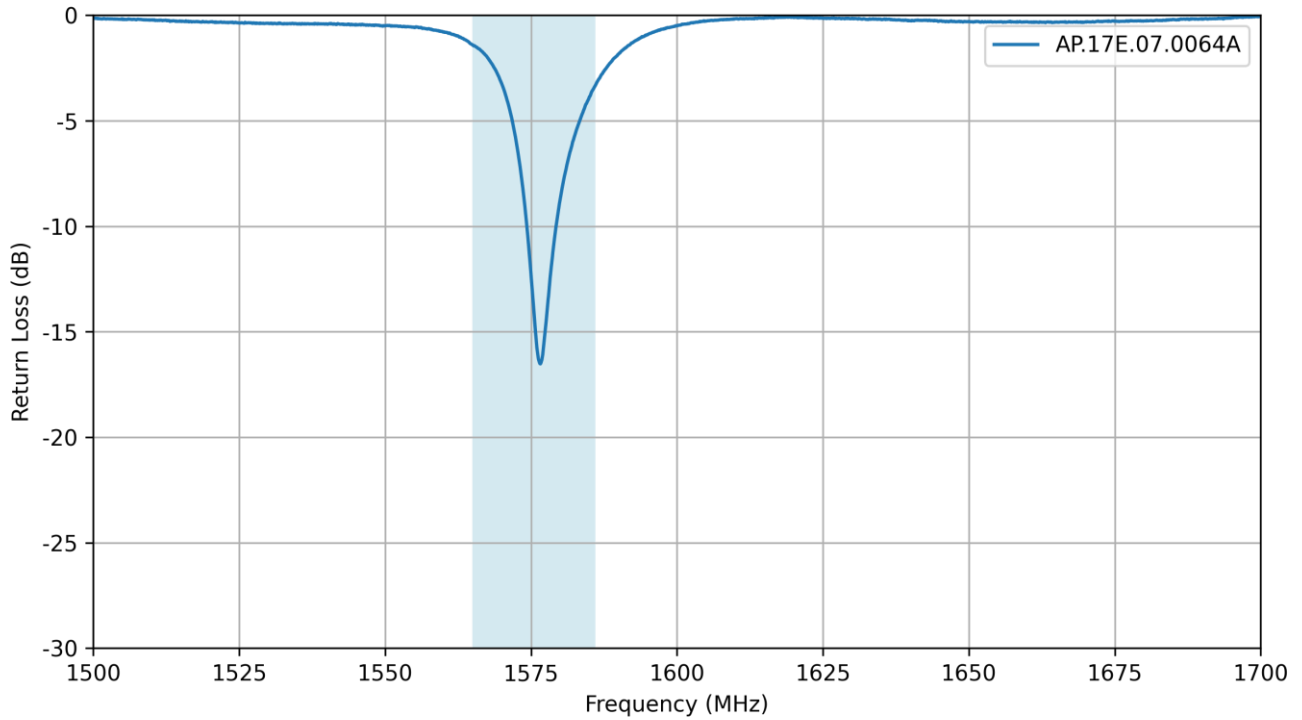
| | |
|---------------------|-------------------------------------|
| Dimensions | 17mm*17mm*6.3mm |
| RF Cable | Ø1.13 RF Coaxial Cable L=64mm±2.5mm |
| RF Connector | I-PEX MHF® I |

Environmental

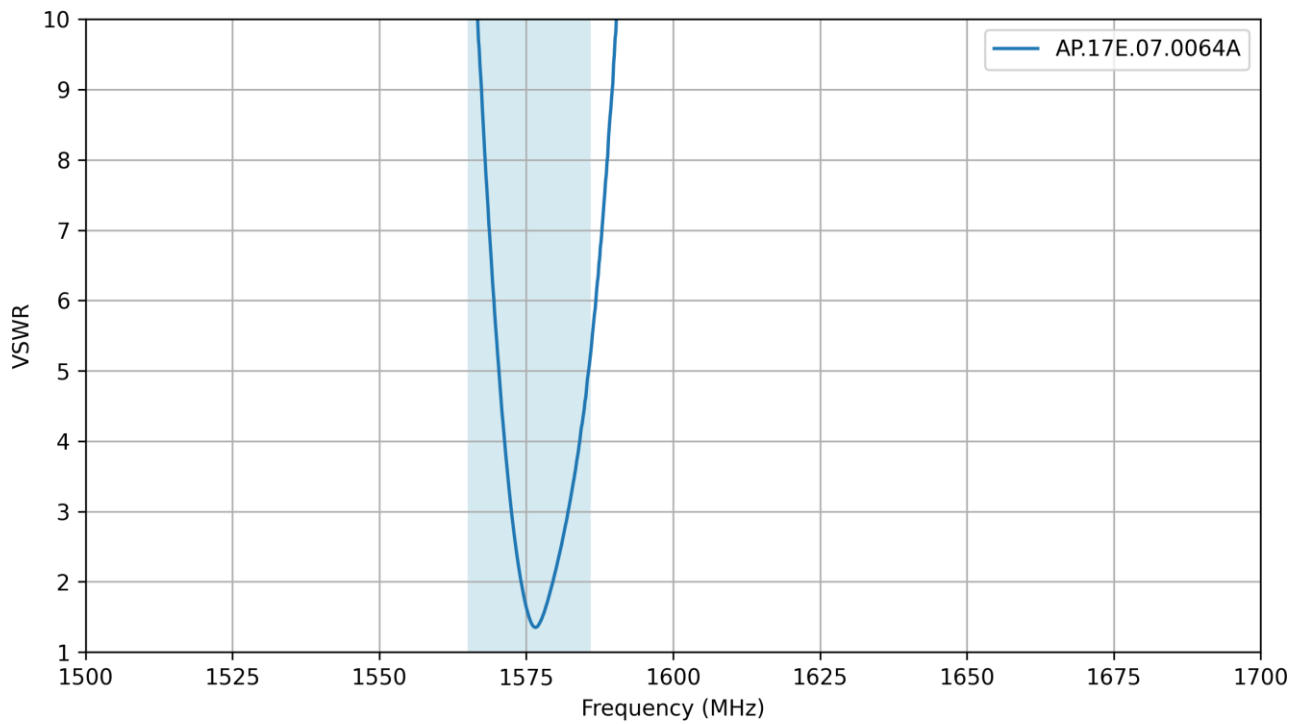
| | |
|------------------------------|-----------------|
| Operation Temperature | -40°C to + 85°C |
| Storage Temperature | -40°C to + 85°C |
| Relative Humidity | 40% to 95% |

3. Passive Antenna Characteristics

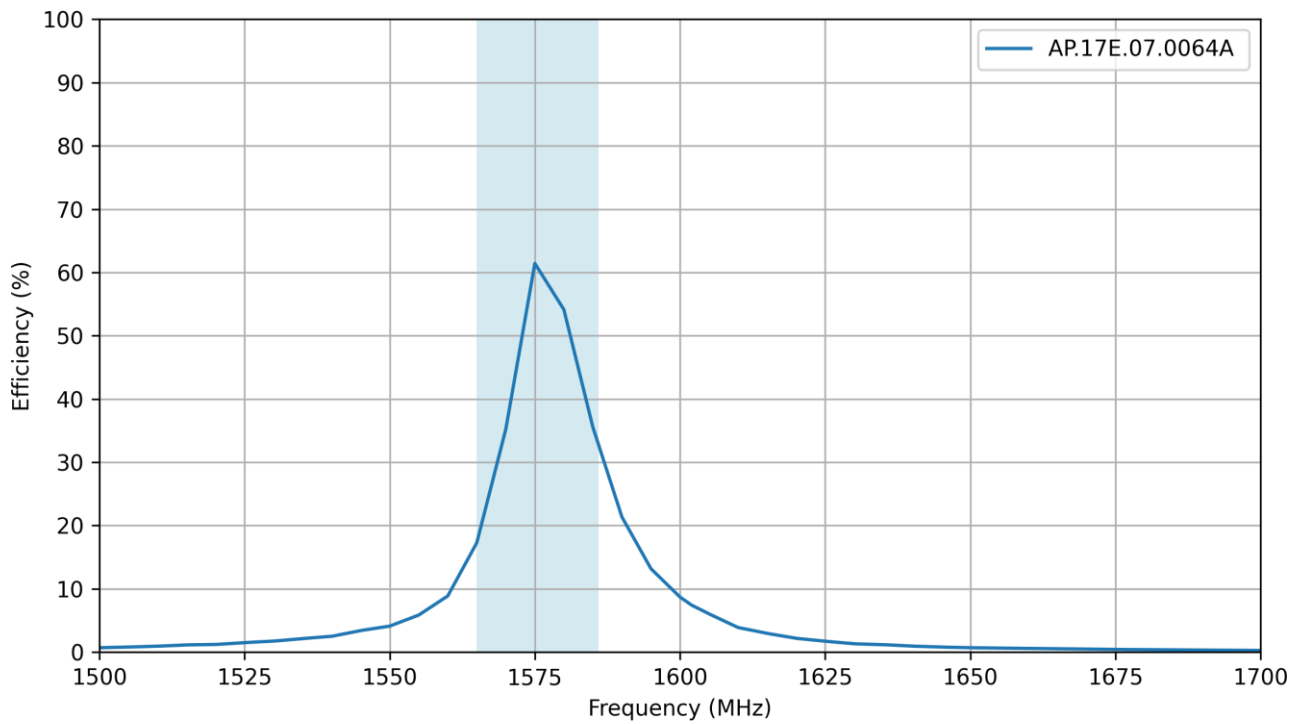
3.1 Return Loss



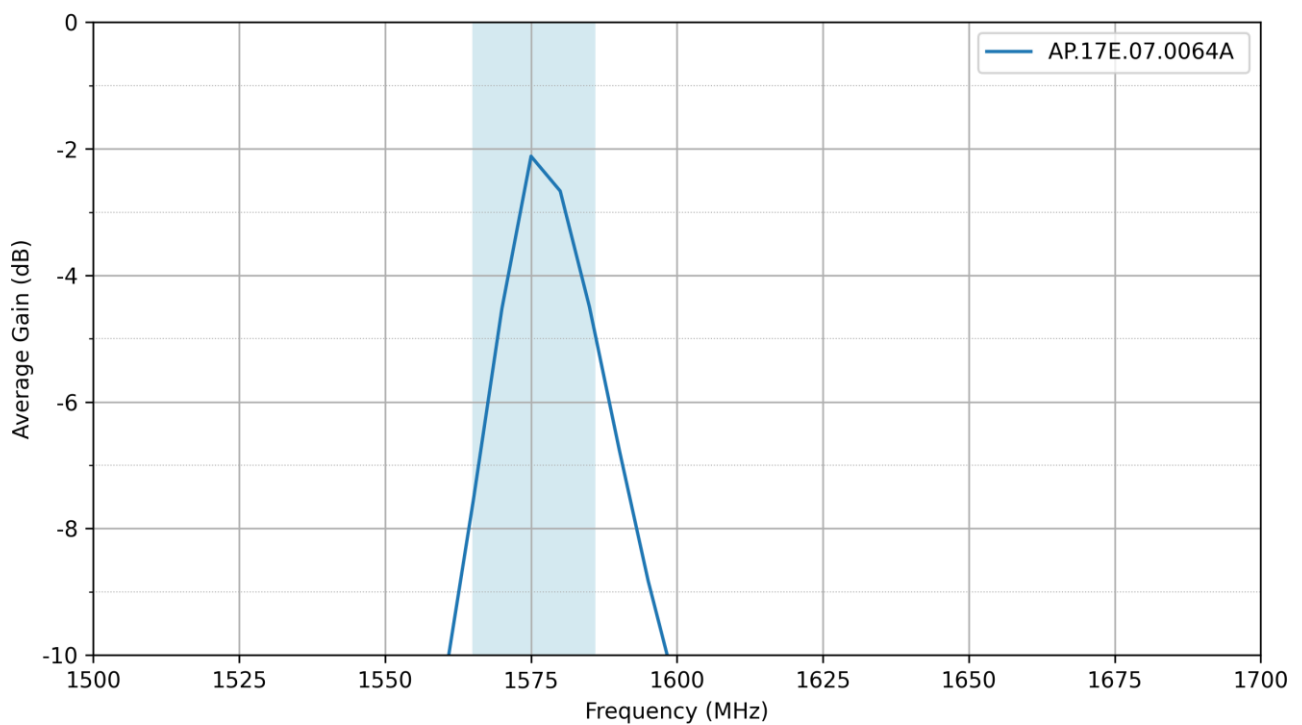
3.2 VSWR



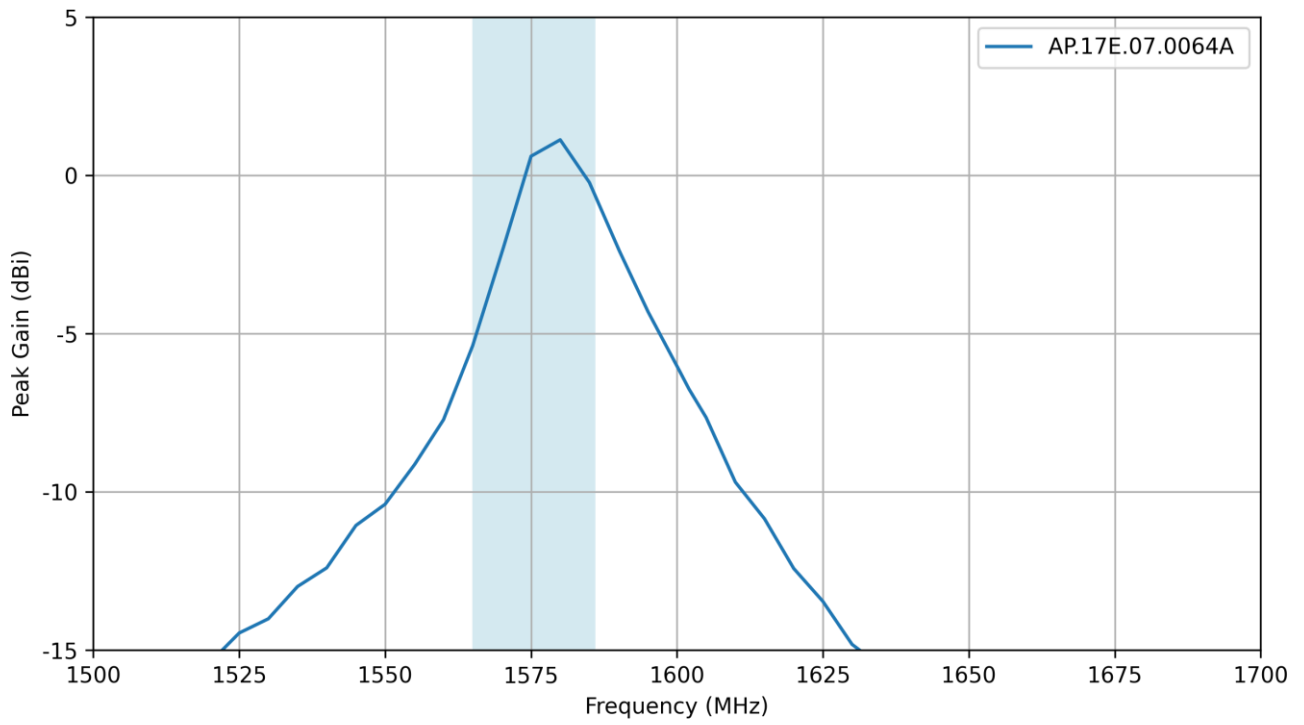
3.3 Efficiency



3.4 Average Gain

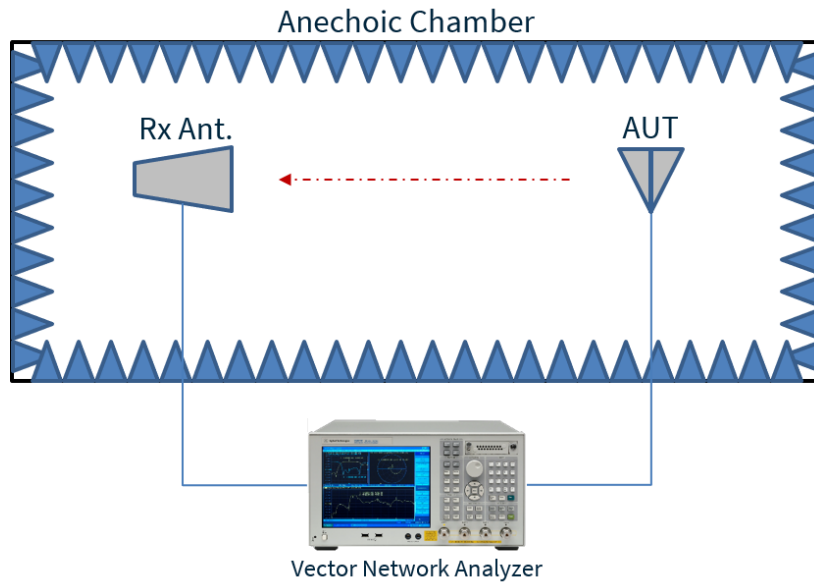


3.5 Peak Gain

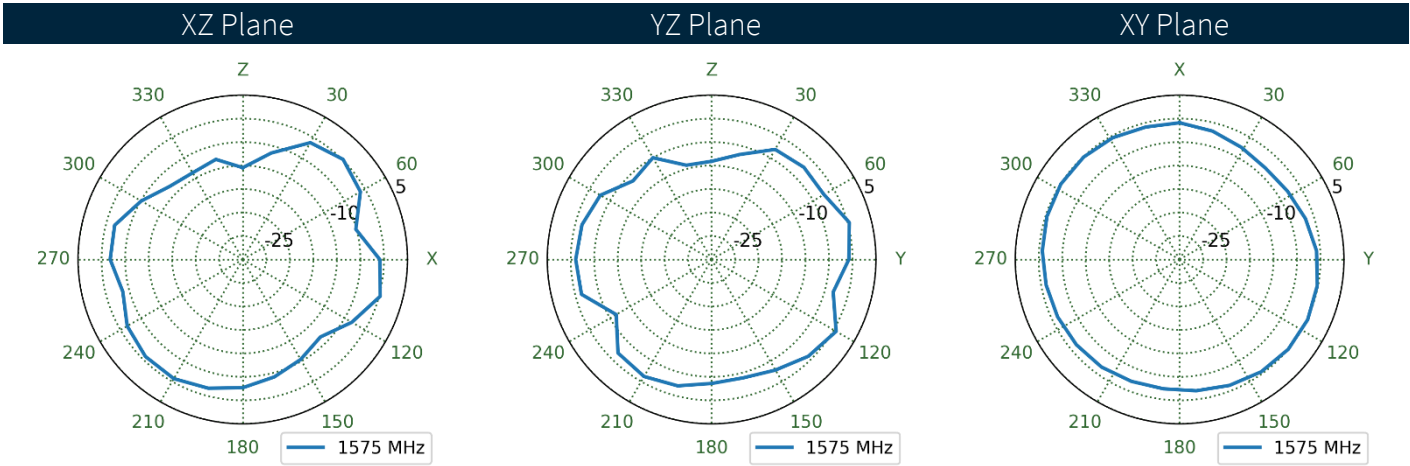
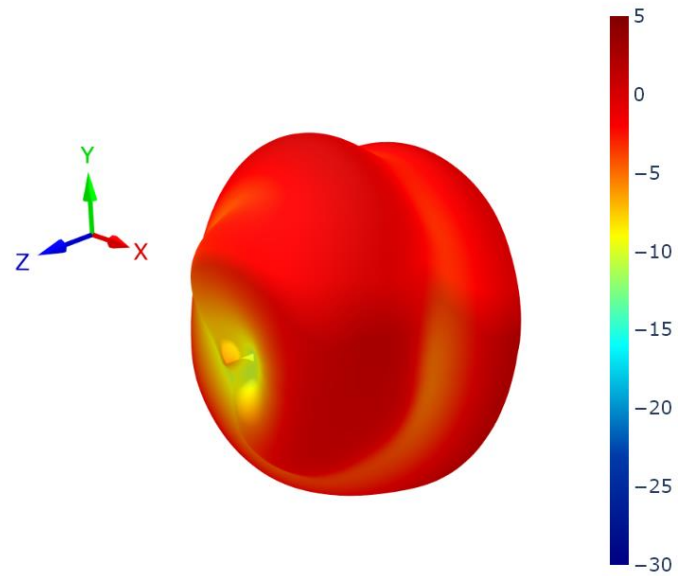


4. Radiation Patterns

4.1 Test Setup

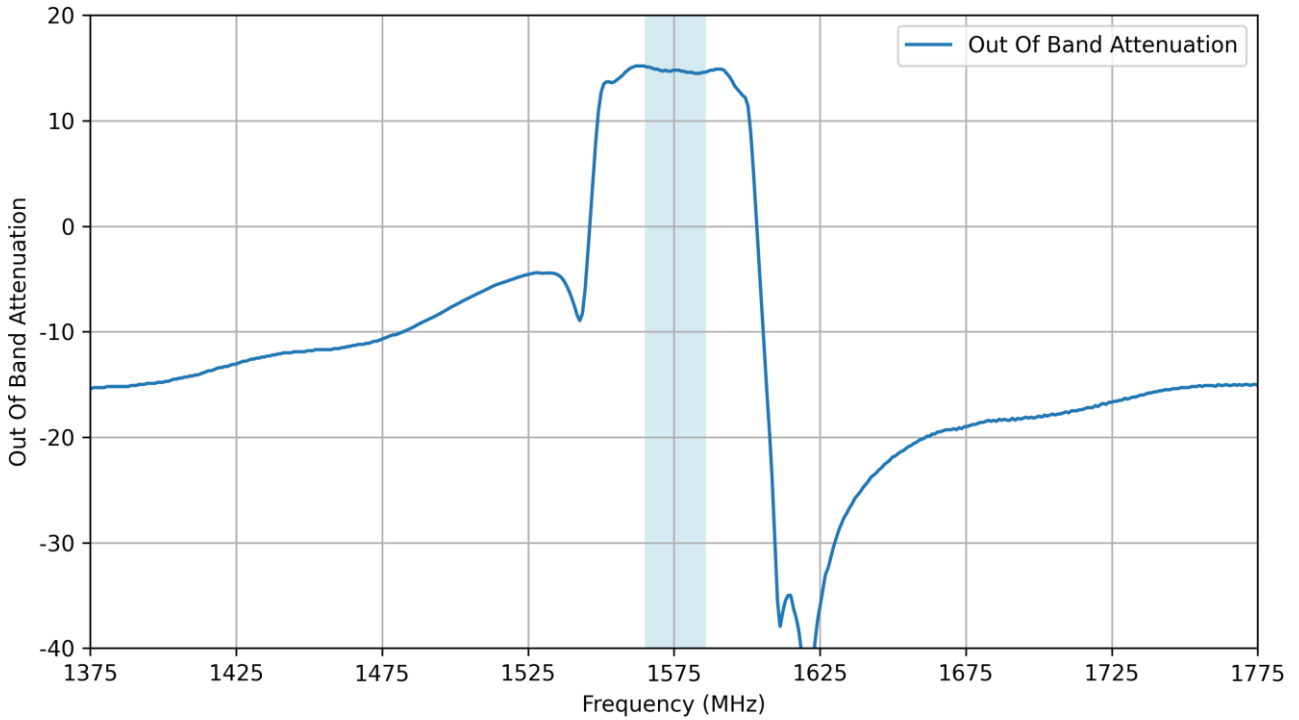


4.2 Patterns at 1575 MHz

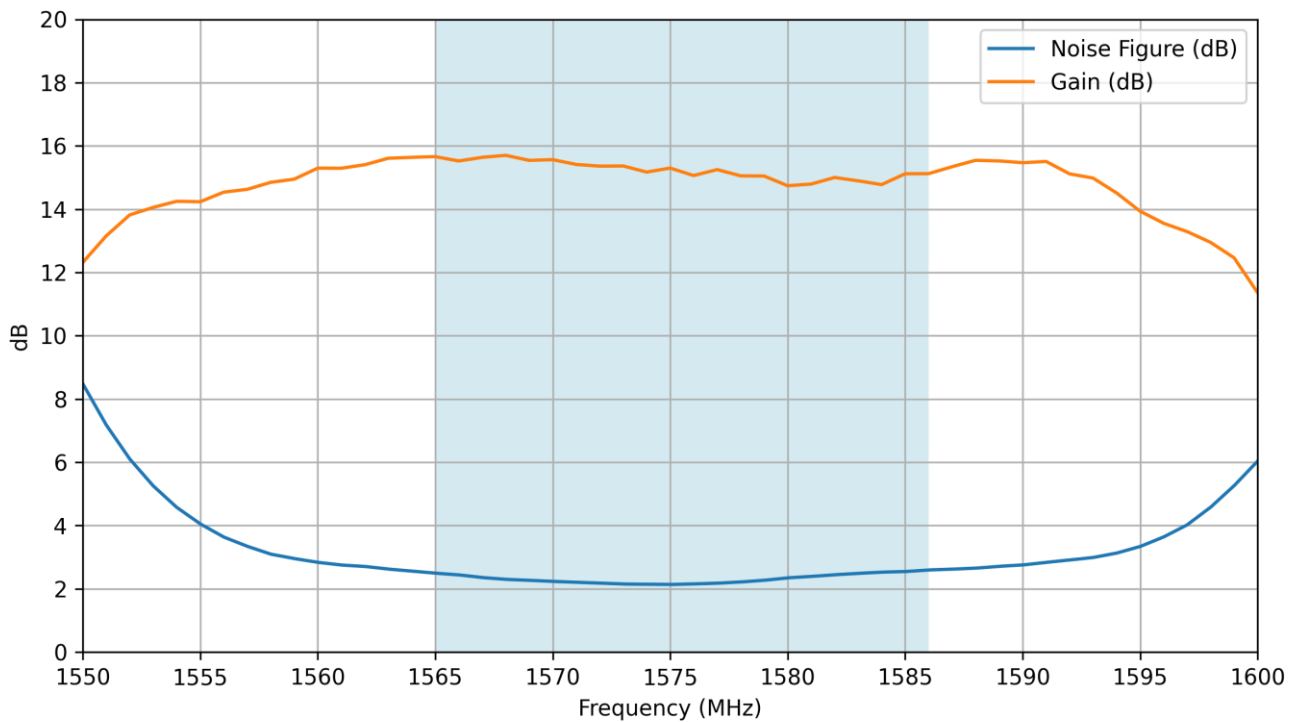


5. LNA Characteristics

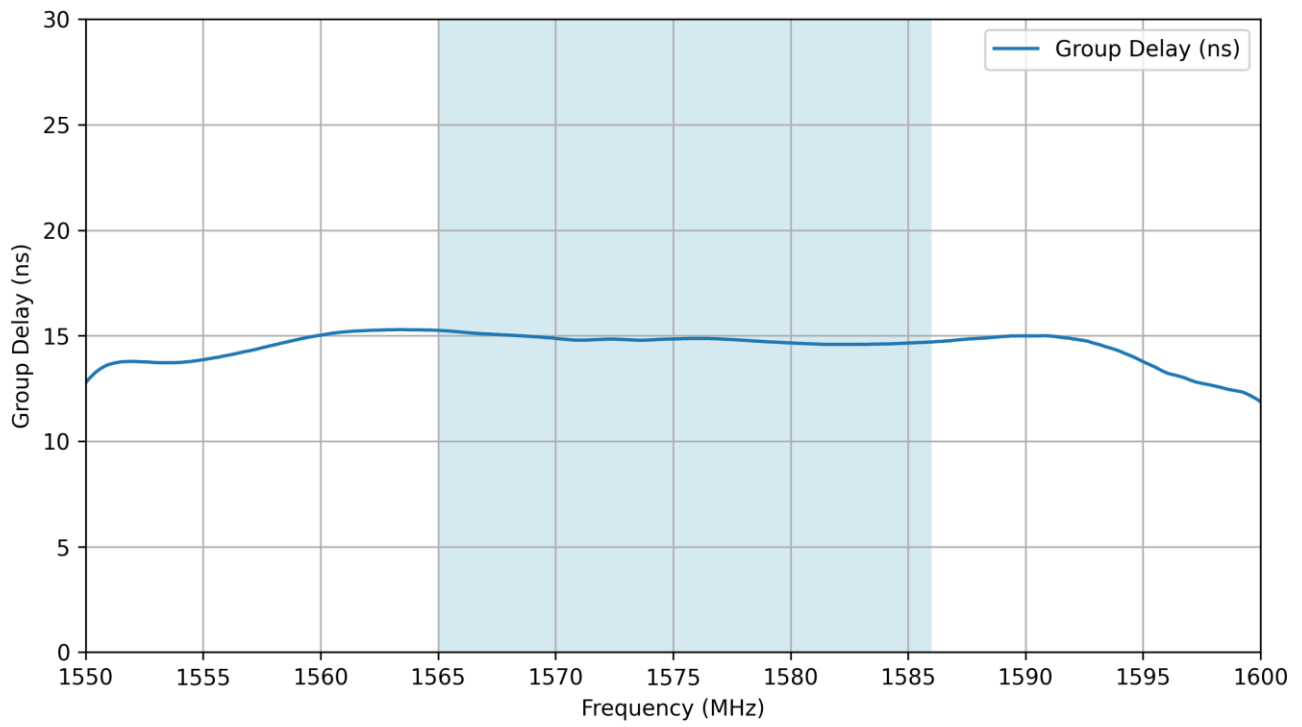
5.1 Out Of Band Attenuation



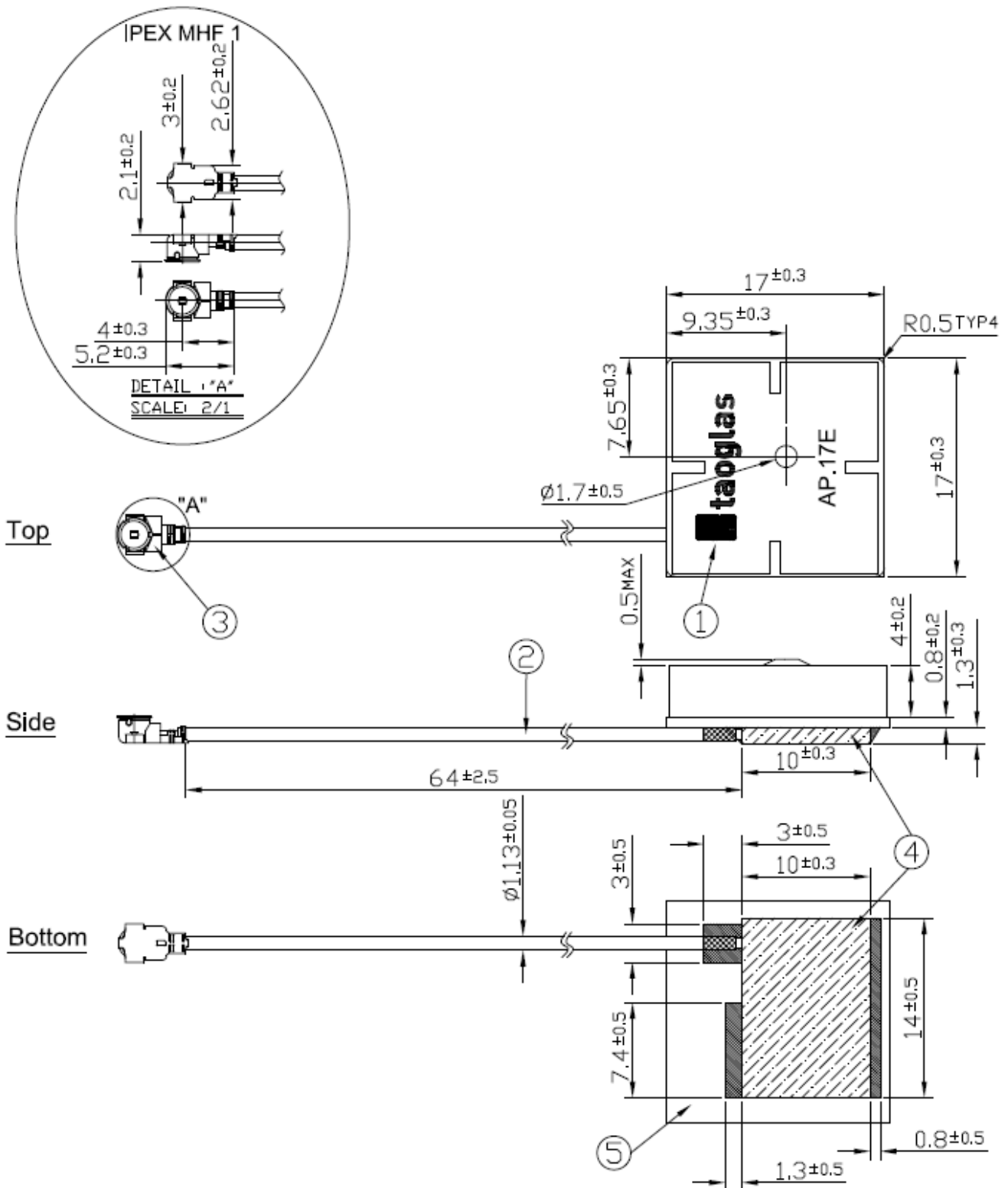
5.2 LNA Gain and Noise Figure @3.0V



5.3 Group Delay

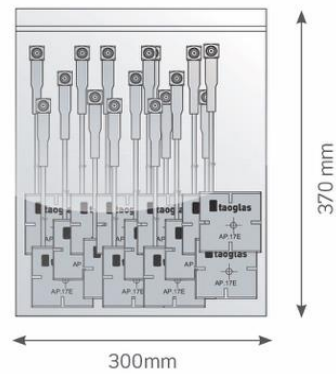


6. Mechanical Drawing

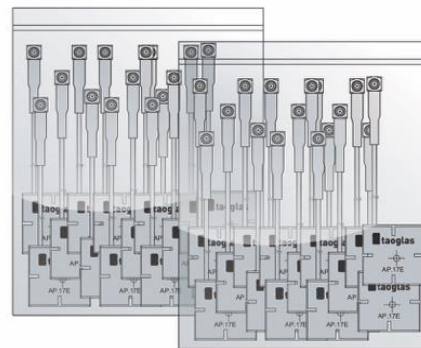


7. Packaging

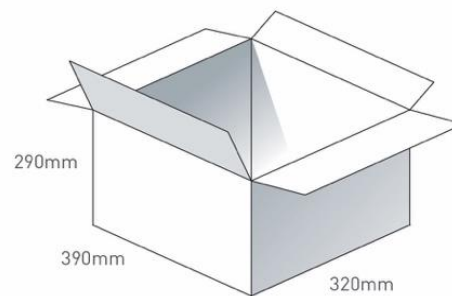
60 pc AP.17E.07.0064A in Vacuum Bag
 Dimensions - 370*300mm
 Weight - 534Kg



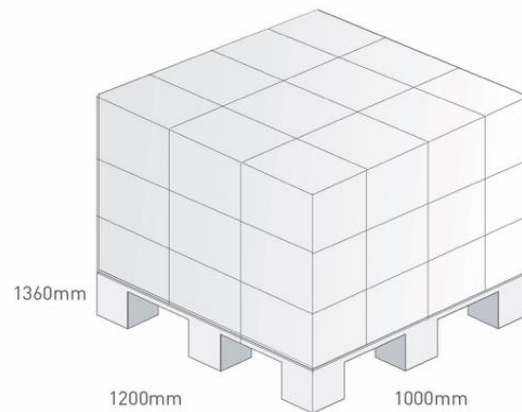
Batch of 2, 120pc AP.17E.07.0064A in Vacuum Bags
 Dimensions - 370*300mm
 Weight - 1.1Kg



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: E (Current Version)

| | |
|------------------|------------------------------|
| Date: | 2023-12-01 |
| Changes: | Retest and updated datasheet |
| Changes Made by: | Gary West |

Previous Revisions

Revision: D

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

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 |