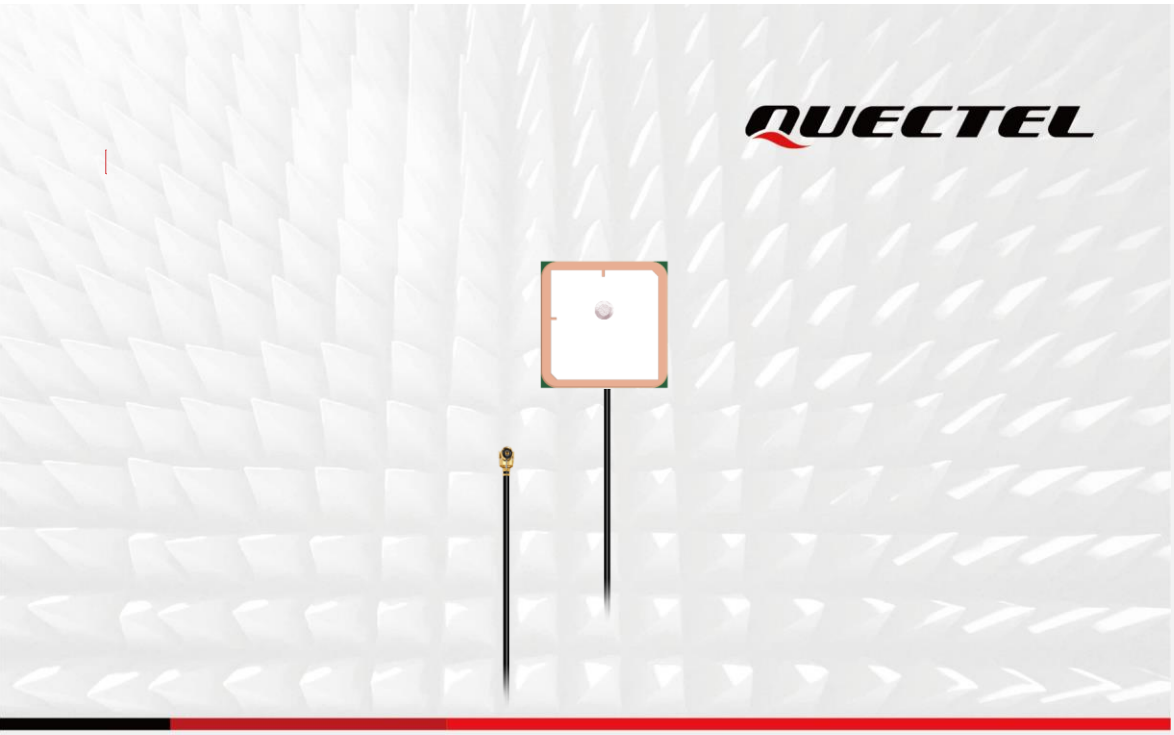

Antenna Datasheet

Product OC: YFGA025E3BM
Version: 1.2
Date: 2025-07-21
Status: Released

Product Name: GNSS L1 Buckle Mount Ceramic Patch + Cable Passive Embedded Antenna

批注 [诚储2]: 顺便更新命名，不写进修订记录里

Key Features:
Frequency Band: 1559–1586 MHz
Dimensions: 25 mm × 25 mm × 5.5 mm
Peak Gain: -0.41 dBi
RoHS and REACH Compliant

Overview

批注 [诚储3]: 更新描述

The Quectel YFGA025E3BM is a GNSS L1 buckle mount ceramic patch + cable passive embedded antenna, designed for reliable positioning. Operating in the 1559–1586 MHz range with 50 Ω impedance and RHCP polarization, it supports key bands like GPS L1, GALILEO E1, BDS B1I/B1C, and QZSS L1.

With dimensions 25 mm × 25 mm × 5.5 mm and a 7.2 g weight, it features a Φ 1.13 mm black RF cable (100 mm) with an IPEX MHF1 connector and buckle mounting for easy installation. It delivers 47.4 % efficiency at 1561 MHz and a peak gain of -0.41 dBi at 1575 MHz, ensuring stable signal reception.

RoHS and REACH compliant, it operates in -40 °C to +85 °C. Packaged in pearl cotton trays (36 pcs) and cartons (180 pcs), it suits seamless integration into GNSS-enabled devices requiring consistent performance in various environments.

Quectel provides comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs. We have regional R & D centers to offer quick response to meet your requirements. Please contact our sales & FAEs if you have any requests.

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1 Specification

Test Condition: Free Space

1.1. Electrical

Electrical	
Frequency Range	1559–1586 MHz
Impedance	50 Ω
Polarization	RHCP
Radiation Pattern	Directional

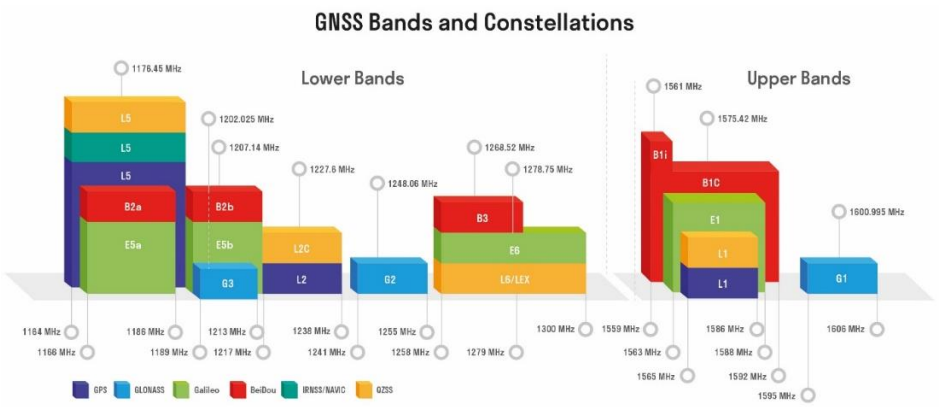
Band / Frequency (MHz)	GPS L5 GALILEO E5a BDS B2a-B2I QZSS L5 IRNSS L5	GALILEO E5b BDS B2b	GPS L2 QZSS L2C	GLONASS G2	BDS B3	BDS B1I	GPS L1 GALILEO E1 BDS B1C QZSS L1	GLONASS G1
	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	-	-	-	-	-	1.31	1.35	-
Return Loss (dB)	-	-	-	-	-	-17.3	-16.4	-
Efficiency (%)	-	-	-	-	-	47.4	47	-
Peak Gain (dBi)	-	-	-	-	-	-0.45	-0.41	-

1.2. Mechanical & Environmental

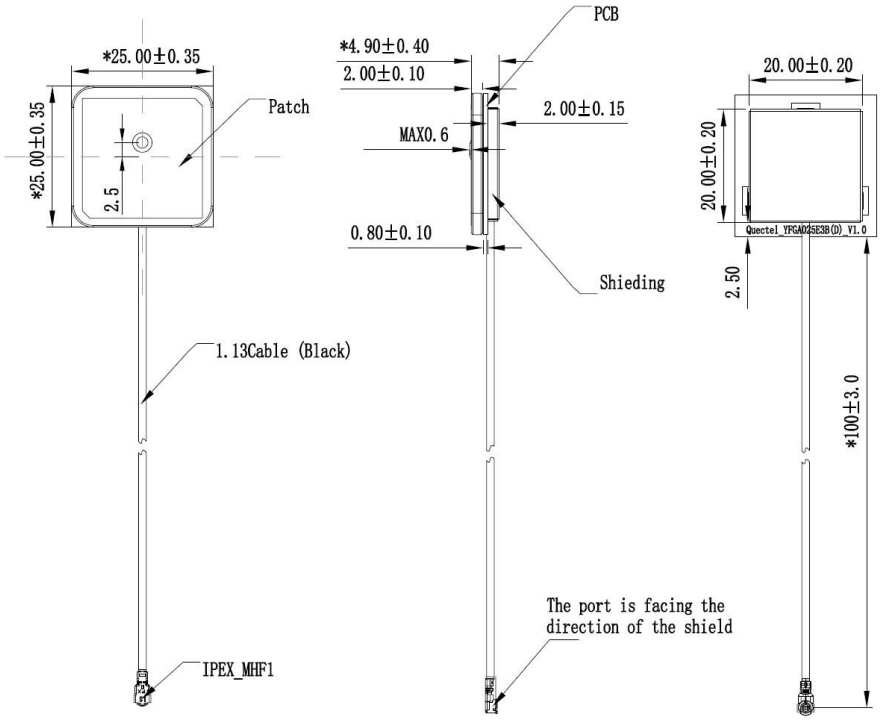
Mechanical	
Antenna Dimensions	25 mm × 25 mm × 5.5 mm
Material & Color	PCBA + Ceramic + RF Cable
Cable Type & Length	Φ 1.13 mm & Black & 100 mm
Connector Type	IPEX MHF1
Mounting Type	Buckle
Weight	Typ. 7.2 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS & REACH Compliant	Yes

1.3. Supported GNSS Frequency Bands

GNSS Frequency Bands (MHz)					
GPS	**L1** Centre 1575.42 (1565–1586)	**L2** Centre 1227.6 (1217–1238)	**L5** Centre 1176.45 (1164–1189)		
	√	-	-		
GLONASS	**G1-L1OC-L1OF** Centre 1601 (1595–1606)	**G2-L2OC-L2OF** Centre 1248.06 (1241–1255)	**G3-L3OC** Centre 1202.025 (1189–1213)		
	-	-	-		
GALILEO	**E1** Centre 1575.42 (1563–1588)	**E5a** Centre 1176.45 (1166–1187)	**E5b** Centre 1207.14 (1197–1218)	**E6** Centre 1278.75 (1258–1300)	
	√	-	-	-	
BDS	**B1I** Centre 1561.098 (1559–1564)	**B1C (BDS-3)** Centre 1575.42 (1559–1592)	**B2a-B2I** Centre 1176.45 (1166–1187)	**B2b** Centre 1207.14 (1197–1217)	**B3** Centre 1268.52 (1258–1279)
	√	√	-	-	-
QZSS	**L1** Centre 1575.42 (1573–1578)	**L2C** Centre 1227.6 (1226–1229)	**L5** Centre 1176.45 (1166–1187)	**L6** Centre 1278.75 (1257–1300)	
	√	-	-	-	
IRNSS	**L5** Centre 1176.45 (1164–1189)				
	-				


GNSS Bands and Constellations
Lower Bands
Upper Bands
1176.45 MHz
L5
L5
L5
B2a
E5a
1202.025 MHz
1207.14 MHz
B2b
E5b
G3
1227.6 MHz
L2C
L2
1248.06 MHz
G2
1268.52 MHz
1278.75 MHz
B3
E6
L6/LEX
1184 MHz
1166 MHz
1186 MHz
1189 MHz
1213 MHz
1217 MHz
1238 MHz
1241 MHz
1255 MHz
1258 MHz
1279 MHz
1300 MHz
1561 MHz
1563 MHz
1565 MHz
1575.42 MHz
B1i
B1C
E1
L1
L1
1586 MHz
1588 MHz
1592 MHz
1595 MHz
1600.995 MHz
G1
1606 MHz
GPS
GLONASS
Galileo
BeiDou
IRNSS/NAVIC
QZSS

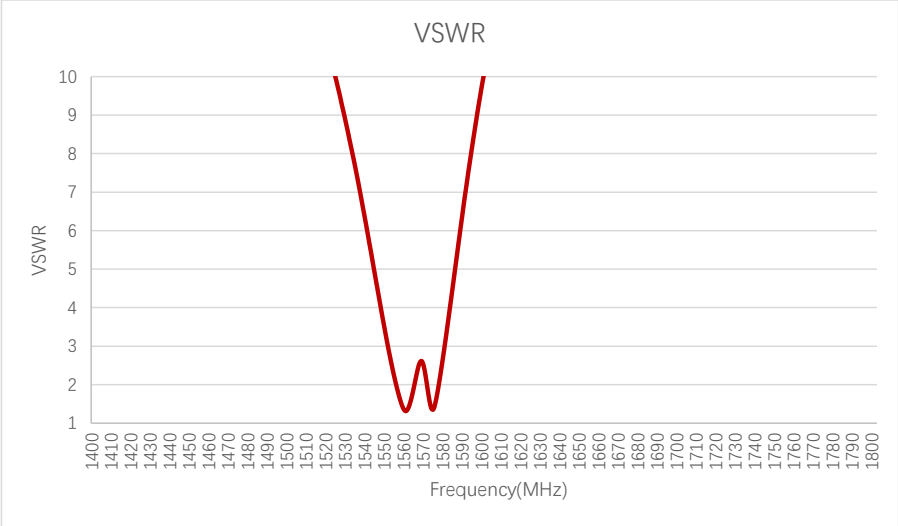
2 Drawing


*25.00±0.35
*25.00±0.35
2.5
Patch
1.13Cable (Black)
IPEX_MHF1
*4.90±0.40
2.00±0.10
MAX0.6
0.80±0.10
PCB
2.00±0.15
Shieding
The port is facing the
direction of the shield
20.00±0.20
20.00±0.20
2.50
*100±3.0

3 Detailed Performance

3.1. S-Parameter Test

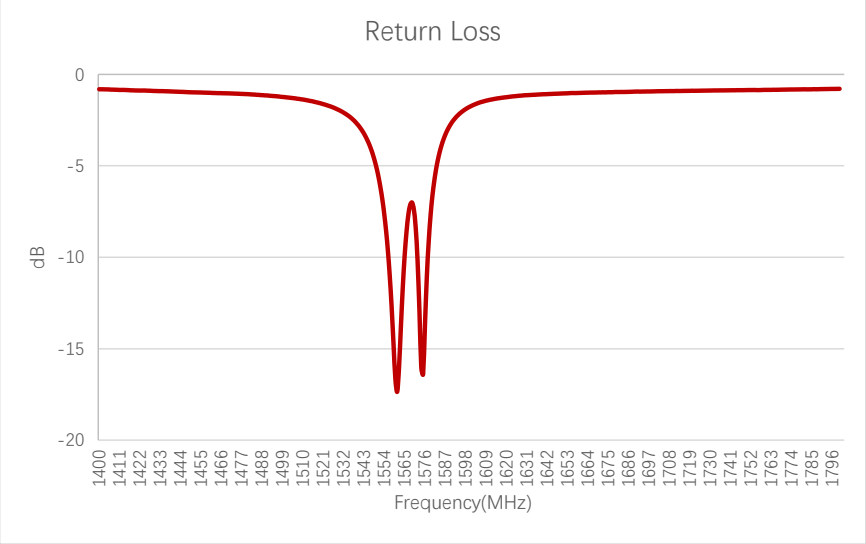
3.1.1. VSWR



VSWR

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
VSWR	-	-	-	-	-	1.31	1.35	-

3.1.2. Return Loss

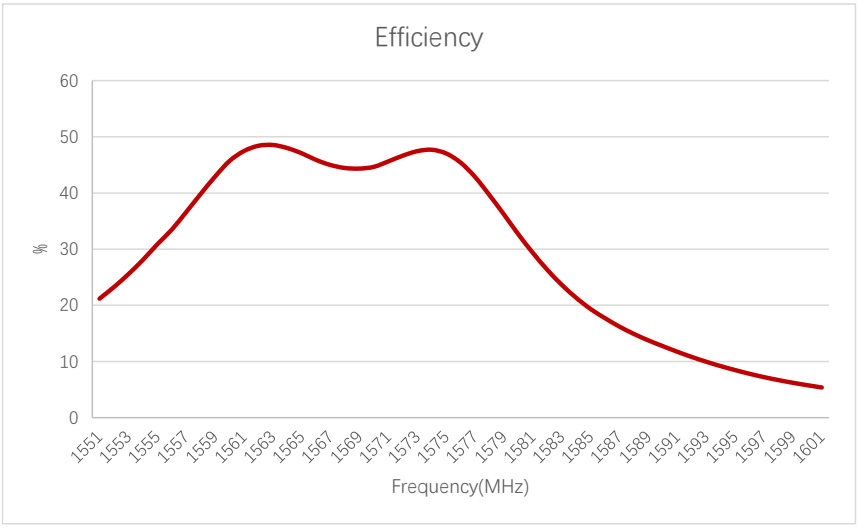


Return Loss (dB)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Return Loss (dB)	-	-	-	-	-	-17.3	-16.4	

3.2. Radiation Performance Test

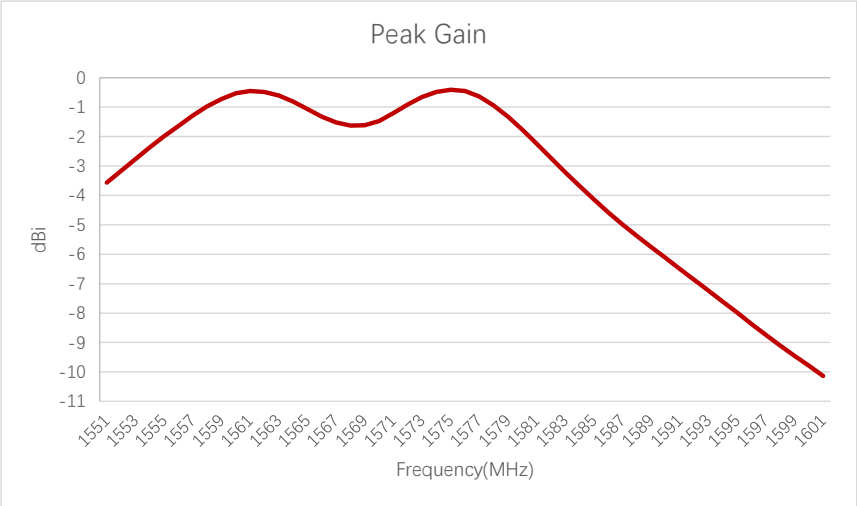
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Efficiency (%)	-	-	-	-	-	47.4	47	-

3.2.2. Peak Gain

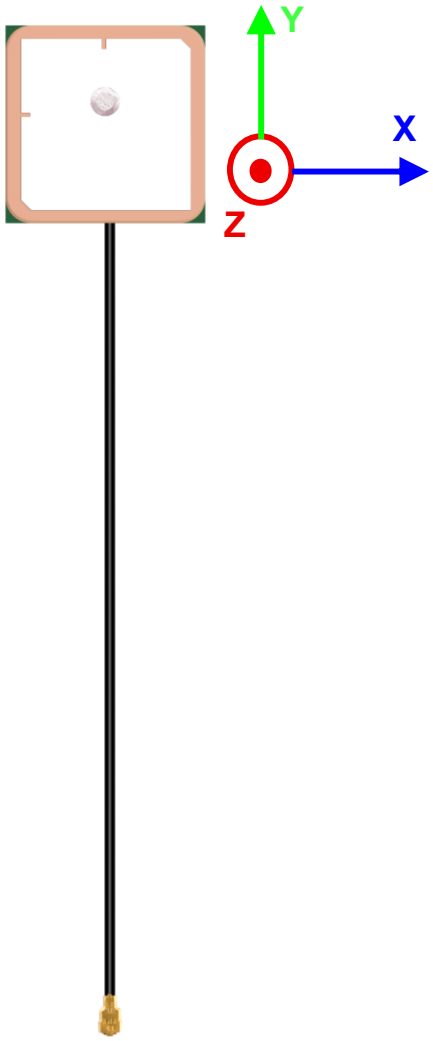


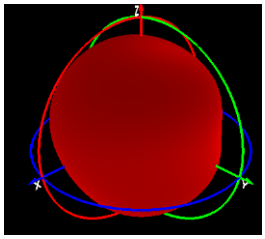
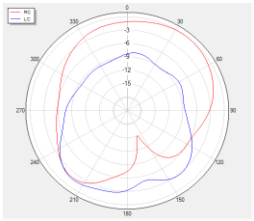
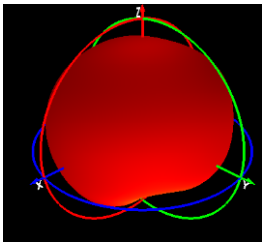
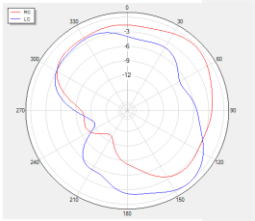
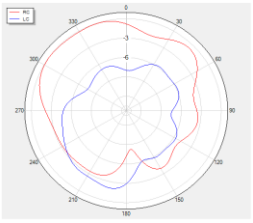
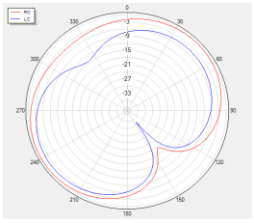
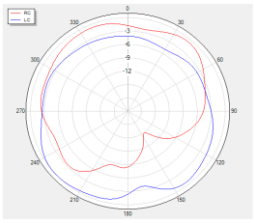
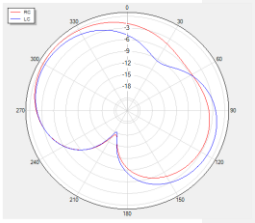
Peak Gain (dBi)

Frequency (MHz)	1176	1207	1227	1248	1268	1561	1575	1602
Peak Gain (dBi)	-	-	-	-	-	-0.45	-0.41	-

3.2.3. 3D & 2D Radiation Pattern

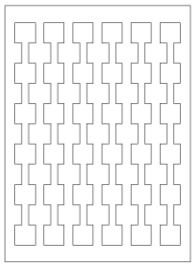
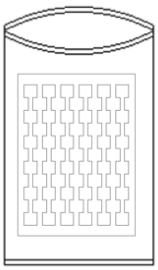
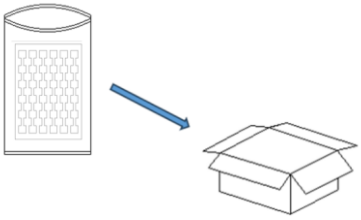
- Test Condition: Free Space
- Test Chamber: SH-SY-16M

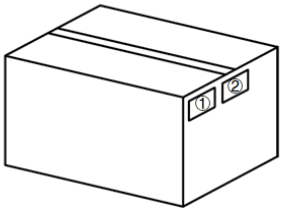
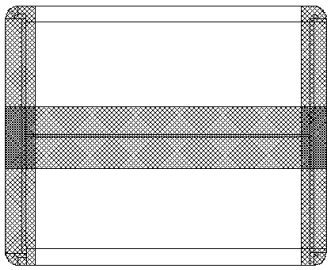


1561 MHz		1575 MHz	
	Phi=0 freq=1561MHz 		Phi=0 freq=1575MHz 
Phi=90 freq=1561MHz 	Theta=90 freq=1561MHz 	Phi=90 freq=1575MHz 	Theta=90 freq=1575MHz 

4 Packaging

批注 [诚储4]: 删除 PCS

Step	Packaging Picture / 2D Picture	Description
1		(36 Antennas / Pearl Cotton Tray)
2		The pearl cotton tray is vacuumed in a vacuum bag.
3		(5 Pearl Cotton Trays / Carton Box) (180 Antennas / Carton Box) Carton Size: L × W × H = 405 × 293 × 185 mm

4		**Position for Attaching Labels** ① Carton Label ② Quality Label
5		**Sealing Cartons** H-shaped sealing cartons

Contact Us

At Quectel, our aim is to provide timely and comprehensive services to our customers. If you require any assistance, please contact our headquarters:

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Tel: +86 21 5108 6236
Email: info@quectel.com

Or our local offices. For more information, please visit:
http://www.quectel.com/support/sales.htm.

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Revision History

Version	Date	Author	Note
-	2024-04-19	Junsen LI/ Mike GUO/ David LIU/ Rainey LIAO	Creation of the document
1.0	2024-04-19	Junsen LI/ Mike GUO/ David LIU/ Rainey LIAO	First official release
1.1	2024-11-19	Mike GUO	Deleted adhesive mounting type of antenna (Chapter 1.2).
1.2	2025-07-21	Aria CHU	1. Updated the antenna image (Cover page). 2. Updated the overview.

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