Antenna

YG0043AA Datasheet

Antenna Services

Version: 1.1

Date: 2021-07-13

Status: Released

Our aim is to provide customers with timely and comprehensive service. For any assistance, please contact our company headquarters:

Quectel Wireless Solutions Co., Ltd.
Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China
Tel: +86 21 5108 6236
Email: info@quectel.com

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

For technical support, or to report documentation errors, please visit:
http://www.quectel.com/support/technical.htm
Or email to support@quectel.com.

General Notes

Quectel offers the information as a service to its customers. The information provided is based upon customers' requirements. Quectel makes every effort to ensure the quality of the information it makes available. Quectel does not make any warranty as to the information contained herein, and does not accept any liability for any injury, loss or damage of any kind incurred by use of or reliance upon the information. All information supplied herein is subject to change without prior notice.

Disclaimer

While Quectel has made efforts to ensure that the functions and features under development are free from errors, it is possible that these functions and features could contain errors, inaccuracies and omissions. Unless otherwise provided by valid agreement, Quectel makes no warranties of any kind, implied or express, with respect to the use of features and functions under development. To the maximum extent permitted by law, Quectel excludes all liability for any loss or damage suffered in connection with the use of the functions and features under development, regardless of whether such loss or damage may have been foreseeable.

Duty of Confidentiality

The Receiving Party shall keep confidential all documentation and information provided by Quectel, except when the specific permission has been granted by Quectel. The Receiving Party shall not access or use Quectel's documentation and information for any purpose except as expressly provided herein. Furthermore, the Receiving Party shall not disclose any of the Quectel's documentation and information to any third party without the prior written consent by Quectel. For any noncompliance to the above requirements, unauthorized use, or other illegal or malicious use of the documentation and information, Quectel will reserve the right to take legal action.

Copyright

About the Document

Revision History

Version	Date	Author	Note
-	2020-12-28	Kenny YIN/ Xiaodong YANG	Creation of the document
1.0	2020-12-28	Kenny YIN/ Xiaodong YANG	First official release
1.1	2021-07-13	Aria CHU	Added Chapters 3 and 7.

Contents

About the Document 3
Contents 4
1 Product Description 5
2 Product Features 5
3 GNSS Frequency Band Checklist 6
4 Product Specifications 8
5 Overall Performance 9
5.1. Test Environment 9
5.2. VSWR 10
5.3. Efficiency 11
5.4. Gain 11
5.5. Radiation Pattern 12
6 Product Size 13
7 PCB Footprint Recommendation 14

1 Product Description

The antenna is designed for superior performance, and can be widely used for wireless applications.

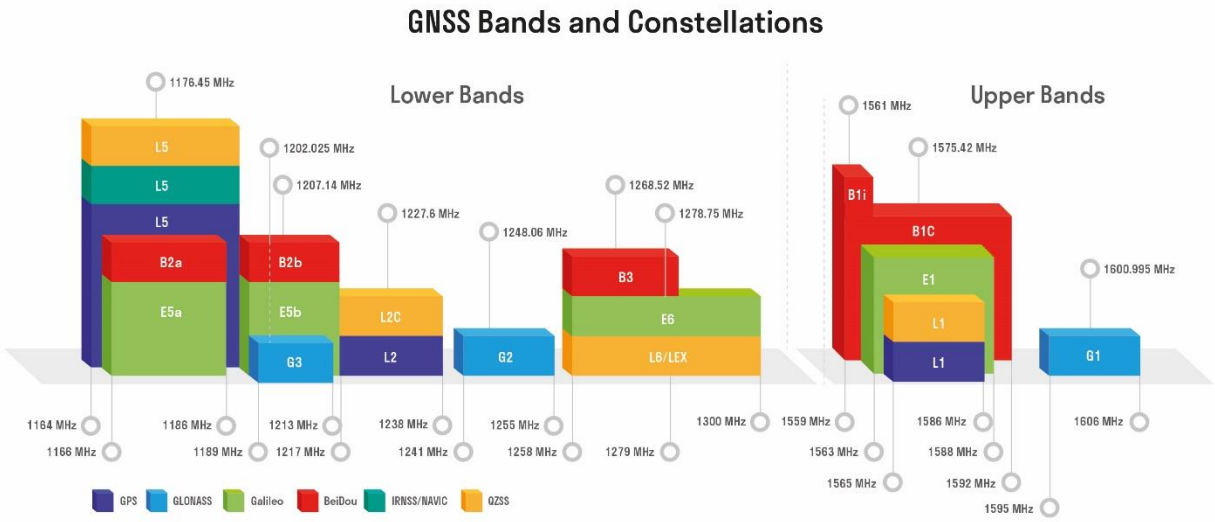
We provide comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs.

2 Product Features

- Ceramic GNSS
- High efficiency
- Excellent performance

3 GNSS Frequency Band Checklist

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)	
	●	-	-	-	
BEIDOU	**B1I** Centre 1561.098 (1559–1564)	**B1C (BeiDou-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
B3
1227.6 MHz
L2C
L2
1248.06 MHz
G2
1268.52 MHz
1278.75 MHz
B3
E6
L6/LEX
1561 MHz
1575.42 MHz
B1i
B1C
E1
L1
L1
1600.995 MHz
G1
1164 MHz
1166 MHz
1186 MHz
1189 MHz
1213 MHz
1217 MHz
1238 MHz
1241 MHz
1255 MHz
1258 MHz
1279 MHz
1300 MHz
1559 MHz
1563 MHz
1565 MHz
1586 MHz
1588 MHz
1592 MHz
1595 MHz
1606 MHz
GPS
GLONASS
Galileo
BeiDou
IRNSS/NAVIC
QZSS

4 Product Specifications

- This antenna is tested on a 100 mm × 80 mm PCB.

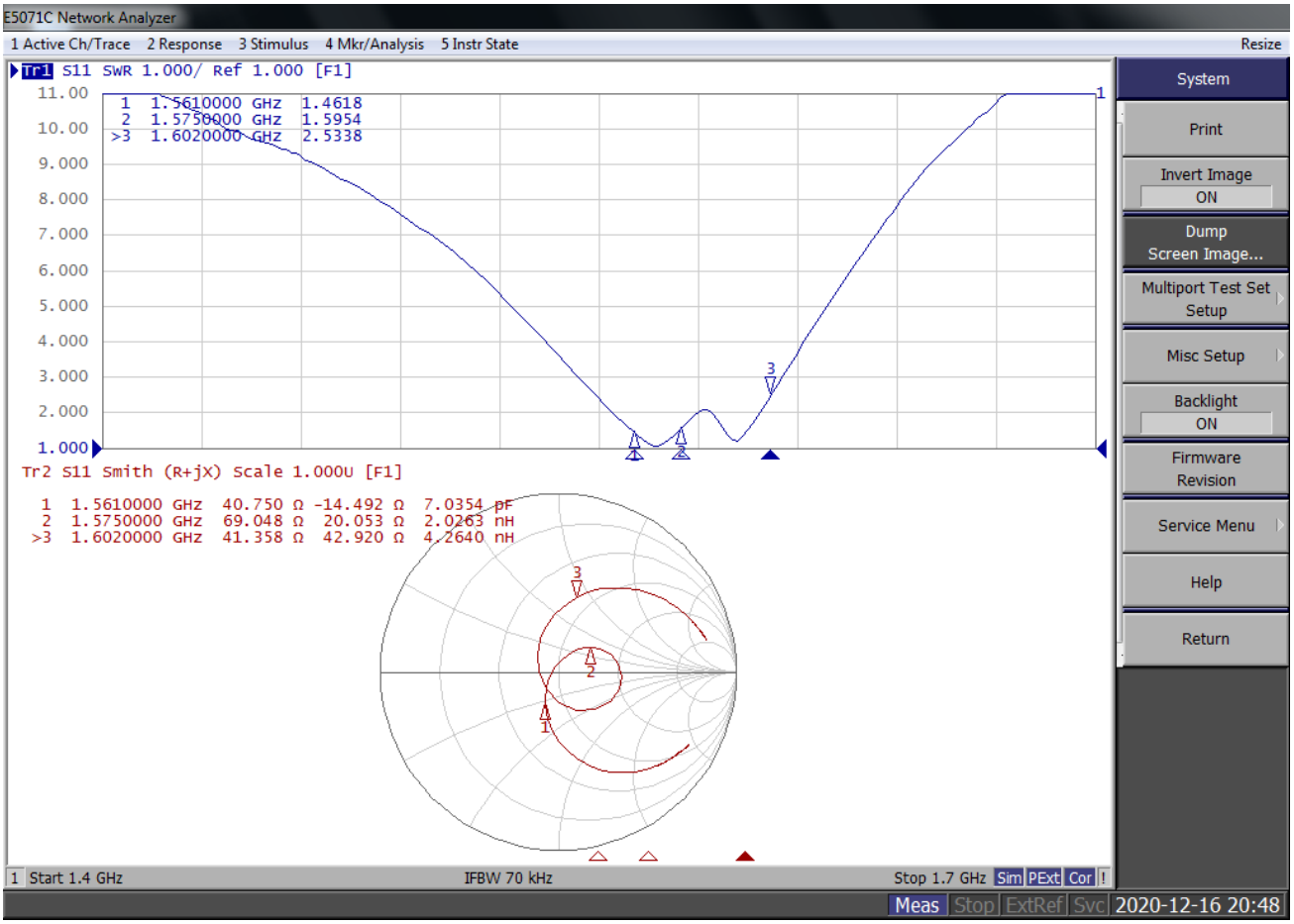
Passive Electrical Specifications	
Frequency	GPS L1: 1575.42 MHz BD B1: 1561.098 MHz GLONASS L1: 1602 MHz
Input Impendence	50 Ω
VSWR	≤ 2.53
Gain	< 3.0 dBi
Polarization Type	RHCP
Mechanical Specifications	
Antenna Size	15 mm × 15 mm × 4 mm
Casing	Ceramic
Working Temperature	-40 °C to +85 °C
Radome Color	-

5 Overall Performance

5.1. Test Environment

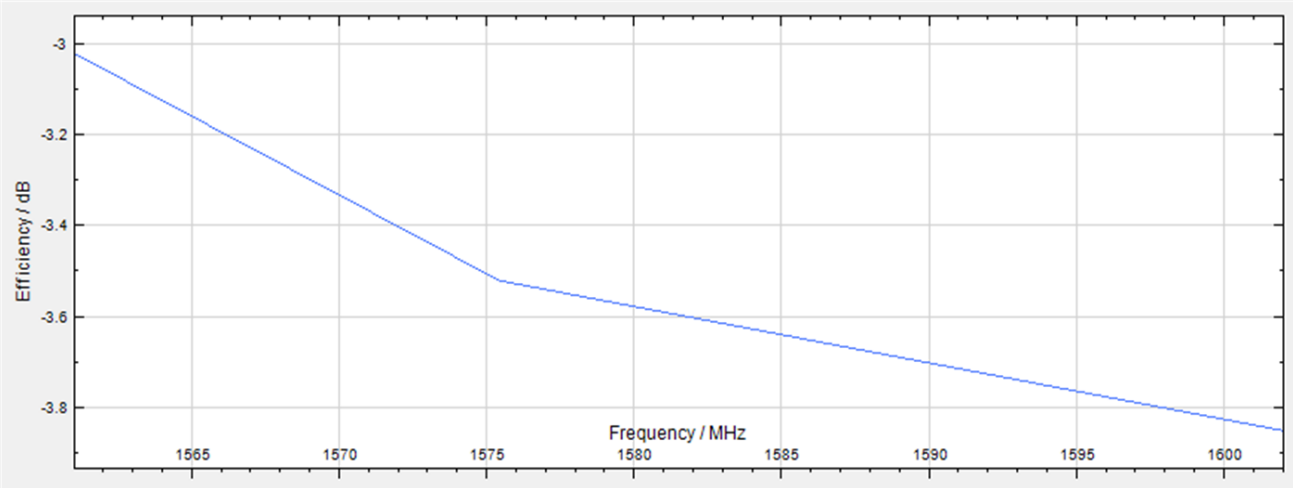
- KEYSIGHT VNA Network Analyzer E5063A 100 kHz – 8.5 GHz
- RayZone® 2800 Chamber 5G (FR1) SISO/MIMO, 400 MHz – 8.0 GHz

5.2. VSWR



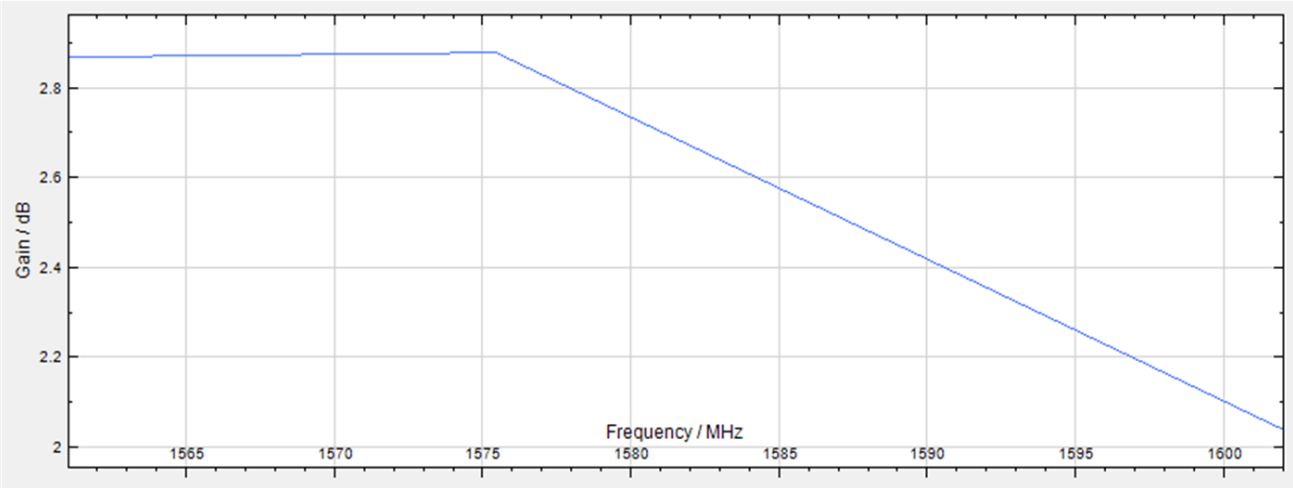
Frequency (MHz)	1561	1575	1602
VSWR	1.46	1.59	2.53

5.3. Efficiency



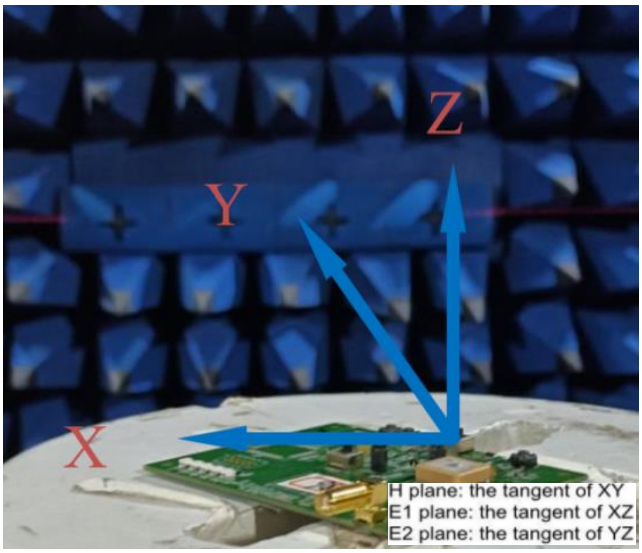
Frequency (MHz)	1561	1575	1602
Efficiency (%)	49.89	44.46	41.21

5.4. Gain

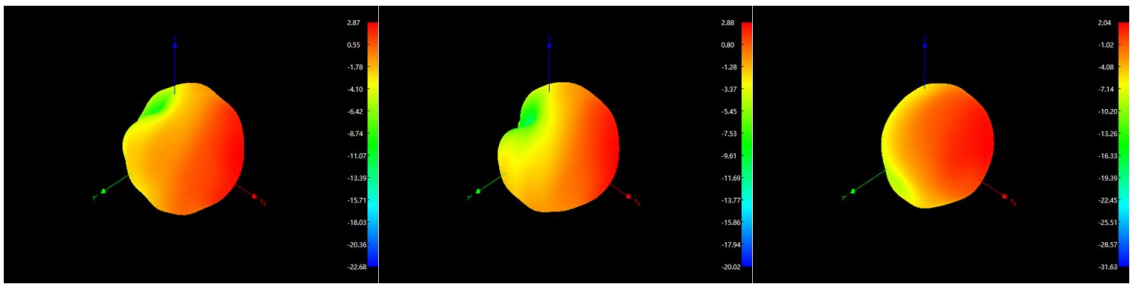


Frequency (MHz)	1561	1575	1602
Gain (dBi)	2.87	2.88	2.04

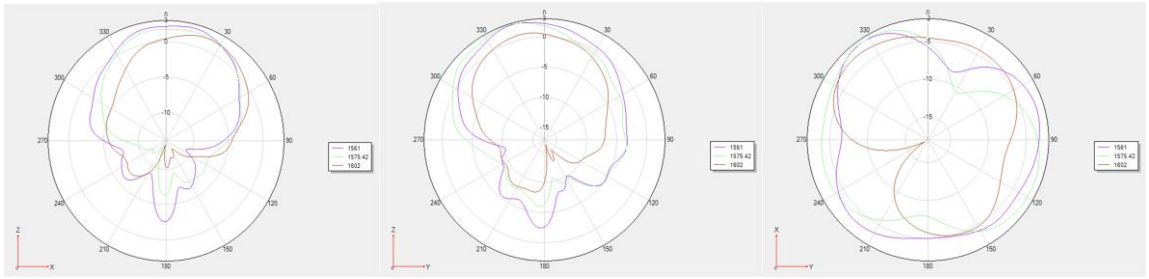
5.5. Radiation Pattern



1561 MHz **1575 MHz** **1602 MHz**

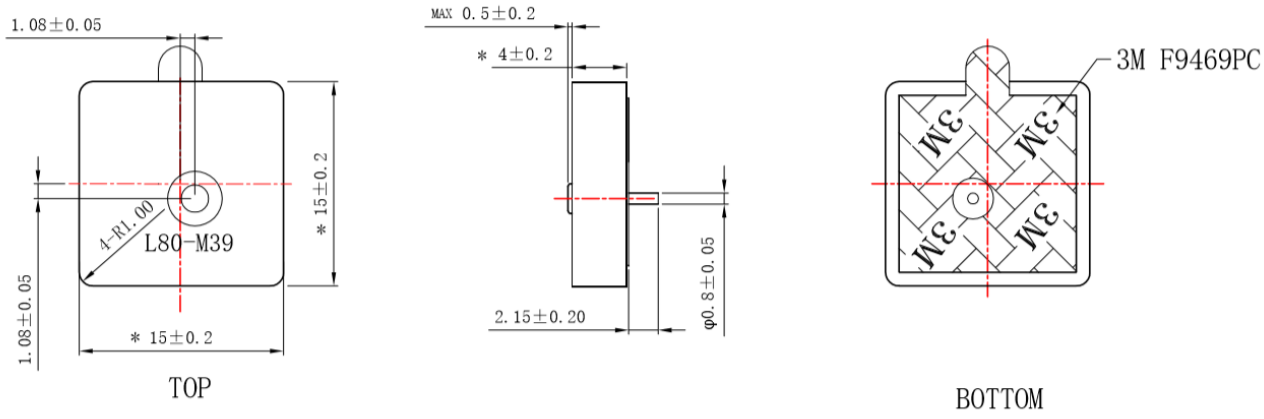


Phi 0 Phi 90 Theta 90



6 Product Size

ROHS



7 PCB Footprint Recommendation