Antenna

YAT001CA Datasheet

Antenna Services

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Status: Released

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

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About the Document

Revision History

Version	Date	Author	Note
-	2021-05-11	Kenny YIN/ Aria CHU	Creation of the document
1.0	2021-05-11	Kenny YIN/ Aria CHU	First official release
1.1	2021-07-22	Aria CHU	1. Added Chapter 3. 2. Updated active data (Chapters 4 and 5.5).

Contents

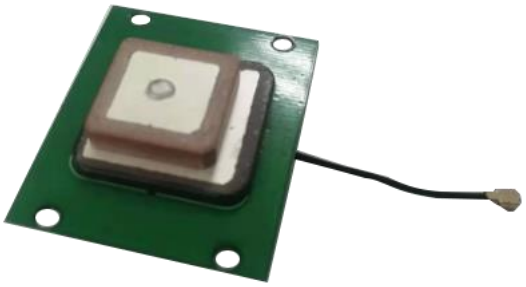
1 Product Description

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.

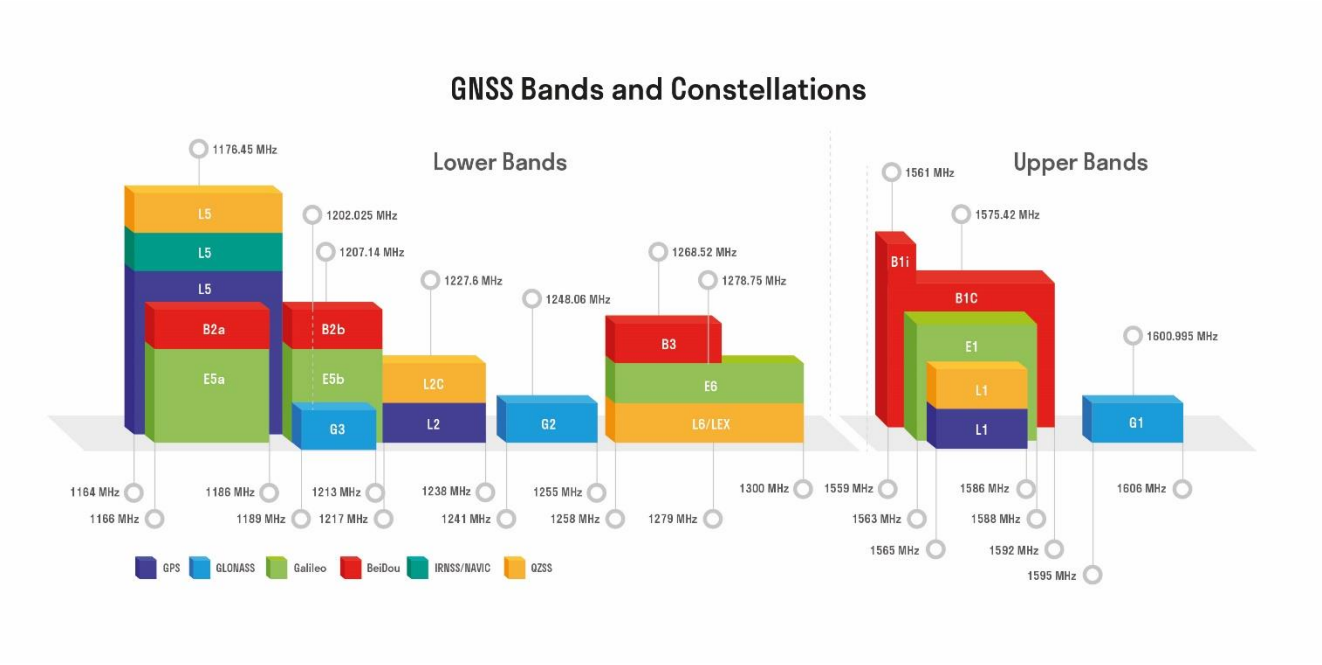
2 Product Features

- BDS B1 & GPS L5
- 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
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

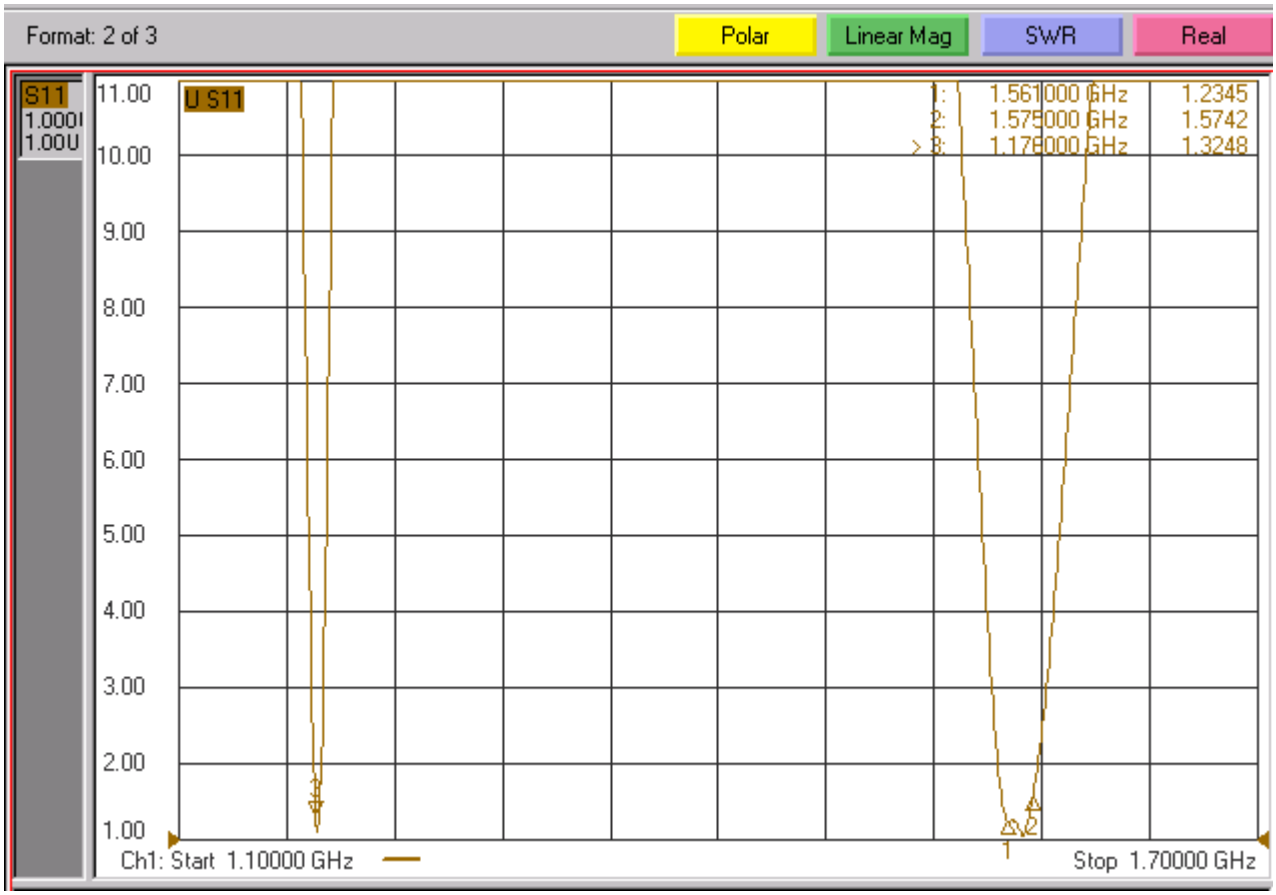
Passive Electrical Specifications	
Frequency Range	GPS L5: 1176.45 MHz; BDS B1: 1561.098 MHz
Input Impendence	50 Ω
VSWR	≤ 2.0
Gain	GPS L5: ≤ -1.0 dBi; BDS B1: ≤ 2.0 dBi
Polarization Type	RHCP
Active electrical performance	
Output Impendence	50 Ω
Output VSWR	≤ 2.0
NF	GPS L5: ≤ 3.0 dB; BDS B1: ≤ 3.0 dB
Gain	GPS L5: 22 ±3 dB; BDS B1: 17 ±3 dB
Mechanical Specifications	
Antenna Size	25 mm × 25 mm × 2 mm + 18 mm × 18 mm × 4 mm (Ground Plane: 43 mm × 35 mm × 0.8 mm)
Casing	Ceramics
Connector Type	RF 1
Working Temperature	-40 °C to +85 °C
Radome Color	-

5 Overall Performance

5.1. Test Environment

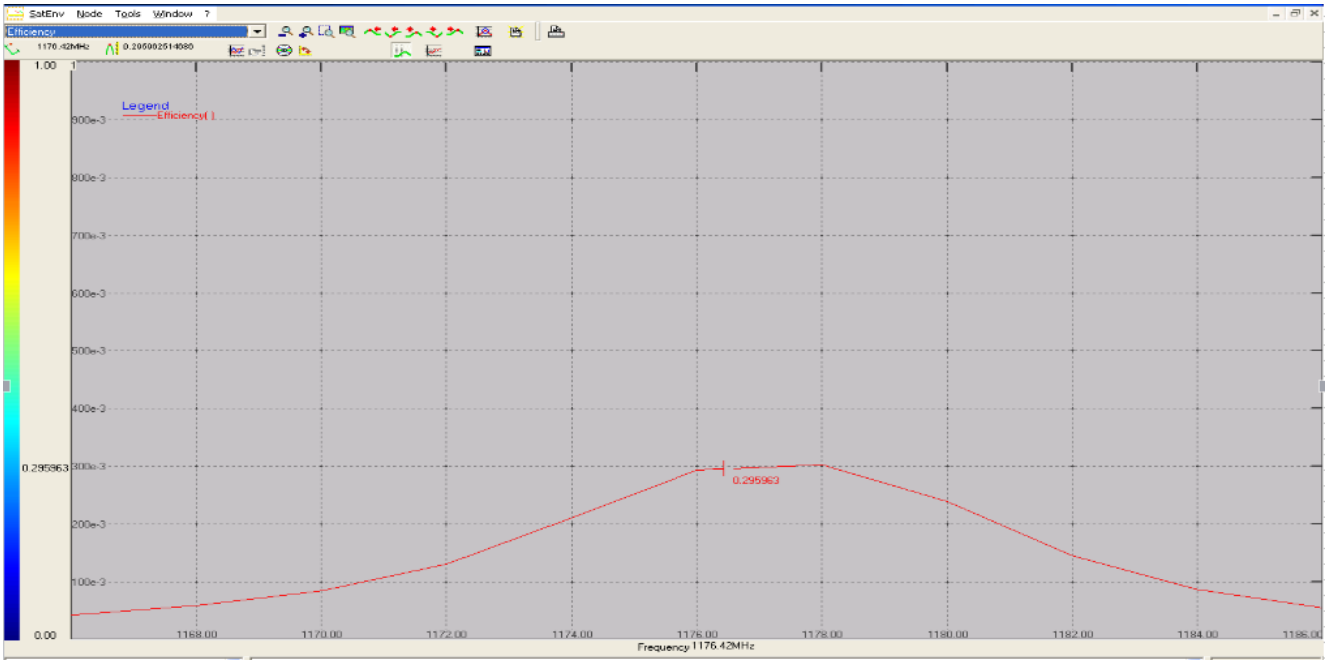
- KEYSIGHT VNA Network Analyzer E5063A 100 kHz – 8.5 GHz
- RayZone® 2800 Chamber 5G (FR1) SISO/MIMO, 400 MHz – 8.0 GHz

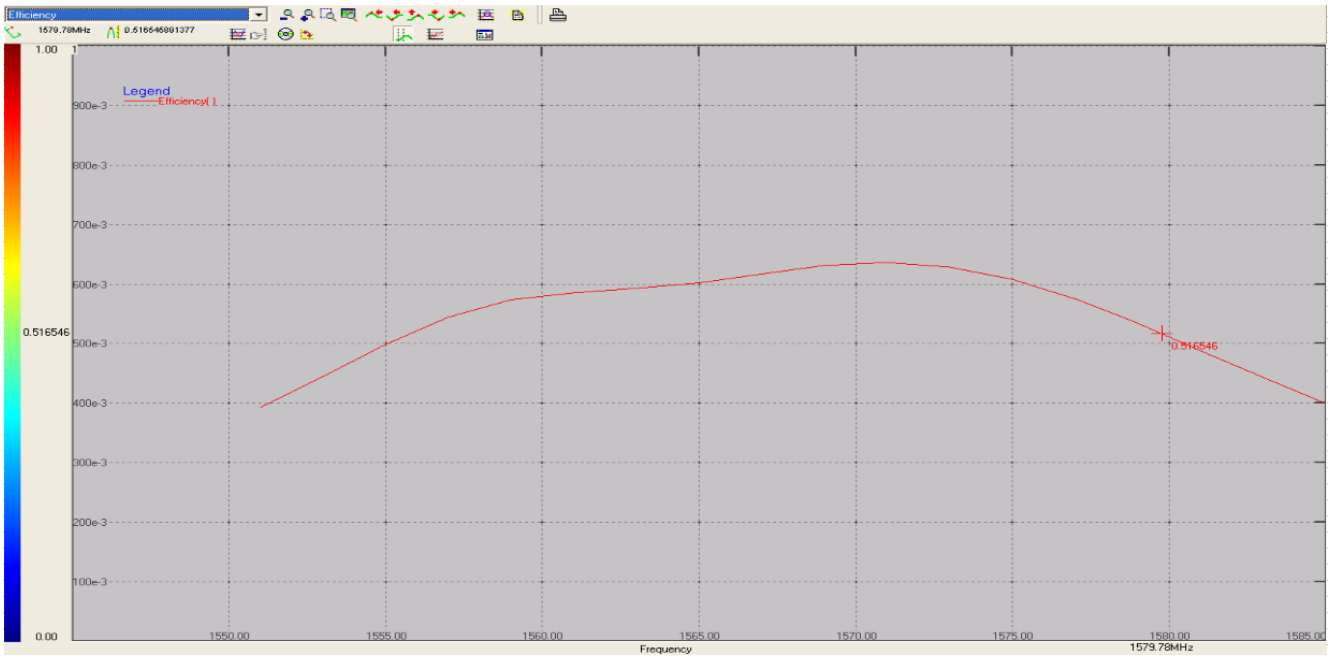
5.2. VSWR



Frequency (MHz)	1176	1561	1575
VSWR	1.23	1.57	1.32

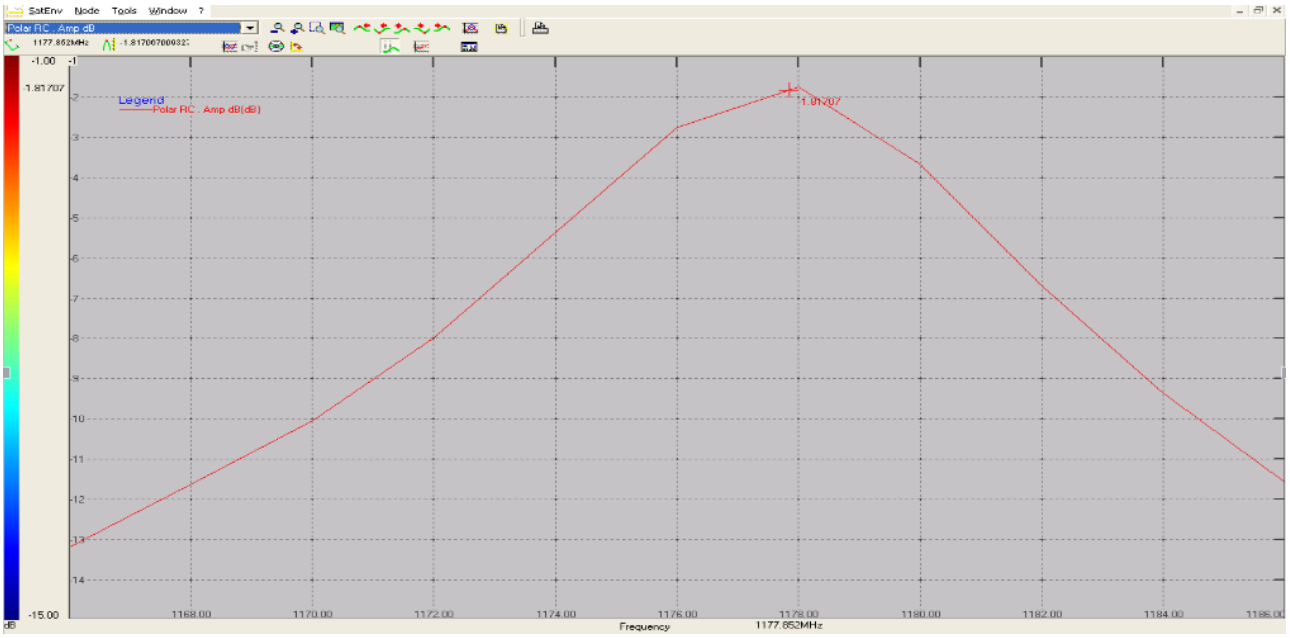
5.3. Efficiency

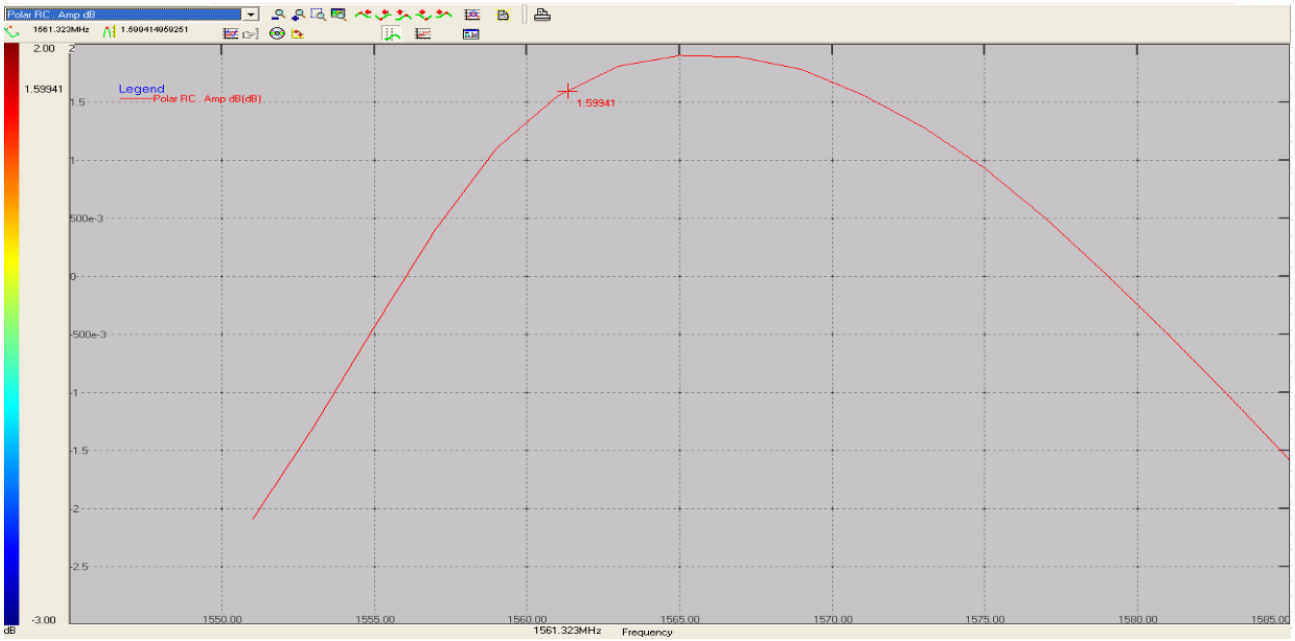




Frequency (MHz)	1176	1561.098	1575.42
Efficiency (%)	30	58	62

5.4. Gain



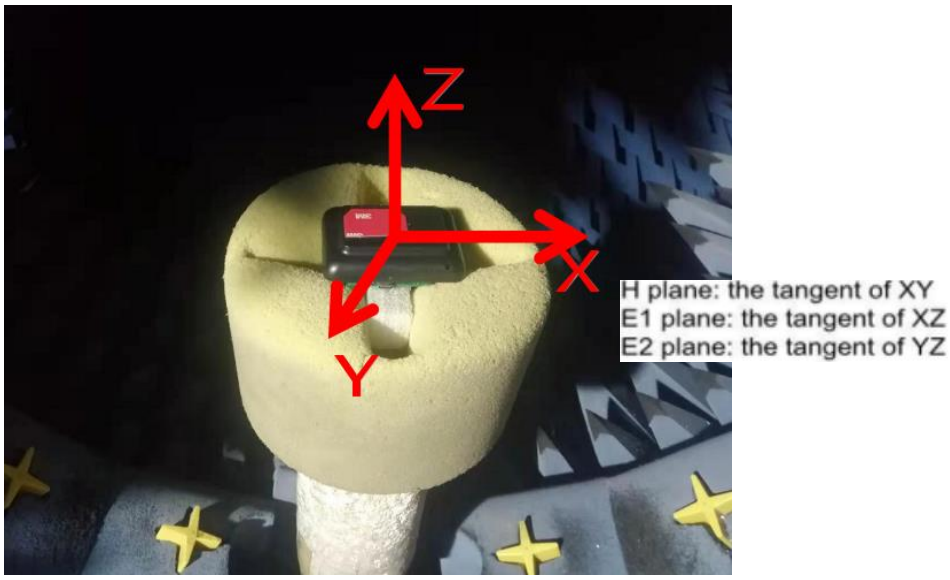


Frequency (MHz)	1176	1561.098	1575.42
Gain (dBi)	-2.7	1.6	0.8

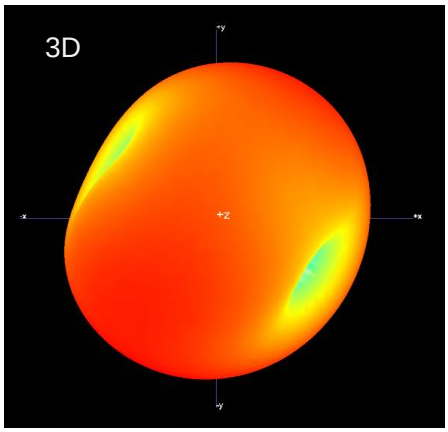
5.5. LNA data

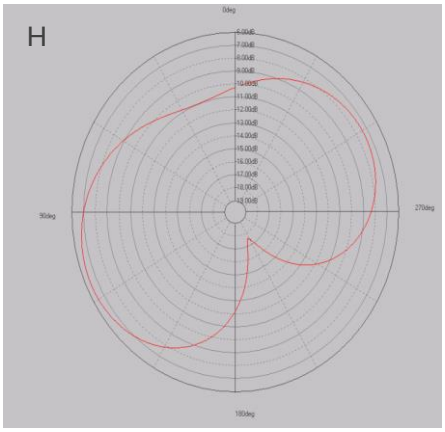
Frequency (MHz)	1176	1561	1575
Gain (dB)	21.3	17.5	16.7

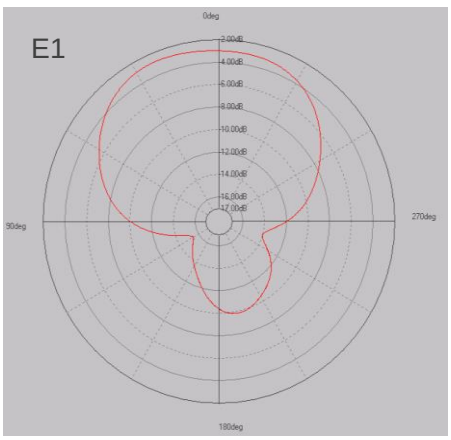
5.6. Radiation Pattern

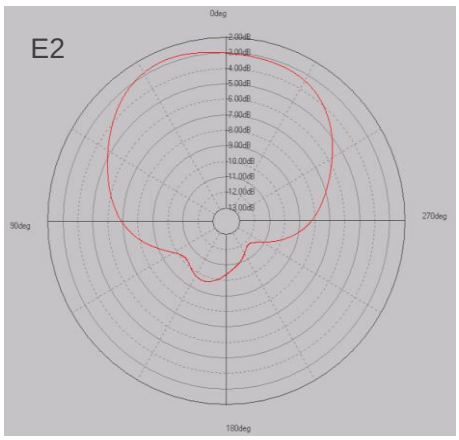


5.6.1. 1176 MHz

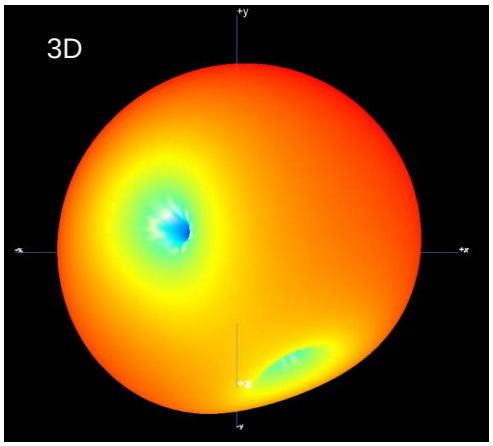


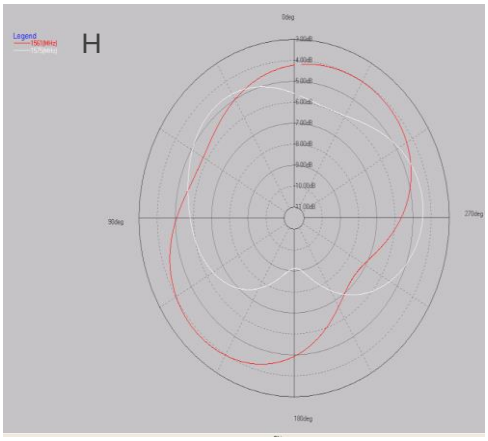


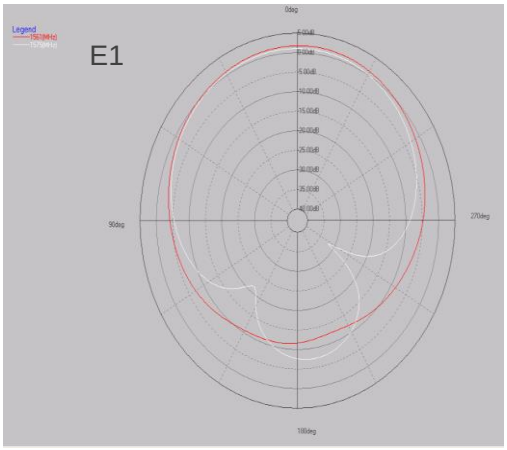




5.6.2. 1561 MHz







6 Product Size