Antenna Datasheet

Product OC: YETN001L1A
Version: 1.2
Date: 2024-01-24
Status: Released

Product Name: L-Band & GNSS L1 & Iridium Antenna
Key Features:
Frequency Band:
GNSS L1: 1559–1606 MHz
Iridium:1616–1626.5 MHz
L-Band: TX: 1626.5–1660.5 MHz, 1668–1675 MHz
RX: 1518–1559 MHz
Peak Gain: 4.3 dBic (Max)
RoHS and REACH Compliant
IP67
IK09

Overview

This Quectel satellite communication antenna adopts a diversity of forms to guarantee the most suitable polarization type. Quectel's satellite communication antenna products support L band, S band and L+S combination to meet various requirements of customers' products. Such antenna supports different installation or connection methods such as pin mount, surface mount, magnetic mount, internal cable, and external SMA. Customized connector type and cable length are provided according to requirements.

Contents

1 Specification

Test Condition: Free Space

1.1. Electrical

Electrical		
Frequency Range	L-Band	TX: 1626.5–1660.5 MHz, 1668–1675 MHz RX: 1518–1559 MHz
	GNSS	1559–1606 MHz
	Iridium	1616–1626.5 MHz
Impedance		50 Ω
Polarization		RHCP
Radiation Pattern		Directional

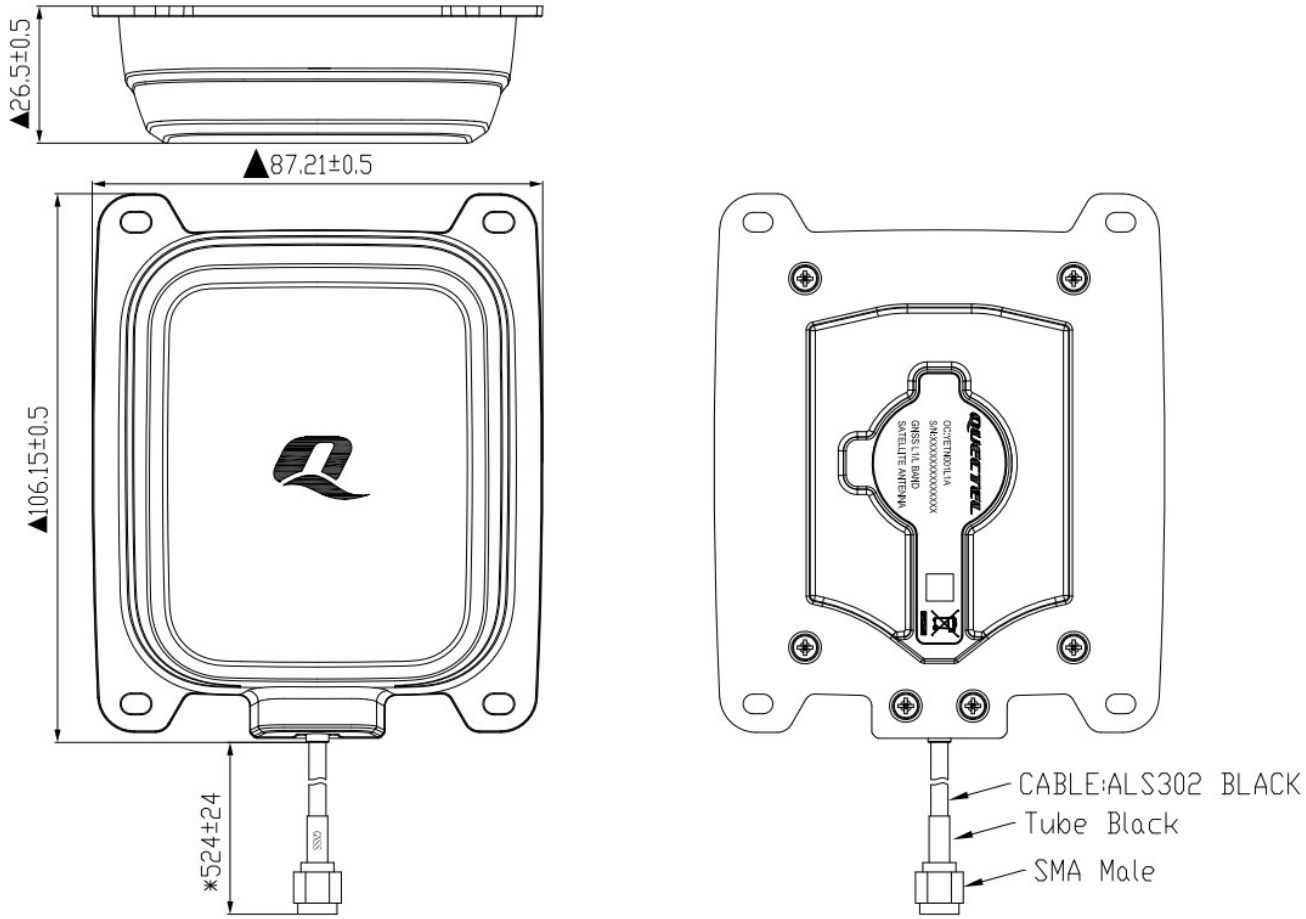
Band / Frequency (MHz)	L-Band TX					L-Band RX				GPS L1 GALILEO E1 BEIDOU B1C QZSS L1	GLONASS G1	Iridium		
	1626	1645	1661	1668	1675	1518	1525	1543	1559	1575	1600	1616	1621	1626
VSWR	1.3	1.3	1.5	1.5	1.6	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3
Return Loss (dB)	-17	-15	-13	-13	-12	-19	-19	-20	-19	-20	-22	-20	-19	-17
Efficiency (%)	70.0	71.2	71.5	71.4	68.8	45.1	47	52.6	58.3	61.5	65.3	68.2	69.3	70.0
Peak Gain (dBic)	3.8	3.7	4.1	4.2	4.1	2.8	2.9	2.8	3.0	3.5	4.3	4.2	4.0	3.8
Axial Ratio (dB)	2.7	3.3	3.8	3.9	3.9	1.4	1.4	1.2	1.7	2.4	2.6	2.6	2.6	2.7

1.2. Mechanical & Environmental

Mechanical	
Antenna Dimensions	106.15 mm × 87.21 mm × 26.5 mm
Casing Material & Color	PC + ADC12 & Black + Silver
Cable Type & Color & Length	ALS302 & Black & 524 ±24 mm
Connector Type	SMA Male (The current state of the SMA connector is not waterproof. If a waterproof connector is required, it can be customized.)
Mounting Type	Screw
Weight	Typ. 167.2 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Ingress Protection (IP) Rating	IP67 (After Installation) IP69K (After Installation)
Impact Protection (IK) Rating	IK09 (Only the surface of the housing with a silk screen Q was tested.)
RoHS & REACH Compliant	Yes
Housing Flame Rating	UL 94 V-0
Housing UV Resistant	UL 746c f1

2 Drawing

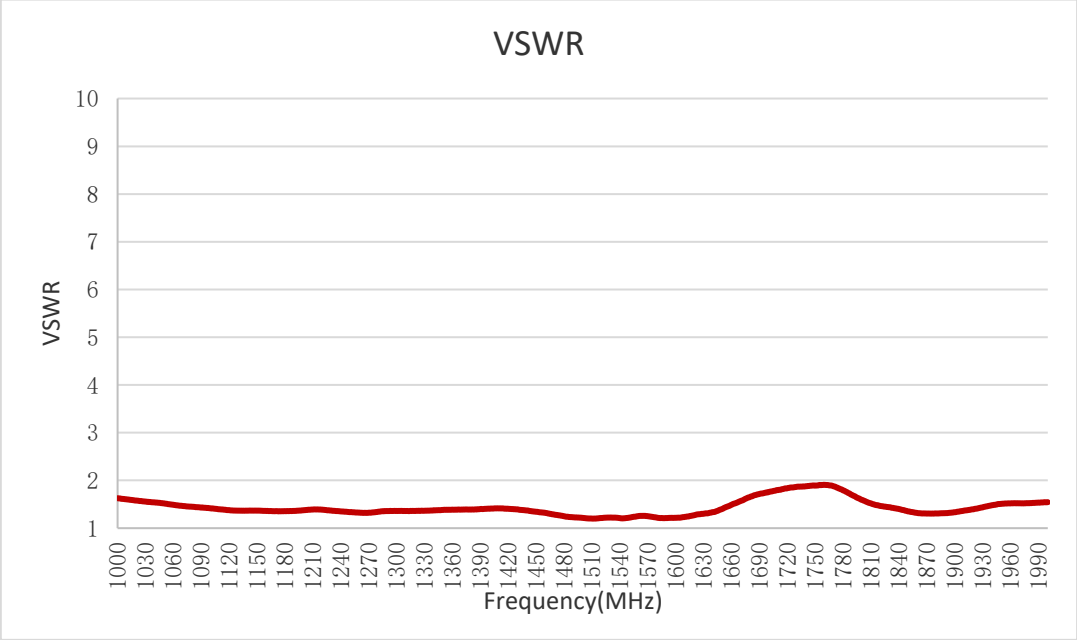
ROHS



3 Detailed Performance

3.1. S-Parameter Test

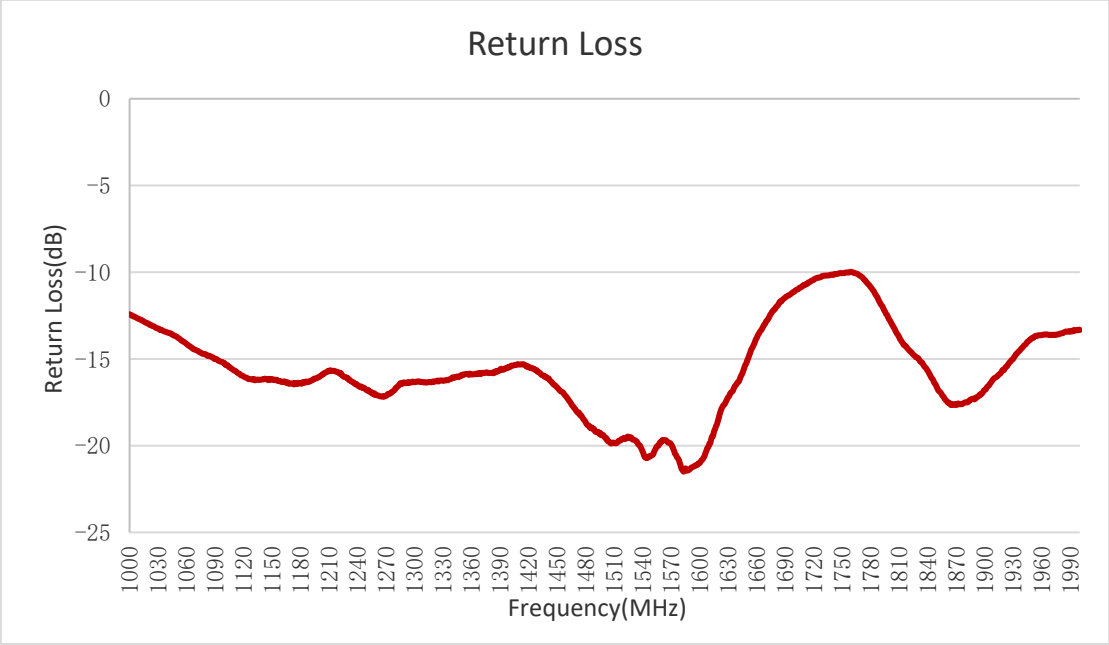
3.1.1. VSWR



VSWR

Frequency (MHz)	1518	1525	1543	1559	1575	1600	1616	1621	1626	1645	1661	1668	1675
VSWR	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.5	1.5	1.6

3.1.2. Return Loss

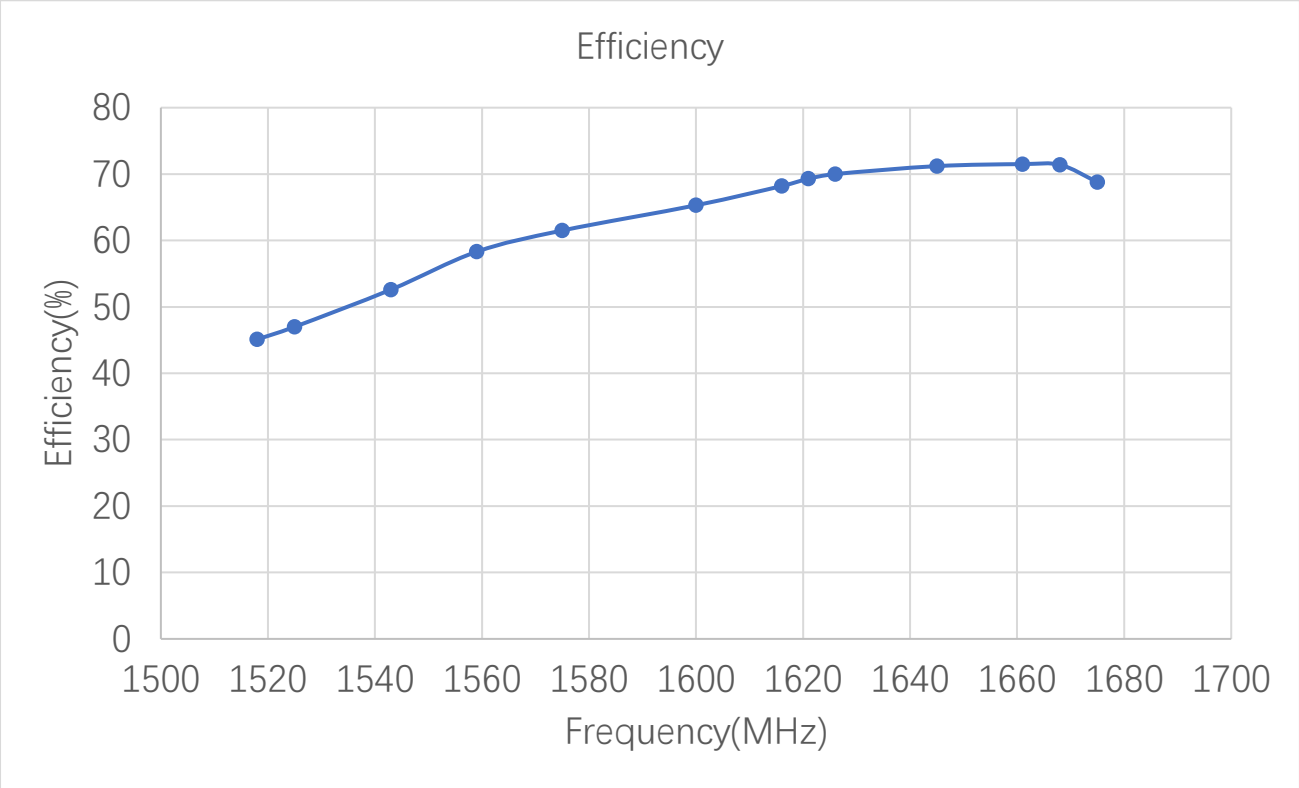


Return Loss (dB)

Frequency (MHz)	1518	1525	1543	1559	1575	1600	1616	1621	1626	1645	1661	1668	1675
Return Loss (dB)	-19	-19	-20	-19	-20	-22	-20	-19	-17	-15	-13	-13	-12

3.2. Radiation Performance Test

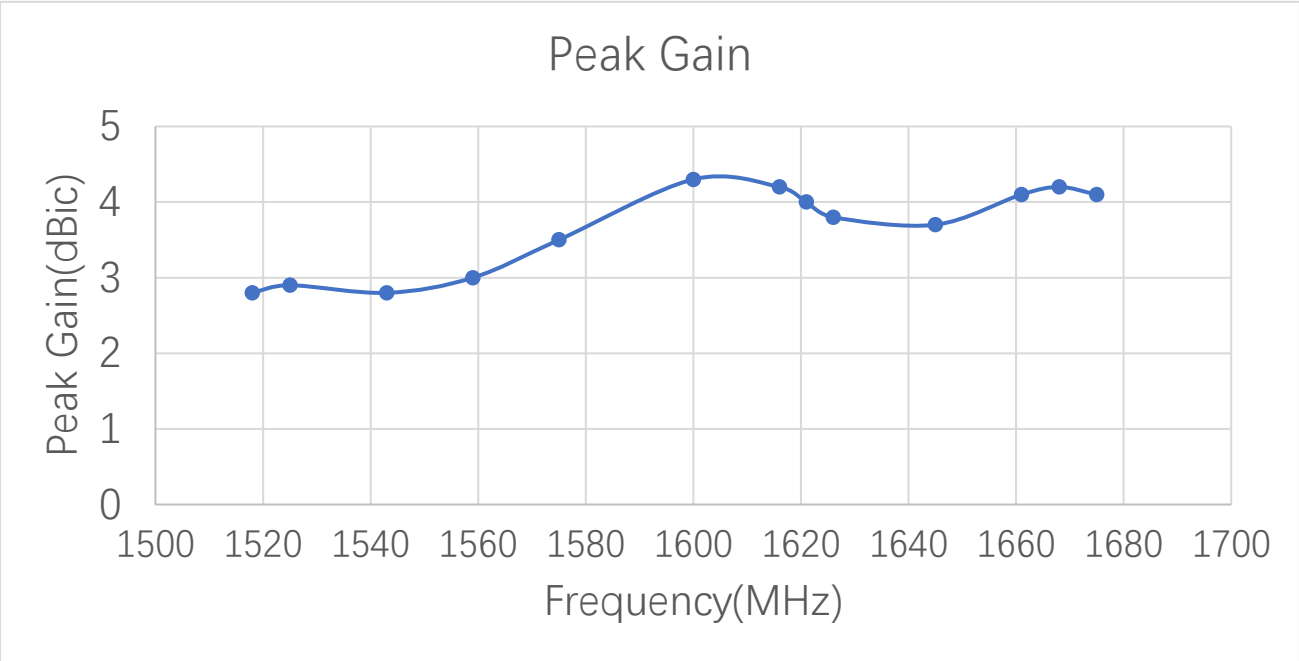
3.2.1. Efficiency



Efficiency (%)

Frequency (MHz)	1518	1525	1543	1559	1575	1600	1616	1621	1626	1645	1661	1668	1675
Efficiency (%)	45.1	47.0	52.6	58.3	61.5	65.3	68.2	69.3	70.0	71.2	71.5	71.4	68.8

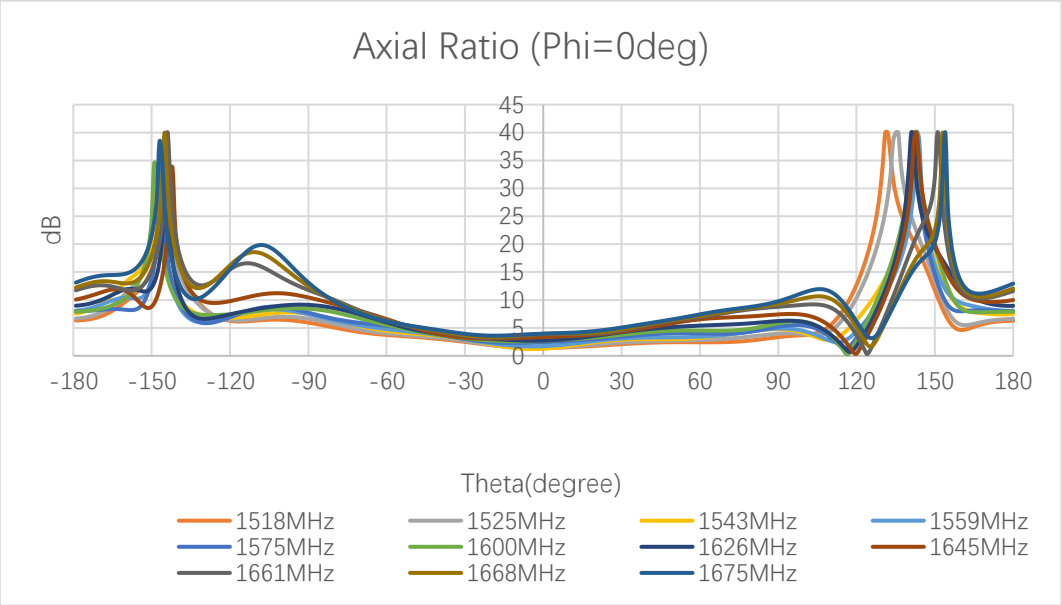
3.2.2. Peak Gain

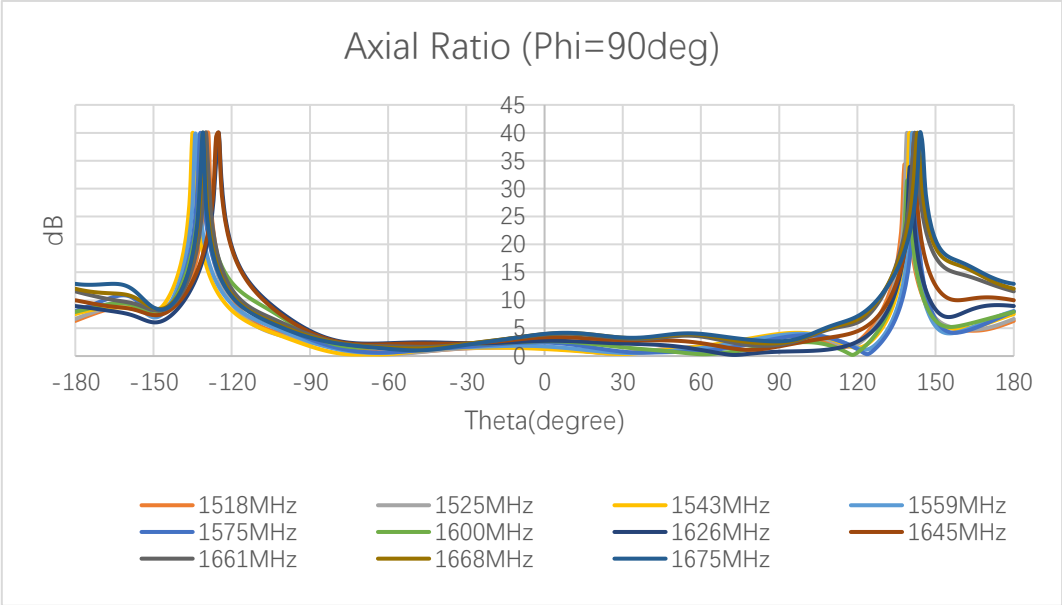


Peak Gain (dBic)

Frequency (MHz)	1518	1525	1543	1559	1575	1600	1616	1621	1626	1645	1661	1668	1675
Peak Gain (dBic)	2.8	2.9	2.8	3.0	3.5	4.3	4.2	4.0	3.8	3.7	4.1	4.2	4.1

3.2.3. Axial Ratio

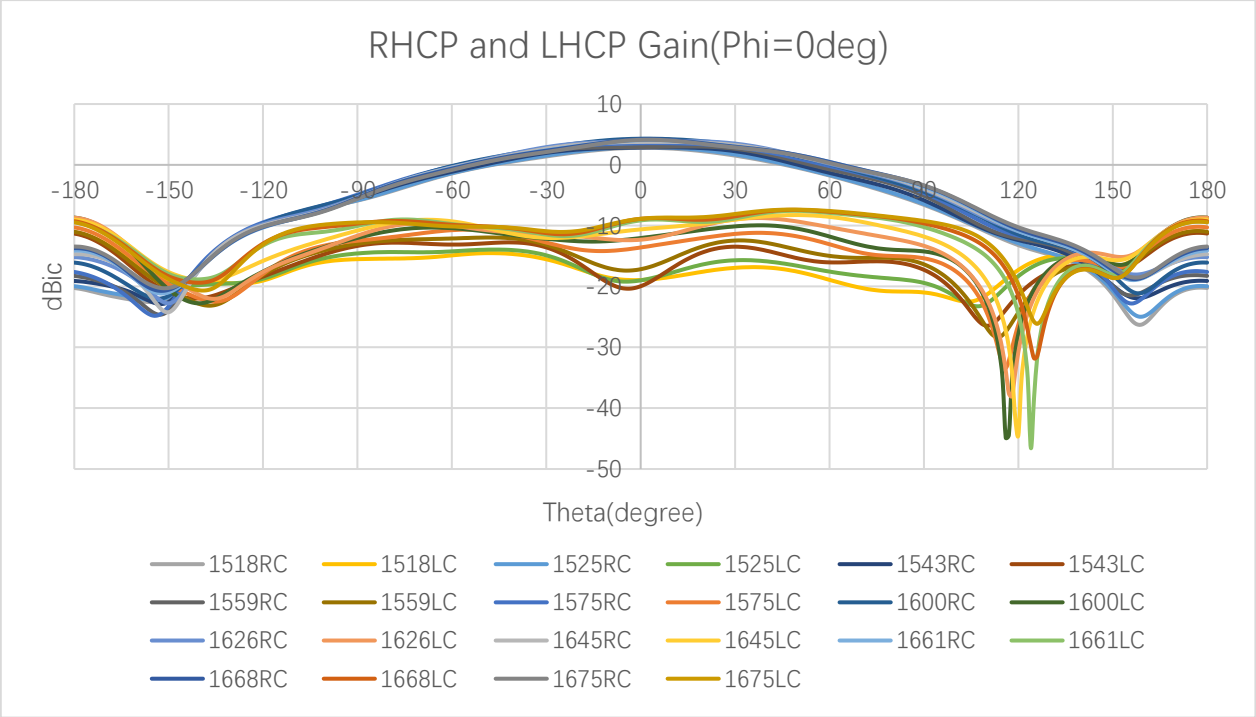


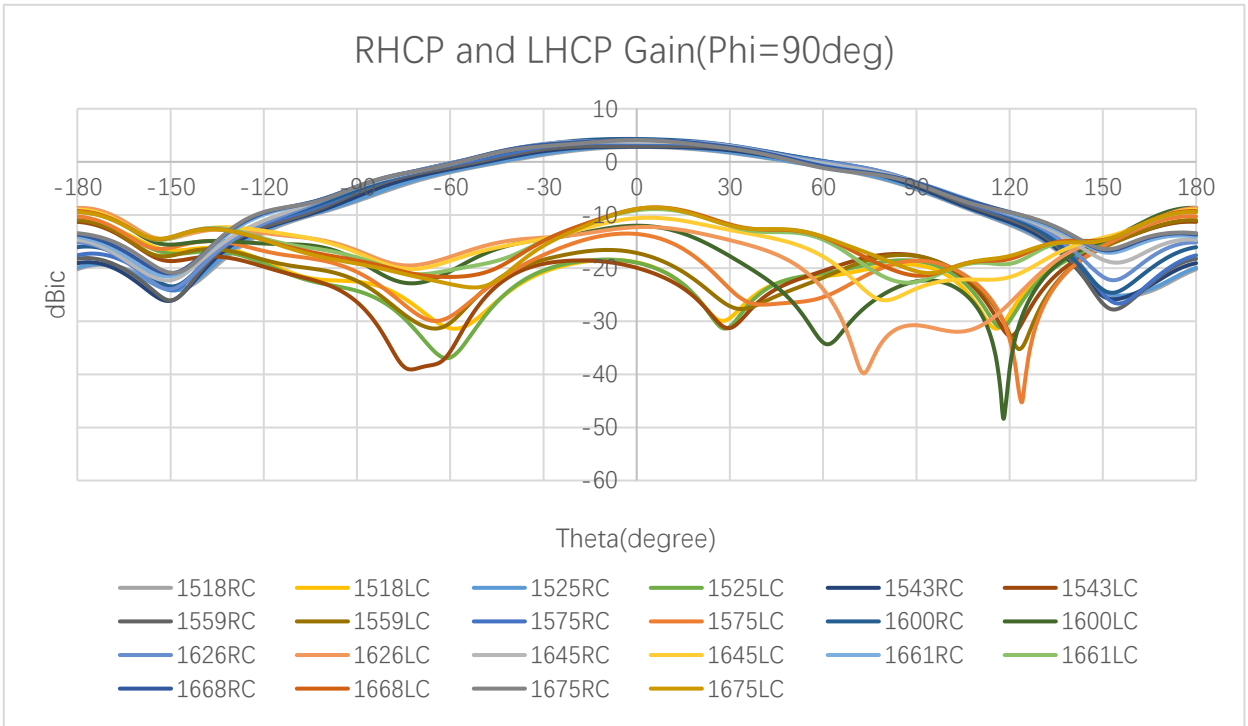


Axial Ratio (dB)

Frequency (MHz)		1518	1525	1543	1559	1575	1600	1626	1645	1661	1668	1675
Axial Ratio (dB)	Phi=0 (deg) Theta=0 (deg)	1.4	1.4	1.2	1.7	2.4	2.6	2.7	3.3	3.8	3.9	3.9
	Phi=90 (deg) Theta=0 (deg)	1.4	1.4	1.2	1.7	2.4	2.6	2.7	3.3	3.8	3.9	3.9

3.2.4. 2D RHCP and LHCP Gain



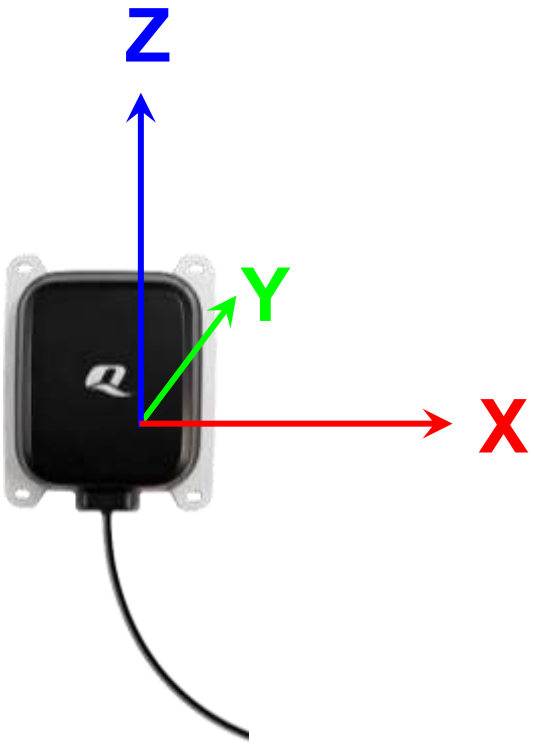


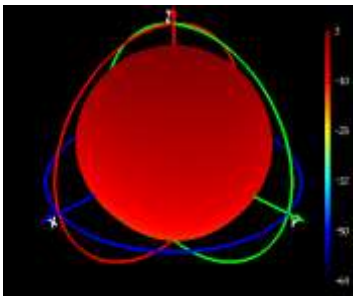
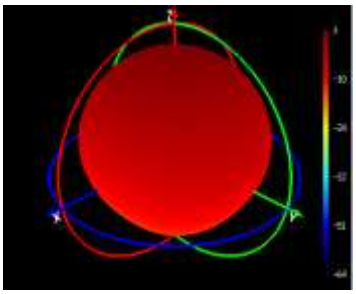
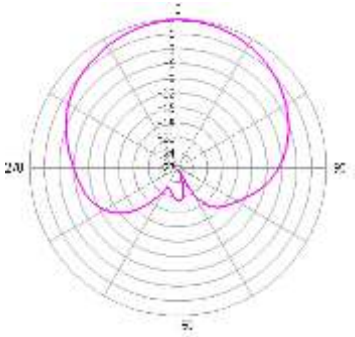
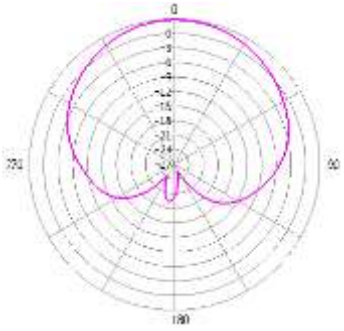
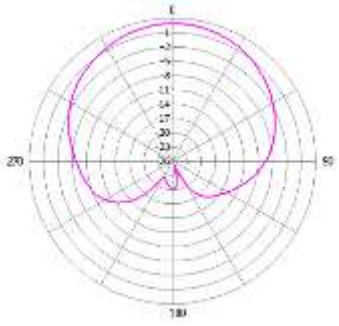
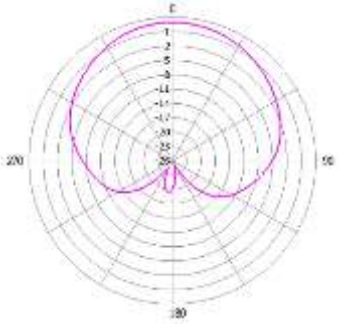
2D RHCP and LHCP Gain (dBic)

Frequency (MHz)		1518	1525	1543	1559	1575	1600	1626	1645	1661	1668	1675
RHCP Gain (dBic)	Phi = 0 (deg) Theta = 0 (deg)	2.8	2.9	2.8	3.0	3.5	4.3	3.8	3.7	4.1	4.2	4.1
	Phi = 90 (deg) Theta = 0 (deg)	2.8	2.9	2.8	3.0	3.5	4.3	3.8	3.7	4.1	4.2	4.1
LHCP Gain (dBic)	Phi = 0 (deg) Theta = 0 (deg)	-18.9	-18.8	-19.9	-17.1	-13.5	-12	-12.3	-10.6	-9.1	-8.8	-8.8
	Phi = 90 (deg) Theta = 0 (deg)	-18.9	-18.8	-19.9	-17.1	-13.5	-12	-12.3	-10.6	-9.1	-8.8	-8.8

3.2.5. 3D & 2D Radiation Pattern

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



1518 MHz		1525 MHz	
			
			
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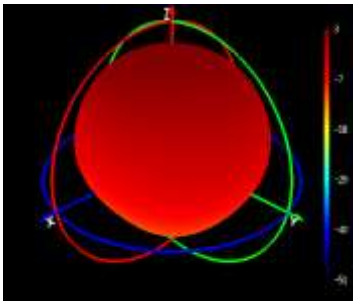
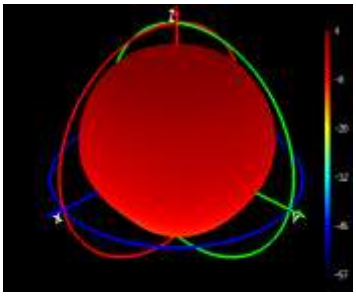
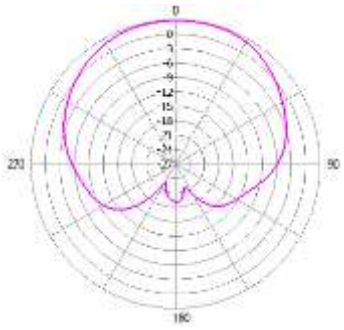
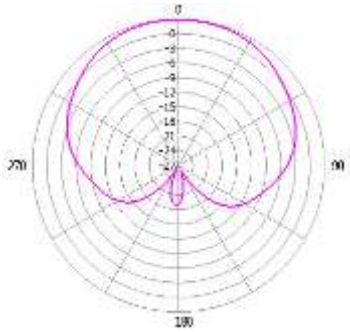
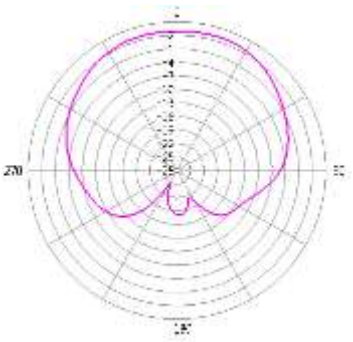
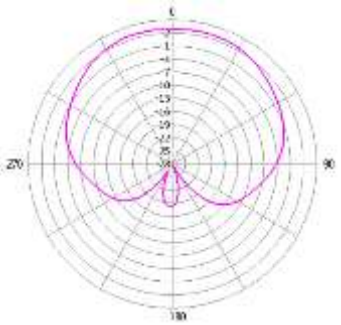
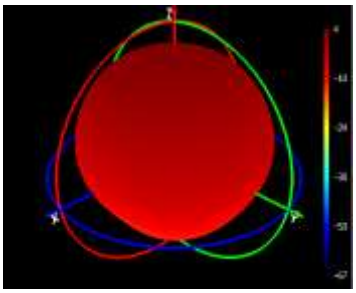
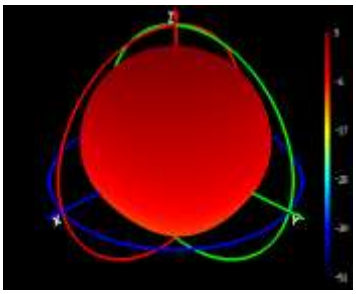
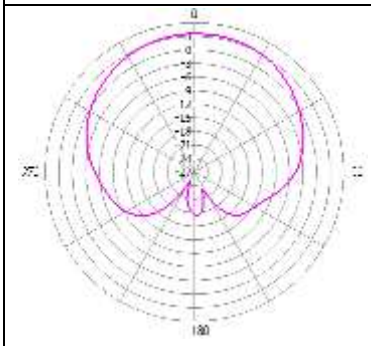
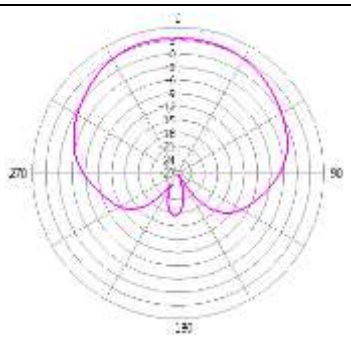
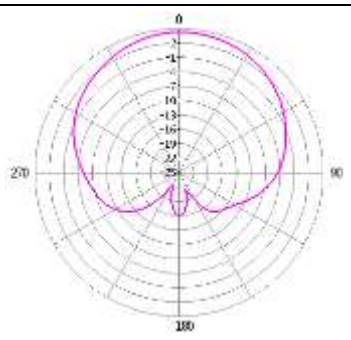
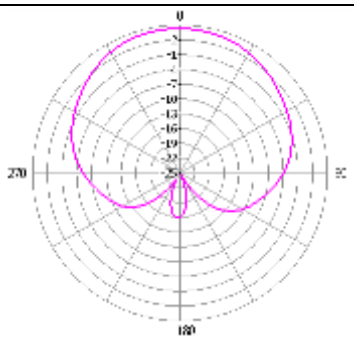
1543 MHz		1559 MHz	
			
			
Phi=0	Phi=90	Phi=0	Phi=90

1575 MHz		1600 MHz	
			
			
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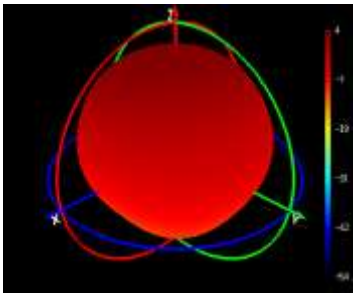
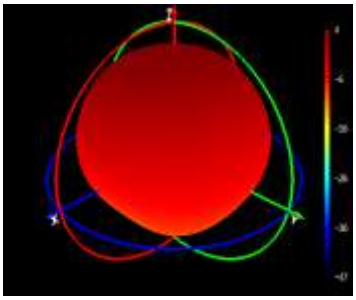
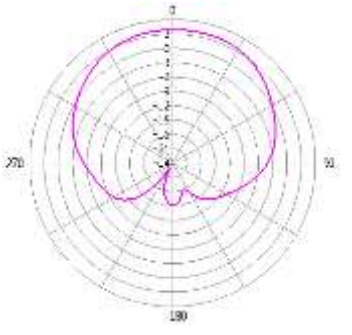
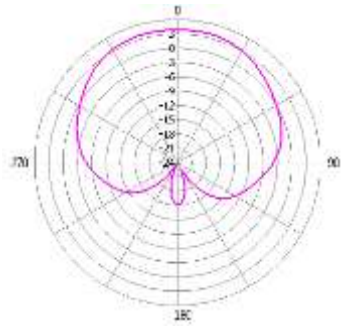
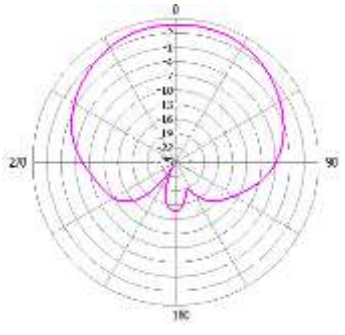
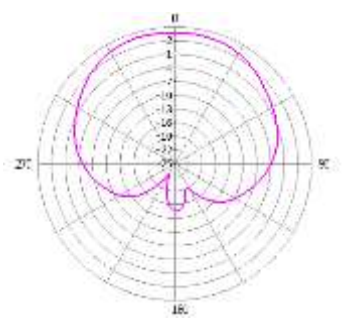
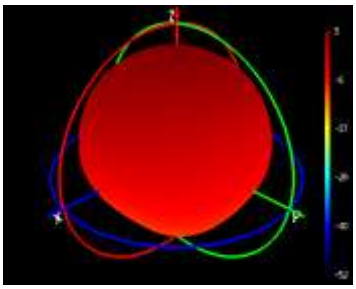
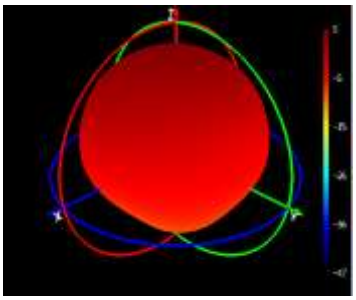
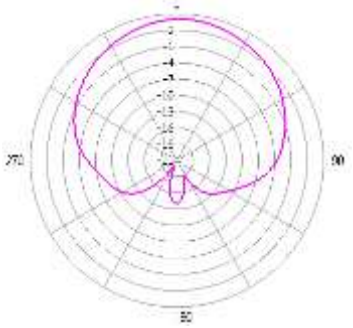
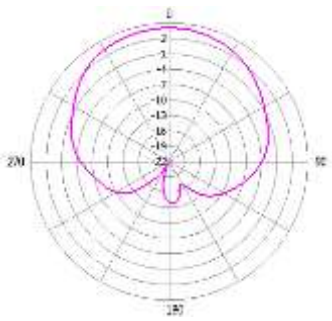
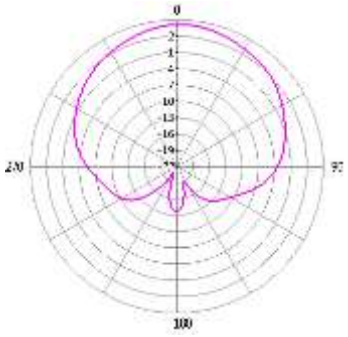
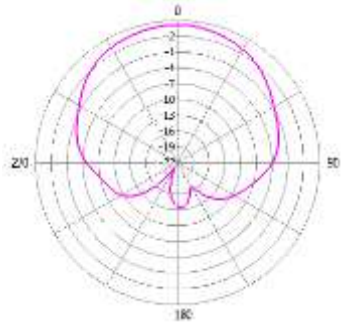
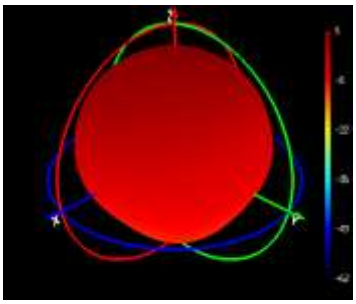
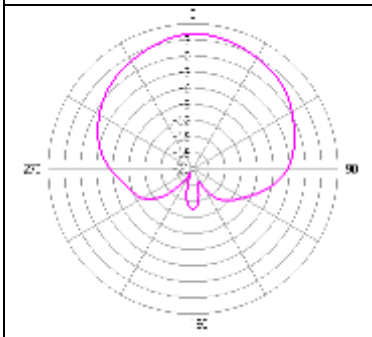
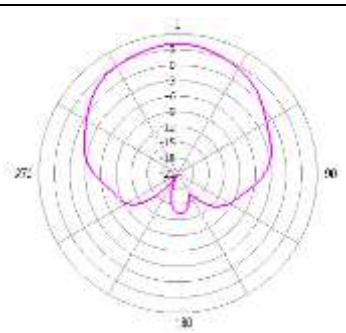
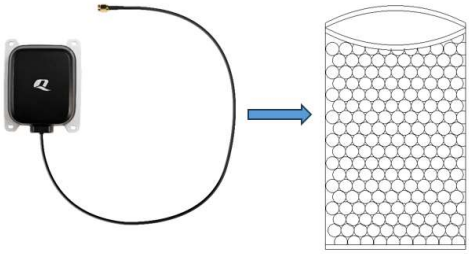
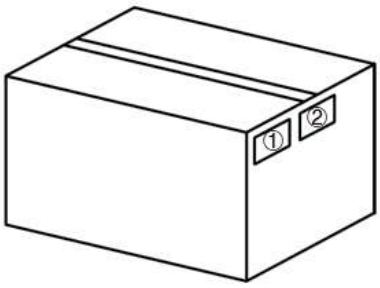
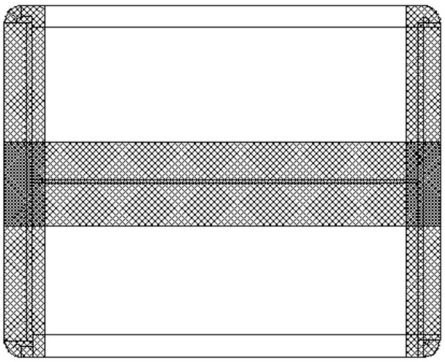
1626 MHz		1645 MHz	
			
			
Phi=0	Phi=90	Phi=0	Phi=90

1661 MHz		1668 MHz	
			
 Phi=0	 Phi=90	 Phi=0	 Phi=90

1675 MHz	
	
 Phi=0	 Phi=90

4 Packaging

Step	Packaging Picture / 2D Picture	Description
1		1 pc antenna product in a bubble bag; (1 PC / Bubble Bag)
2		2 pcs antenna products in an inner box; (2 PCS / Inner box)
3		(14 Inner Boxes / Carton Box) (28 PCS Antennas / Carton Box) Products that cannot fill the entire carton box are packed in a suitable size carton box. Carton Size: L × W × H = 390 × 270 × 295 mm

4		**Position for Attaching Labels** ① Carton Label ② Quality Label
5		**Sealing Cartons** "工" type sealing cartons

Contact Us

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Revision History

Version	Date	Author	Note
-	2023-11-09	Xiaodong YANG/ Rojin LUO/ David LIU/ Vinnie LIU	Creation of the document
1.0	2023-11-09	Xiaodong YANG/ Rojin LUO/ David LIU/ Vinnie LIU	Preliminary document
1.1	2023-11-27	Xiaodong YANG/ Rojin LUO/ David LIU/ Vinnie LIU	Updated Iridium frequency band (Chapter 1.1).
1.2	2024-01-24	Rojin LUO	1. Added Housing Flame Rating and Housing UV Resistant (Chapter 1.2). 2. Updated the packaging (Chapter 4).

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