

Antenna

YXH001AA Datasheet

Antenna Services

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About the Document

Revision History

Version	Date	Author	Note
1.0	2020-12-21	Kenny YIN	Initial
1.1	2021-01-12	Kenny YIN	Updated the antenna image in Chapter 2.
1.2	2021-01-27	Kenny YIN	Added IP rating description.
1.3	2021-07-01	Kenny YIN	1. Added test condition in Chapter 4.5; 2. Updated the drawing in Chapter 5.
1.4	2021-07-25	Kenny YIN	1. Updated the working temperature and added detailed passive electrical specifications (Chapter 3). 2. Updated the drawing (Chapter 5).
1.5	2021-11-30	Kenny YIN	Updated the product description in Chapter 1.

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1 Product Description

This Quectel external 5G antenna covers 5G NR Sub-6 GHz frequency bands and is compatible with 4G/3G/2G/LPWA bands. Featuring high efficiency and gain, it is an ideal omni-directional antenna solution to ensure high-speed data transmission, which can be widely used in a diversity of wireless communication devices such as AP, routers, outdoor equipment, real-time monitoring equipment, and many more. The antenna is designed to work with any ground plane size or in free space for ease of integration. Quectel also offers flexible installation with custom cable length and connector options.

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

- Cellular 5G
- High efficiency
- Excellent performance



3 Product Specifications

Passive Electrical Specifications

Frequency Range	700–960 MHz, 1710–2690 MHz, 3300–5000 MHz
Input Impedence	50 Ω
VSWR	≤ 4.0
Gain	≤ 4.5 dBi
Polarization Type	Linear

Detailed Passive Electrical Specifications

Frequency Range (MHz)	698–960	1176–1280	1400–1610	1710–2170	2170–2690	3300–4000	4000–5000	5000–6000
VSWR (Max.)	4.5	-	-	3.84	3.49	3.80	3.91	-
Average Efficiency (%)	44	-	-	39	40	35	28	-
Max. Peak Gain (dBi)	3.3	-	-	4.5	4.5	3.3	3.1	-

Mechanical Specifications

Antenna Size	285 mm × 45 mm ALSR195 Cable Length = 1000 mm
Casing	ABS
Connector Type	SMA Male (Center Pin)
Working Temperature	-40 °C to +85 °C
Radome Color	Black
IP Rating	IP65
Mounting Type	Magnet

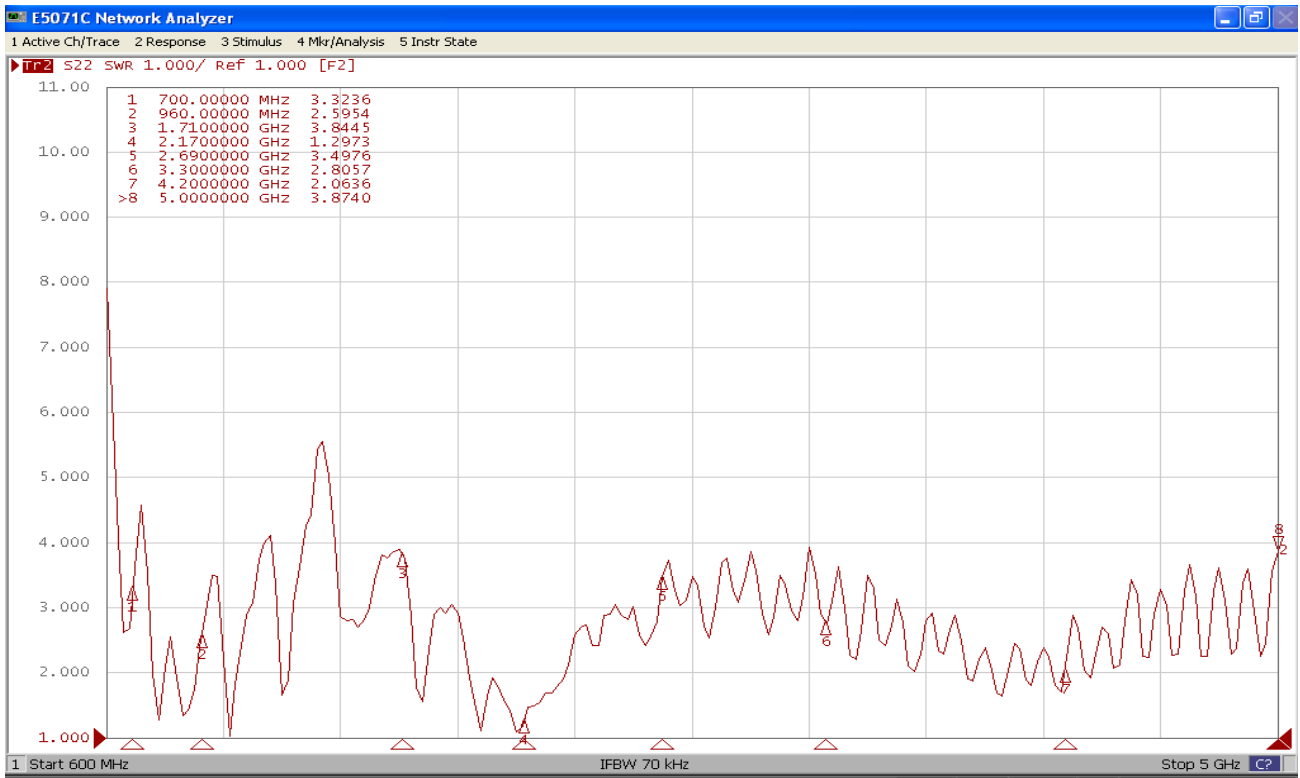
4 Overall Performance

4.1. Test Environment

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



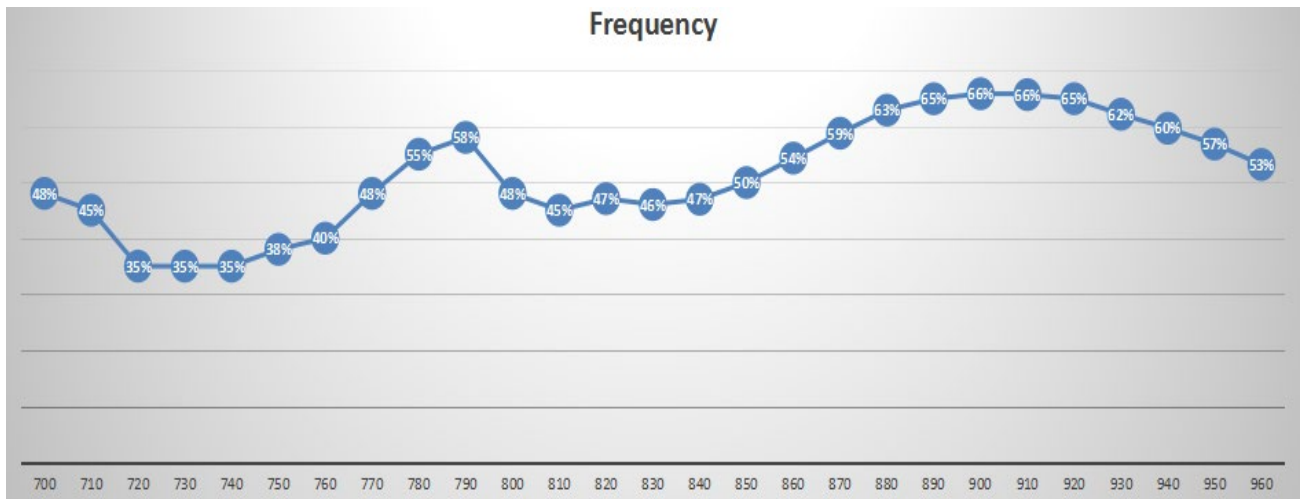
4.2. VSWR



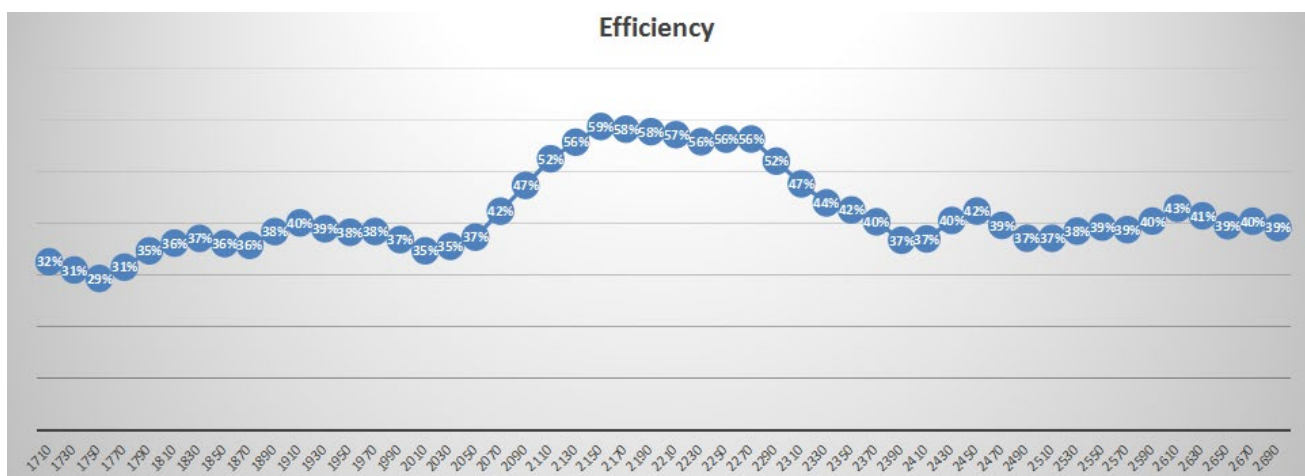
Frequency (MHz)	700	960	1710	2170	2690	3300	4200	5000
VSWR	3.32	2.59	3.84	1.29	3.49	2.80	2.06	3.87

4.3. Efficiency

4.3.1. 700–960 MHz



4.3.2. 1710–2690 MHz



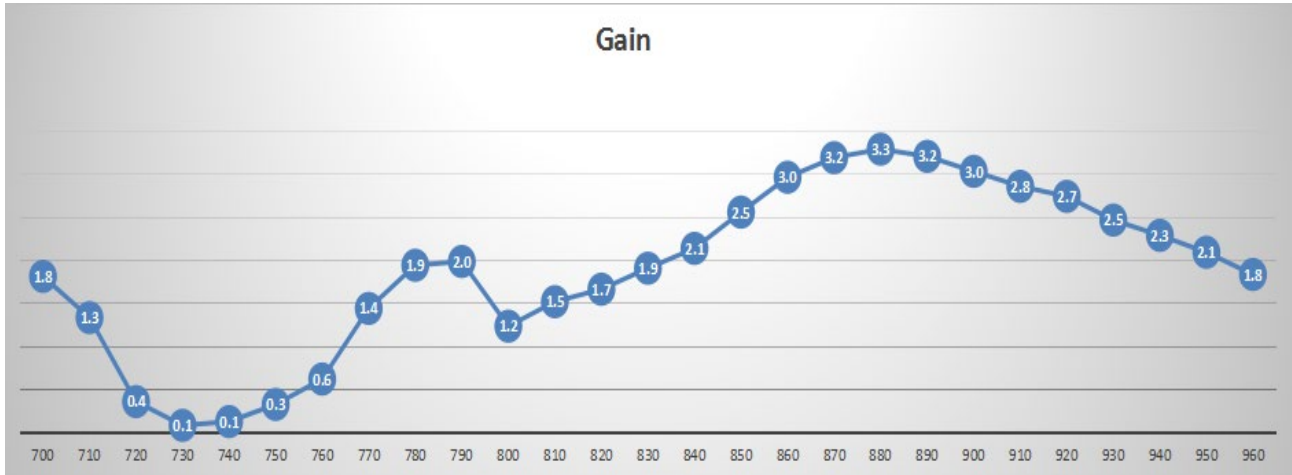
4.3.3. 3300–5000 MHz



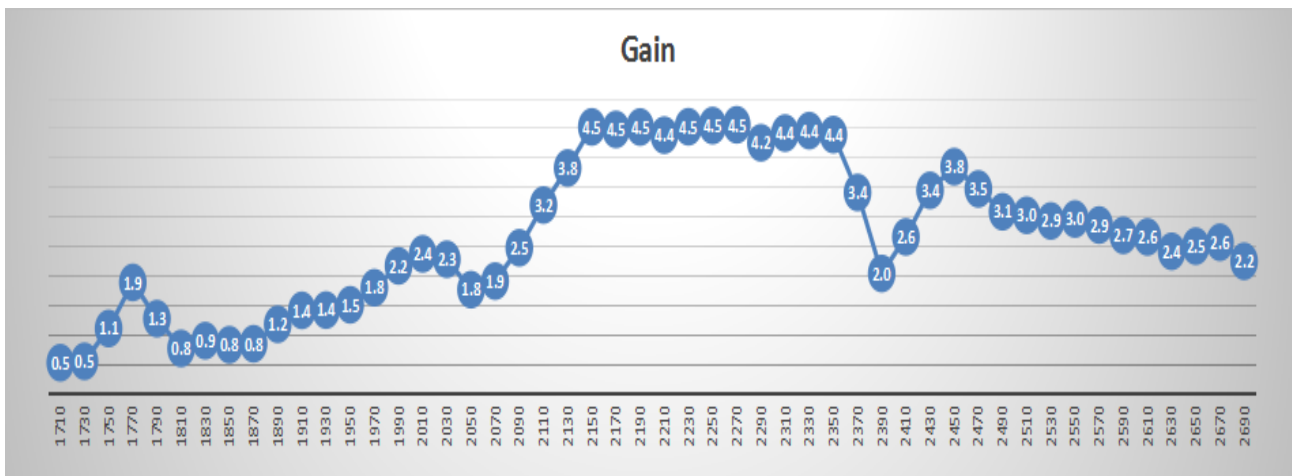
Frequency (MHz)	700	820	960	1710	2170	2450	2690	3300	4200	5000
Efficiency (%)	48	47	53	32	58	42	39	44	34	20

4.4. Gain

4.4.1. 700–960 MHz



4.4.2. 1710–2690 MHz



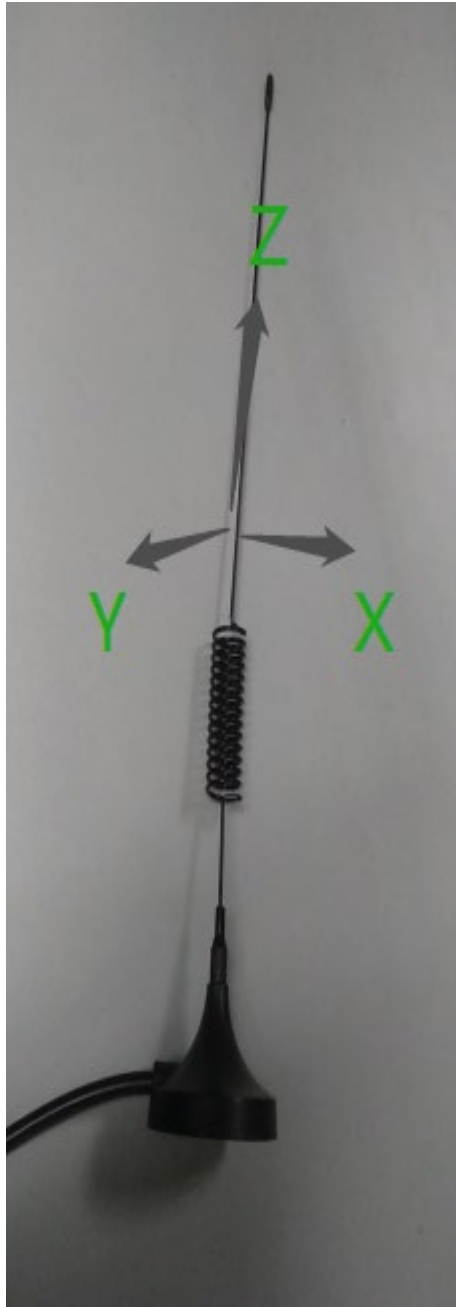
4.4.3. 3300–5000 MHz



Frequency (MHz)	700	820	960	1710	2170	2450	2690	3300	4200	5000
Gain (dBi)	1.8	1.7	1.8	0.5	4.5	3.8	2.2	3.3	2.0	2.3

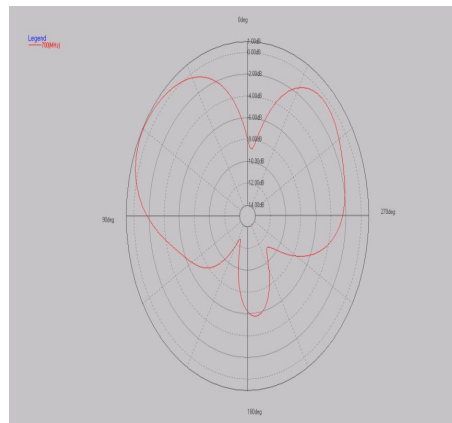
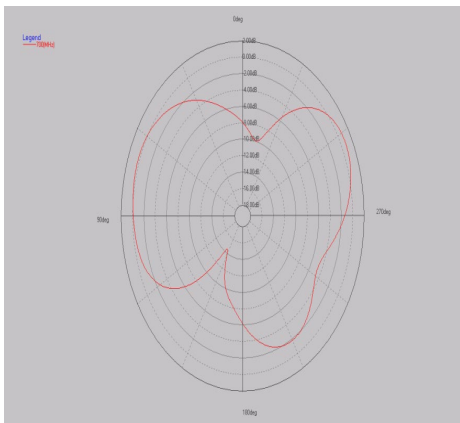
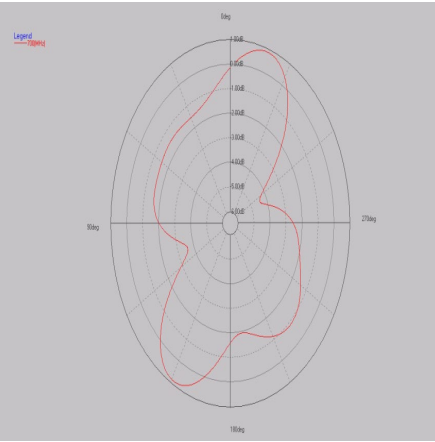
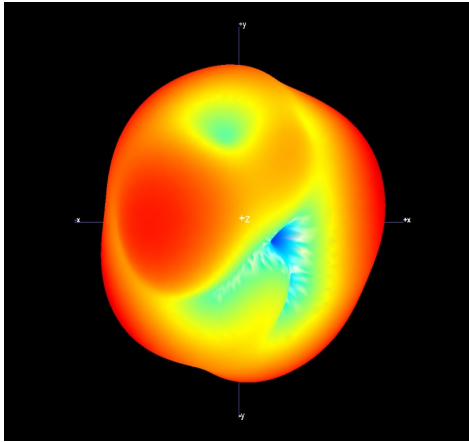
4.5. Radiation Pattern

- Test condition: with ground plane (10 cm × 15 cm metal plate).

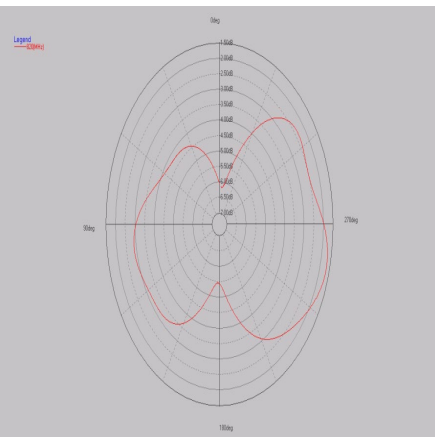
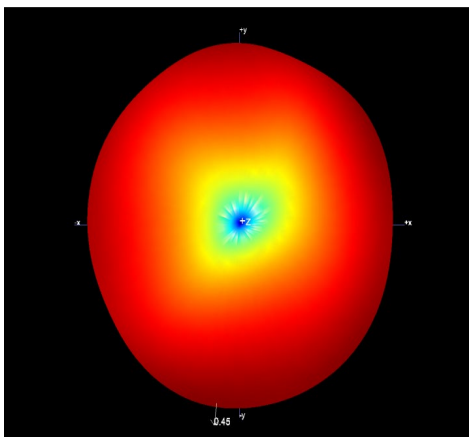


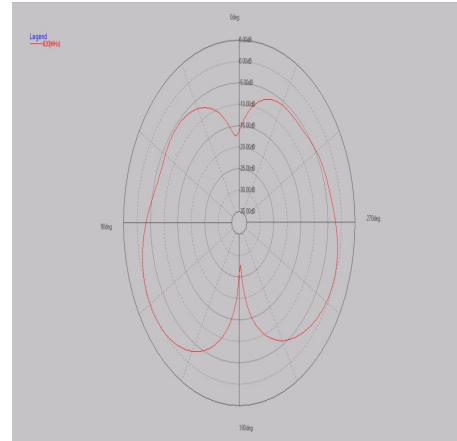
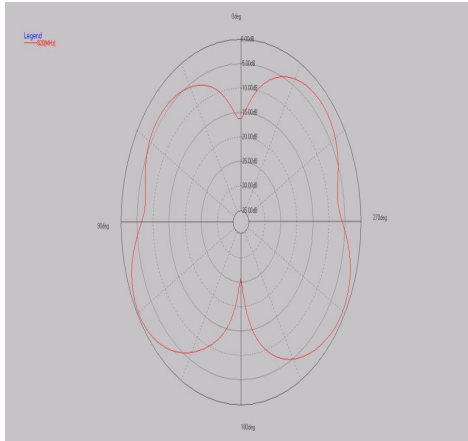
H plane: the tangent of XY
E1 plane: the tangent of XZ
E2 plane: the tangent of YZ

4.5.1. 700 MHz

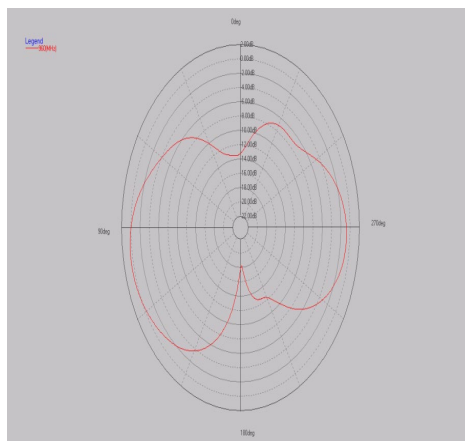
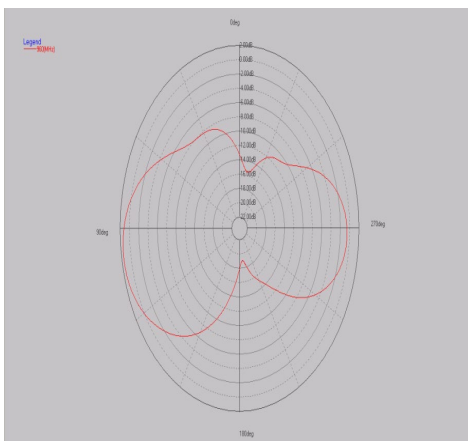
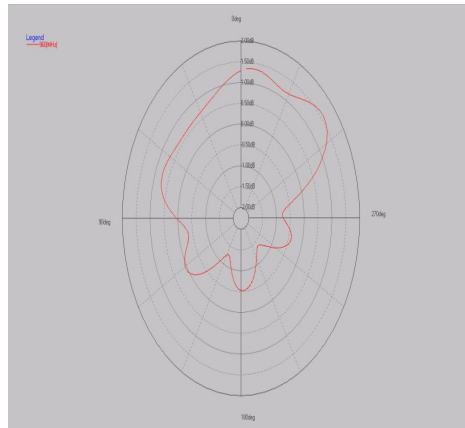
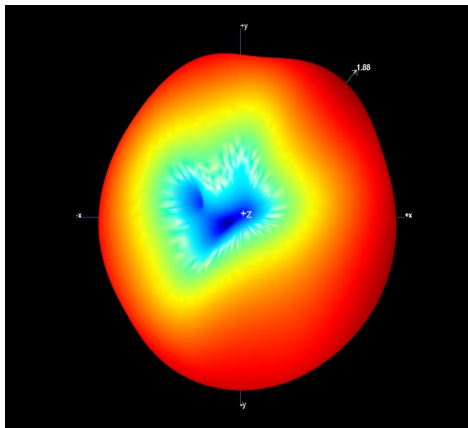


4.5.2. 820 MHz

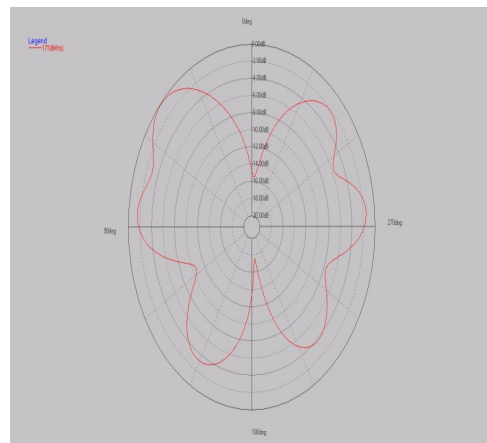
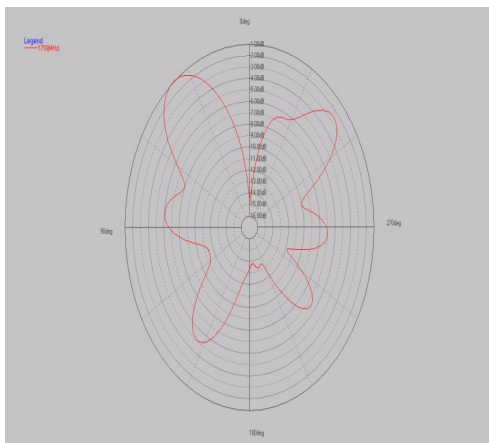
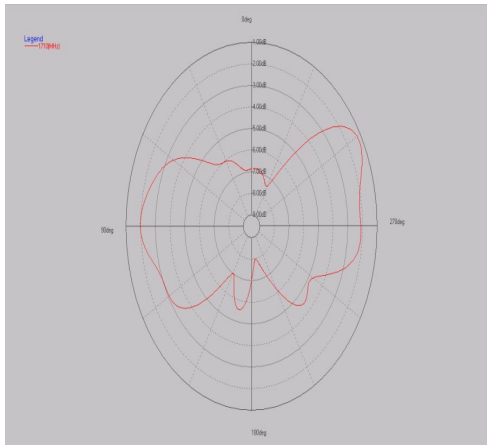
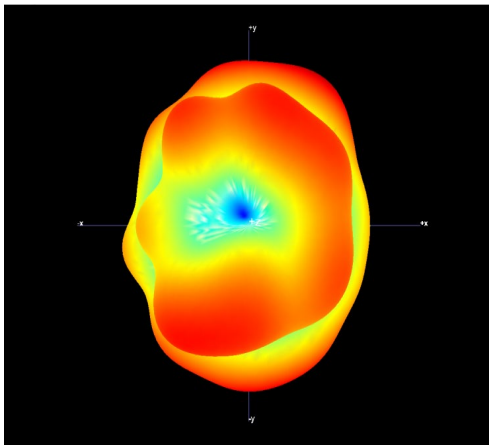




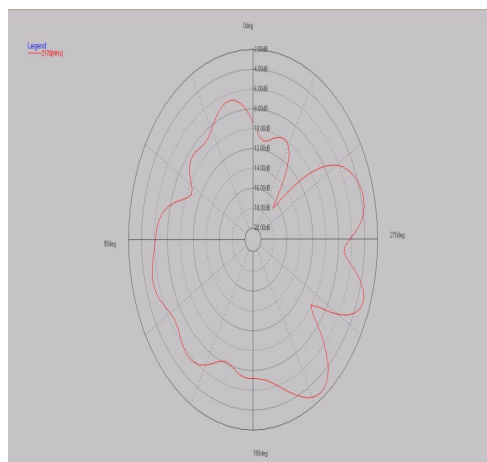
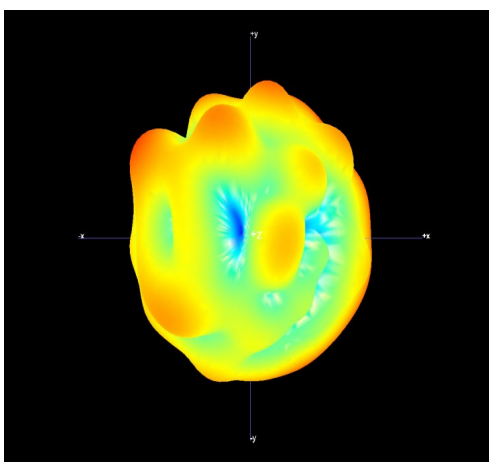
4.5.3. 960 MHz

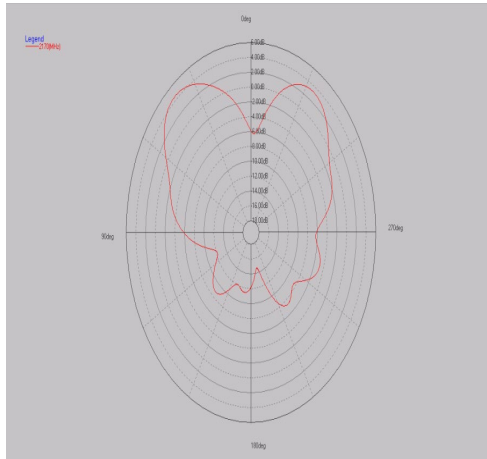
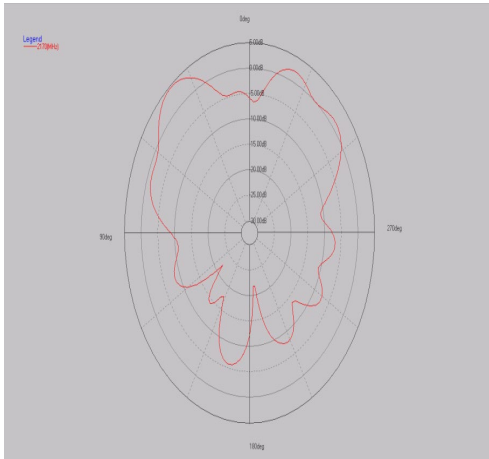


4.5.4. 1710 MHz

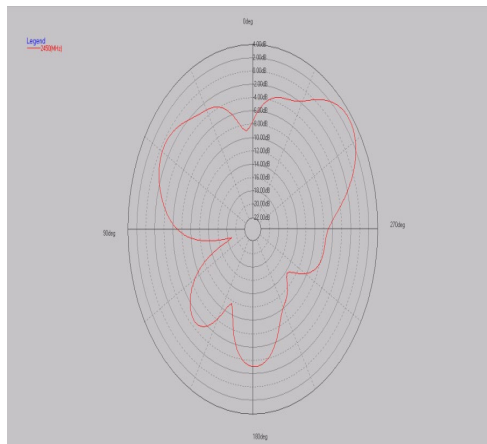
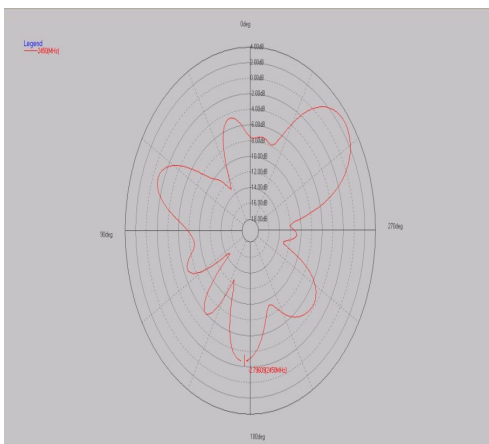
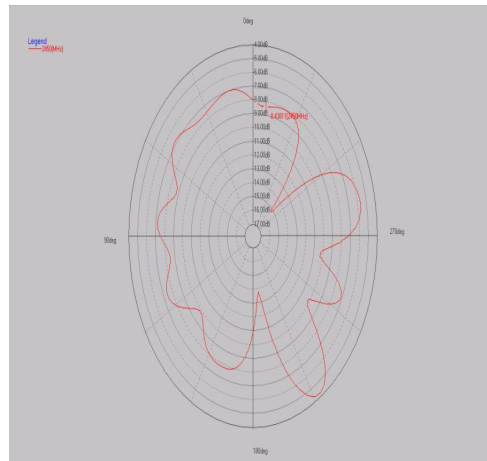
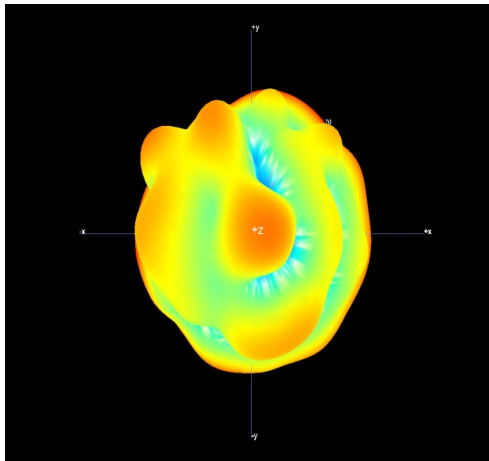


4.5.5. 2170 MHz

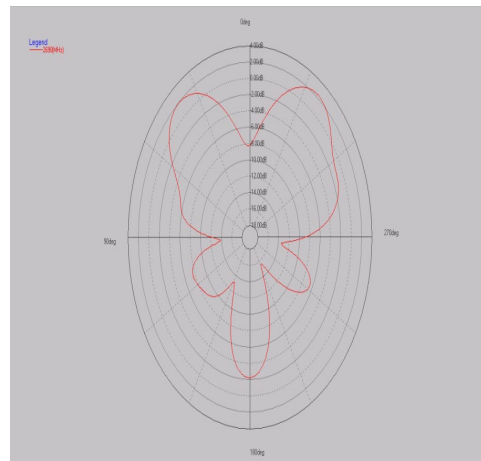
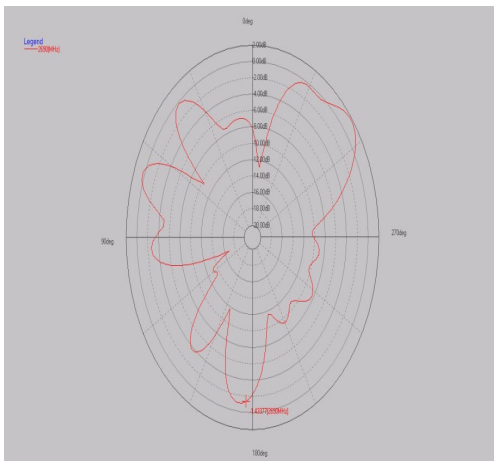
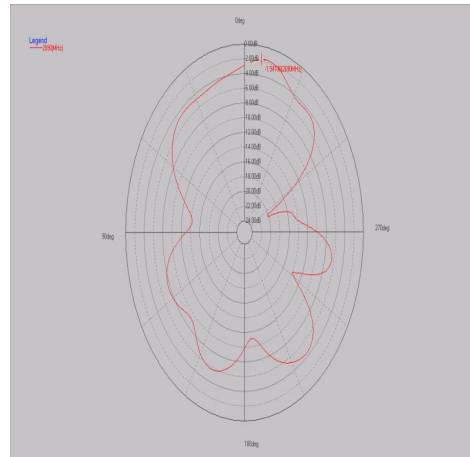
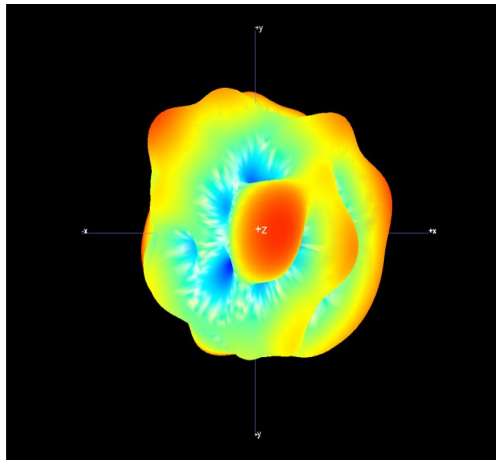




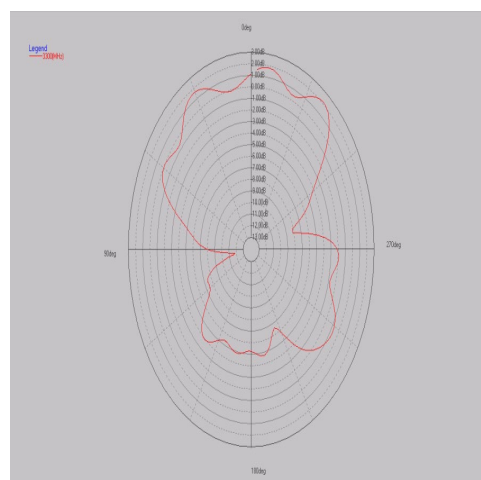
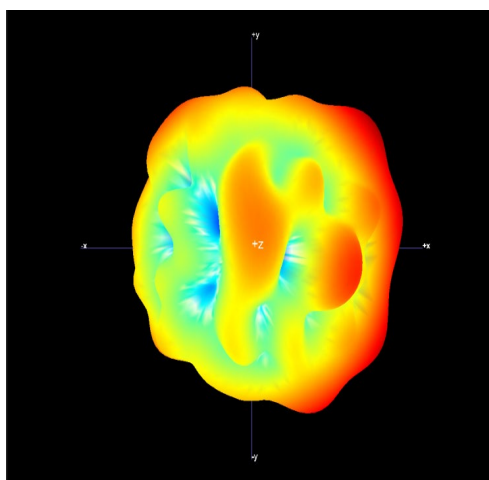
4.5.6. 2450 MHz

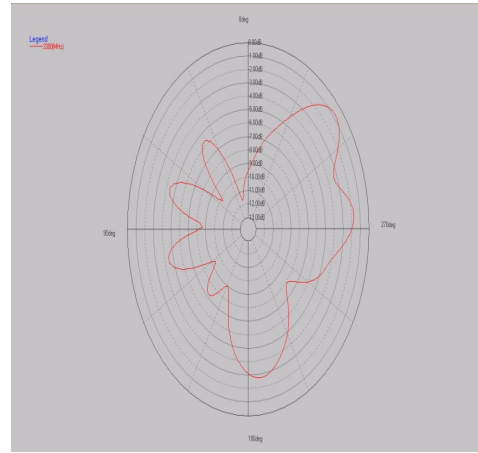
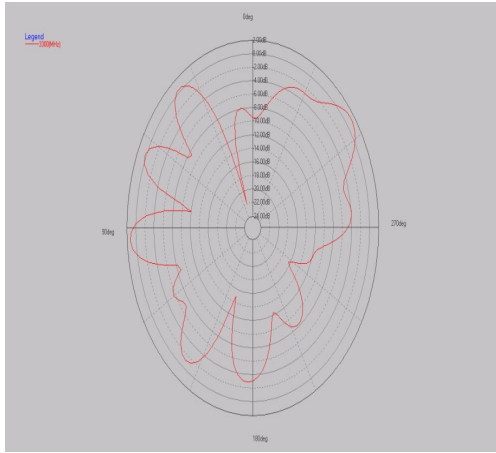


4.5.7. 2690 MHz

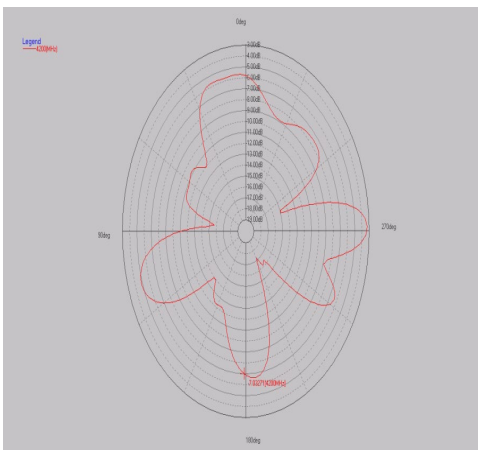
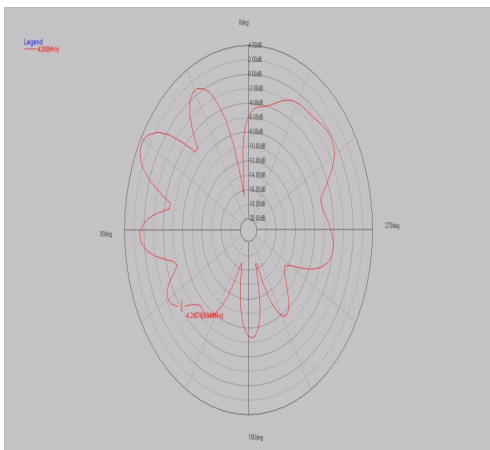
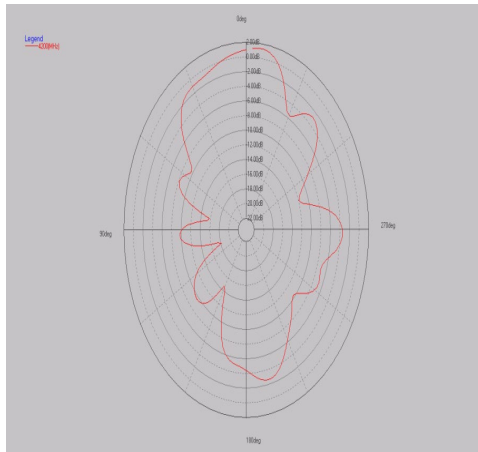
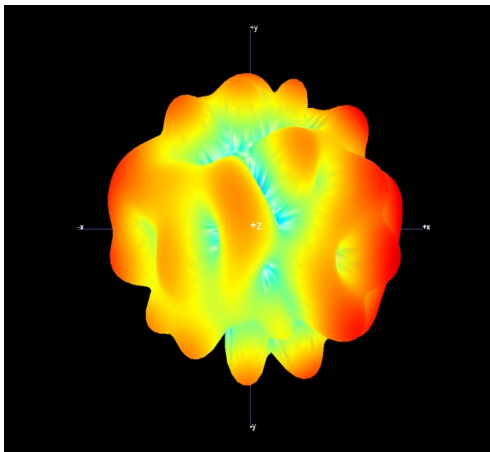


4.5.8. 3300 MHz

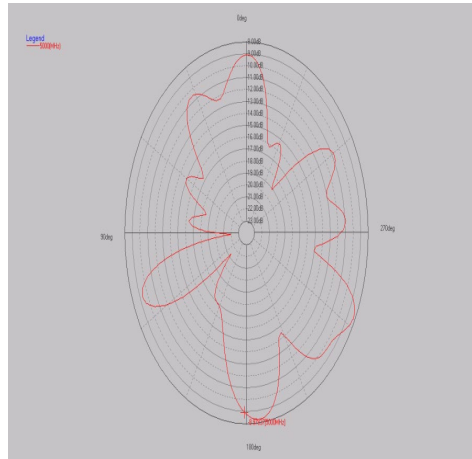
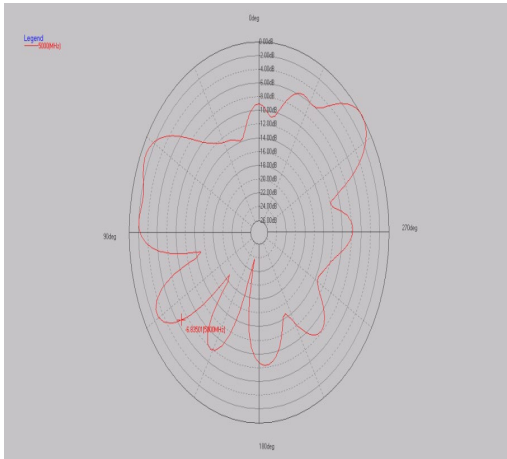
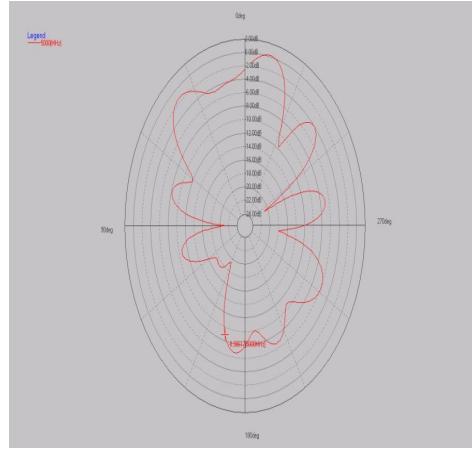
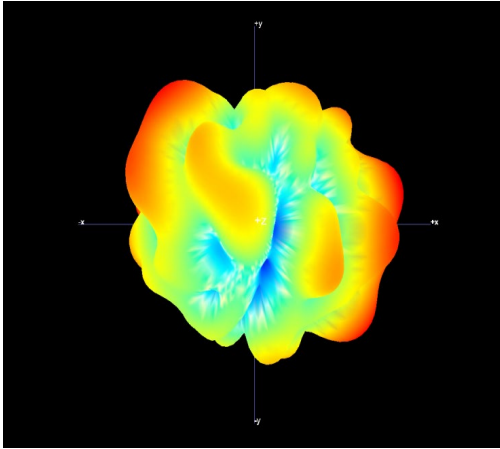




4.5.9. 4200 MHz



4.5.10. 5000 MHz



5 Product Size

ROHS

