

# Antenna

# YP0009AA Datasheet

**Antenna Services**

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# About the Document

## Revision History

Version	Date	Author	Note
1.0	2020-11-26	Toby WANG	Initial
1.1	2021-07-25	Toby WANG	<ol style="list-style-type: none"><li>1. Updated the working temperature and added detailed passive electrical specifications (Chapter 3).</li><li>2. Updated the drawing (Chapter 5).</li></ol>
1.2	2021-12-06	Toby WANG	Updated the product description in Chapter 1.

## Contents

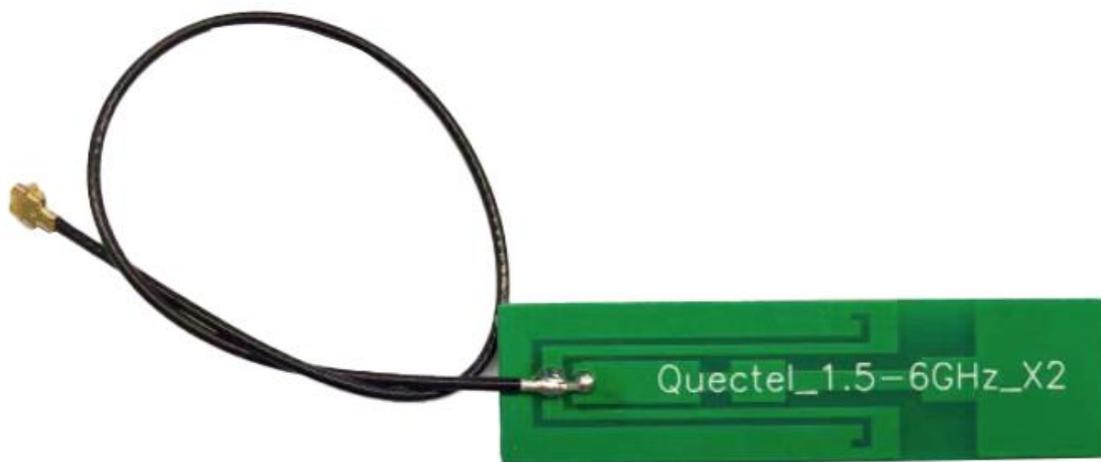
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## 1 Product Description

This Quectel embedded 5G SMD antenna covers 5G NR Sub-6 GHz frequency bands and is compatible with 4G/3G/2G/LPWA bands. Ground plane dependent, it's designed to be mounted directly to the device host PCB using a conventional PCB reflow process. Supplied tape and reel for high volume pick and place assembly, this SMD antenna can be tuned specifically for the final device environment with a simple PI matching circuit. Used with other 5G antennas, it can achieve MIMO (multiple input, multiple output) antenna technology for wireless communications in which multiple antennas are used at both the source (transmitter) and the destination (receiver).

## 2 Product Features

- 1.5\_6G\_Antenna
- High efficiency
- Excellent performance



### 3 Product Specifications

#### Passive Electrical Specifications

Frequency Range	1500–6000 MHz
Input Impedence	50 $\Omega$
VSWR	$\leq 3.0$
Gain	$\leq 4.42$ 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.)	-	-	1.3	1.97	2.8	1.7	1.6	1.3
Average Efficiency (%)	-	-	47	43	50	49	48	46
Max. Peak Gain (dBi)	-	-	2.3	1.8	3.2	2.8	4.2	3.6

#### Mechanical Specifications

Antenna Size	49 mm × 13 mm × 0.95 mm
Casing	FR4
Connector Type	IPEX MHF_4
Working Temperature	-40 °C to +85 °C
Radome Color	Green
Mounting Type	Adhesive

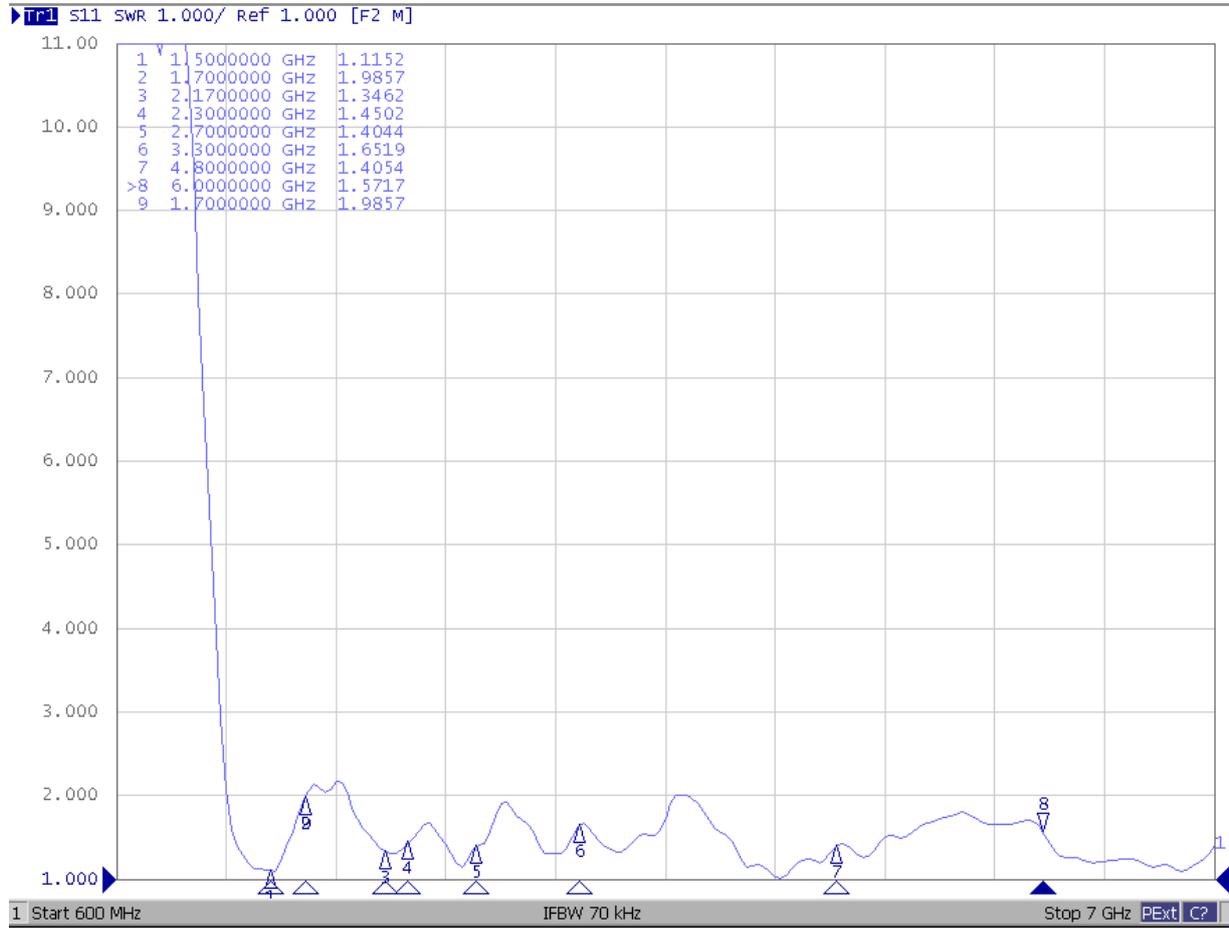
## 4 Overall Performance

### 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.

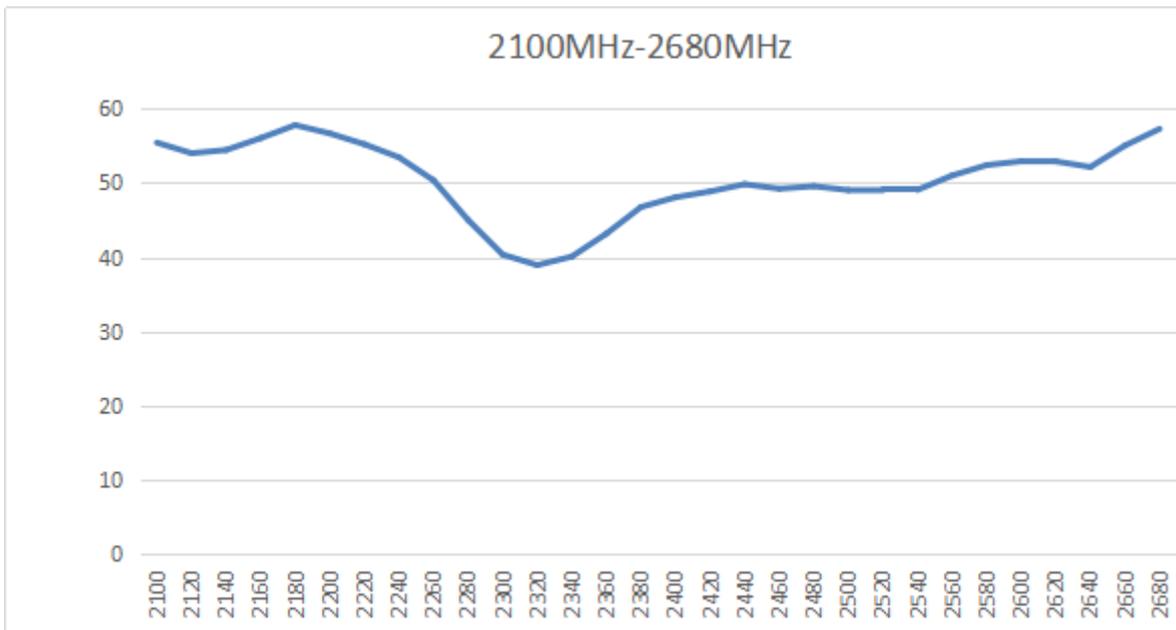
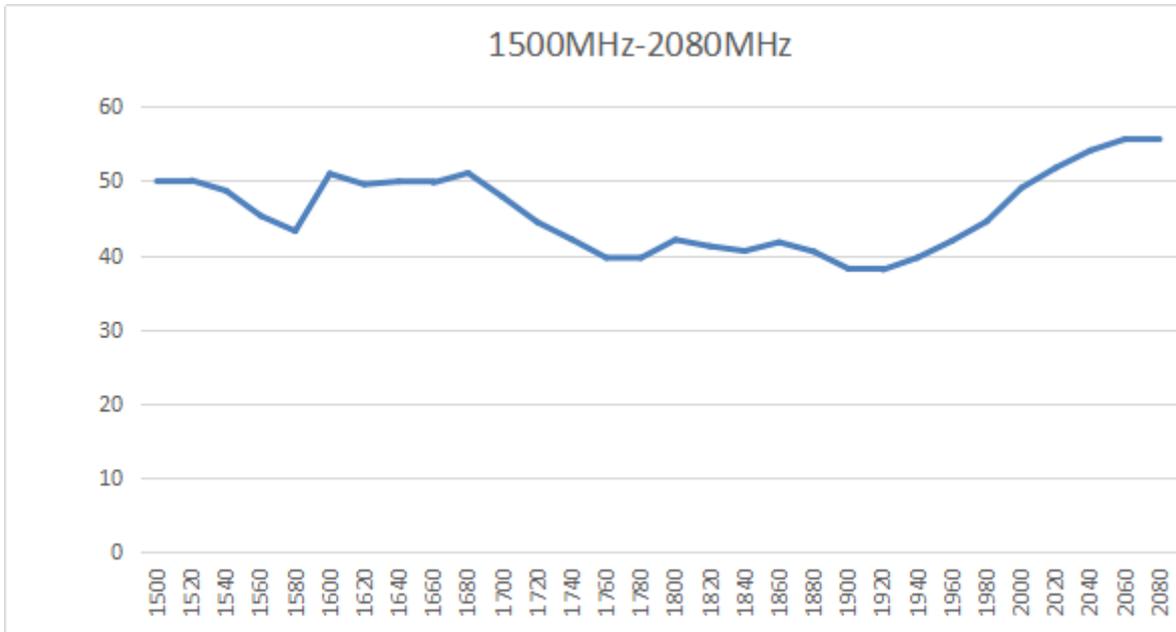


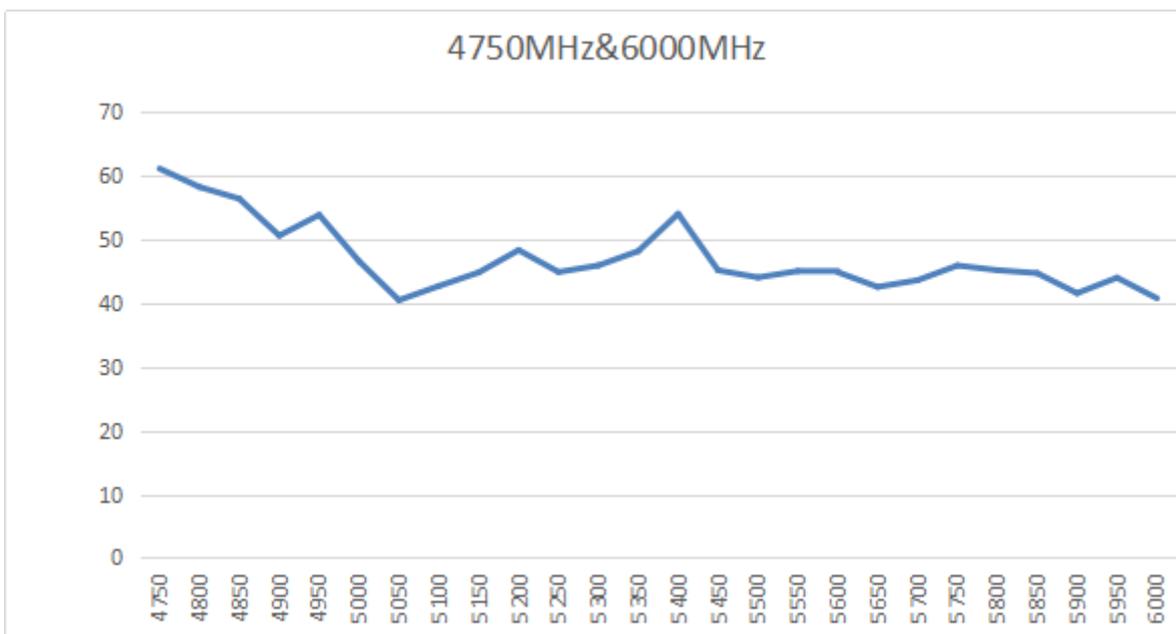
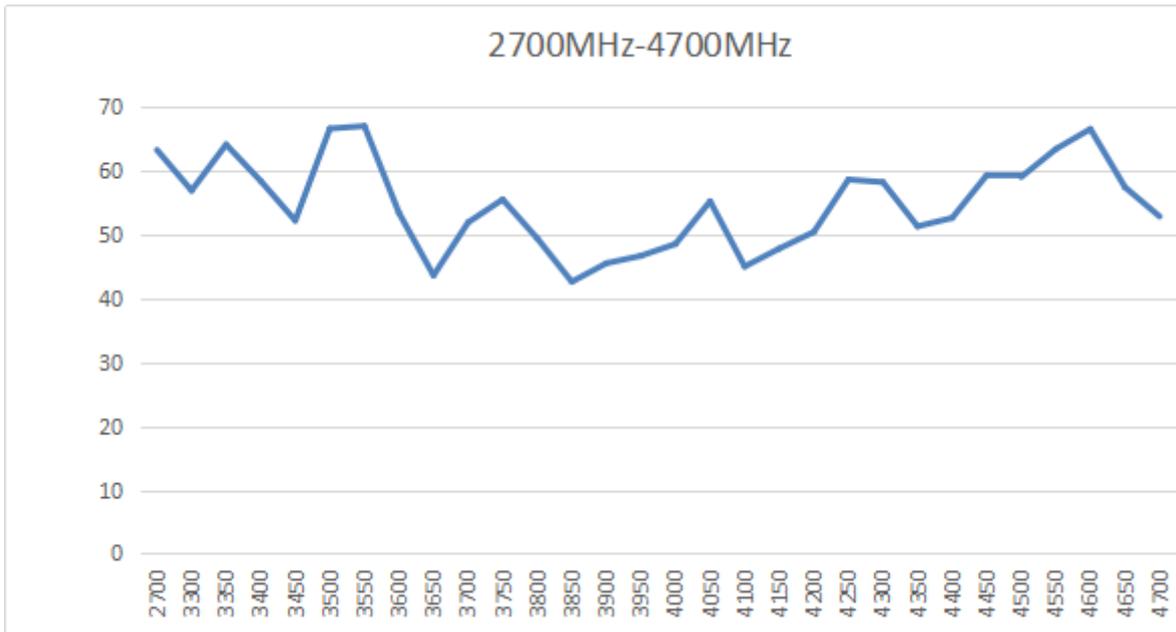
## 4.2. VSWR



Frequency (MHz)	1500	1700	2170	2300	2700	3300	4800	6000
VSWR	1.12	1.99	1.35	1.45	1.40	1.65	1.41	1.57

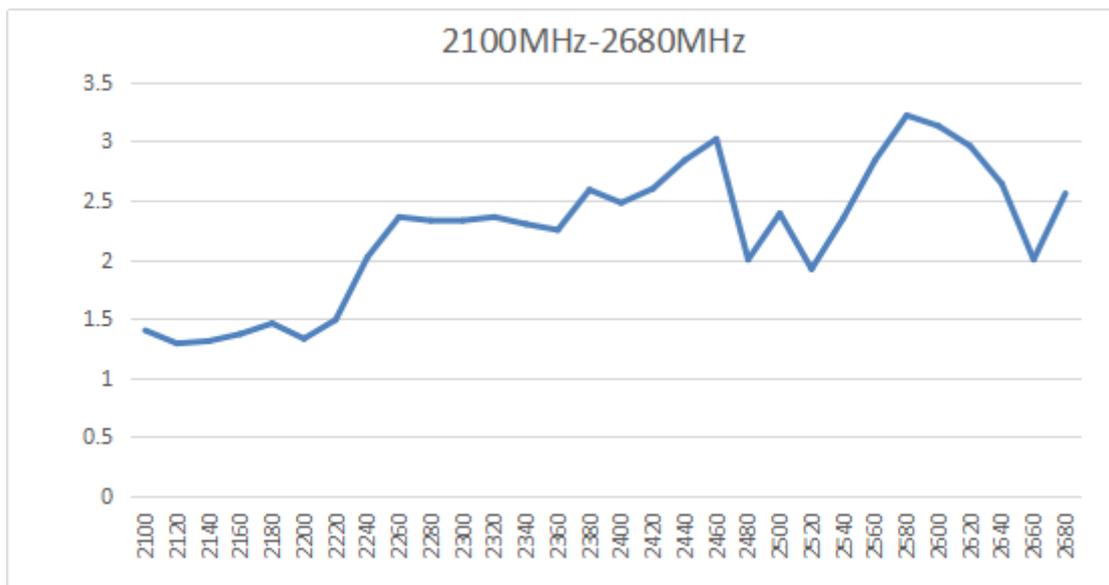
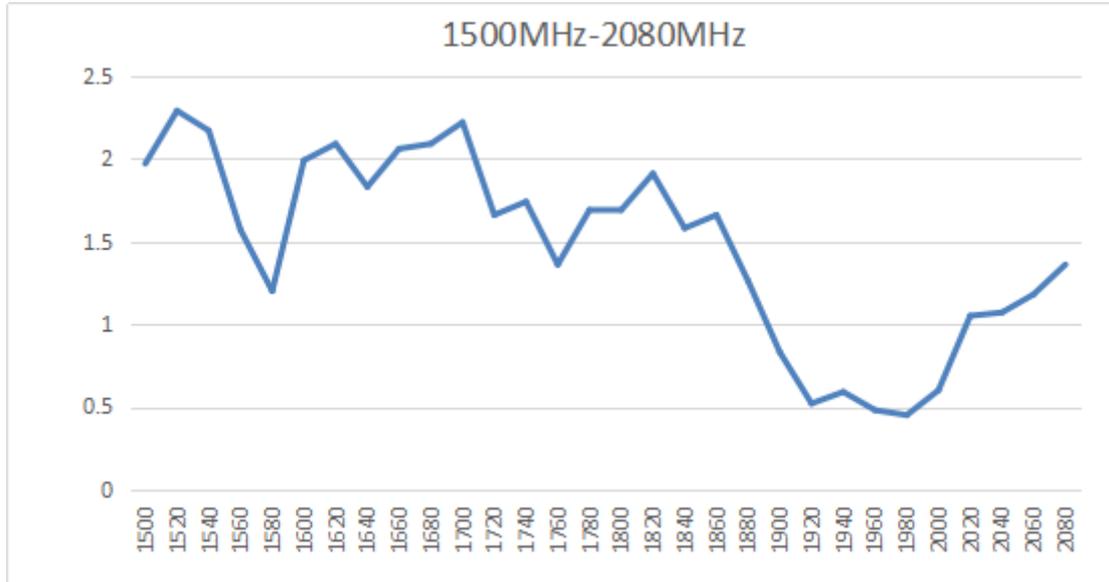
### 4.3. Efficiency

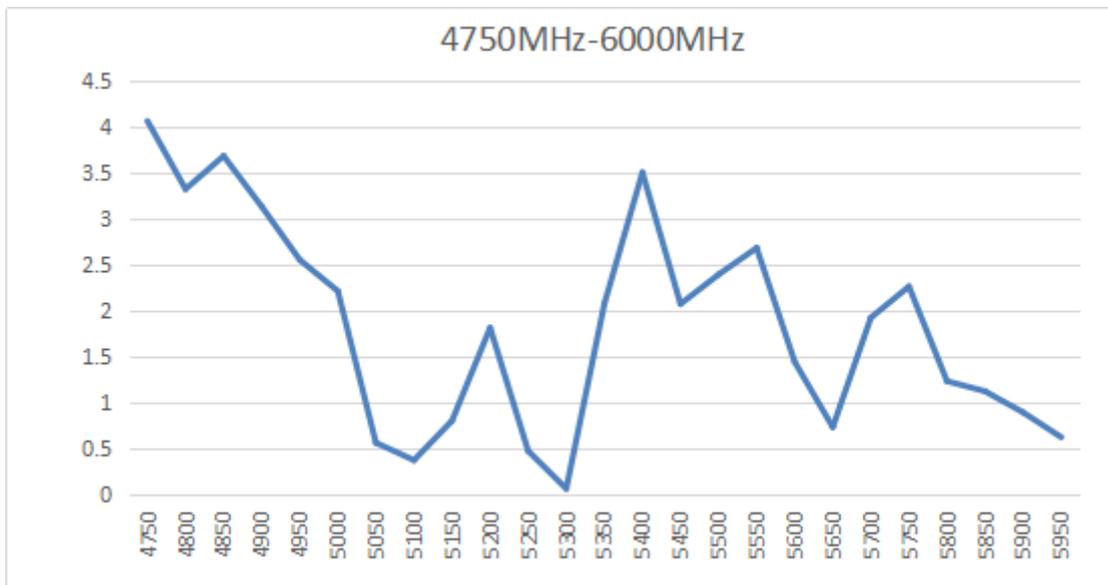
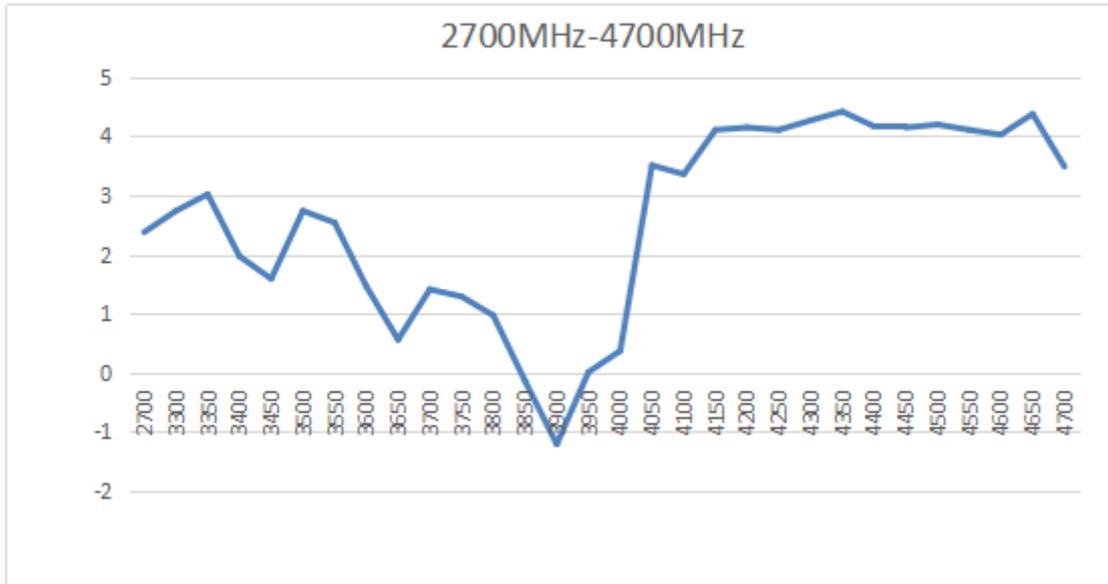




<b>Frequency (MHz)</b>	1500	1800	2160	2300	2680	3300	5000	6000
<b>Efficiency (%)</b>	49.95	42.07	56.02	40.36	57.26	56.9	46.56	40.75

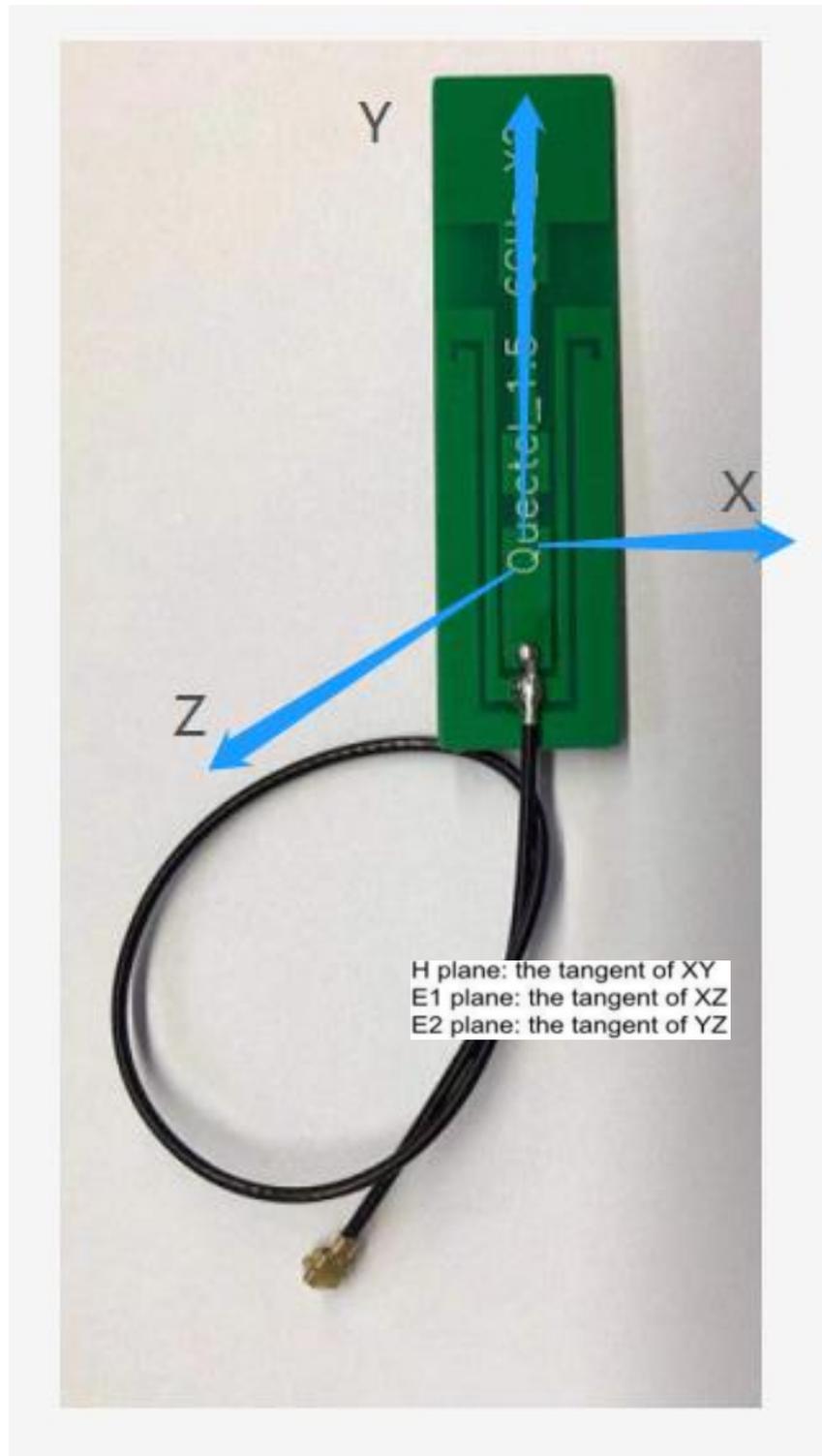
### 4.4. Gain

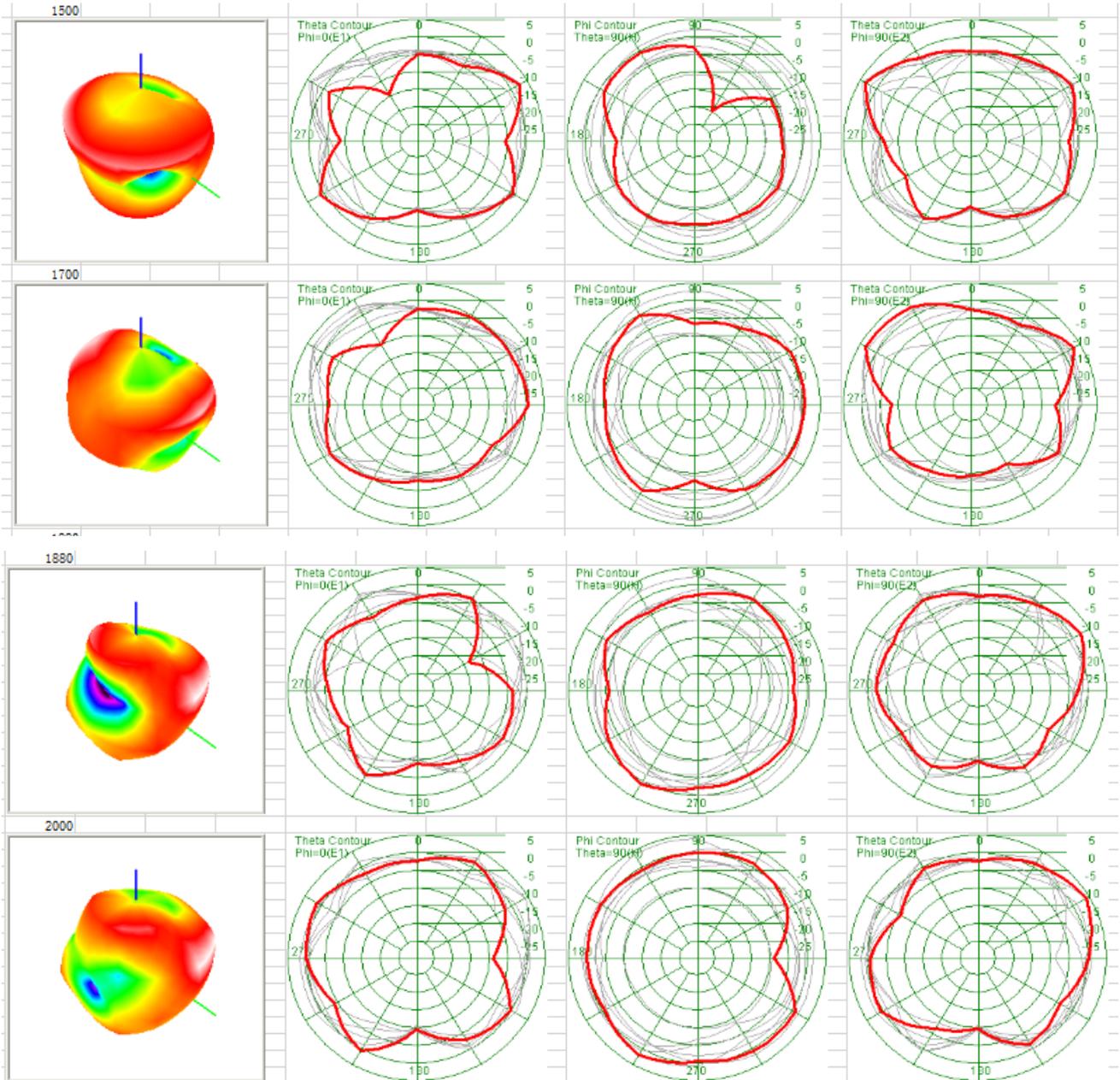


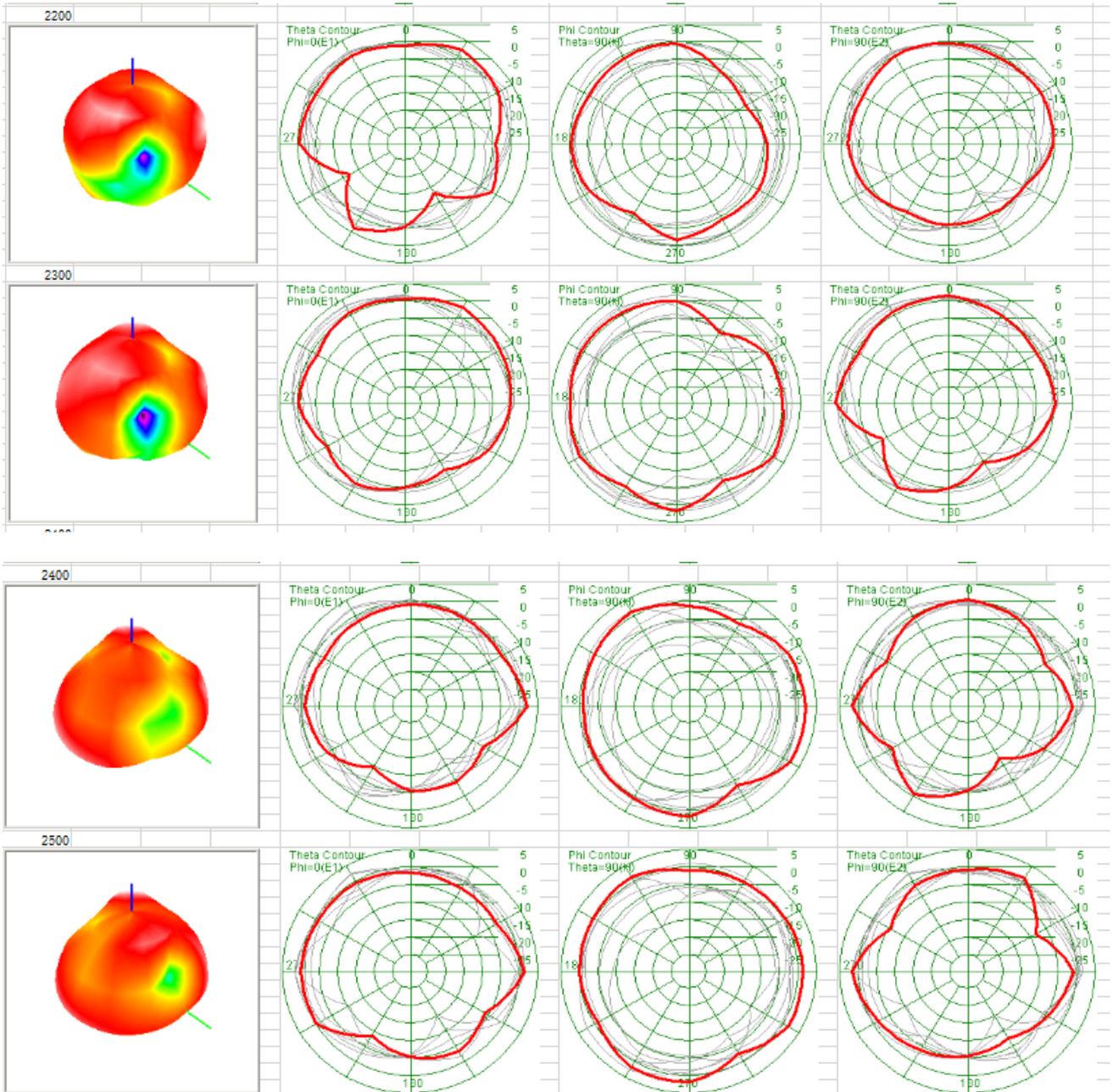


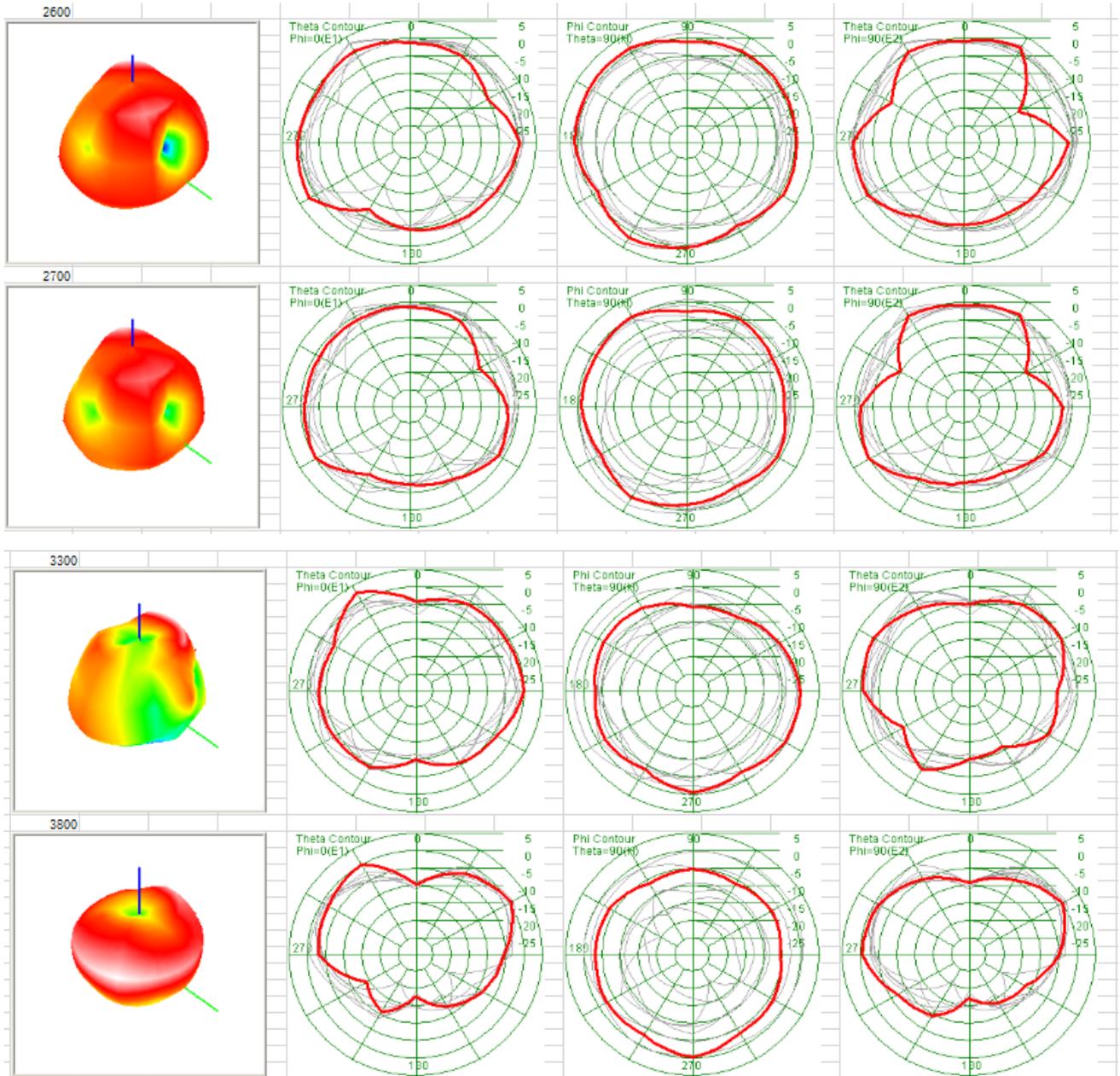
<b>Frequency (MHz)</b>	1500	1800	2160	2300	2680	3300	5000	6000
<b>Gain (dBi)</b>	1.97	1.69	1.37	2.33	2.56	2.74	2.21	-0.64

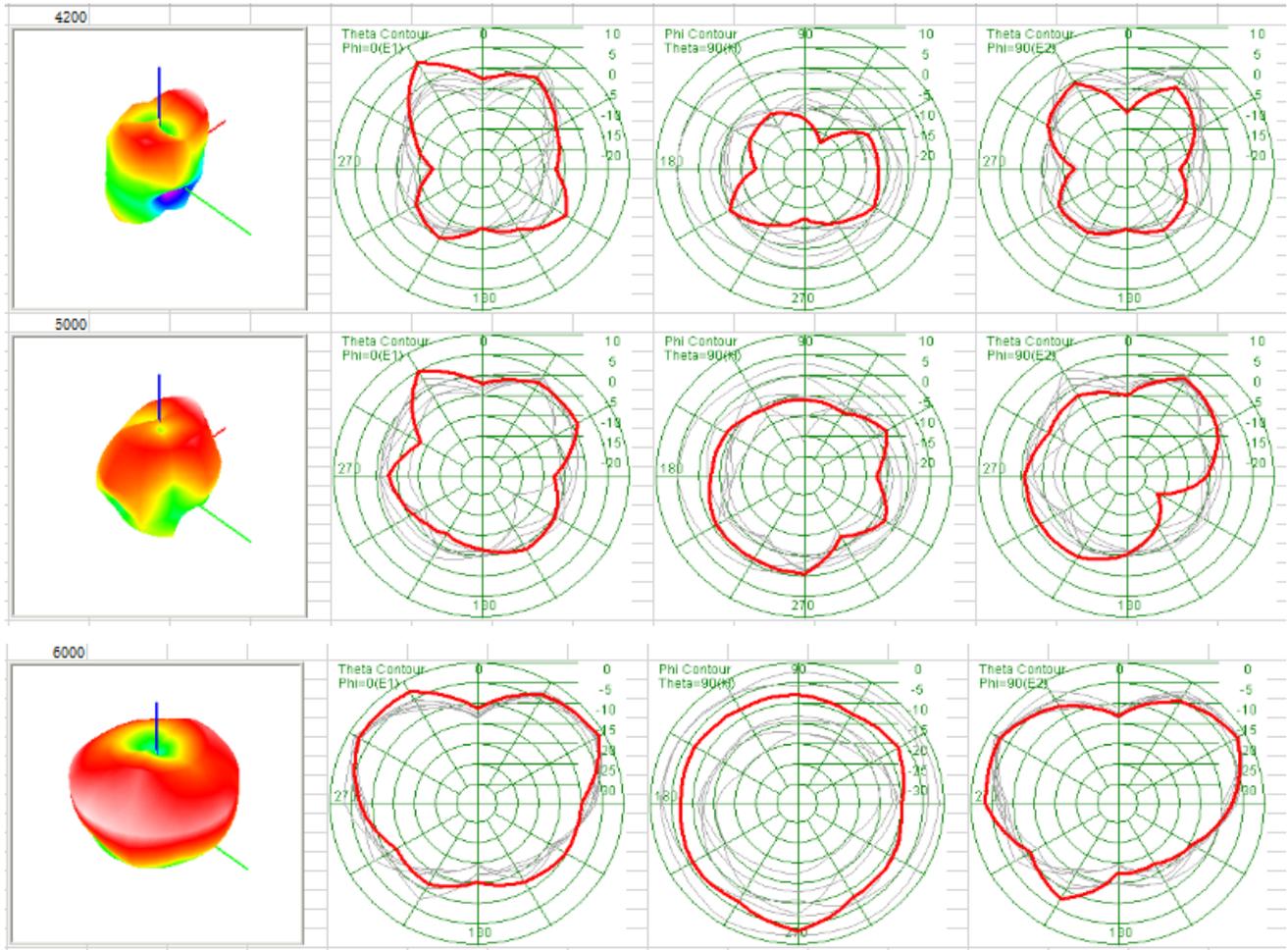
### 4.5. Radiation Pattern











## 5 Product Size

