Antenna

YECT002AA Datasheet

Antenna Services

Version: 2.2

Date: 2022-03-14

Status: Released

Approved 2023-06-15

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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

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About the Document

Revision History

Version	Date	Author	Note
-	2021-06-29	Kenny YIN/ Aria CHU	Creation of the document
1.0	2021-06-29	Kenny YIN/ Aria CHU	First official release
1.1	2021-07-25	Kenny YIN/ Aria CHU	1. Updated working temperature (Chapter 3). 2. Added detailed passive electrical specifications (Chapter 3).
2.0	2021-09-17	Vinnie LIU	Updated all test data in this datasheet.
2.1	2021-11-27	Vinnie LIU	Updated the product description in Chapter 1.
2.2	2022-03-14	Vinnie LIU	Updated the antenna drawing (Chapter 5).

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Contents

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1 Product Description

This Quectel external 4G antenna covers main 4G LTE bands and is compatible with 3G/2G/LPWA bands as well. The external antenna is barely influenced by the internal environment of devices, giving a much better performance in efficiency, radiation and gain whilst providing an optimized solution for a customer product. 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 LTE
- High efficiency
- Excellent performance

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3 Product Specifications

Passive Electrical Specifications	
Frequency Range	700–960 MHz, 1710–2690 MHz
Input Impendence	50 Ω
VSWR	≤ 3.7
Gain	≤ 3 dBi
Polarization Type	Linear

Detailed Passive Electrical Specifications								
Frequency Range (MHz)	**700–960**	**1176–1280**	**1400–1610**	**1710–2170**	**2170–2690**	**3300–4000**	**4000–5000**	**5000–6000**
VSWR (Max.)	3.68	-	-	2.45	2.02	-	-	-
Average Efficiency (%)	34	-	-	49	60	-	-	-
Max. Peak Gain (dBi)	-0.01	-	-	1.38	2.9	-	-	-

Mechanical Specifications	
Antenna Size	196.2 mm × 16 mm × 13 mm
Casing	ABS
Connector Type	SMA Male (Center Pin)
Working Temperature	-40 °C to +85 °C
Radome Color	Black
IP Rating	IP55

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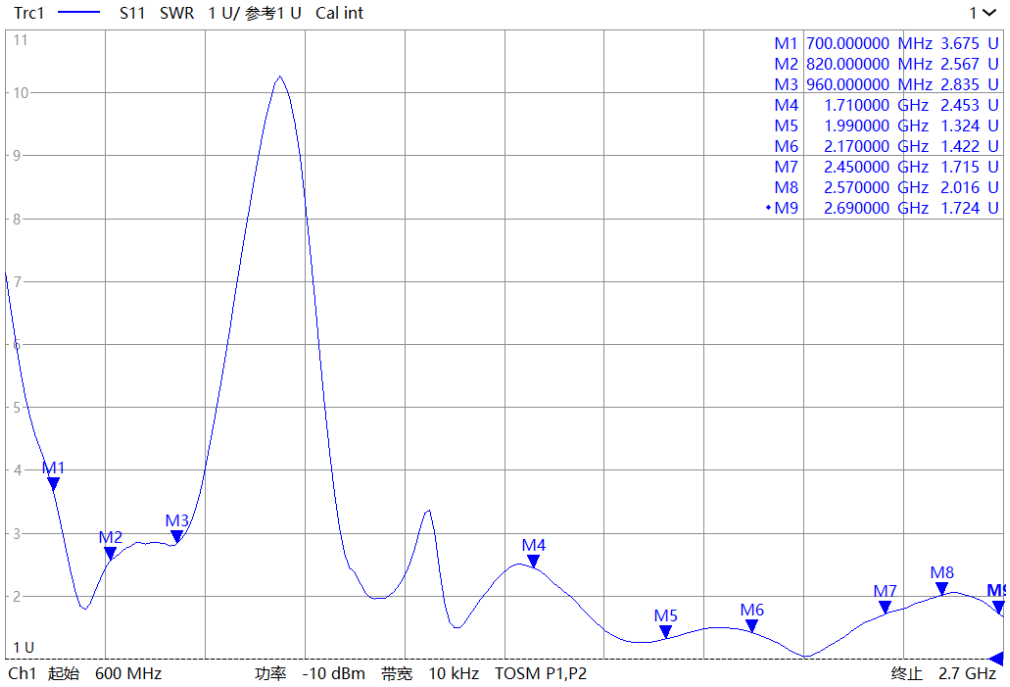
4 Overall Performance

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	820	960	1710	1990	2170	2450	2570	2690
VSWR	3.68	2.57	2.84	2.45	1.32	1.42	1.72	2.02	1.72

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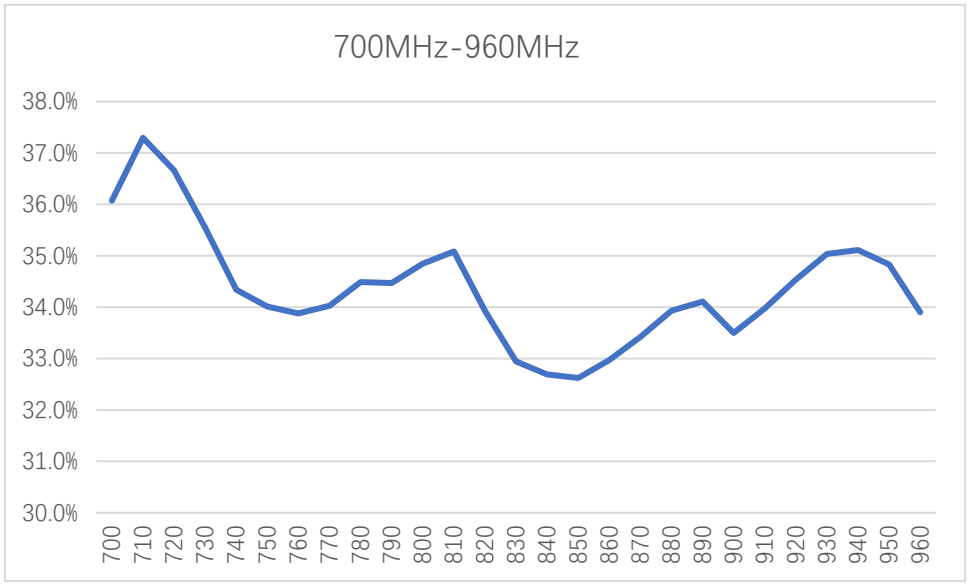
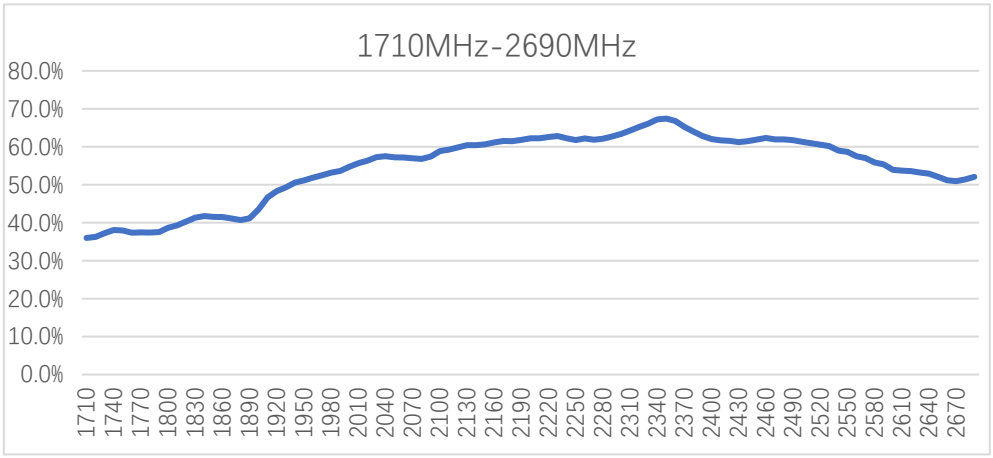
4.3. Efficiency

4.3.1. 700–960 MHz



4.3.2. 1710–2690 MHz



Frequency (MHz)	700	820	960	1710	1990	2170	2450	2570	2690
Efficiency (%)	36	34	34	36	54	62	62	57	52

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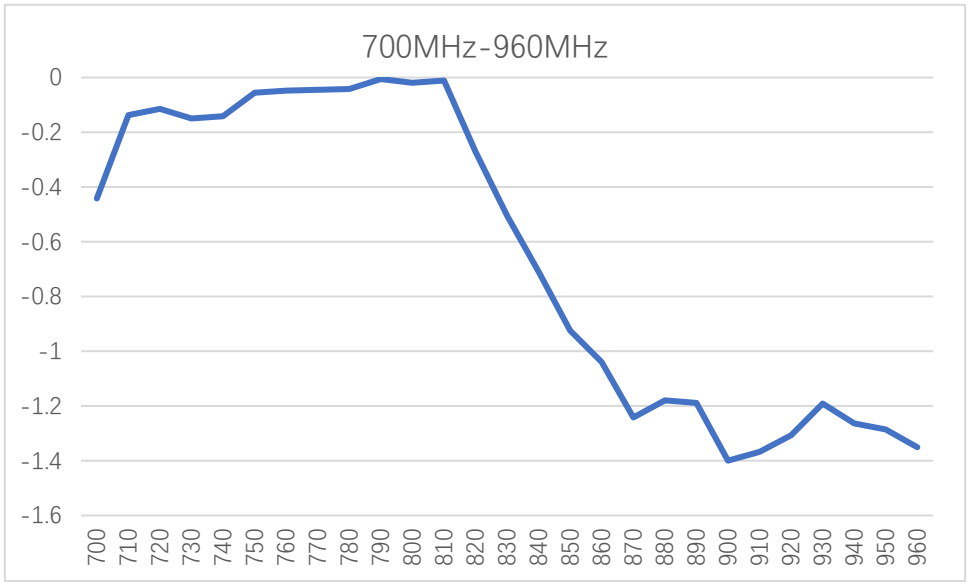
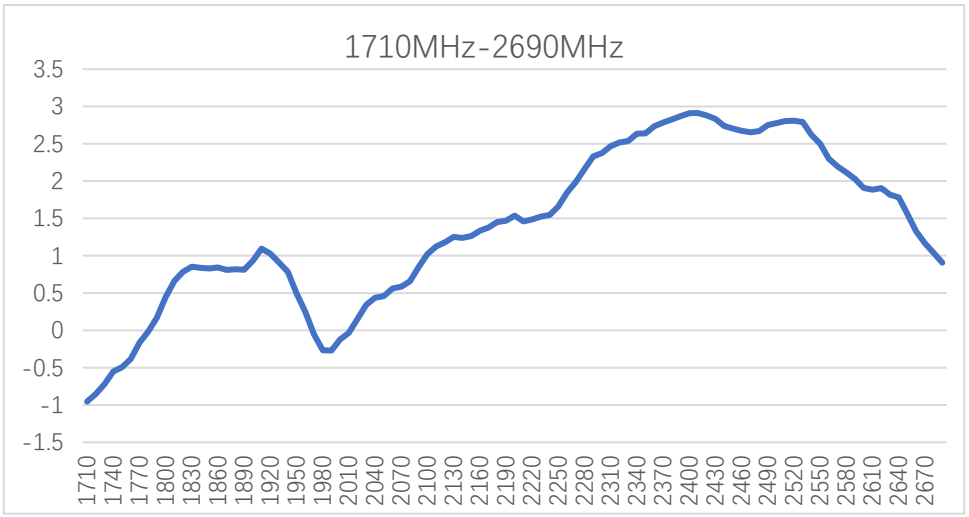
4.4. Gain

4.4.1. 700–960 MHz



4.4.2. 1710–2690 MHz



Frequency (MHz)	700	820	960	1710	1990	2170	2450	2570	2690
Gain (dBi)	-0.4	-0.3	-1.4	-1.0	-0.3	1.4	2.7	2.2	0.9

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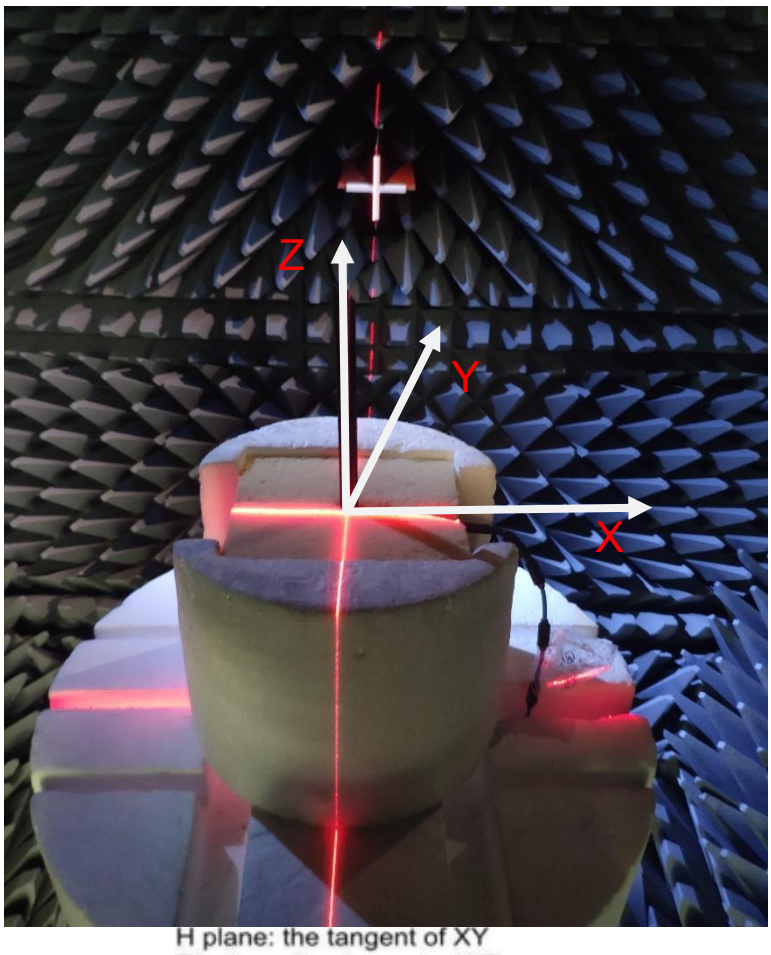
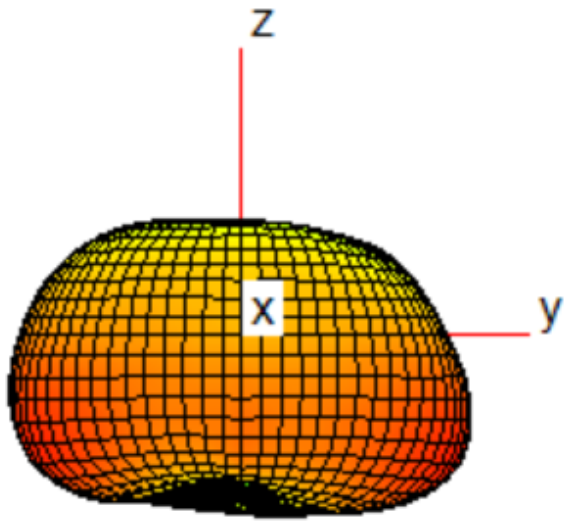
4.5. Radiation Pattern

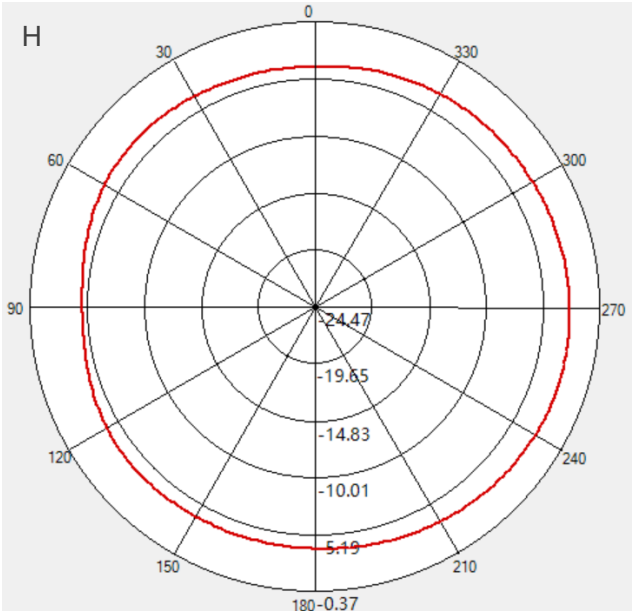
- Test condition: free space.



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

4.5.1. 700 MHz


z
x
y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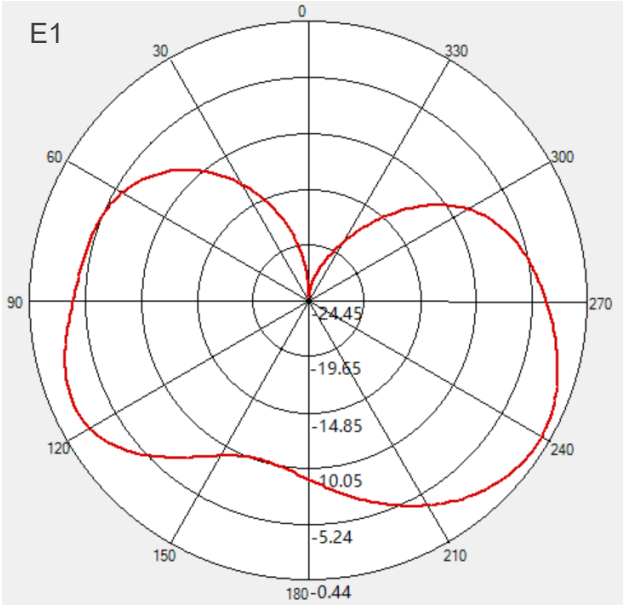
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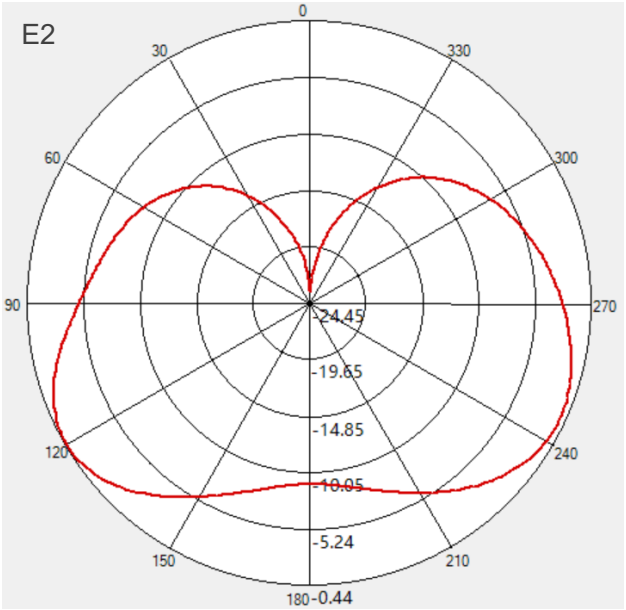
-0.44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180
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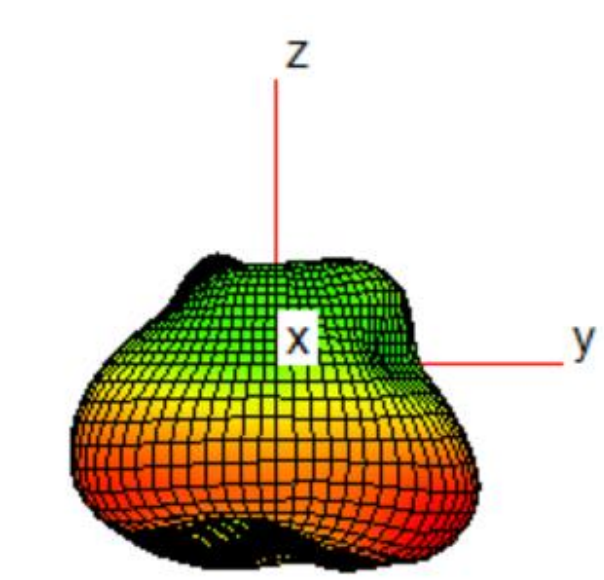
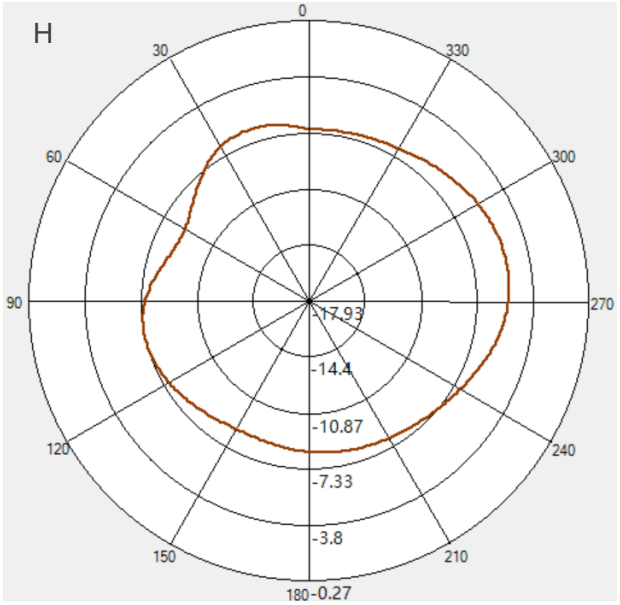
-10.05
-5.24
-0.44

4.5.2. 820 MHz


Z
x
y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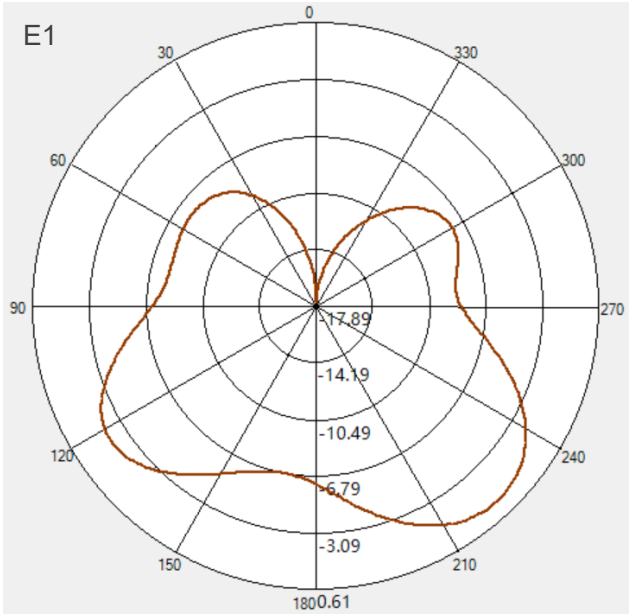
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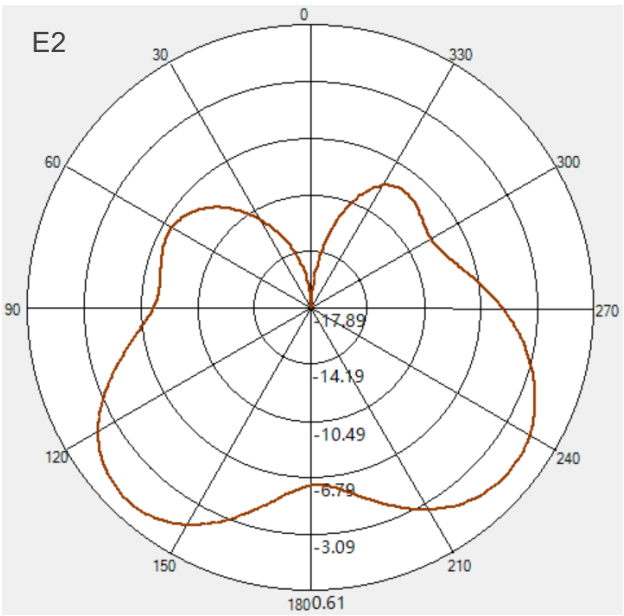
-3.09
0.61


E2
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60
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180
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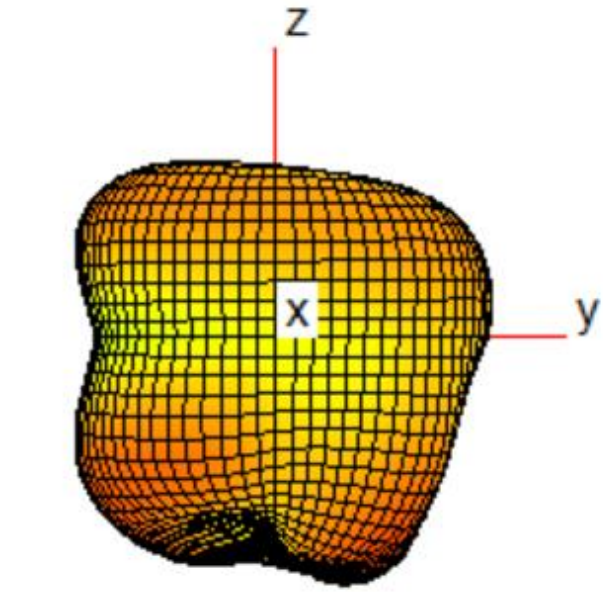
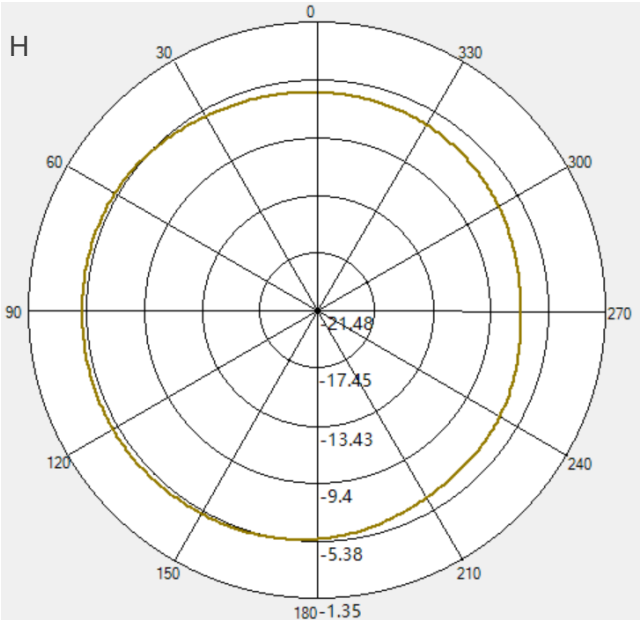
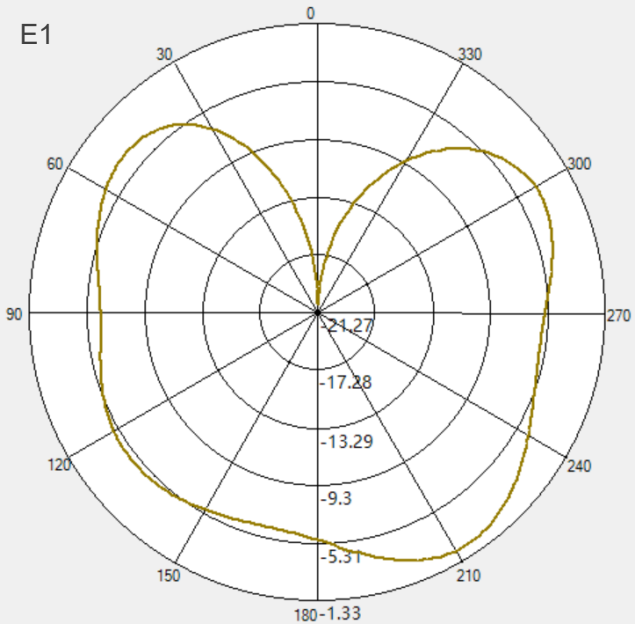
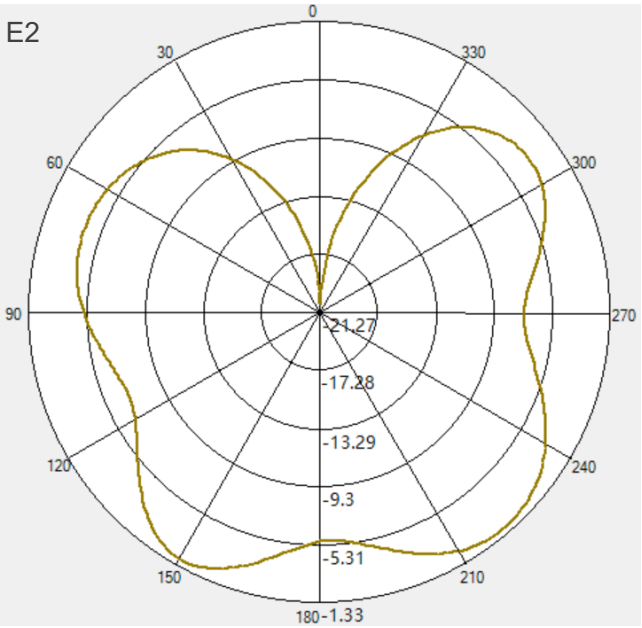
-3.09
0.61

4.5.3. 960 MHz









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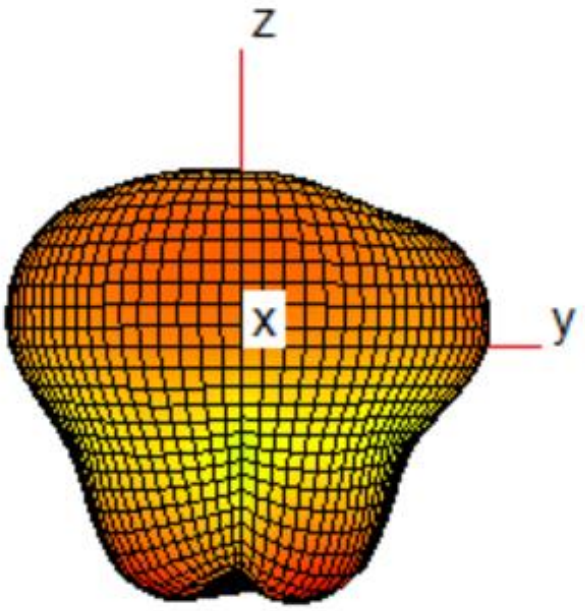
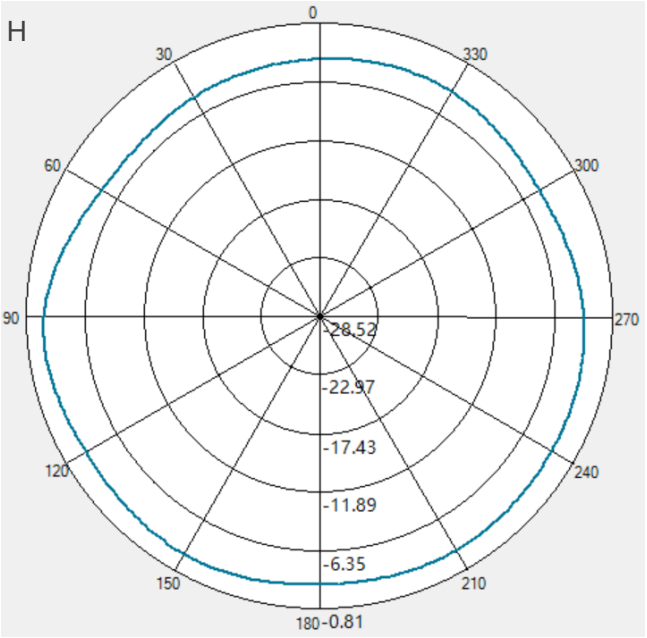
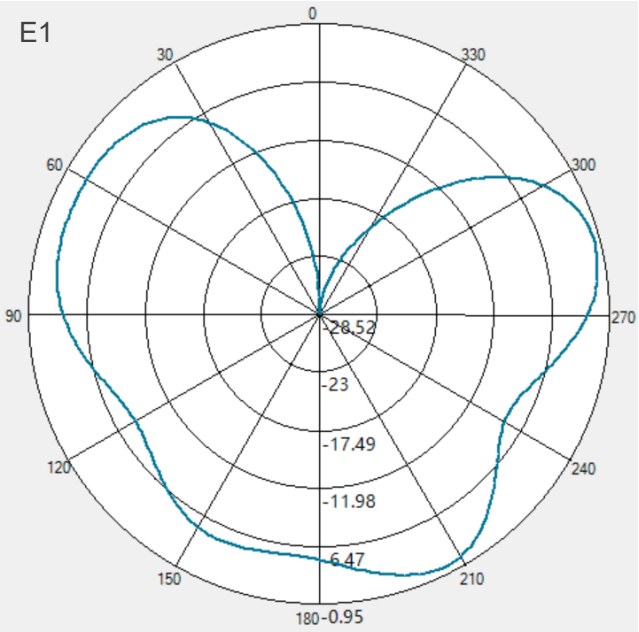
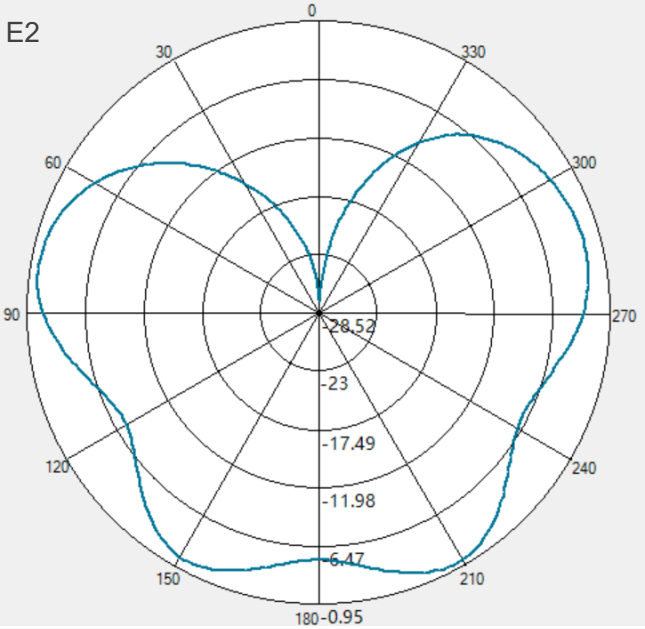
4.5.4. 1710 MHz









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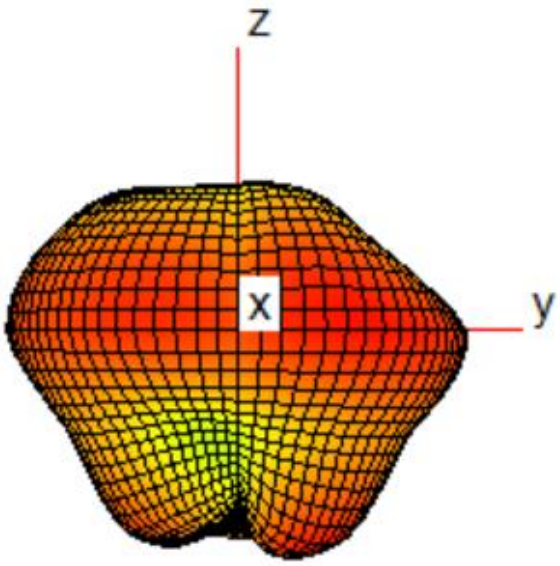
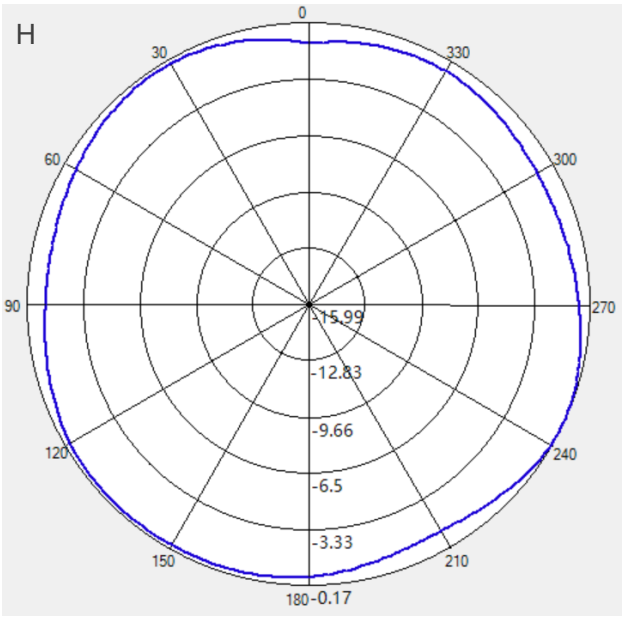
4.5.5. 1990 MHz


Z
X
y


H
0
30
330
60
300
90
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120
240
150
210
180
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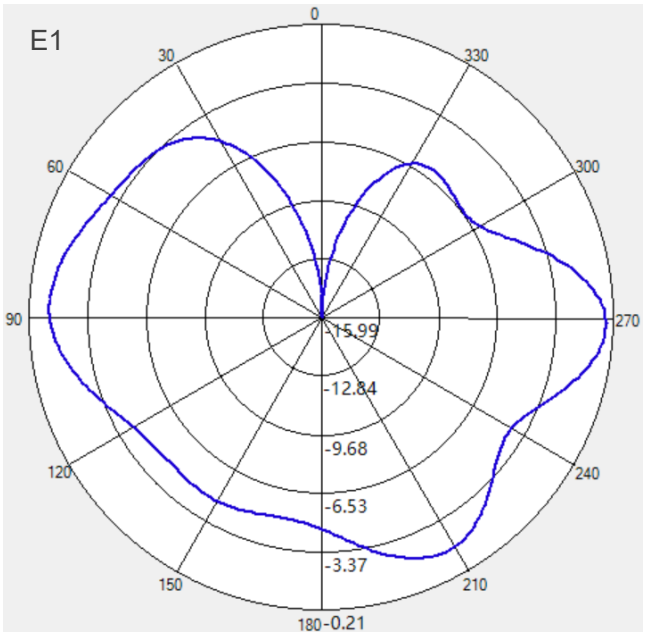
-3.33
-0.17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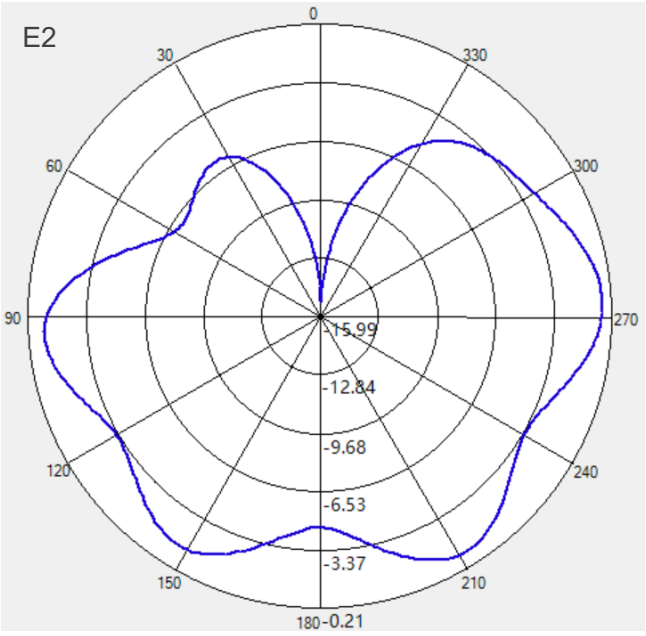
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60
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180
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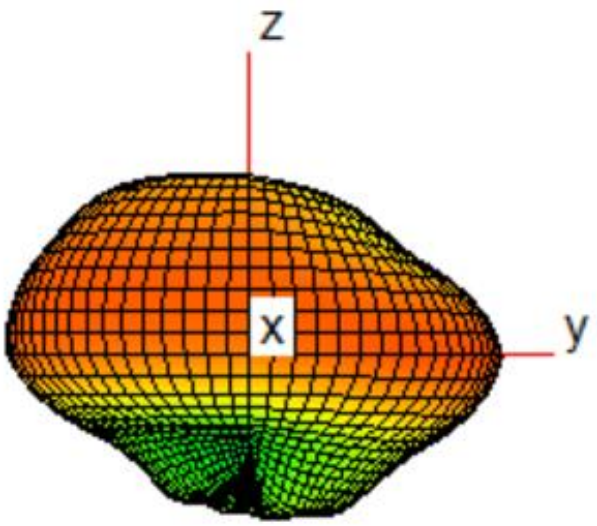
4.5.6. 2170 MHz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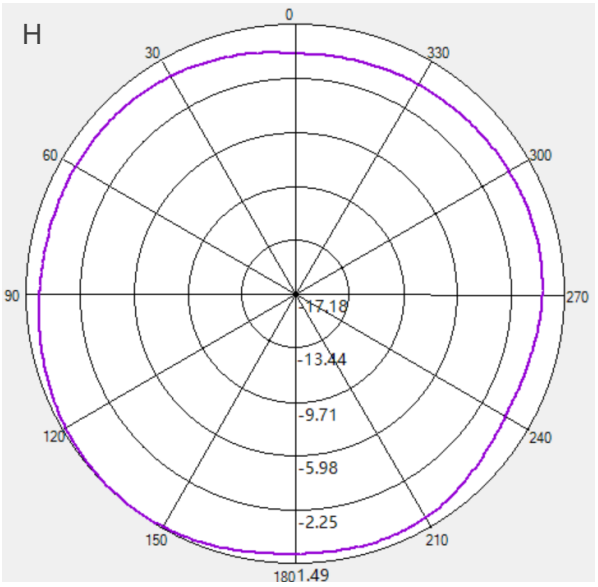
x
y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150
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180
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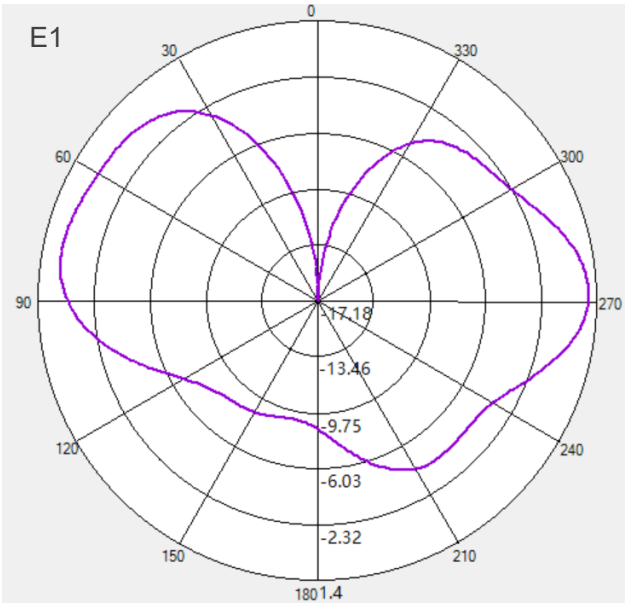
-2.25
1.49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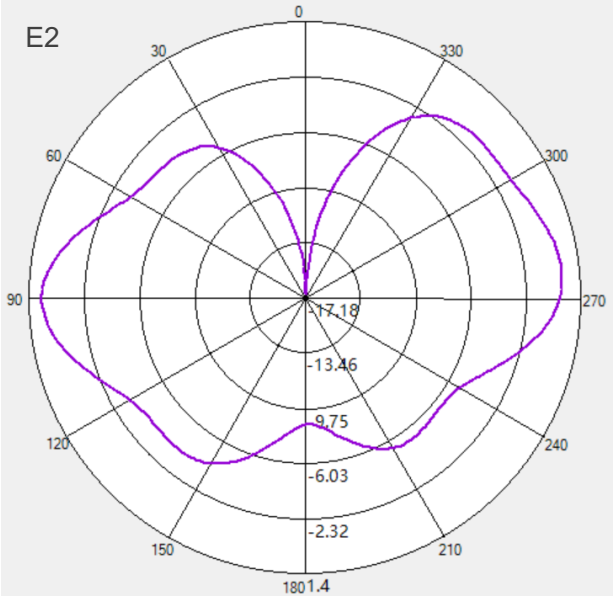
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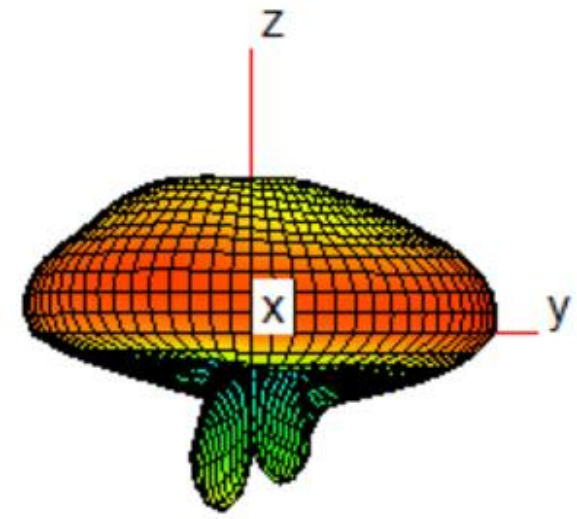
4.5.7. 2450 MHz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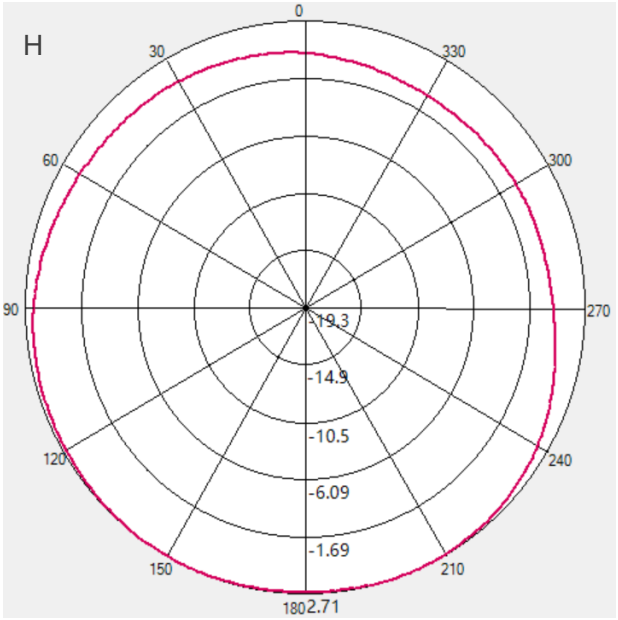
x
y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0
30
330
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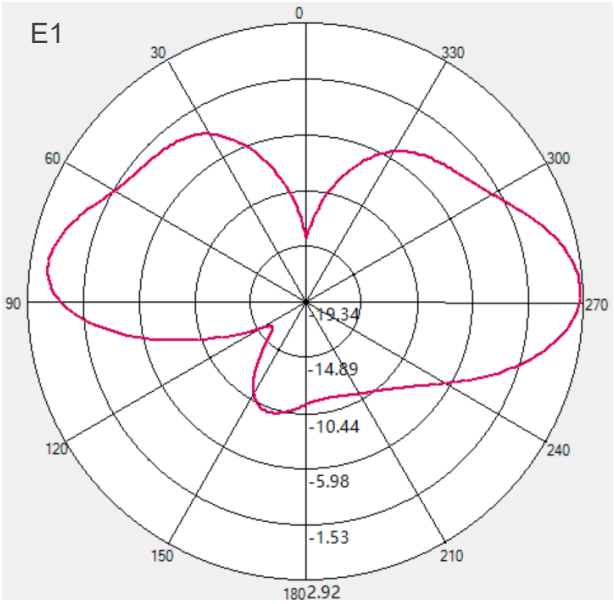
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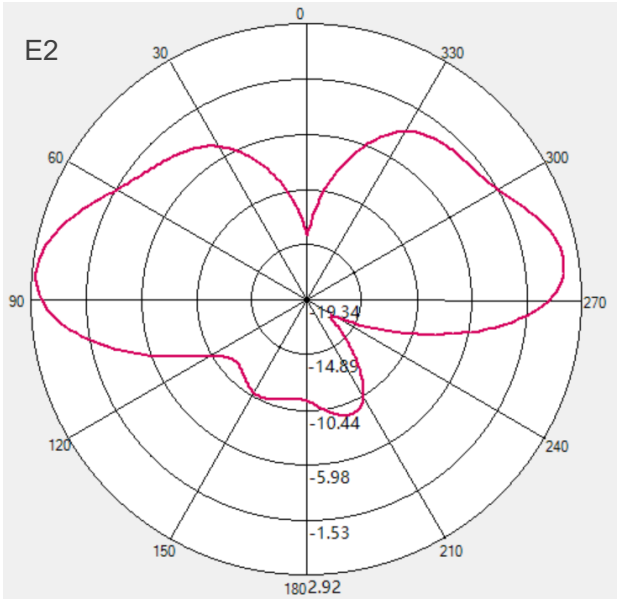
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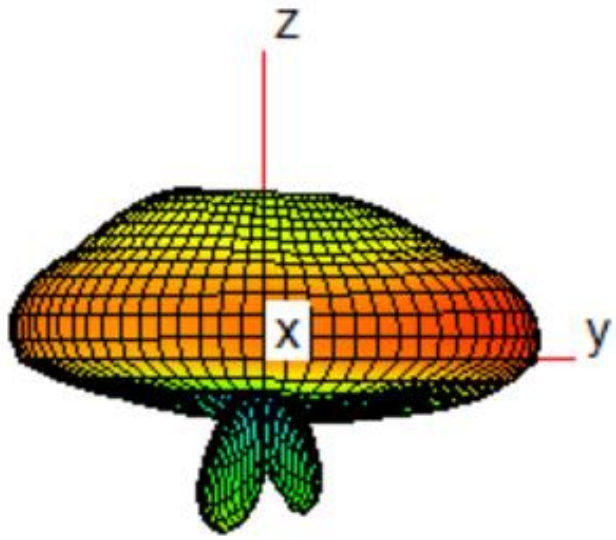
4.5.8. 2570 MHz


Z
x
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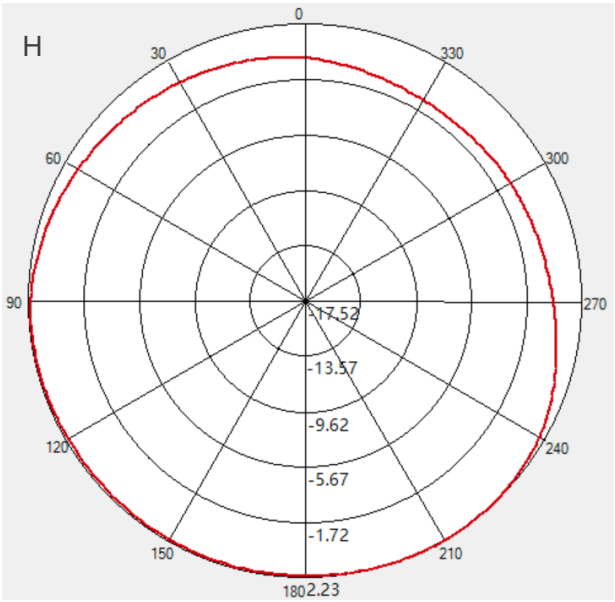
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-9.62
-5.67
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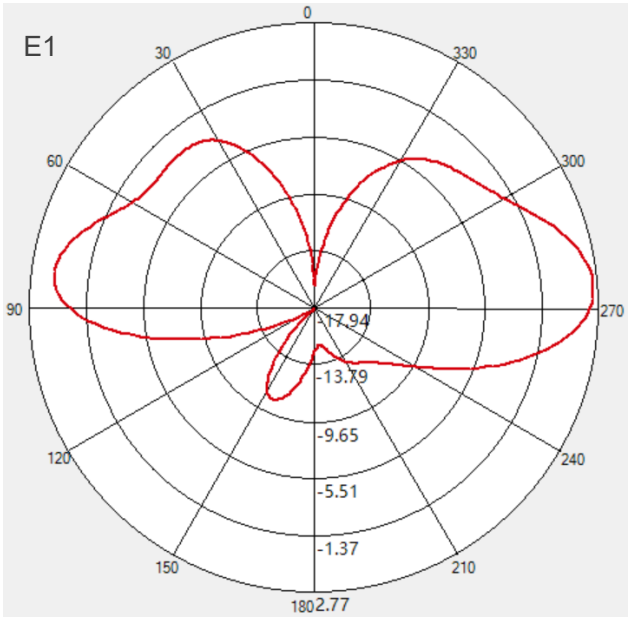
2.23


E1
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330
60
300
90
270
120
240
150
210
180
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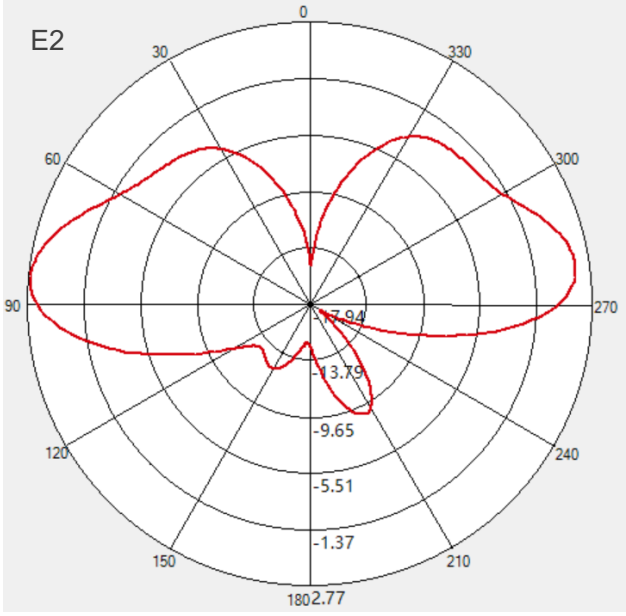
-13.79
-9.65
-5.51
-1.37
2.77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60
300
90
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120
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210
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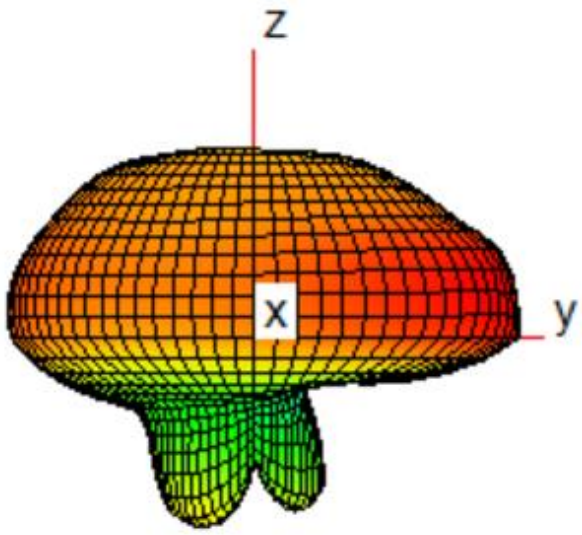
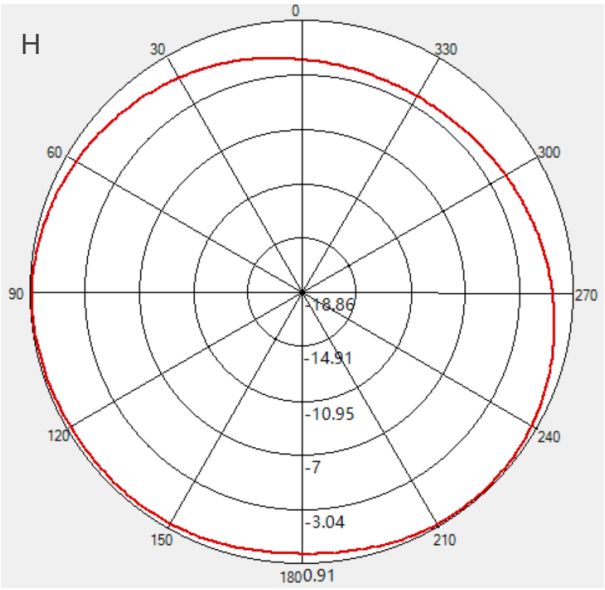
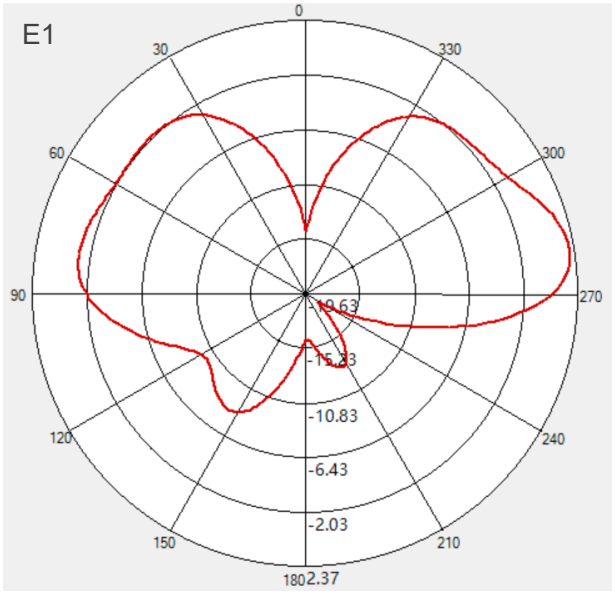
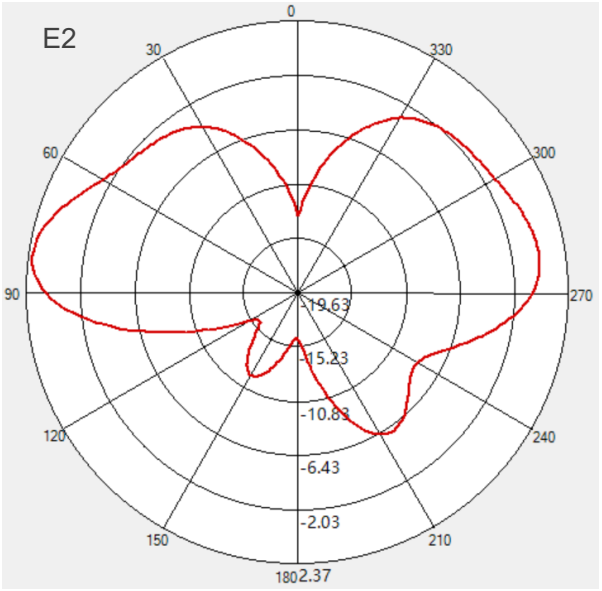
2.77

4.5.9. 2690 MHz



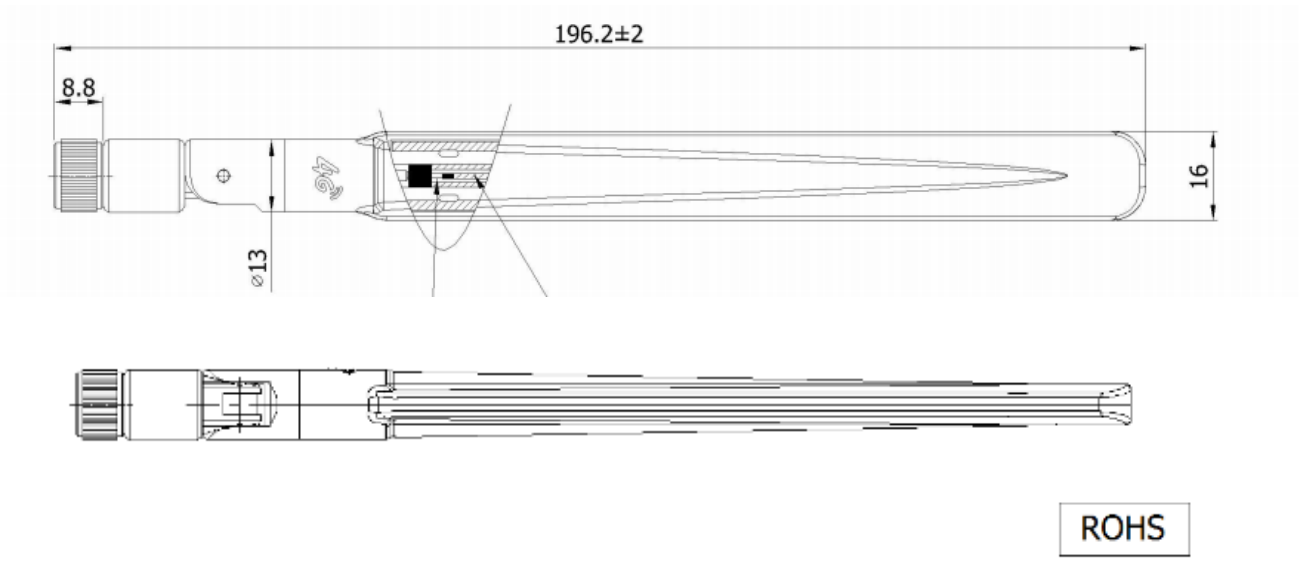






Approved 2023-06-15

5 Product Size



Approved 2023-06-15