

NA2203A-3C

Antenna Specifications

Issue 1.0 Date 2022-03-25



Copyright © Neoway Technology Co., Ltd. 2022. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Neoway Technology Co., Ltd.

neoway is the trademark of Neoway Technology Co., Ltd.

All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

This document is intended for system engineers (SEs), development engineers, and test engineers.

THIS GUIDE PROVIDES INSTRUCTIONS FOR CUSTOMERS TO DESIGN THEIR APPLICATIONS. PLEASE FOLLOW THE RULES AND PARAMETERS IN THIS GUIDE TO DESIGN AND COMMISSION. NEOWAY WILL NOT TAKE ANY RESPONSIBILITY OF BODILY HURT OR ASSET LOSS CAUSED BY IMPROPER OPERATIONS.

THE INFORMATION IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE DUE TO PRODUCT VERSION UPDATE OR OTHER REASONS.

EVERY EFFORT HAS BEEN MADE IN PREPARATION OF THIS DOCUMENT TO ENSURE ACCURACY OF THE CONTENTS, BUT ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS DOCUMENT DO NOT CONSTITUTE A WARRANTY OF ANY KIND, EXPRESS OR IMPLIED.

Neoway provides customers complete technical support. If you have any question, please contact your account manager or email to the following email addresses:

Sales@neoway.com

Support@neoway.com

Website: <http://www.neoway.com>

Contents

About This Document	iv
Scope	iv
Audience	iv
Change History.....	iv
Conventions	iv
1 Product Specifications	5
2 Product Features	6
3 Antenna Passive Performance	7
3.1 VSWR.....	7
3.2 Gain and Efficiency	8
3.3 Radiation Patterns.....	11
4 Structure	13

About This Document

Scope

This document is applicable to NA2203A-3C.




Audience

This document is intended for [system engineers \(SEs\)](#), [development engineers](#), and [test engineers](#).

Change History

Issue	Date	Change	Changed By
1.0	2022-03	Initial draft	Yang Pin

Conventions

Symbol	Indication
	Indicates danger or warning. This information must be followed. Otherwise, a catastrophic module or user device failure or bodily injury may occur.
	Indicates caution. This symbol alerts the user to important points about using the module. If these points are not followed, the module or user device may fail.
	Indicates instructions or tips. This symbol provides advices or suggestions that may be useful when using the module.

1 Product Specifications

Name: 4G Antenna

Passive Electromagnetic Characteristics

Frequency Range (MHz)	824-960/1710-2690	Polarization	Linear
VSWR	≤ 5.0/3.0	Impedance (Ω)	50
Gain (dBi)	4.0	Efficiency	77%

Mechanical Characteristics

Antenna Size (mm)	40 x 15 x 1.6	Cable Length (mm)	1.13/75
Material	FR4	Radom Color	Blue
Connect Type	RF 1 Generation	Working Temperature (°C)	-35 to +70

2 Product Features

- The antenna has a high radiation efficiency in all frequency bands, low-frequency radiation efficiency $\geq 40\%$, medium, and high-frequency radiation efficiency $\geq 60\%$.
- The RF splice-connector adopts an anti-oxidation design and has passed the 24H salt spray test; it is anti-oxidation and has stable performance.
- The antenna size is small, which facilitates the built-in installation.

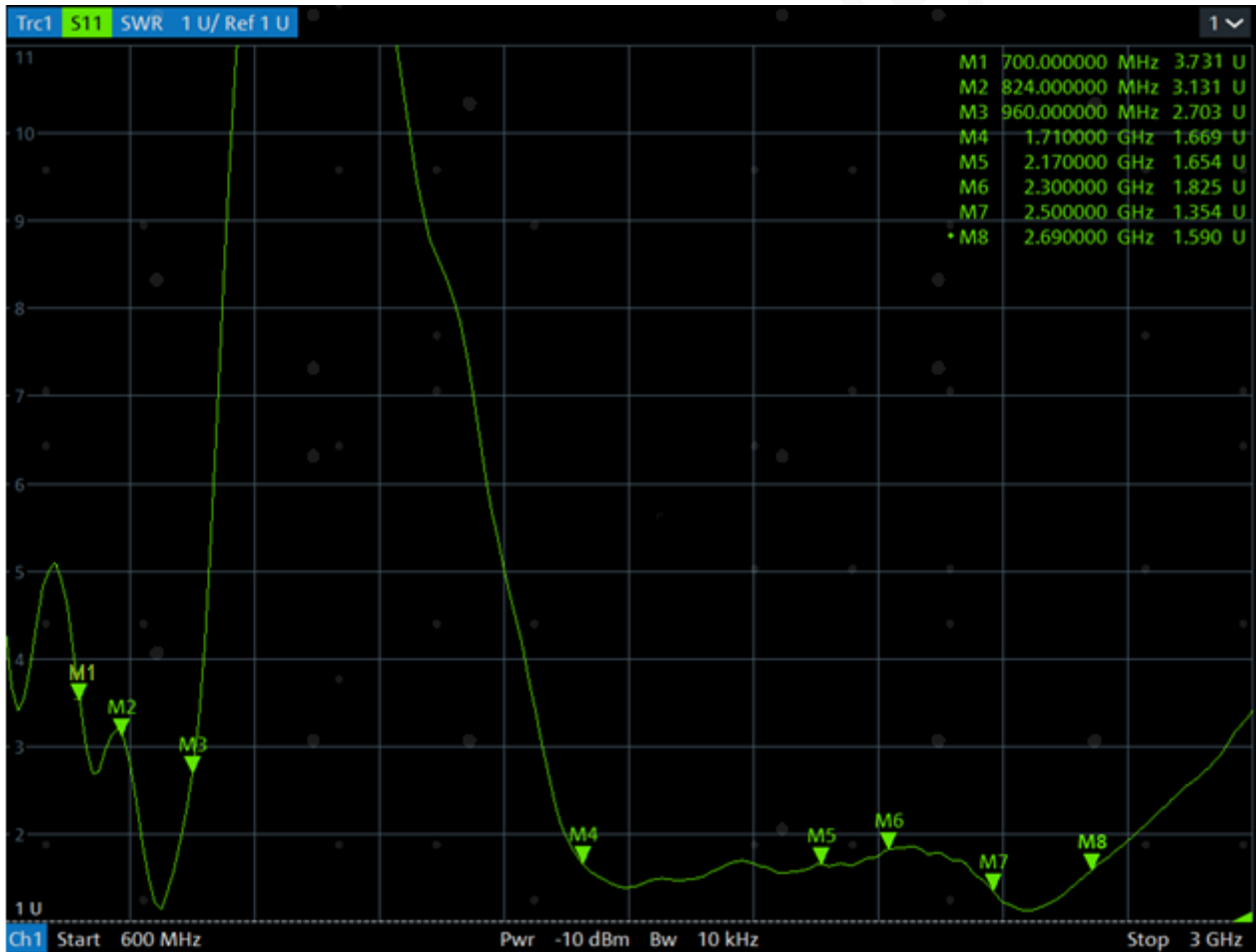
3 Antenna Passive Performance

3.1 VSWR

Table 3-1 VSWR

Frequency (MHz)	700	824	960	1710	2170	2300	2690
VSWR	3.731	3.131	2.703	1.669	1.654	1.825	1.590

Figure 3-1 VSWR



3.2 Gain and Efficiency

700-960MHZ

Table 3-2 Gain and efficiency

Frequency (MHz)	Efficiency (%)	Gain (dBi)
700	41.21	1.95
710	34.67	0.67
720	40.36	0.7
730	39.08	0.13
740	43.95	1.02
750	41.02	1.14
760	49.09	2.12
770	47.86	1.79
780	52.48	2.55
790	52.6	2.71
800	46.56	0.69
810	46.56	0.92
820	50.47	1.1
830	46.99	0.61
840	40.27	-0.4
850	45.08	-0.05
860	51.64	0.69
870	51.29	0.86
880	48.98	0.61
890	52.97	0.86
900	55.72	1.16
910	59.43	1.72
920	63.24	2.24
930	59.43	2.29
940	54.2	2.06
950	52.36	2.11
960	42.85	1.51

Figure 3-2 Efficiency (700-960 MHz)

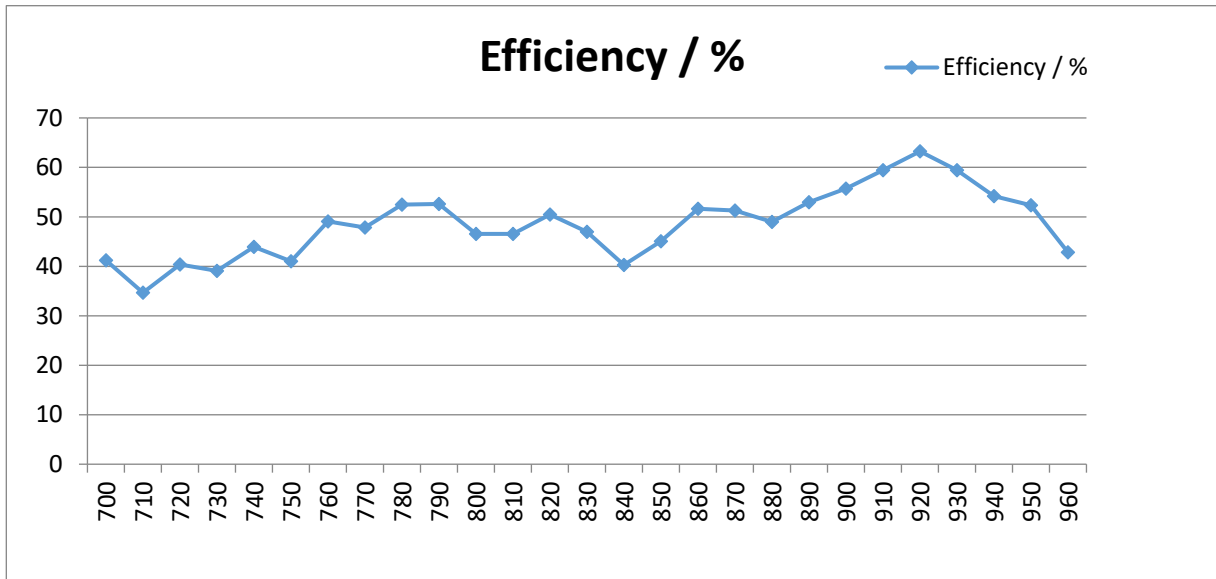
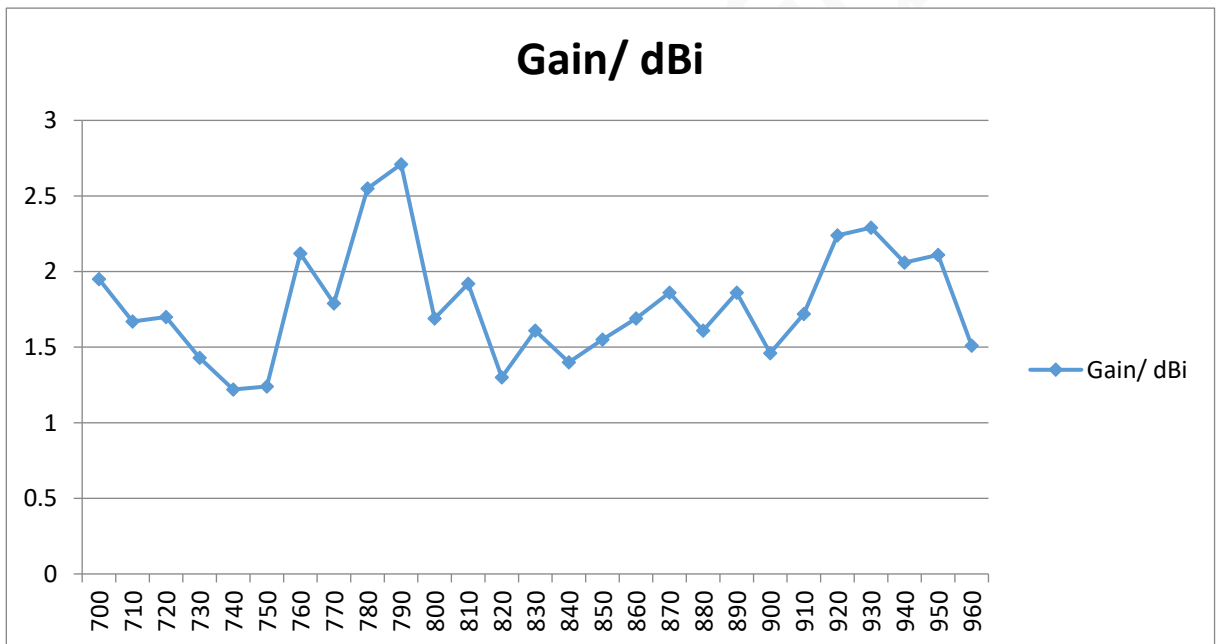


Figure 3-3 Gain (700-960 MHz)



1710-2690MHZ

Table 3-3 Gain and efficiency

Frequency (MHz)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (%)	Gain (dBi)
1700	54.08	2.04	2160	53.46	1.3
1720	61.52	2.7	2180	56.1	1.55
1740	59.84	2.51	2300	63.53	2.02
1760	61.24	2.51	2320	53.46	1.36

1780	61.66	2.39	2340	54.45	1.73
1800	61.94	2.66	2360	43.35	0.4
1820	60.39	2.89	2380	51.64	1.14
1840	69.18	3.62	2400	45.71	0.21
1860	66.53	3.48	2420	52.97	1.04
1880	64.86	3.38	2440	56.62	1.02
1900	71.94	3.55	2460	57.94	1.03
1920	60.95	2.79	2480	63.68	1.16
1940	77.8	3.82	2500	60.39	0.59
1960	59.98	2.41	2520	65.77	0.99
1980	69.34	2.74	2540	69.66	1.52
2000	72.78	2.43	2560	67.92	1.65
2020	66.22	1.91	2580	82.6	2.76
2040	69.34	2.08	2600	74.99	2.7
2060	59.7	1.72	2620	76.38	2.77
2080	66.99	2.42	2640	68.23	2.61
2100	64.12	2.5	2660	66.83	2.27
2120	62.52	2.23	2680	62.37	2.18
2140	62.95	2.22	2700	61.8	1.8

Figure 3-4 Efficiency (1710-2690 MHz)

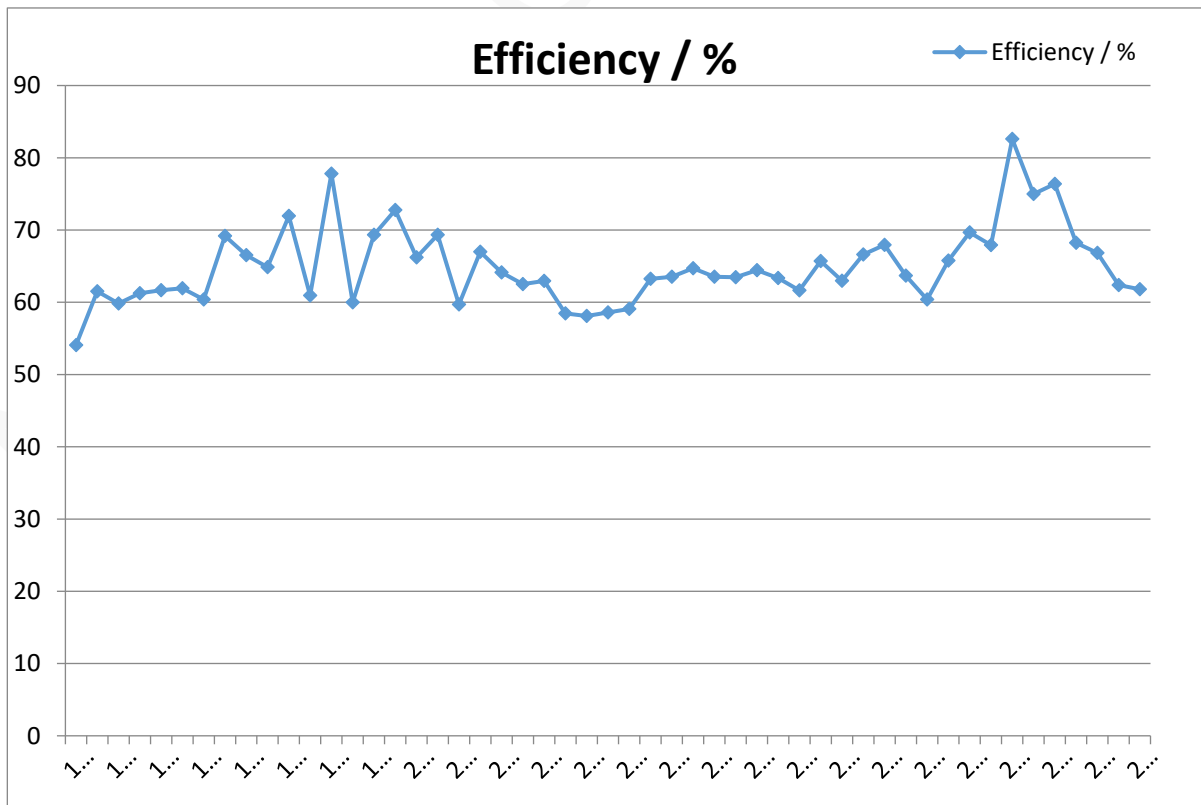
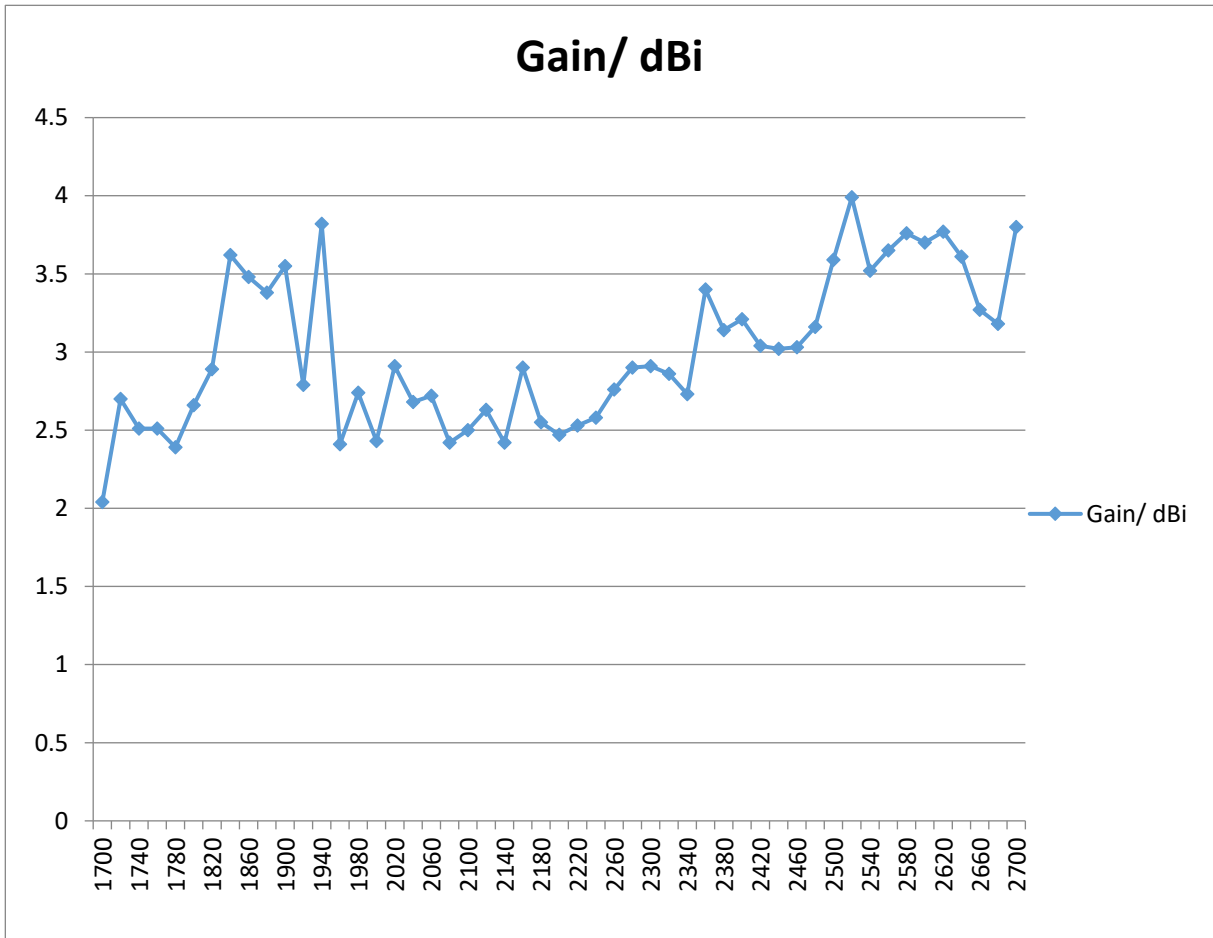
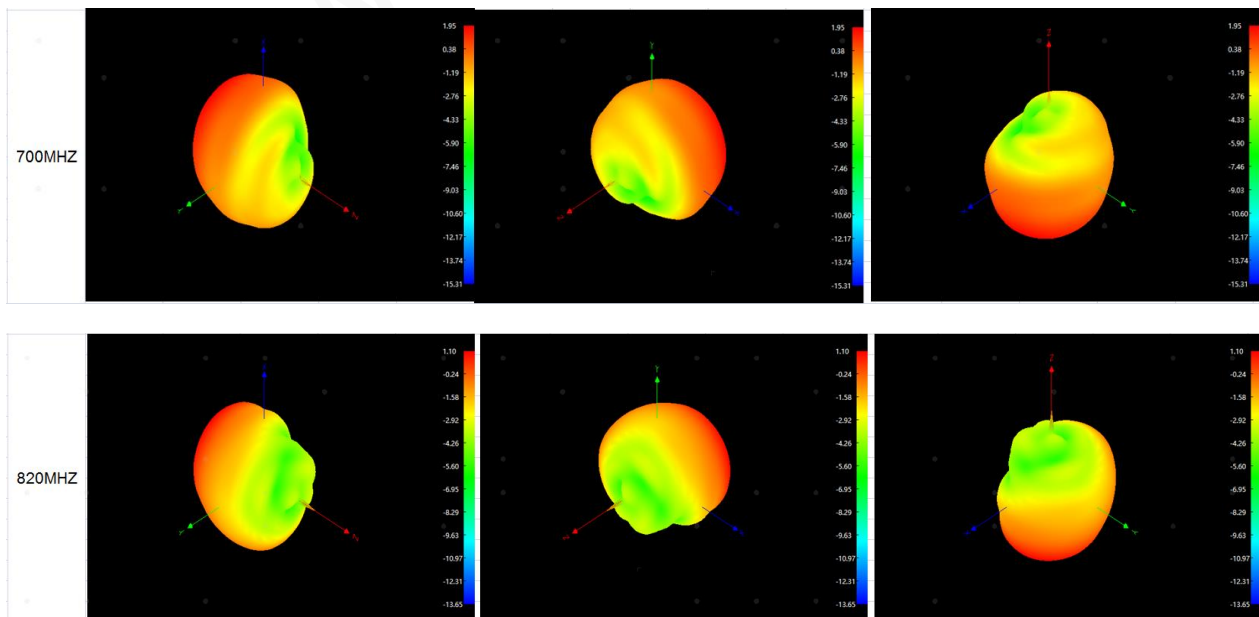
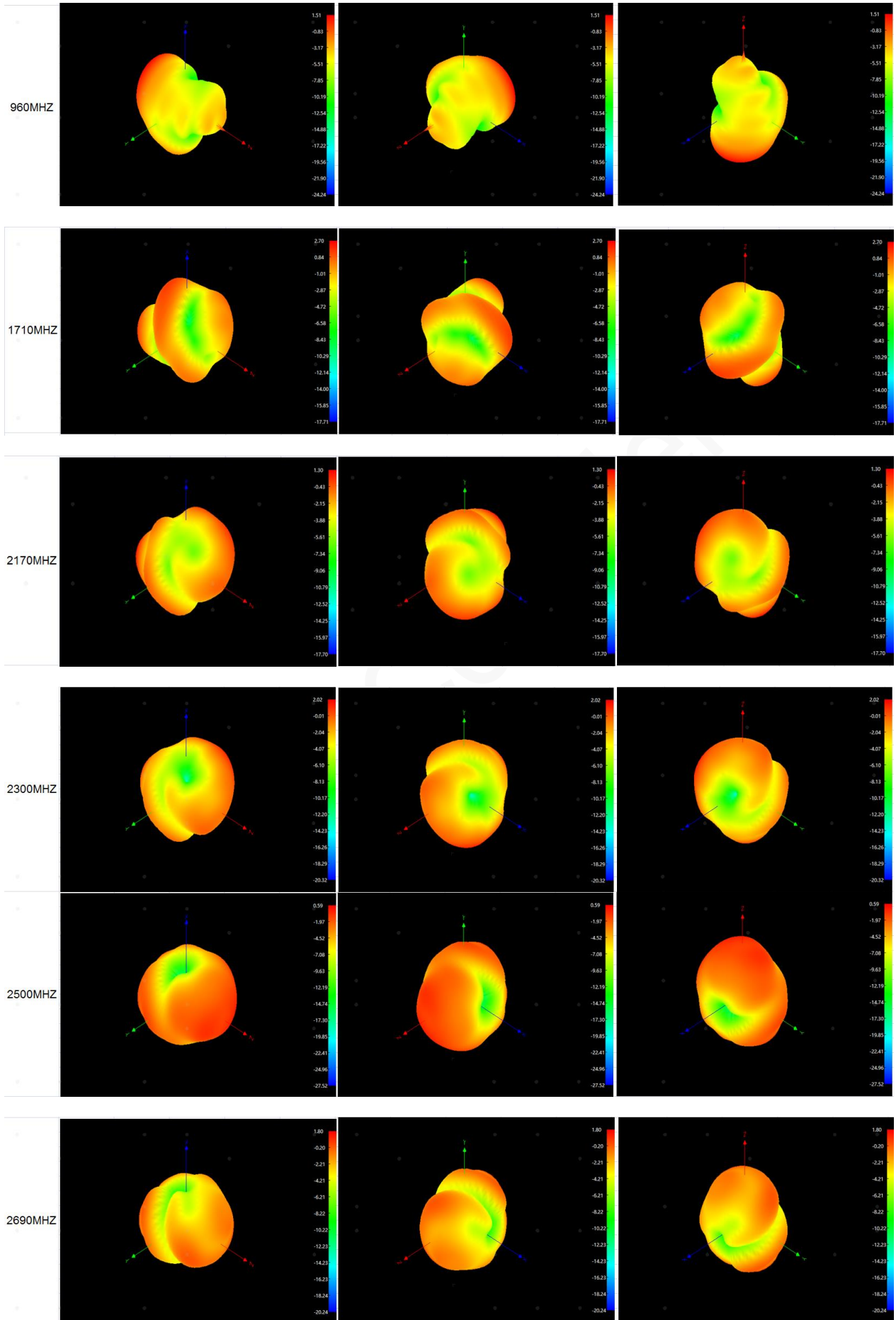


Figure 3-5 Gain (1710-2700 MHz)

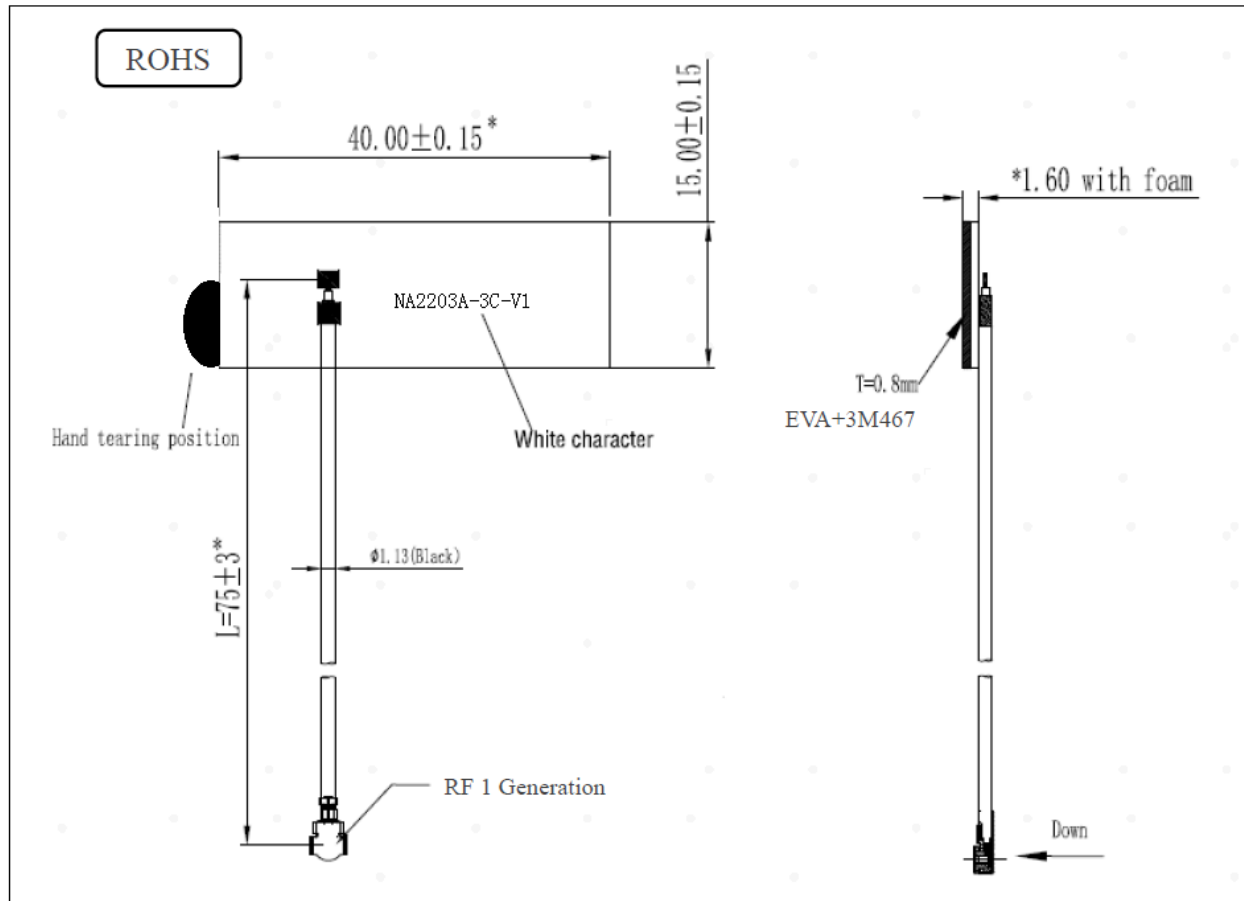


3.3 Radiation Patterns





4 Structure



Antenna instructions:

- Affix the antenna to the non-metallic surface, preferably plastic.
- Keep the antenna far away from metal devices with a minimum distance of 10 mm.