

# 3D Antenna Measurement Summary Report

**REPORT NO.:** W7L-P22100013OT01

**PLATFORM  
MANUFACTURER:** ALTYOR Industries(Shanghai) Co., Ltd

**PLATFORM NAME:** P2013 MB

**ANTENNA TYPE:** PCB Antenna

**TESTED DATE:** 2022.10.13

**ISSUED:** 2022.10.21

**APPLICANT:** ALTYOR Industries(Shanghai) Co., Ltd

**ADDRESS :** 152/1421 Zhuan Xing Dong Road, Minhang District,  
ShangHai 201108, China

**ISSUED BY :** BV 7Layers Communications Technology (Shenzhen)  
Co., Ltd.

**ADDRESS :** No. B102, Dazu Chuangxin Mansion, North of Beihuan  
Avenue, North Area, Hi-Tech Industry Park, Nanshan  
District, Shenzhen, Guangdong, China

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## RELEASE CONTROL RECORD

REPORT NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P22100013OT01	Original release	2022.10.21

## Table of Contents

GENERAL INFORMATION .....	3
1. Test Equipment List .....	4
2. Measurement Uncertainty .....	4
3. Characteristics of antenna .....	5
Appendix A. Testing Setup Photo .....	10

## GENERAL INFORMATION

<b>APPLICANT:</b>	ALTYOR Industries(Shanghai) Co., Ltd
<b>MANUFACTURER:</b>	ALTYOR Industries(Shanghai) Co., Ltd
<b>MODEL NO.:</b>	P2013 MB

Test Standard: ANSI/IEEE Std. 149-2021.

**PREPARED BY :** Leon Guo , **DATE :** 2022.10.21  
Leon Guo / Engineer

**APPROVED BY :** Luke Lu , **DATE :** 2022.10.21  
Luke Lu / Manager

## 1. Test Equipment List

TYPE OF EQUIPMENT	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DUE DATE
Network Analyzer	E5071C	MY46214638	2023.05.06
OTA Chamber	ETS AMS8500	N/A	N/A
RF Switch	ETS EMCenter	N/A	N/A
Measurement Antenna	ETS 3164-06	N/A	N/A

## 2. Measurement Uncertainty

Expanded Uncertainty for Measurement (k=2 or 95% Confidence Level) at Passive antenna test over frequency range 780 – 2200MHz is +/- 1.52 dB.

### 3. Characteristics of antenna

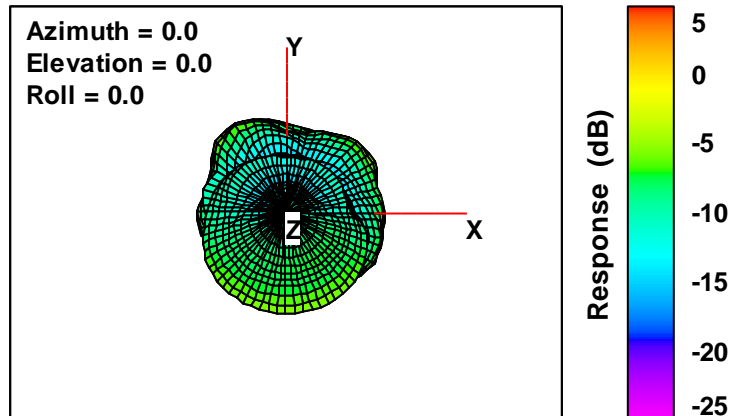
#### 3.1. 3D Antenna Gain-Free Space

Frequency (MHz)	Directivity (dBi)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
2400	6.99	-6.76	21.10	0.24
2420	7.42	-6.57	22.03	0.85
2440	7.66	-6.46	22.59	1.20
2460	7.82	-6.19	24.02	1.63
2480	7.89	-6.04	24.86	1.85
2500	7.83	-5.70	26.94	2.13

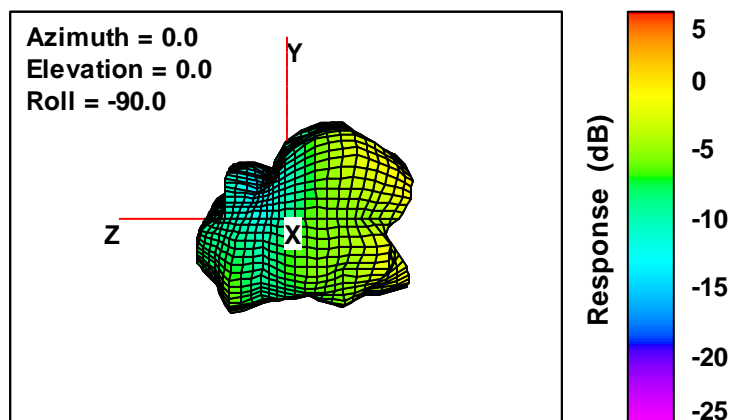
### 3.2. Antenna Pattern

2400MHz

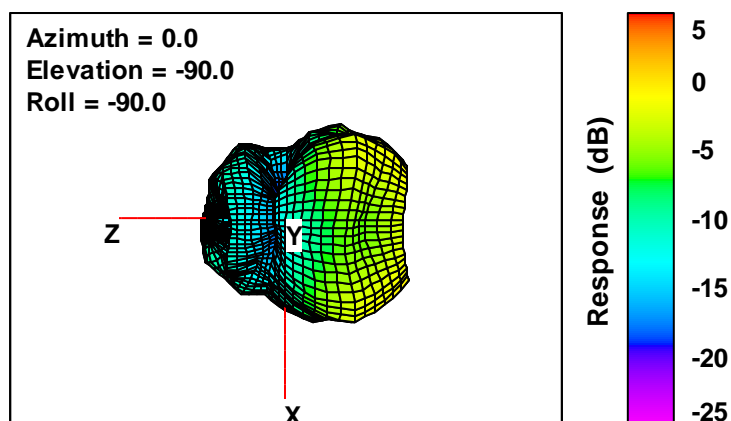
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Total

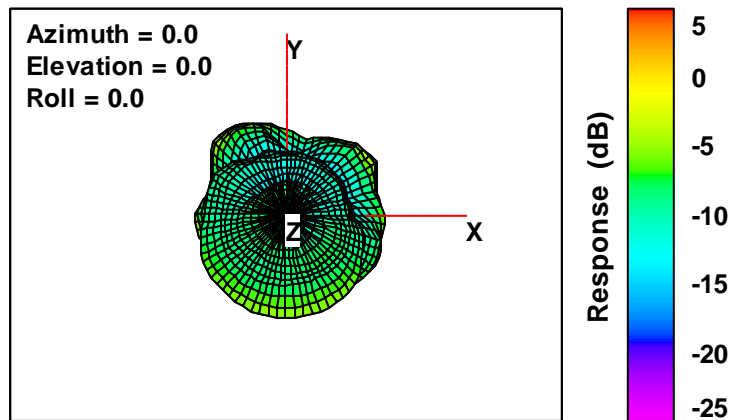


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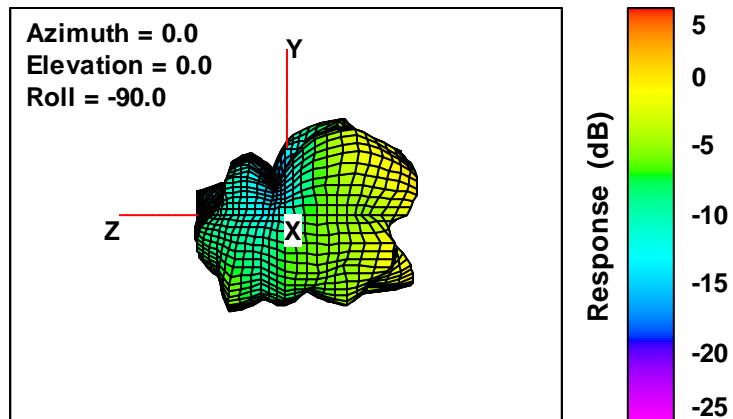


2440MHz

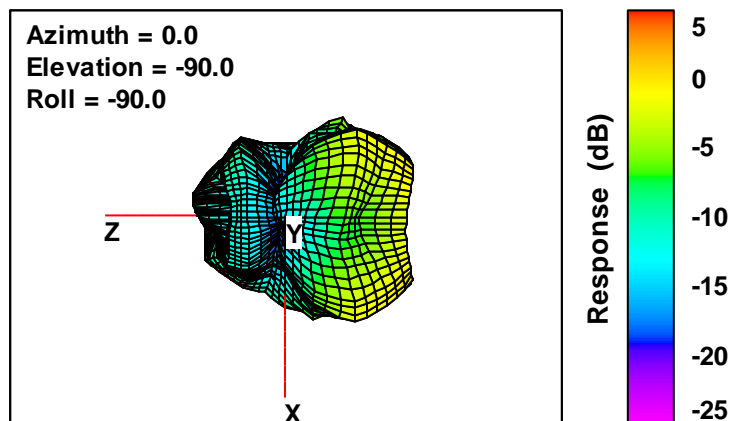
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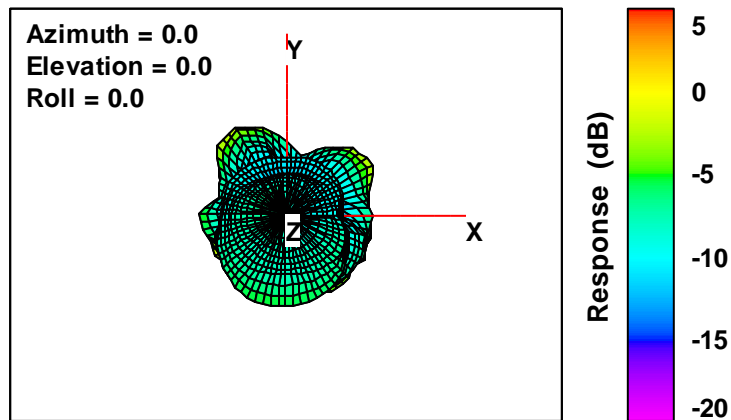


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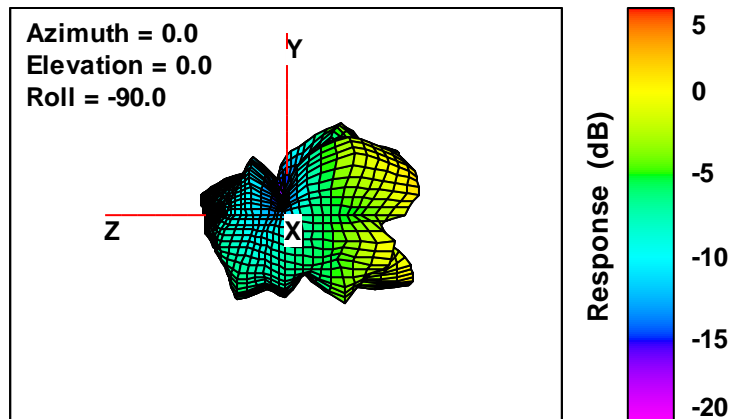


2480MHz

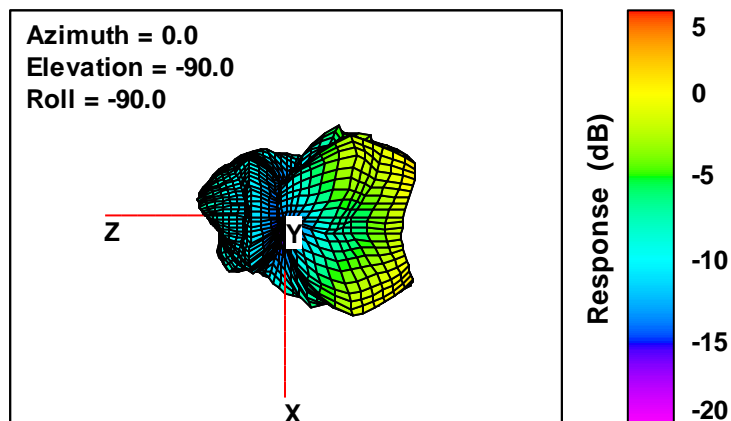
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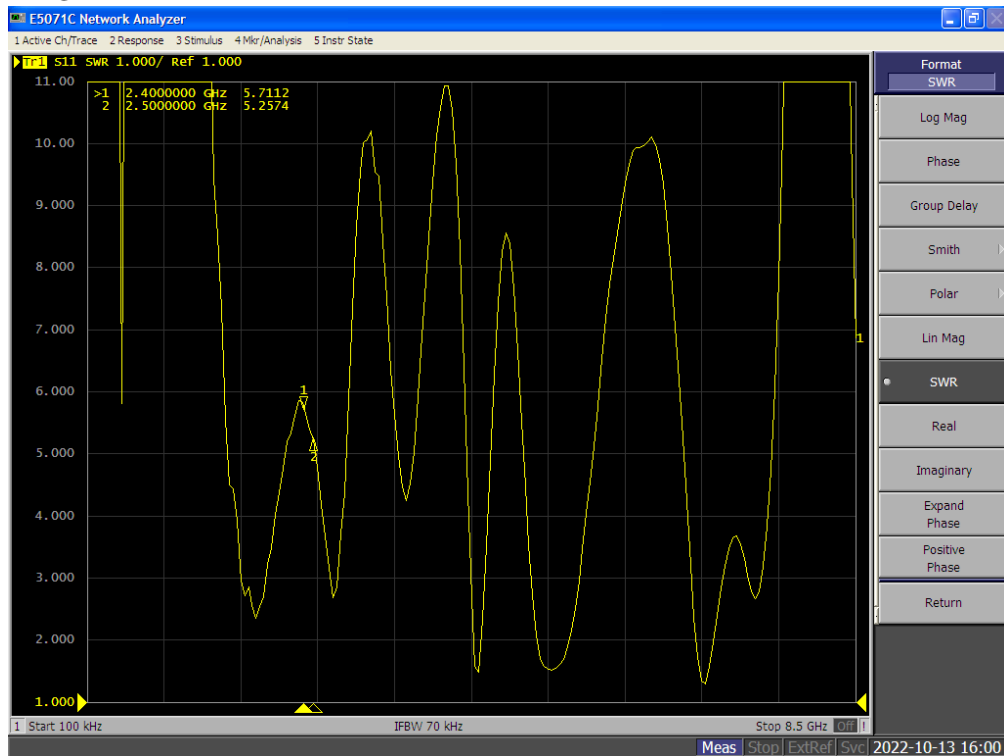


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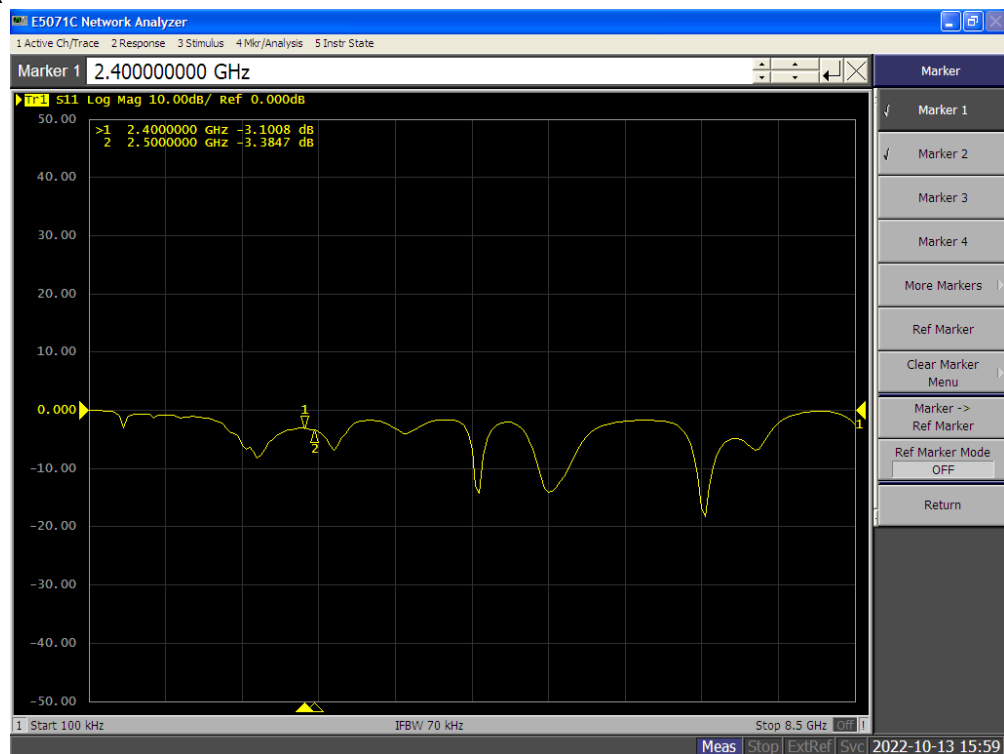




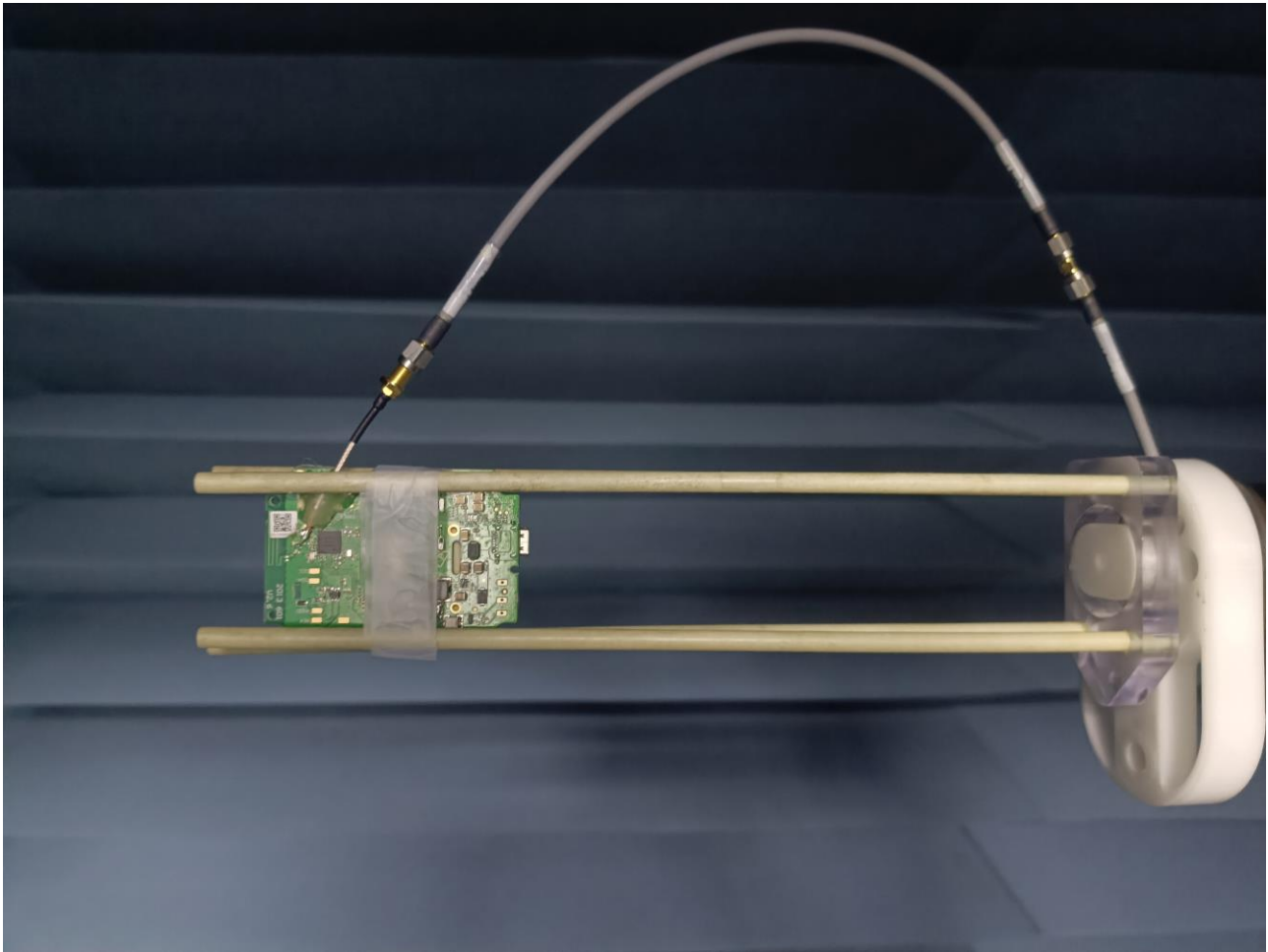
### 3.3. LOG MAG



### 3.4. SWR



## Appendix A. Testing Setup Photo



**Free Space**