

No. 1 Workshop, M-10, Middle section, Science & Technology Park,  
Shenzhen, Guangdong, China 518057

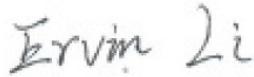
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Report No.: ZO/2021/2000601  
Page : 1 of 13

## **ANTENNA PASSIVE TEST REPORT**

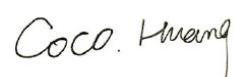
**Application No:** ZO/2021/20006  
**Applicant:** Yadea technology group co., Lte.  
**Manufacturer:** Yadea technology group co., Lte.  
**Product Name:** Dashboard  
**Model No.(EUT):** Yadea01  
**Standards:** ANSI/IEEE Std 149-2008  
**Date of Receipt:** 2021.03.17  
**Date of Test:** 2021.03.17  
**Date of Issue:** 2023.02.13

### **Approved & Released by**



OTR Manager

### **Tested by**



OTA Engineer

Authorized Signature:



Derek Yang  
Wireless Laboratory Manager

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## REVISION HISTORY

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021.04.21		Original
02	3.0	2023.02.13	Yuanyu Luo	Update equipment calibration date



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## 1 General Information

### 1.1 Details of Client

Applicant	Yadea technology group co., Lte.
Address:	Dongsheng Road Dacheng Industrial Zone Anzhen Xishan District Wuxi Jiangsu
Manufacturer	Yadea technology group co., Lte.
Address:	Dongsheng Road Dacheng Industrial Zone Anzhen Xishan District Wuxi Jiangsu
	Yadea technology group co., Lte.
	No.515 Xishan Road, Anzhen Town, Xishan District, Wuxi City, Jiangsu Province, China

### 1.2 Test Location

Company: SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch E&E Lab  
Address: No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China  
Post code: 518057  
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### 1.3 Test Specification

Identity	Document Title
ANSI/IEEE Std 149-2008	IEEE Standard Test Procedures for Antennas

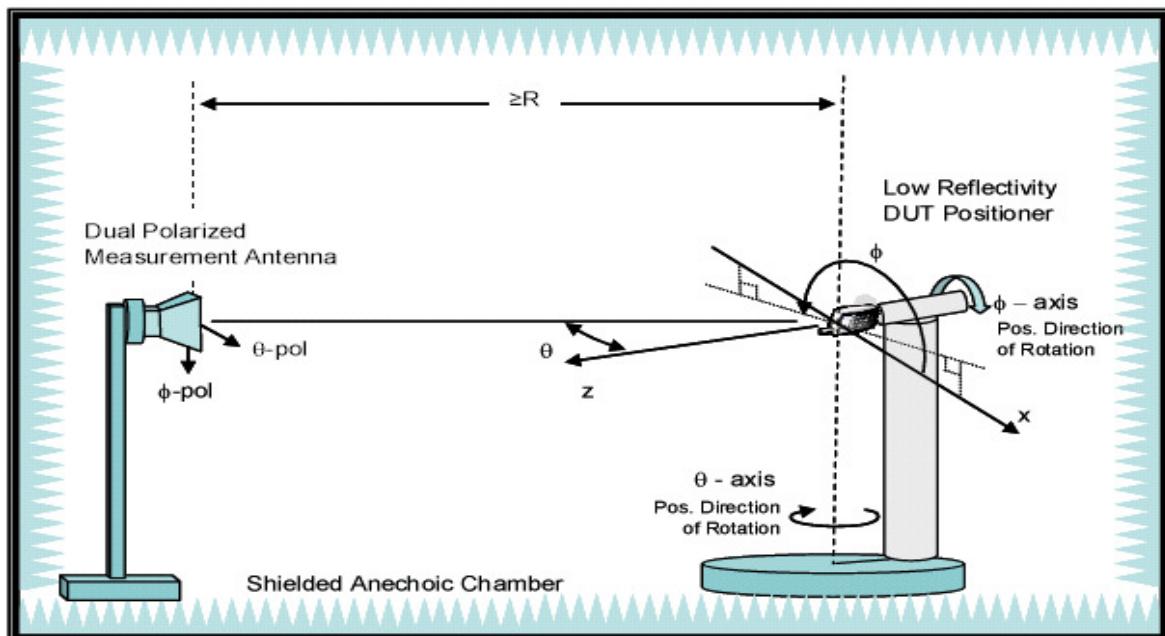
### 1.4 Laboratory Environment

Temperature	Min. =19°C , Max. = 25°C	
Relative humidity	Min. =40% , Max. =72%	
Shield effect	0.7-6GHz	> 100dB
Ground resistance	<0.5Ω	

## 2 OTA Measurements System Configuration

### 2.1 Test Configuration

Great-Circle-Cut method is used to measure the antenna 3D GAIN of EUT in OTA qualified anechoic chamber. Equipment Under Test (EUT) geometry centre vertical projection at the centre of platform, the distance from EUT to measurement antenna is 5m



F-1. OTA Measurement System Configuration

### 2.2 Test Measurement

#### Spherical coordinate system

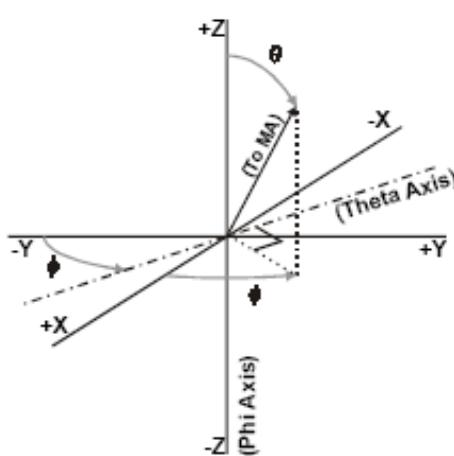


Figure 1 Test coordinate system

Note: Theta is from 0~180 degree. Phi is from 0~360. Rotate the EUT and record the Data, the step of rotation is 15 degree.



### 3 Test Equipment List

Type of Equipment	Model Number	Manufacture	Calibration Date	Valid Period
Network Analyzer	E5071C S/N MY46523591	Keysight	2020-04-09	2021-04-08
Quad-Ridge Horn Antenna 700 MHz-10 GHz	EMCO 3164-08 S/N 161915	ETS-Lindgren L.P.	N/A	N/A
MAPS Controller	EMCENTER S/N 160485	ETS-Lindgren L.P.	N/A	N/A



## 4 Measurement Uncertainty

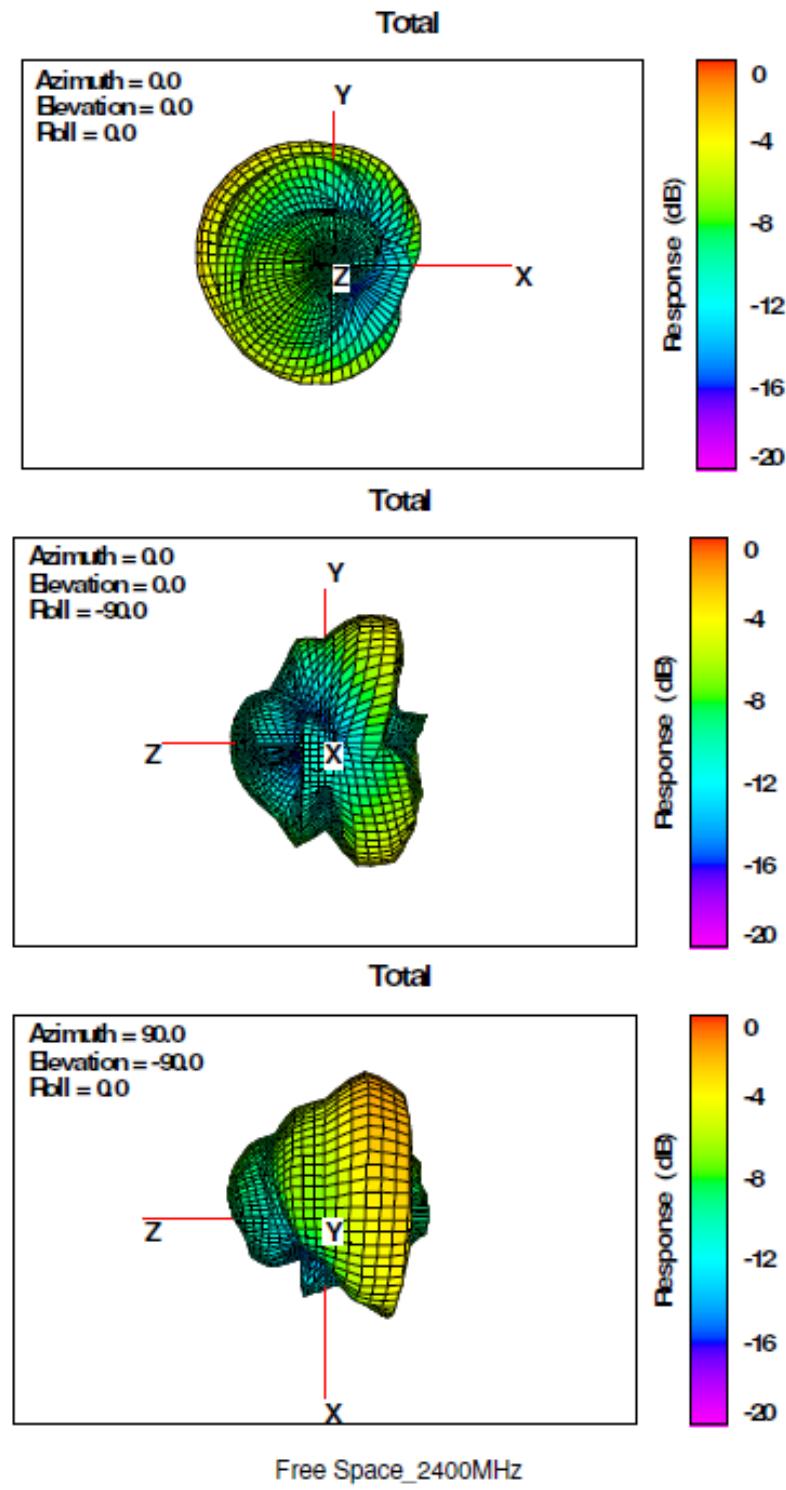
Item	2400-2500 MHz (dB)
Gain	0.88
Efficiency	0.88
Measurement Uncertainty (95% CONFIDENCE INTERVAL) K=2	

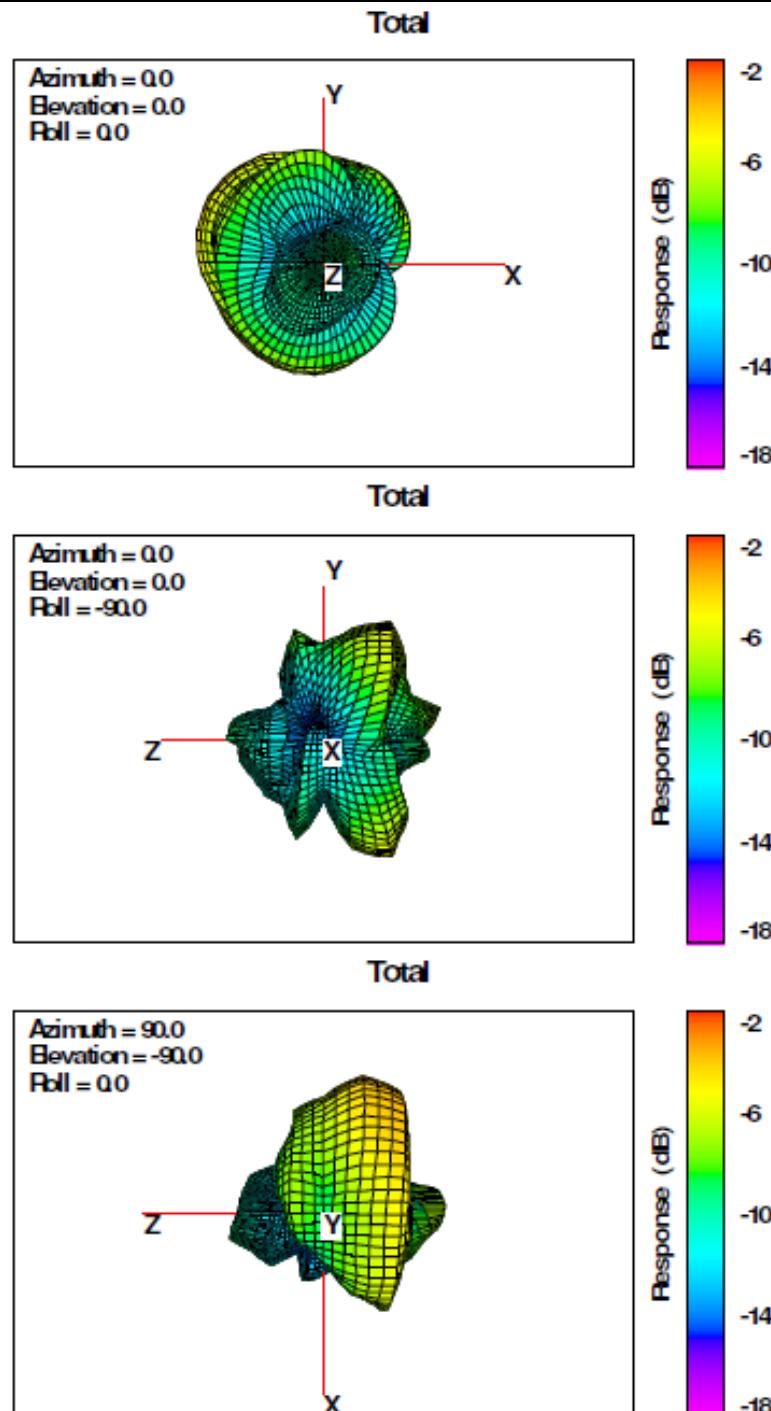


## 5 Test Results

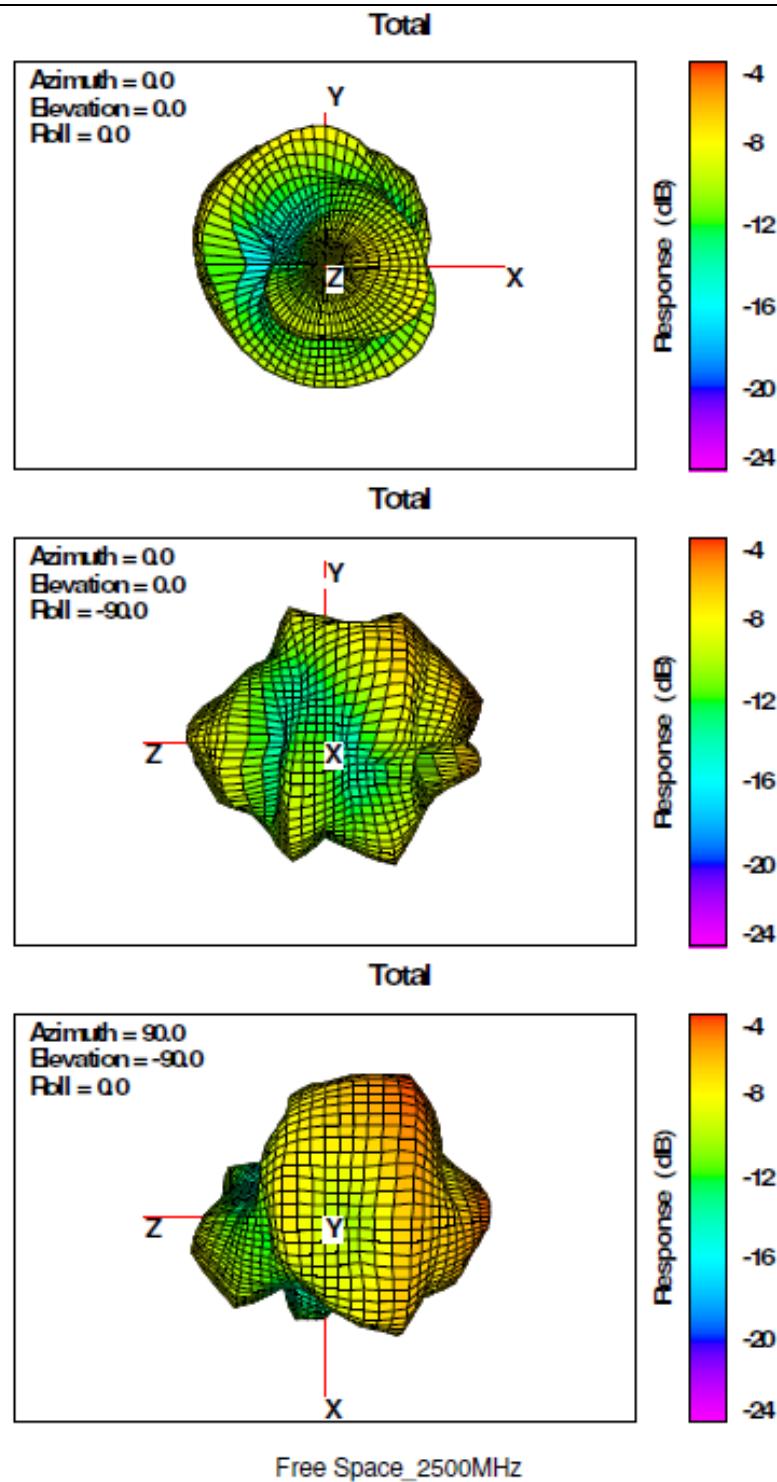
Free Space			
Frequency (MHz)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
2400	-7.03	19.80	-1.55
2410	-7.51	17.74	-2.03
2420	-7.88	16.28	-2.48
2430	-8.12	15.43	-2.92
2440	-8.28	14.85	-3.35
2450	-8.55	13.95	-3.67
2460	-8.73	13.39	-3.79
2470	-8.79	13.21	-3.85
2480	-8.68	13.54	-3.71
2490	-8.84	13.05	-3.86
2500	-9.05	12.43	-4.05

## 6 3-D Antenna Pattern





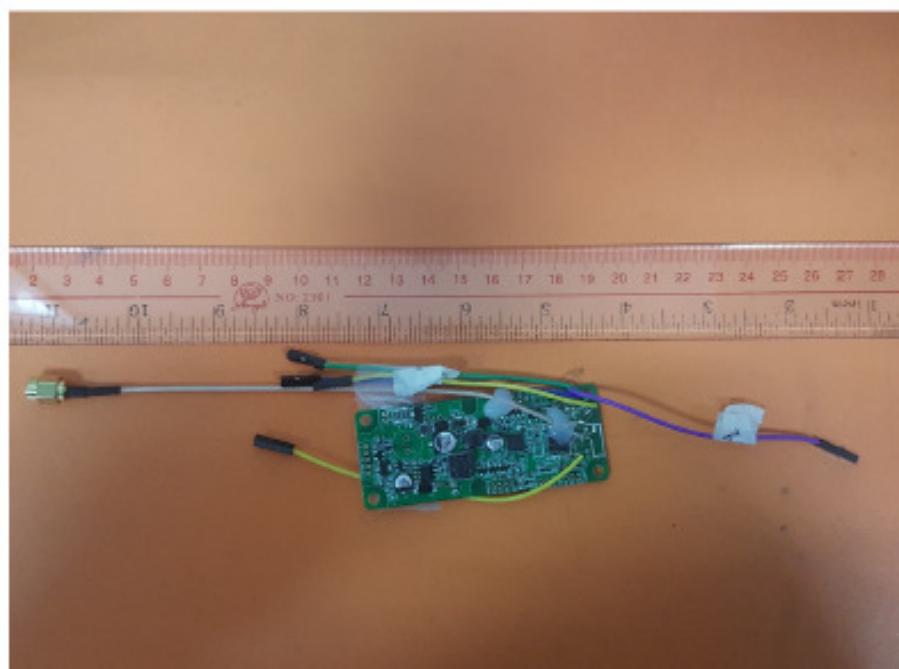
Free Space\_2450MHz



## 7 Test Configuration



PCB Free Space View



PCB EUT Photo

**--End--**