



SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch

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

Telephone: +86 (0) 755 2601 2053

Fax: +86 (0) 755 2671 0594

Email: ee.shenzhen@sgs.com

Report No.: ZO/2021/2000601

Page : 1 of 13

ANTENNA PASSIVE TEST REPORT

Application No:	ZO/2021/20006
Applicant:	Yadea technology group co., Ltd.
Manufacturer:	Yadea technology group co., Ltd.
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

Ervin Li

OTA Manager

Tested by

Coco. Huang

OTA Engineer

Authorized Signature:



Derek Yang

Wireless Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms_and_conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms_e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only."



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



CONTENTS

1	GENERAL INFORMATION	4
1.1	DETAILS OF CLIENT	4
1.2	TEST LOCATION	4
1.3	TEST SPECIFICATION	5
1.4	LABORATORY ENVIRONMENT	5
2	OTA MEASUREMENTS SYSTEM CONFIGURATION	6
2.1	TEST CONFIGURATION	6
2.2	TEST MEASUREMENT	6
3	TEST EQUIPMENT LIST	7
4	MEASUREMENT UNCERTAINTY	8
5	TEST RESULTS	9
6	3-D ANTENNA PATTERN	10
7	TEST CONFIGURATION	13



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

Telephone: +86 (0) 755 2601 2053

Fax: +86 (0) 755 2671 0594

E-mail: ee.shenzhen@sgs.com



1.3 Test Specification

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

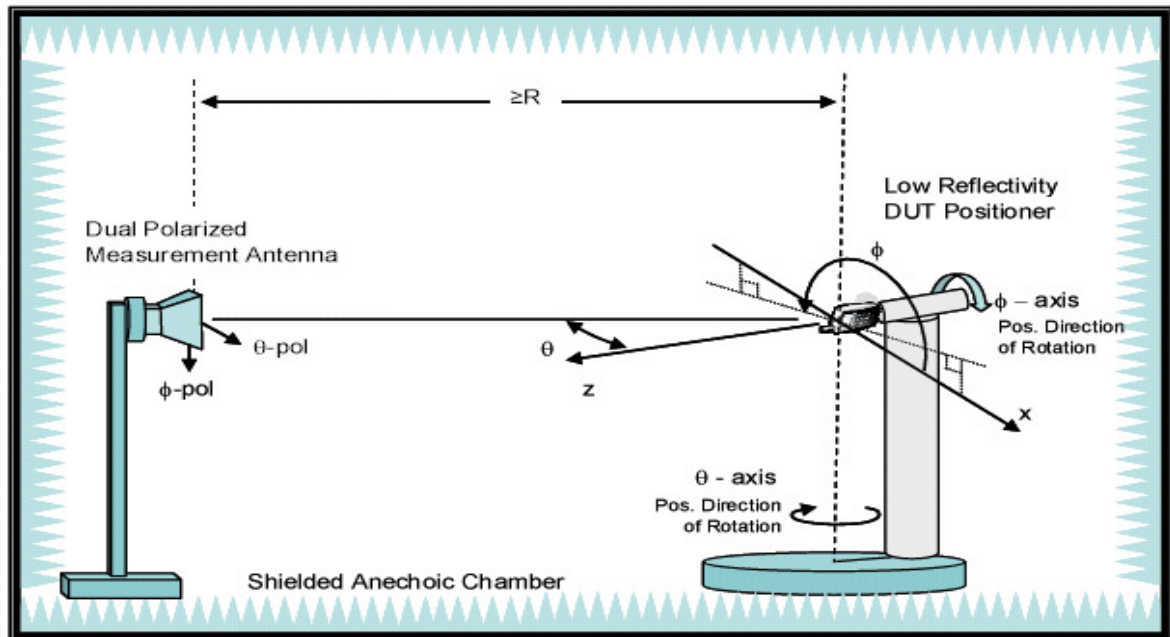
1.4 Laboratory Environment

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

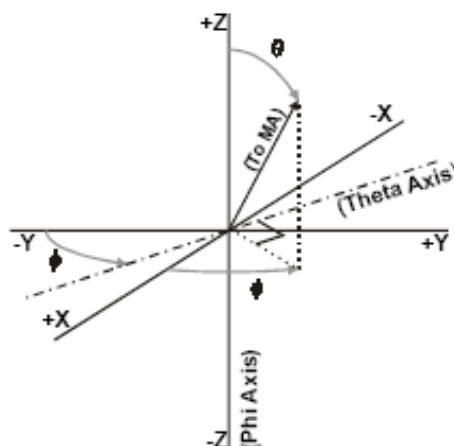


Figure 1 Test coordinate system

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

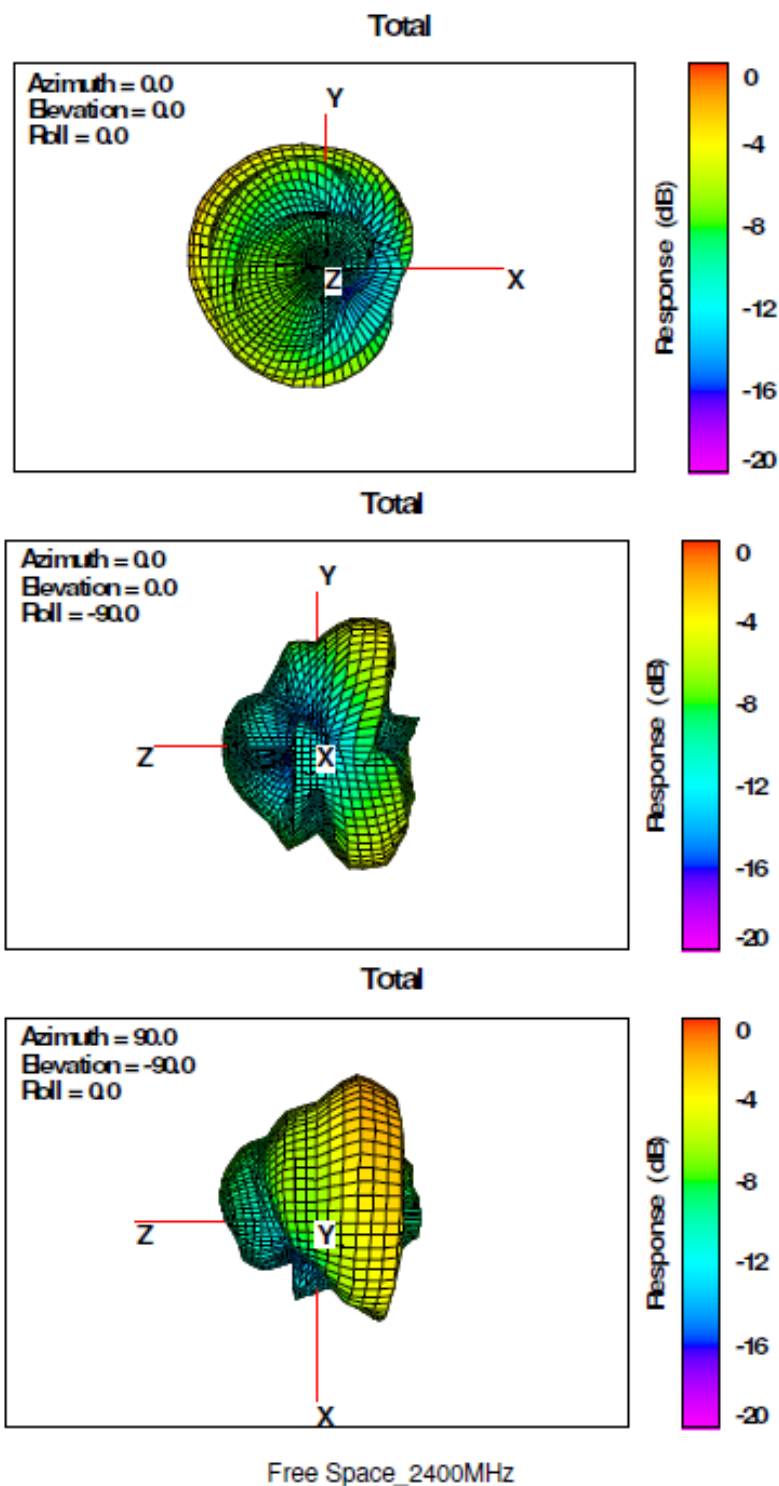
Item	2400-2500 MHz (dB)
Gain	0.88
Efficiency	0.88
Measurement Uncertainty (95% CONFIDENCE INTERVAL) K=2	

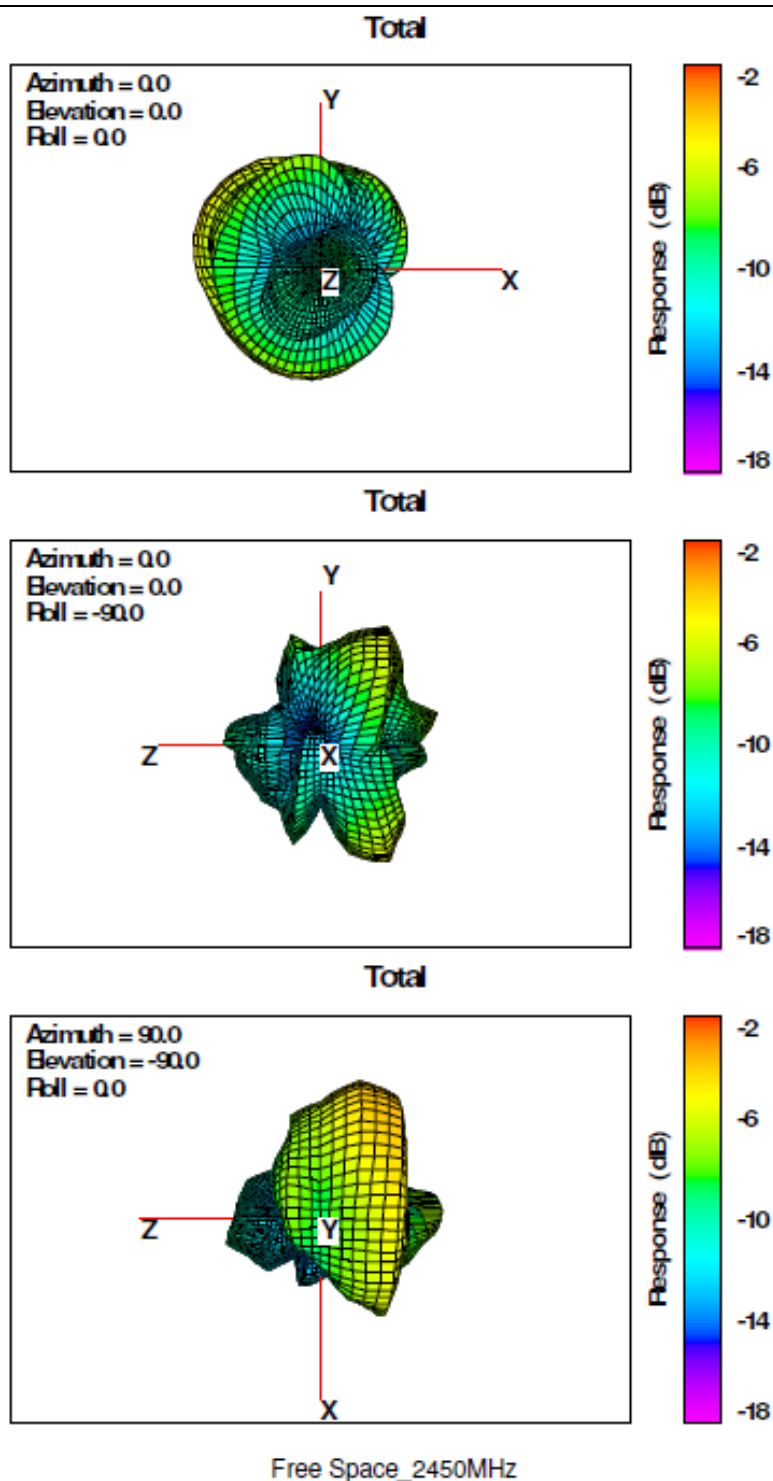


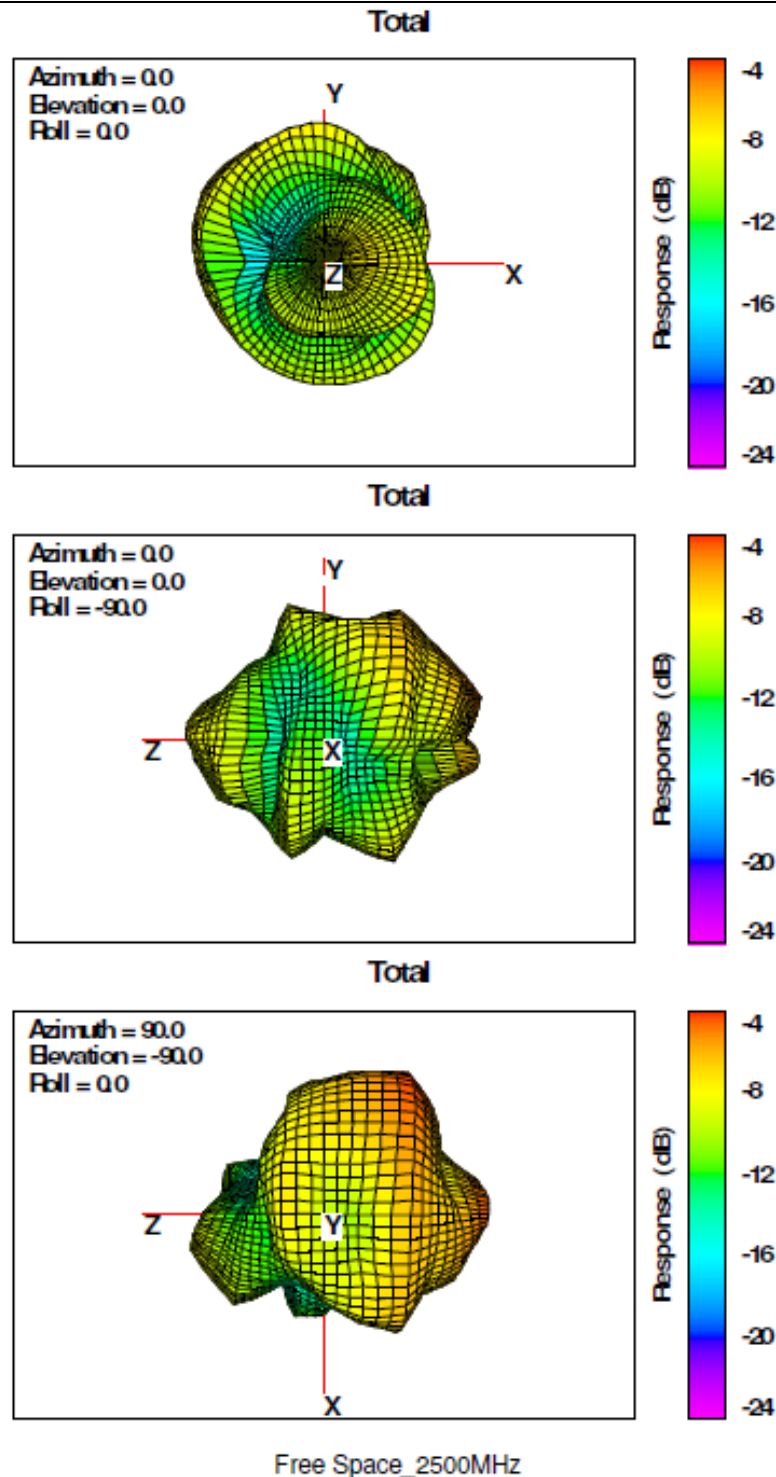
5 Test Results

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

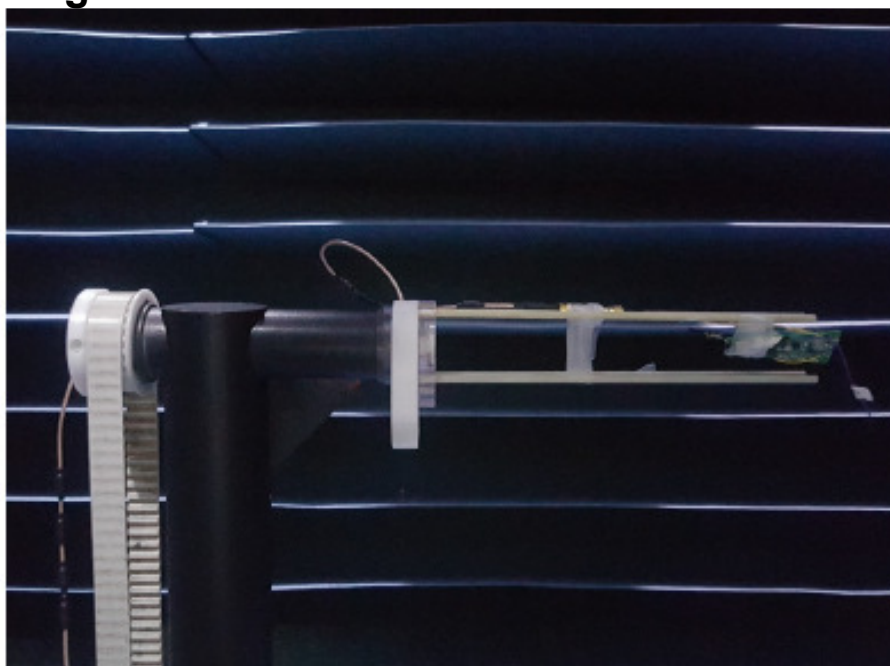
6 3-D Antenna Pattern



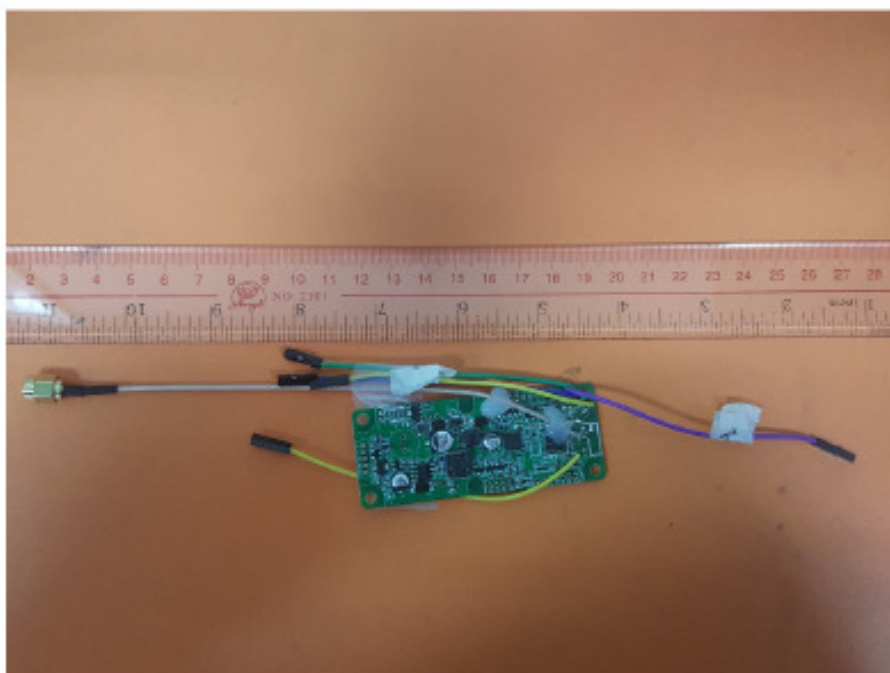




7 Test Configuration



PCB Free Space View



PCB EUT Photo

--End--