

# ANTENNA

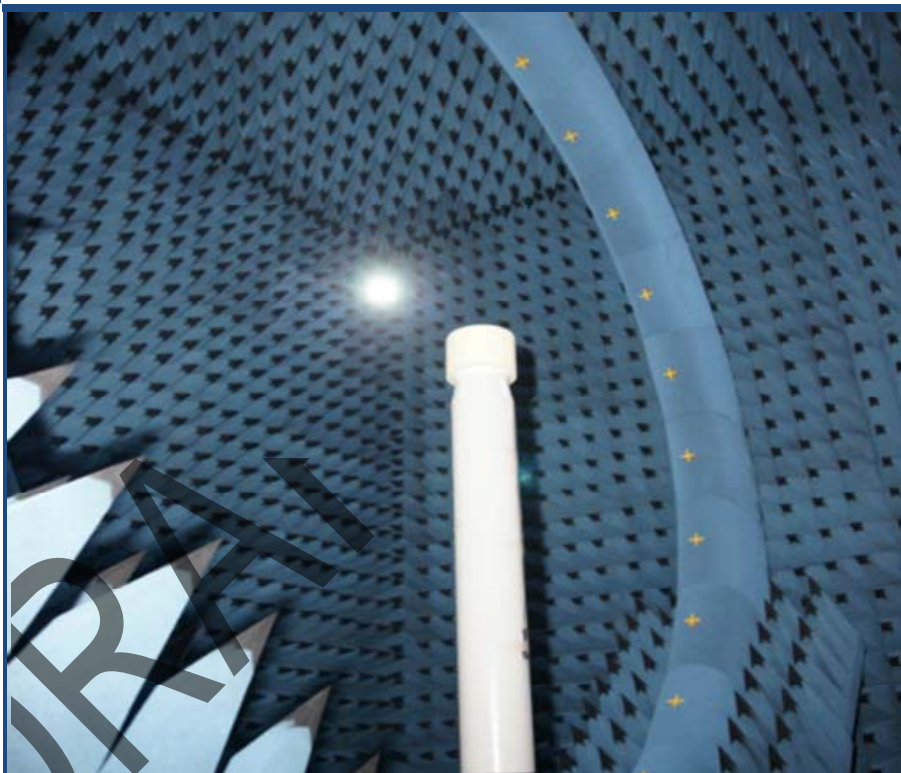
# TEST REPORT

ISSUED BY  
Shenzhen BALUN Technology Co., Ltd.



FOR  
**Tube Antenna with Magnetic Base**

ISSUED TO  
SHD Communication Technology (GuangDong)Co., Ltd  
Nanbian Industrial Zone, Leping, Sanshui, Foshan, Guangdong, China



Tested by:

Zou Liu  
(Engineer)

Date

Approved by:

Wei Yanquan  
(Chief Engineer)

Date

Report No: BL-SZ1690172-901

EUT Type: Tube Antenna with Magnetic Base

Model Name: ANT-0050-2

Brand Name: N/A

Test Standard: IEEE149-1979

Maximum: Gain: 5.98 (dBi)

Efficiency: 84%

Test Date: Sep. 08, 2016

Date of Issue: Sep. 13, 2016

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<b>Revision History</b>		
Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Sep. 13, 2016</u>	<u>Initial Issue</u>

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# 1 GENERAL INFORMATION

## 1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100
Fax Number	+86 755 6182 4271

## 1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L6791. The laboratory is a testing organization accredited by China Metrology Accreditation (CMA). The accreditation certificate number is 2014192290Z.
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055

## 1.3 Announce

- (1) The test report reference to the report template version v1.1.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
- (5) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.
- (6) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

## 2 PRODUCT INFORMATION

### 2.1 Applicant Information

Applicant	SHD Communication Technology (GuangDong)Co., Ltd
Address	Nanbian Industrial Zone, Leping, Sanshui, Foshan, Guangdong, China
Contact Person	XU Shuli
Telephone Number	18929902969
E-mail Address	xusl@shdce.com

### 2.2 Manufacturer Information

Manufacturer	SHD Communication Technology (GuangDong)Co.,Ltd
Address	Nanbian Industrial Zone, Leping, Sanshui, Foshan, Guangdong, China

### 2.3 Factory Information

Factory	N/A
Address	N/A

### 2.4 General Description for Equipment under Test (EUT)

EUT Type	Tube Antenna with Magnetic Base
Model Name Under Test	ANT-0050-2
Serial Model Name	N/A
Model Description	N/A
Antenna Type	Dipole Antenna
Dimensions	20 cm

### 2.5 Technical Information

Frequency Range	700 MHz~ 2700 MHz
Test Frequencies	700 MHz, 800 MHz, 8500 MHz, 900 MHz, 960 MHz, 1500 MHz, 1700 MHz, 1800 MHz, 1900 MHz, 2100 MHz, 2300 MHz, 2400 MHz, 2500 MHz, 2600 MHz, 2700 MHz

### 3 SUMMARY OF TEST RESULTS

#### 3.1 Test Standards

No.	Identity	Document Title
1	IEEE149-1979	IEEE Standard Test Procedures for Antennas

#### 3.2 Test Verdict

Report Section	Description	Remark
ANNEX A.1	Gain And Efficiency	--
ANNEX B	Radiation Pattern	--

#### 3.3 Test Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

Item	Uncertainty
VSWR(S11)	$\pm 0.2$
Gain	$\pm 0.5\text{dB}$

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## 4 GENERAL TEST CONFIGURATIONS

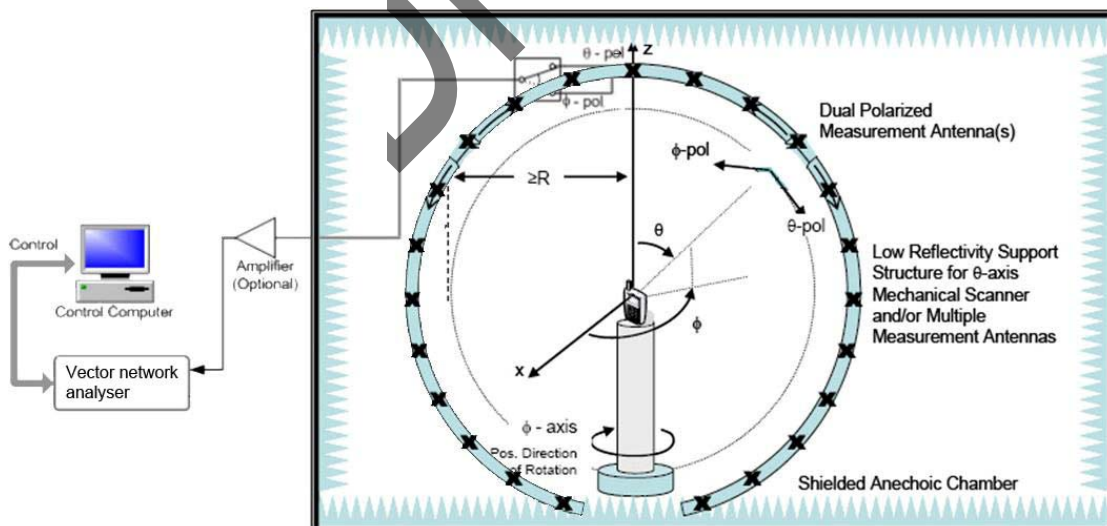
### 4.1 Test Condition

Environment Parameter	Selected Values During Tests			
	Ambient Pressure(KPa)	Temperature(°C)	Voltage	Relative Humidity(%)
Normal Temperature, Normal Voltage (NTNV)	100 to 102	19 to 25	N/A	45 to 55

### 4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Vector Network Analyzer	Agilent	E5071C	MY46103472	2016.01.25	2017.01.24
5*5*5 Full Anechoic Chamber	SATIMO	5*5*5	CN-1307-555	2015.09.28	2016.09.27
SG24 Multi-probe Antenna Measurement System	SATIMO	SG24-L	1101855-0001	2015.12.04	2016.12.03

### 4.3 Test Setup



## ANNEX A TEST RESULTS

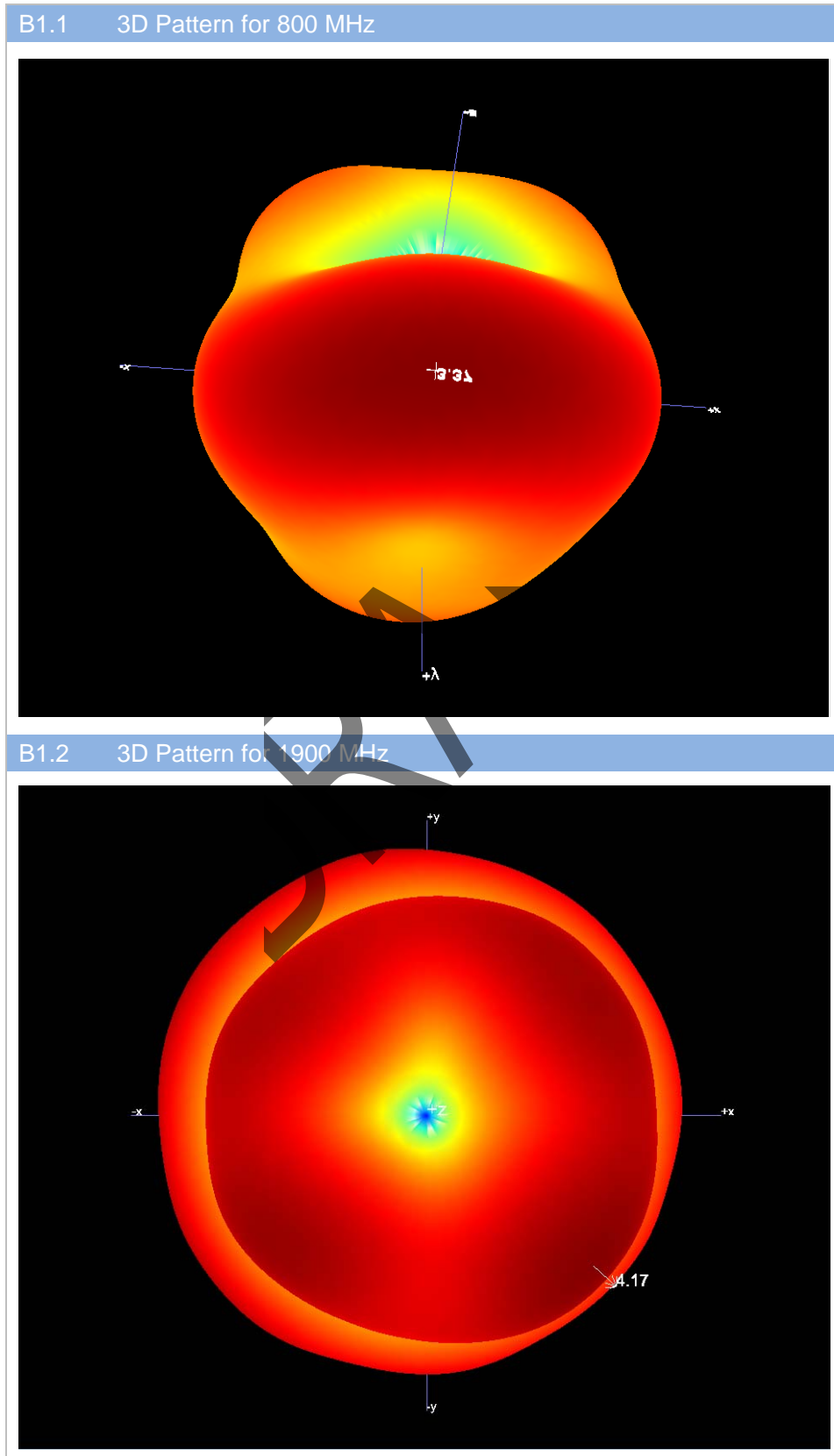
### A.1 Gain and Efficiency

Frequency	Gain (dBi)	Efficiency (%)
700 MHz	1.66	58
800 MHz	3.37	64
850 MHz	5.65	75
900 MHz	5.93	72
960 MHz	5.21	69
1500 MHz	2.73	84
1700 MHz	3.66	77
1800 MHz	3.47	76
1900 MHz	4.17	77
2100 MHz	4.94	70
2300 MHz	2.66	57
2400 MHz	3.64	55
2500 MHz	5.67	64
2600 MHz	5.98	62
2700 MHz	3.86	43

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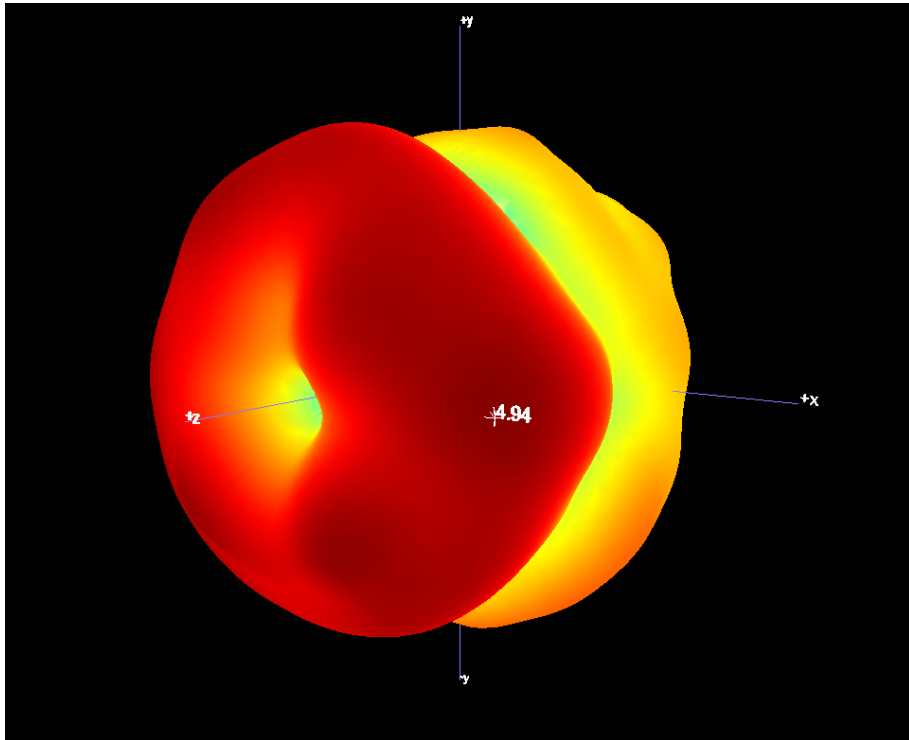
## ANNEX B RADIATION PATTERN

### B.1 3D Pattern

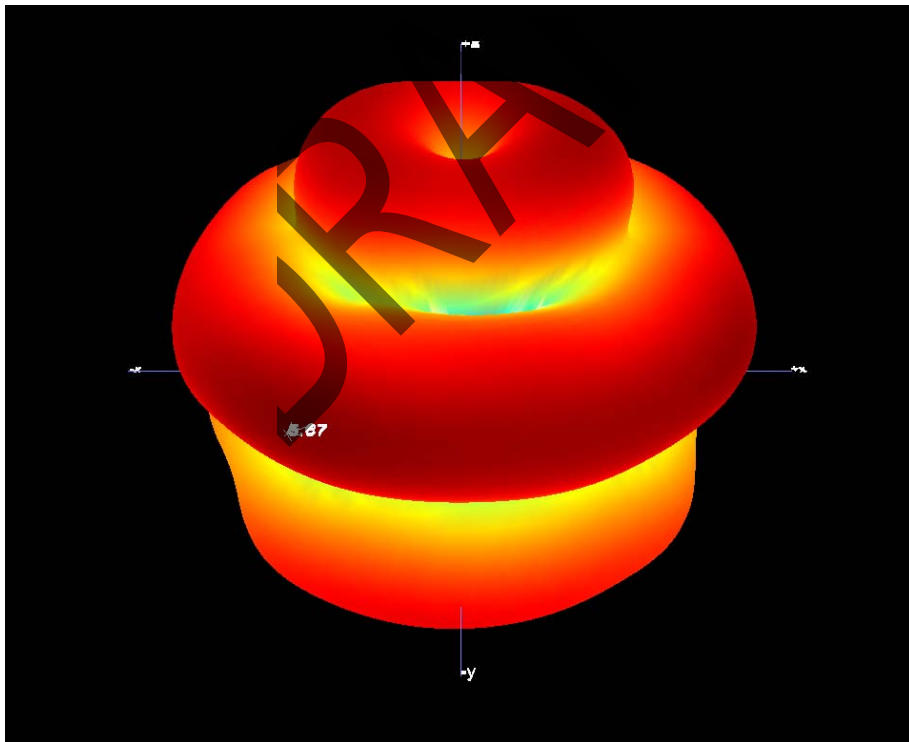




B1.3 3D Pattern for 2100 MHz

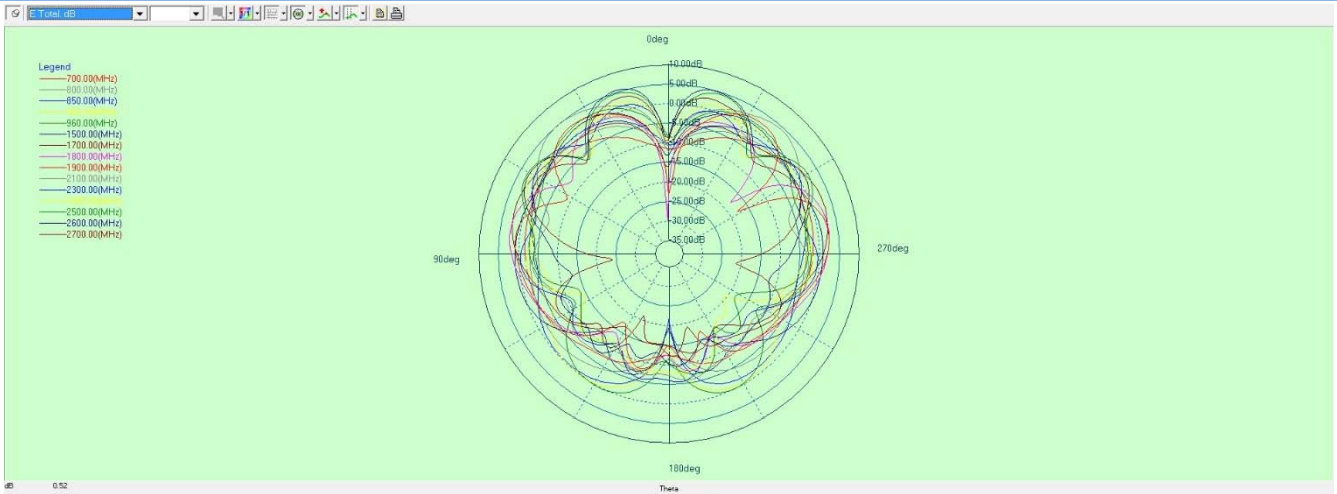


B1.4 3D Pattern for 2500 MHz

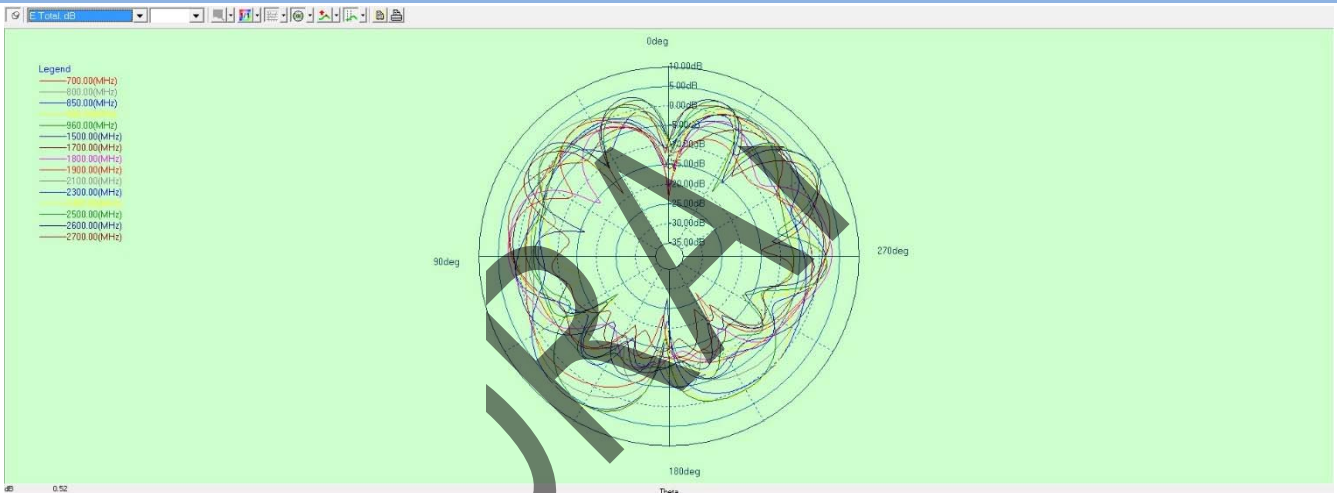


## B.2 1D Radiation Pattern

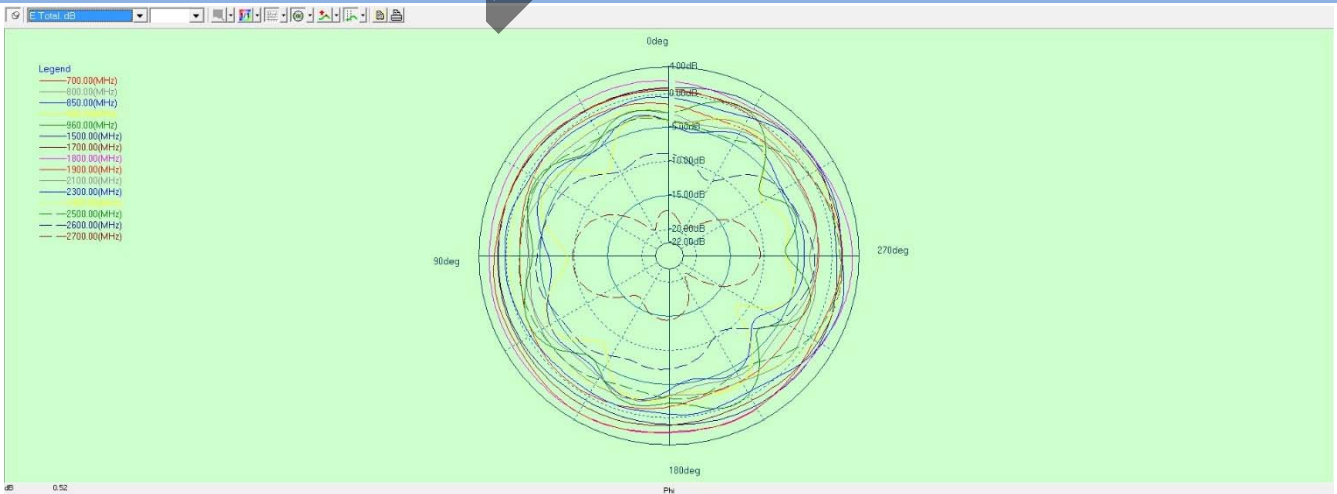
### B2.1 PHI=0



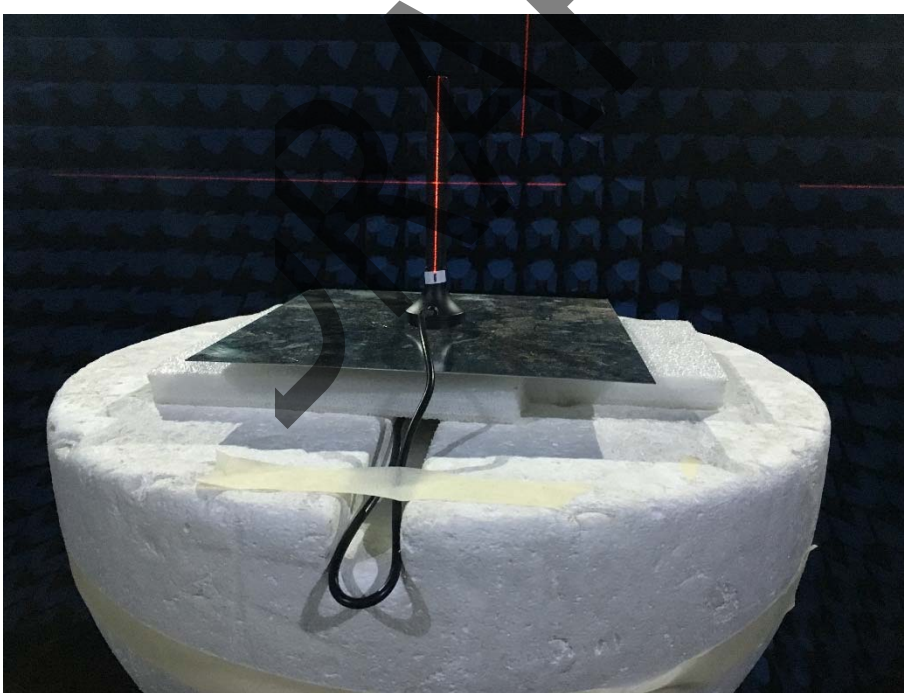
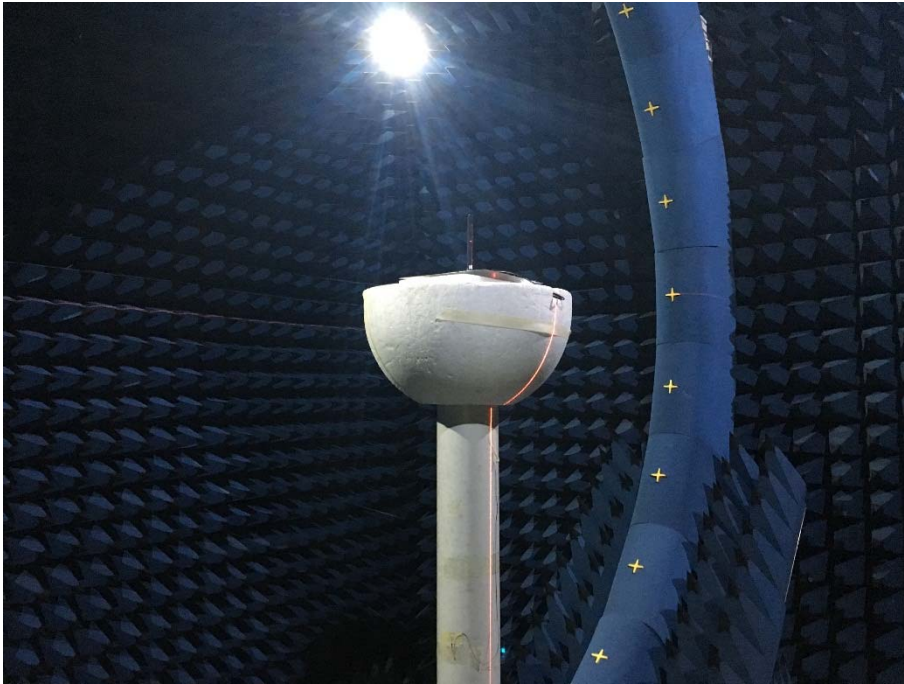
### B2.2 PHI=90



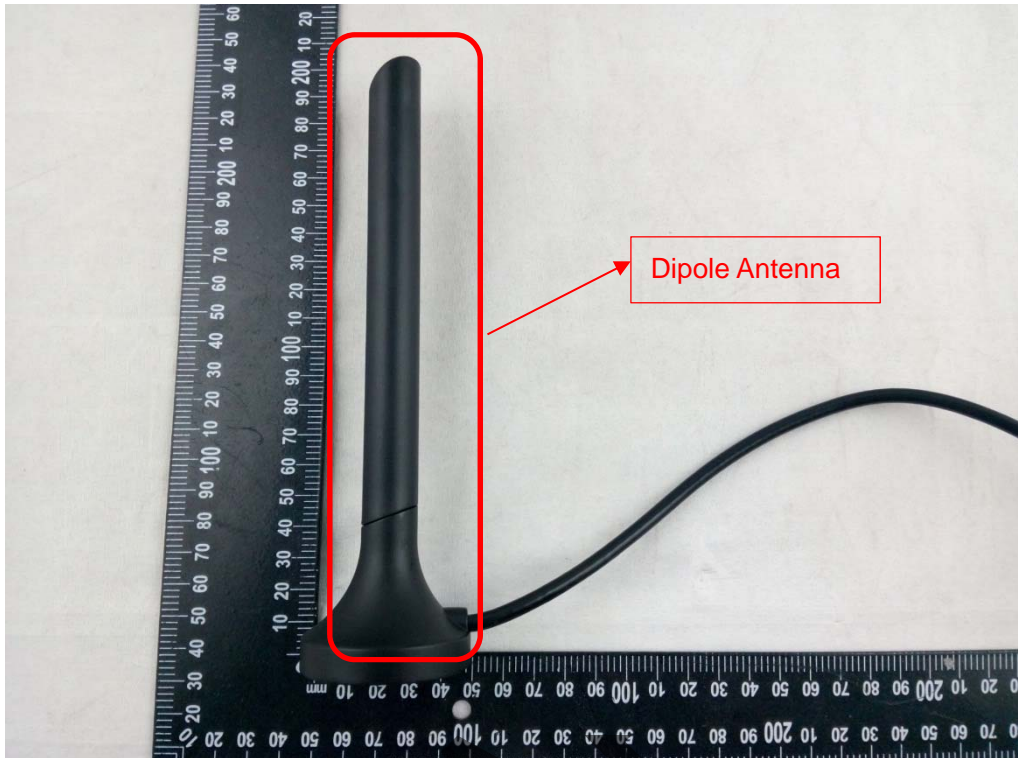
### B2.3 THETA=90



## ANNEX C TEST SETUP PHOTO



## ANNEX D EUT PHOTO



--END OF REPORT--