

# Lenze Technology Co.,LTD

Tel:+86 0755-82031775;25332530 Fax:+86 0755-82713604

26c newspaper west tower, 6008 shennan Avenue,Futian District, Shenzhen City, GuangdongProvince,China

## 1 GENERAL INFORMATION

### 1.1 Test Environment Condition

|                           |                      |
|---------------------------|----------------------|
| Ambient Temperature       | 19 to 25 °C          |
| Ambient Relative Humidity | 45 to 55 %           |
| Ambient Pressure          | N/A (Not applicable) |

### 1.2 Announce

- (1) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
- (2) The test report is invalid if there is any evidence and/or falsification.
- (3) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
- (4) This document may not be altered or revised in any way unless done so and all revisions are duly noted in the revisions section.
- (5) 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.

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## 2 PRODUCT INFORMATION

### 2.1 Applicant

|                  |                                                                        |
|------------------|------------------------------------------------------------------------|
| Applicant        | Lenze Technology Co.,LTD                                               |
| Address          | d.c., 26c newspaper west tower, 6008 shennan Avenue, Futian District , |
| Contact Person   | Tony                                                                   |
| Telephone Number | +86 0755-82031775;25332530                                             |
| Fax Number       | +86 0755-82713604                                                      |
| E-mail Address   | info@lenzotech.com                                                     |

### 2.2 Manufacturer

|                  |                                                                                                                    |
|------------------|--------------------------------------------------------------------------------------------------------------------|
| Manufacturer     | Lenze Technology Co.,LTD                                                                                           |
| Address          | d.c., 26c newspaper west tower, 6008 shennan Avenue, Futian District ,<br>Shenzhen City, Guangdong Province, China |
| Contact Person   | N/A                                                                                                                |
| Telephone Number | N/A                                                                                                                |
| Fax Number       | N/A                                                                                                                |
| E-mail Address   | N/A                                                                                                                |

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

|                  |                   |
|------------------|-------------------|
| EUT Type         | Bluetooth Antenna |
| Model Name       | PCB Antenna       |
| Antenna Type     | PCB Antenna       |
| Hardware Version | N/A               |
| Serial Number    | N/A               |
| Dimensions       | N/A               |

### 2.4 Technical Information

|                  |                           |
|------------------|---------------------------|
| Frequency Range  | 2400MHz~ 2500MHz          |
| Test Frequencies | 2402MHz, 2441MHz, 2480MHz |

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## 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) | 0.4         |
| Gain      | -0.21dBi    |

## 4 GENERAL TEST CONFIGURATIONS

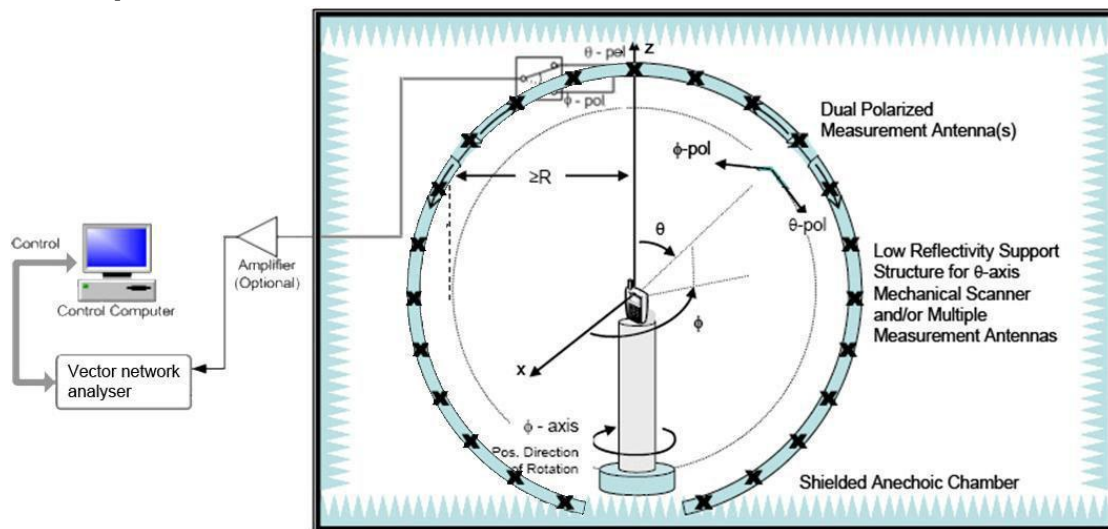
### 4.1 Test Condition

| Environment Parameter                           | Selected Values During Tests |         |                   |
|-------------------------------------------------|------------------------------|---------|-------------------|
|                                                 | Temperature                  | Voltage | Relative Humidity |
| Normal Temperature,<br>Normal Voltage<br>(NTNV) | 25°C                         | N/A     | 51%               |

### 4.2 Test Equipment List

| Description                                 | Manufacturer | Model  | Serial No.   | Cal. Date  | Cal. Due   |
|---------------------------------------------|--------------|--------|--------------|------------|------------|
| Vector Network Analyzer                     | Agilent      | E5071C | MY46103472   | 2014.09.07 | 2015.09.06 |
| 5*5*5 Full Anechoic Chamber                 | SATIMO       | 5*5*5  | N/A          | 2014.09.05 | 2015.09.04 |
| SG24 Multi-probe Antenna Measurement System | SATIMO       | SG24-L | 1101855-0001 | 2014.10.25 | 2015.10.24 |

### 4.3 Test Setup



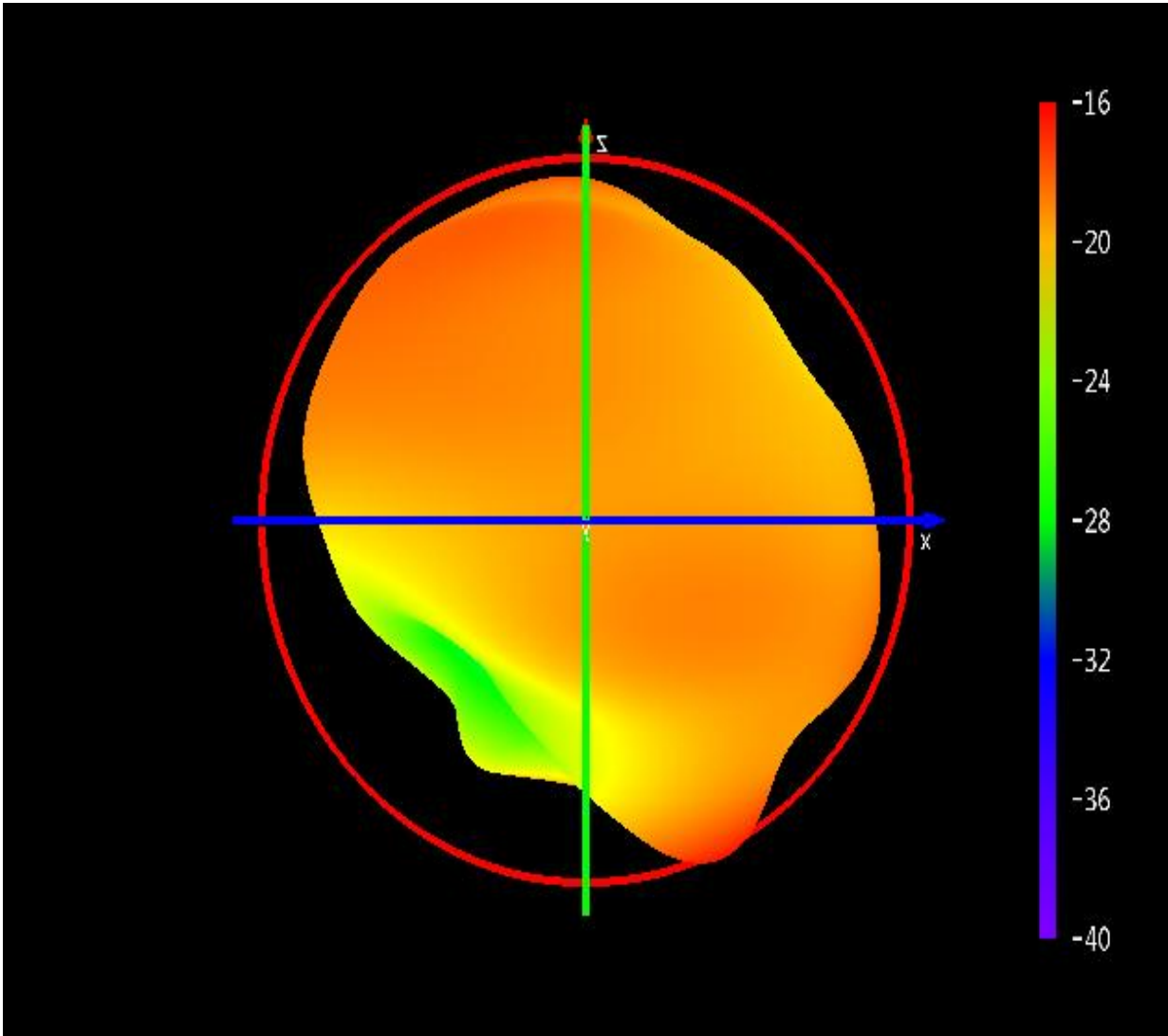
ANNEX A TEST RESULTS

A.1 Gain and Efficiency

| Frequency | Gain (dBi) | Efficiency (%) |
|-----------|------------|----------------|
| 2402MHz   | -0.08      | 0.99           |
| 2441MHz   | -0.21      | 1.06           |
| 2480MHz   | -0.18      | 1.12           |

ANNEX B RADIATION PATTERN

3DPattern

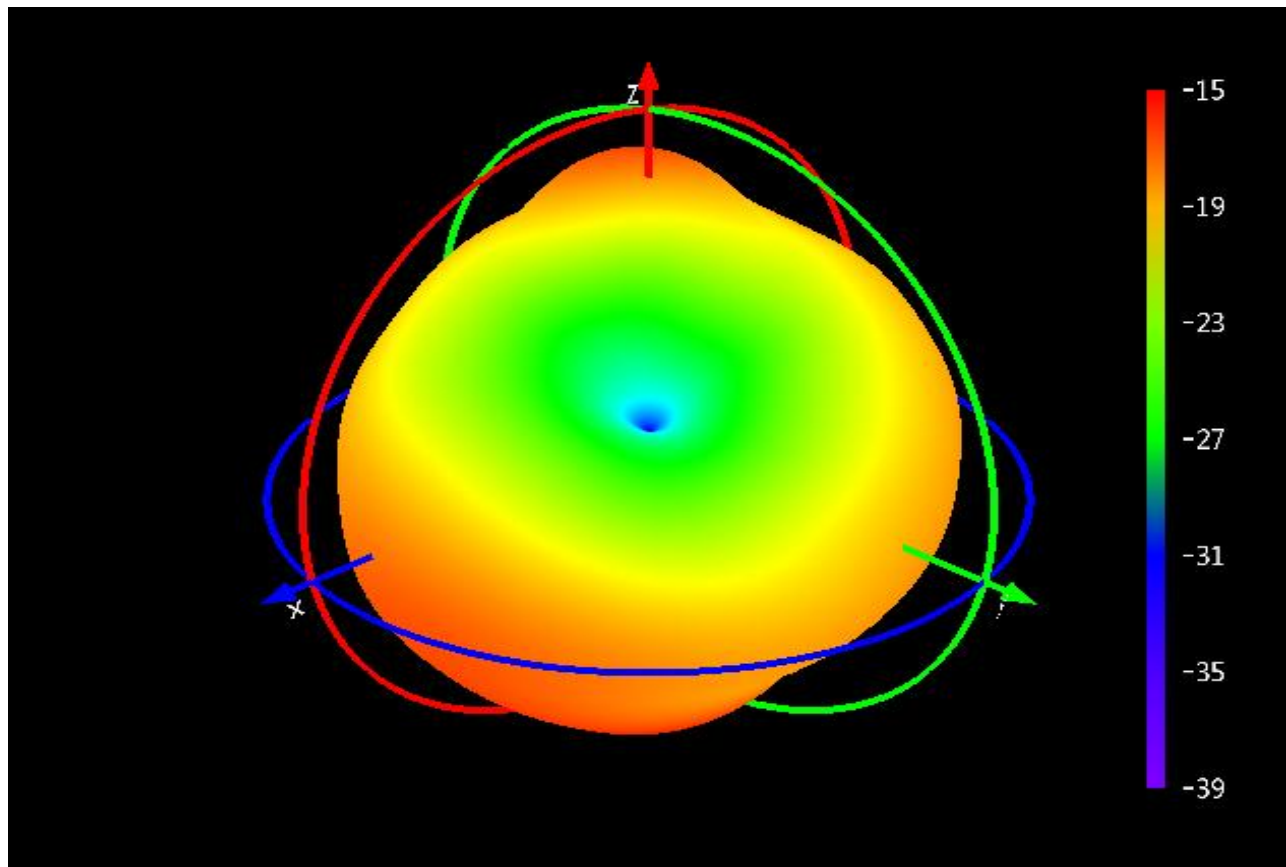


2402MHZ

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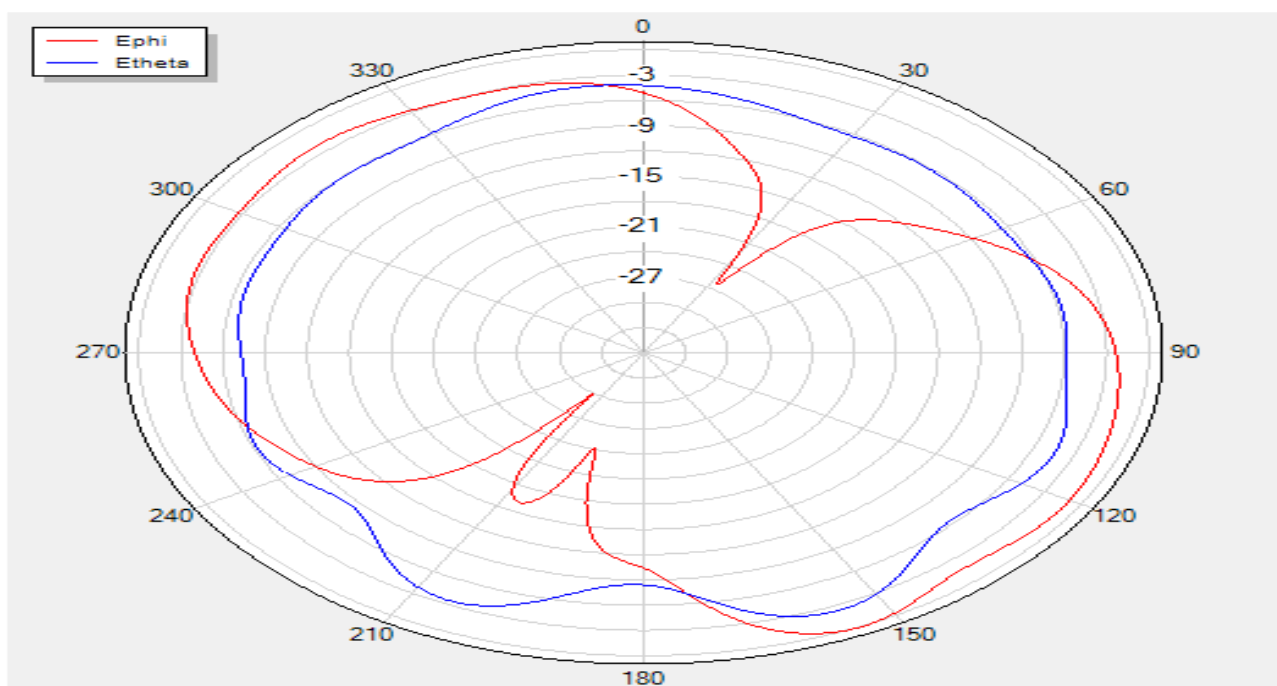


2480MHZ

1D Radiation Pattern

PHI = 0

**Phi=0 freq=2400MHz**



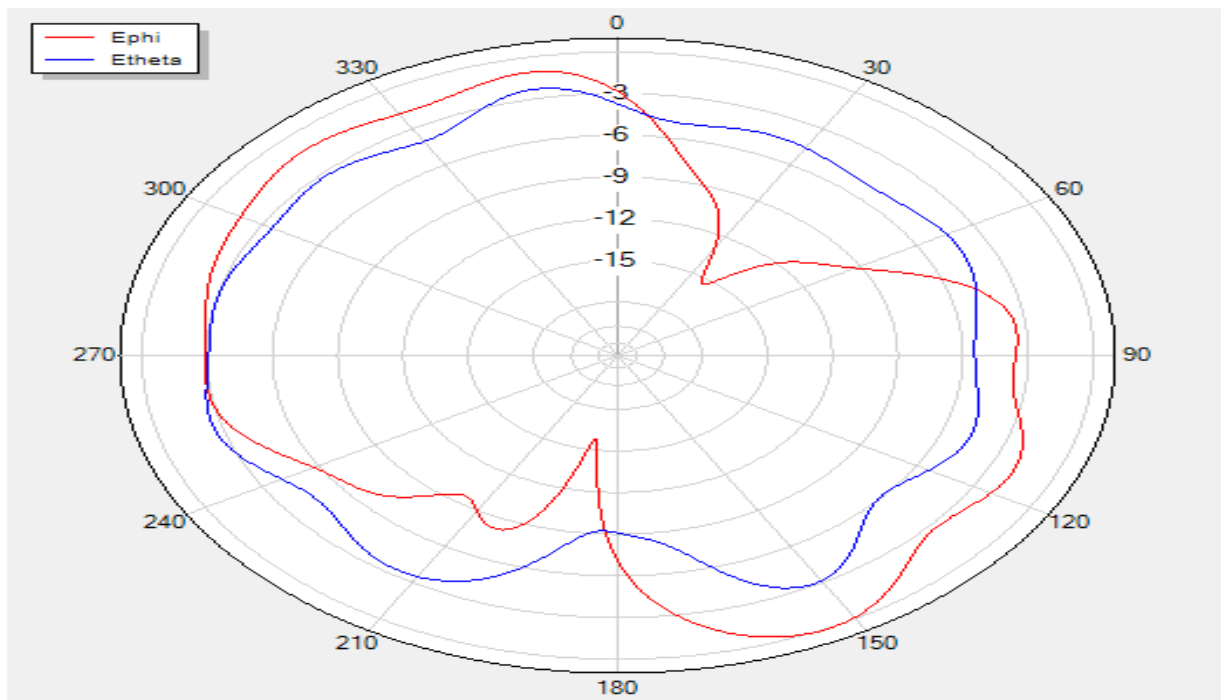
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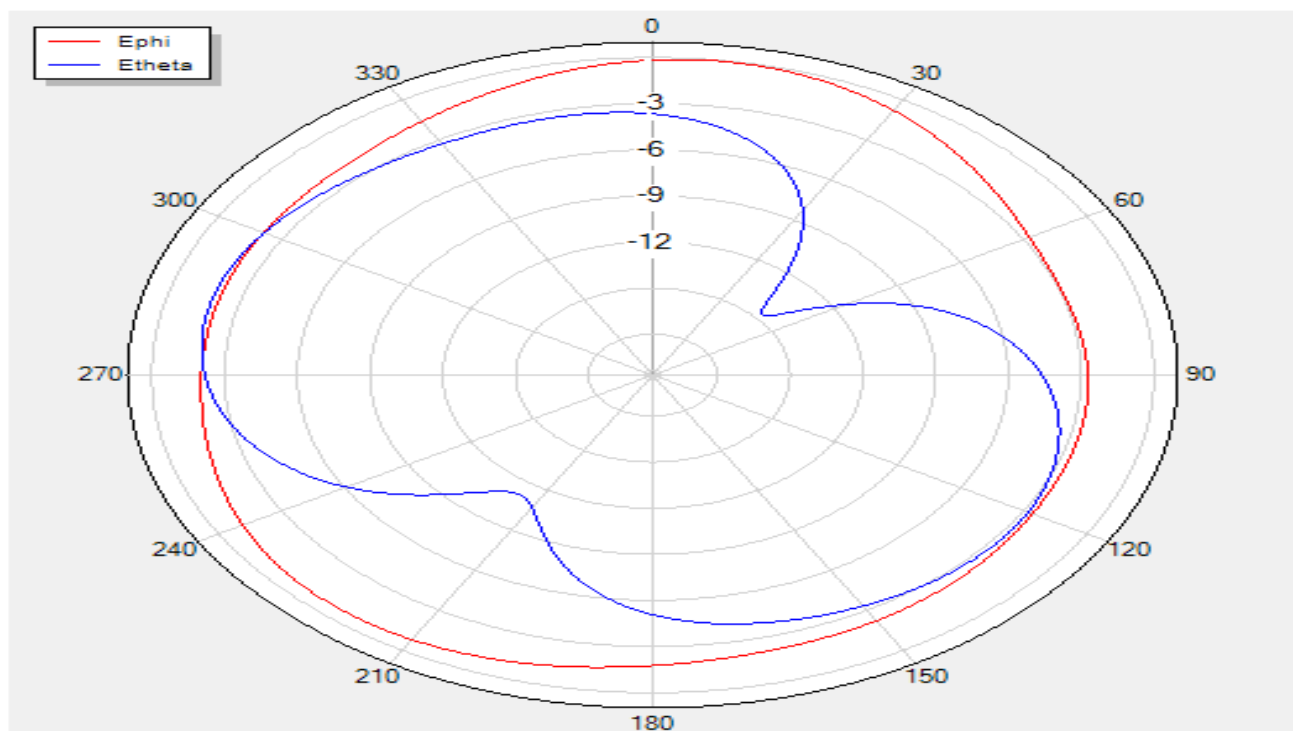
**PHI =90**

**Phi=90 freq=2400MHz**

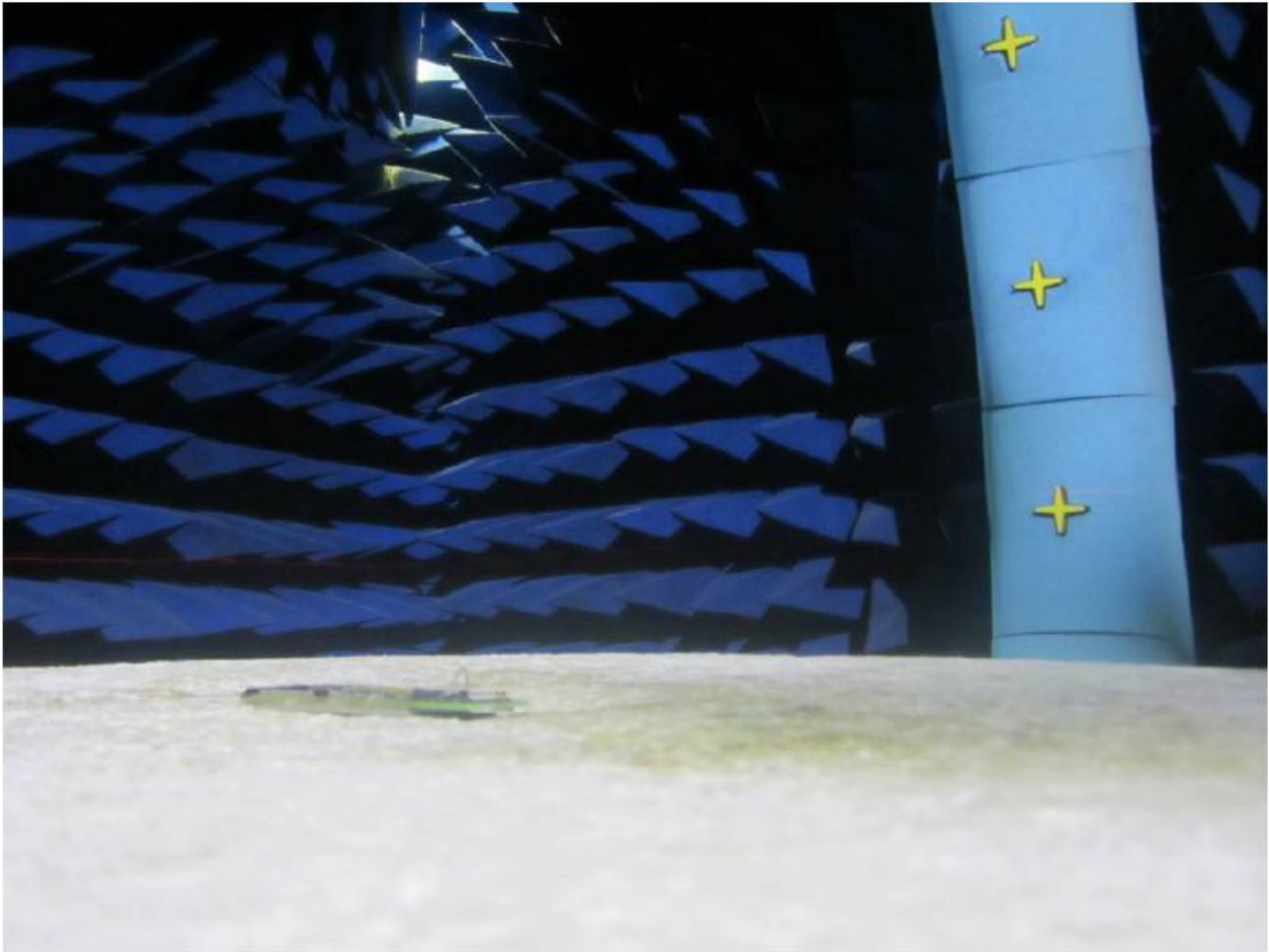


**THETA = 90**

**Theta=90 freq=2400MHz**



ANNEX C TEST SETUP PHOTO



ANNEX D EUT PHOTO

Antenna shape

