

# 3D Antenna Measurement Summary Report

**REPORT NO.:** OR210301001

**PLATFORM  
MANUFACTURER:** Haoda Circuit Group

**PLATFORM NAME:** Bluetooth Module

**ANTENNA TYPE:** PCB Antenna

**TESTED DATE:** 2021.03.05

**ISSUED:** 2021.03.10

**APPLICANT:** Shenzhen Linkiing Technology co.,LTD

**ADDRESS :** Floor 2, Building 5, Lihe Industrial Park, Songbai Road,  
Xili Street. Nanshan District Shezhen 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 |
|-------------|-------------------|-------------|
| OR210301001 | Original release  | 2021.03.10  |
|             |                   |             |
|             |                   |             |

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## GENERAL INFORMATION

|                      |                                      |
|----------------------|--------------------------------------|
| <b>APPLICANT:</b>    | Shenzhen Linkiing Technology co.,LTD |
| <b>MANUFACTURER:</b> | Haoda Circuit Group                  |
| <b>MODEL NO.:</b>    | LK8302(LK8353,LK8620,LK8627),LK8303  |

Test Standard: ANSI/IEEE Std. 149 1979.

PREPARED BY : Li Bo , DATE : 2021.03.10  
Li Bo / Engineer

APPROVED BY : Luke Lu , DATE : 2021.03.10  
Luke Lu / Manager

## 1. Test Equipment List

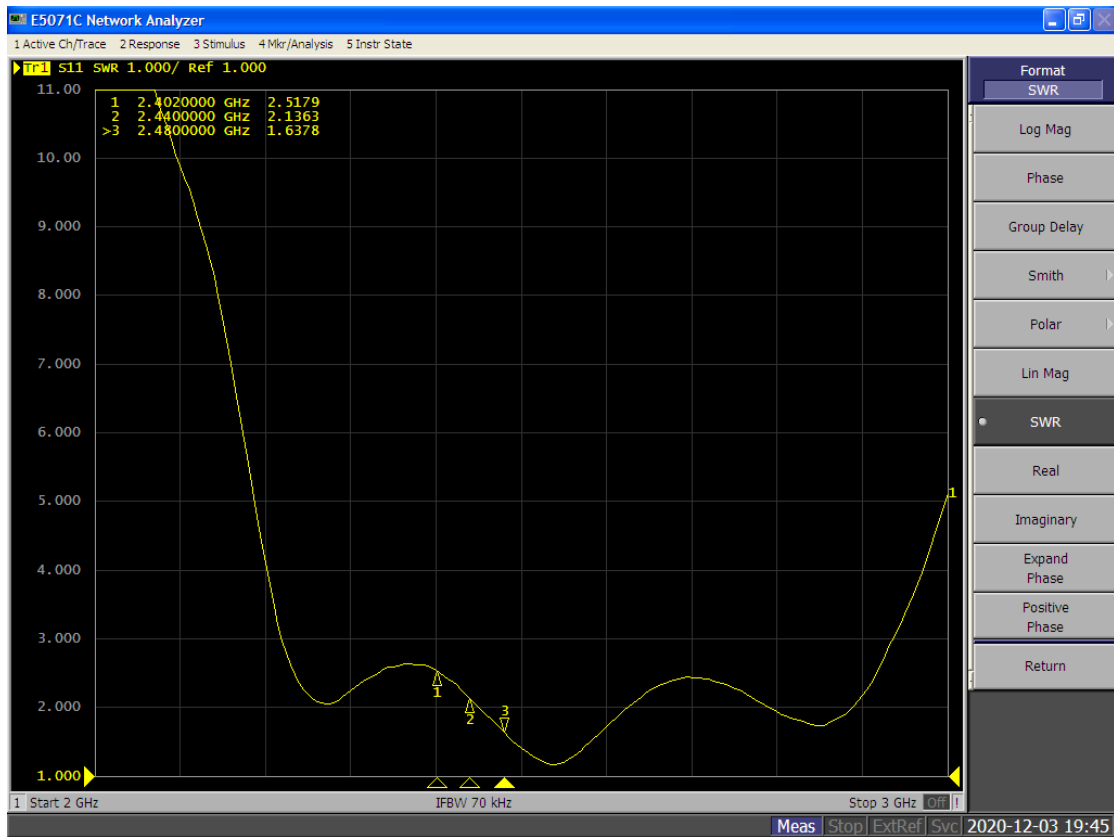
| TYPE OF EQUIPMENT   | MODEL NUMBER | SERIAL NUMBER | CALIBRATION DUE DATE |
|---------------------|--------------|---------------|----------------------|
| Network Analyzer    | E5071C       | MY46214638    | 2021.06.02           |
| OTA Chamber         | ETS AMS8923  | N/A           | N/A                  |
| RF Switch           | ETS EMCenter | N/A           | N/A                  |
| Measurement Antenna | ETS 3165-01  | N/A           | N/A                  |

## 2. Measurement Uncertainty

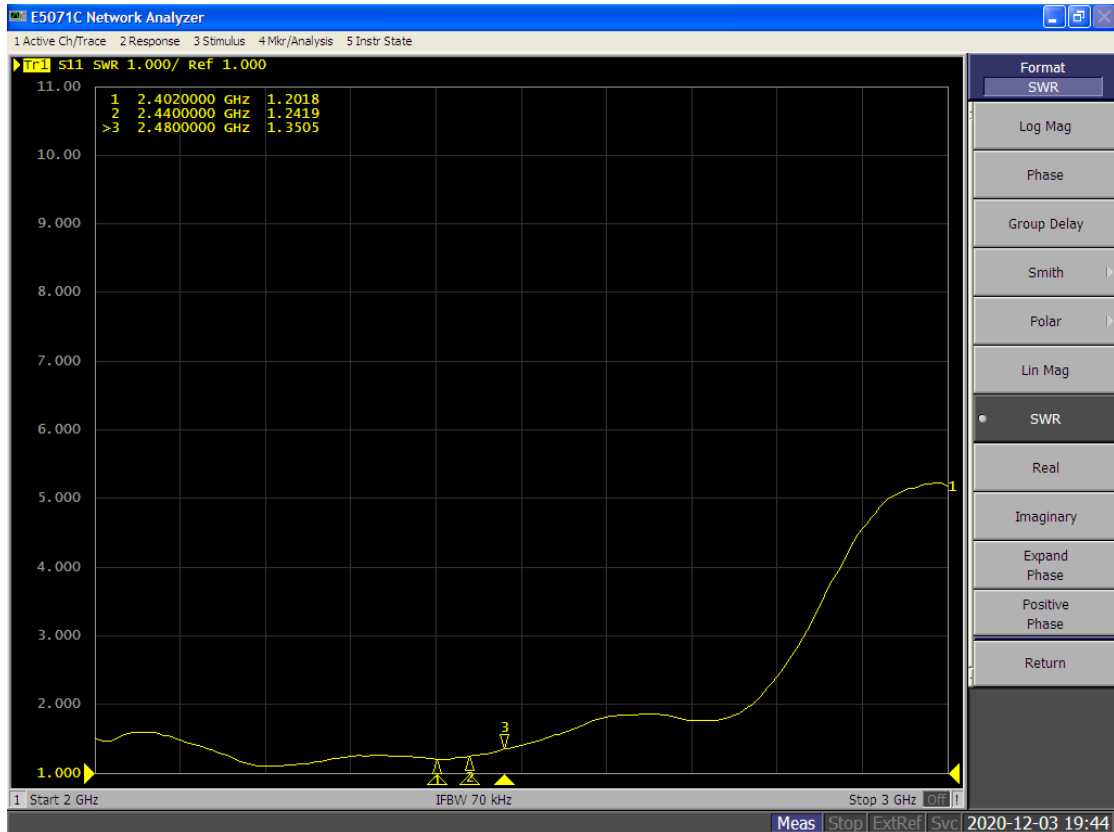
Expanded Uncertainty for Measurement (k=2 or 95% Confidence Level) at Passive antenna test over frequency range 780 – 2200MHz is +/- 1.52 dB.

### 3. Characteristics of antenna

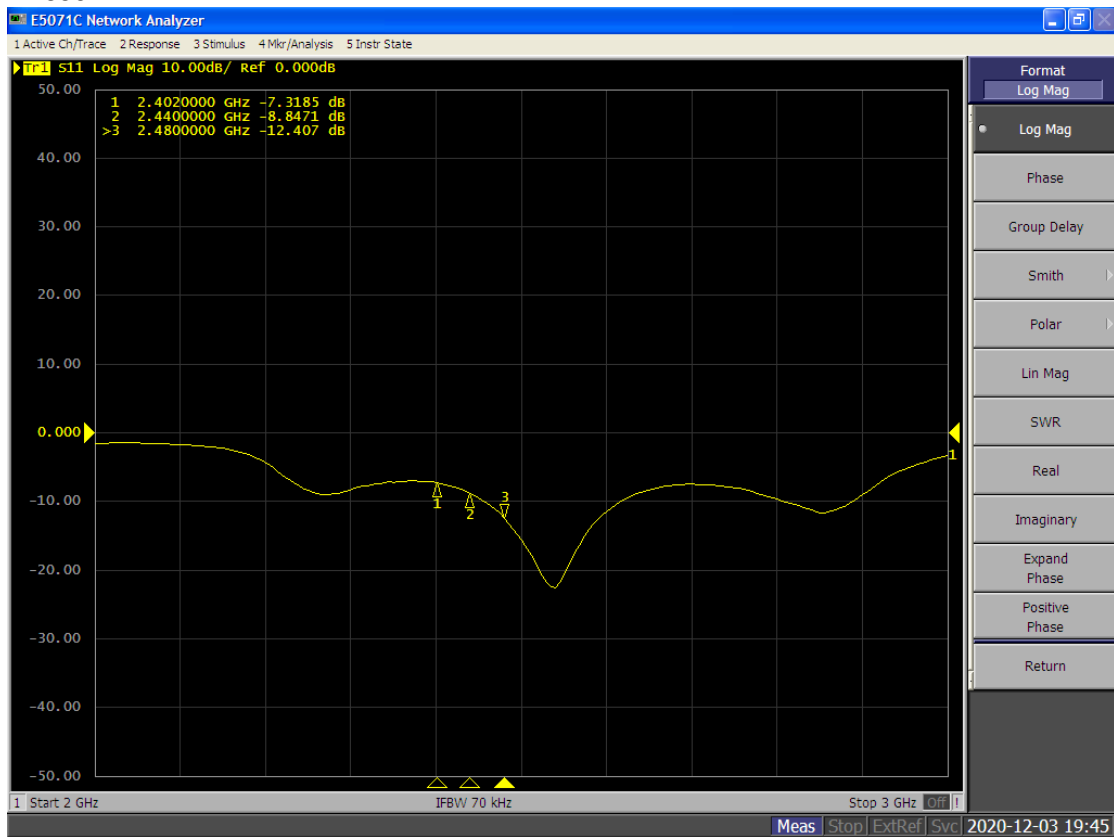
#### 3.1. VSWR LK8302:



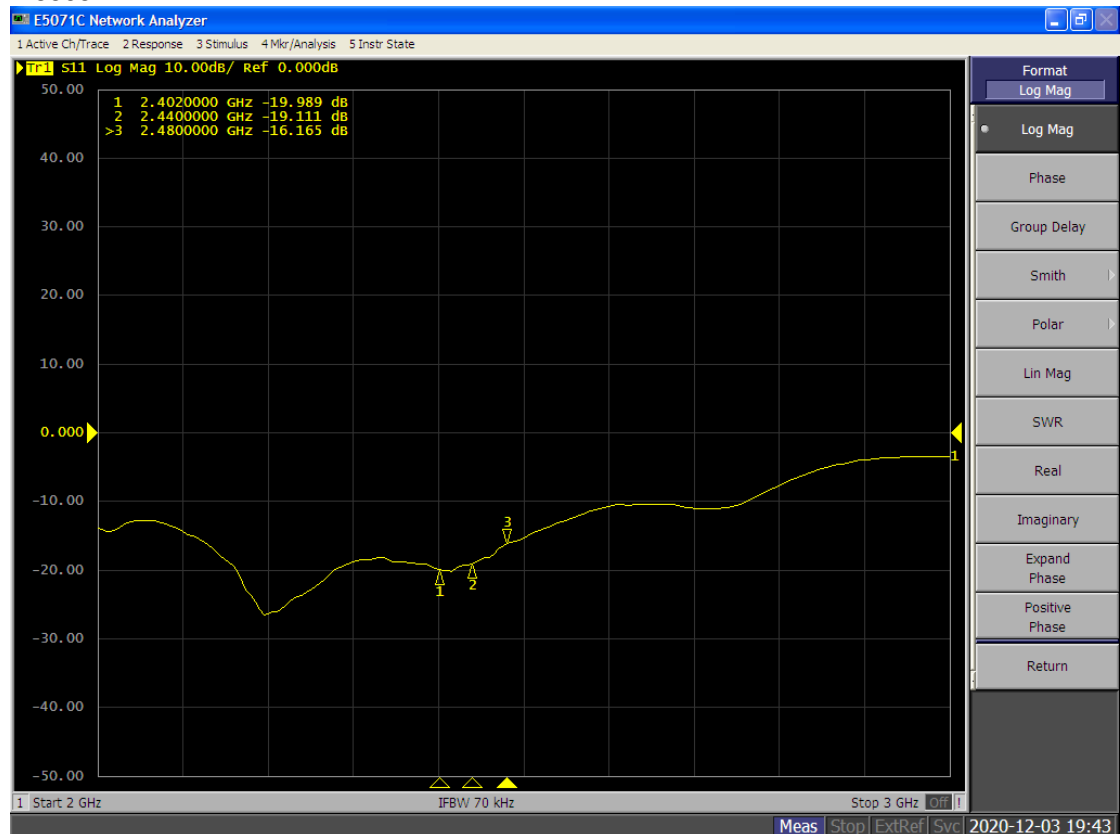
#### LK8303:



### 3.2. S11 LK8302:



### LK8303:



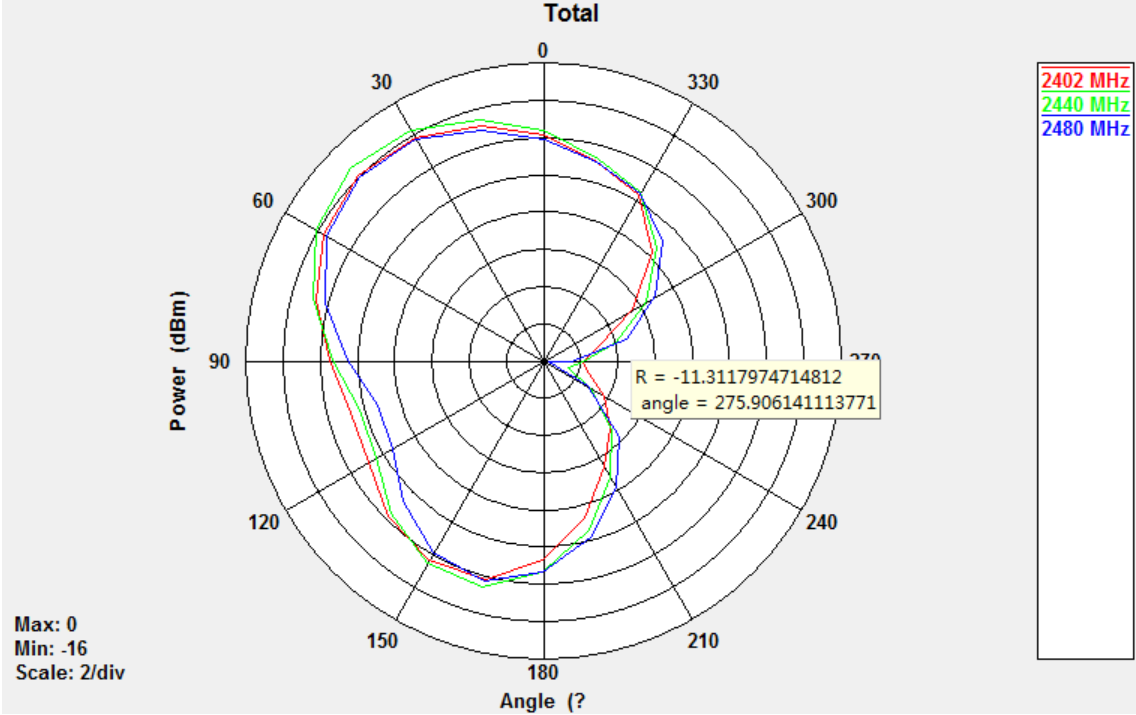
### 3.3. 3D Antenna Gain-Free Space

| Model  | Frequency (MHz) | Directivity (dBi) | Efficiency (dB) | Efficiency (%) | Gain (dBi) |
|--------|-----------------|-------------------|-----------------|----------------|------------|
| LK8302 | 2402            | 6.43              | -6.57           | 22.01          | -0.15      |
|        | 2440            | 6.47              | -6.13           | 24.40          | 0.34       |
|        | 2480            | 6.59              | -6.05           | 24.82          | 0.54       |
| LK8303 | 2402            | 6.48              | -3.99           | 39.94          | 2.5        |
|        | 2440            | 6.66              | -3.72           | 42.46          | 2.94       |
|        | 2480            | 6.93              | -3.75           | 42.15          | 3.18       |

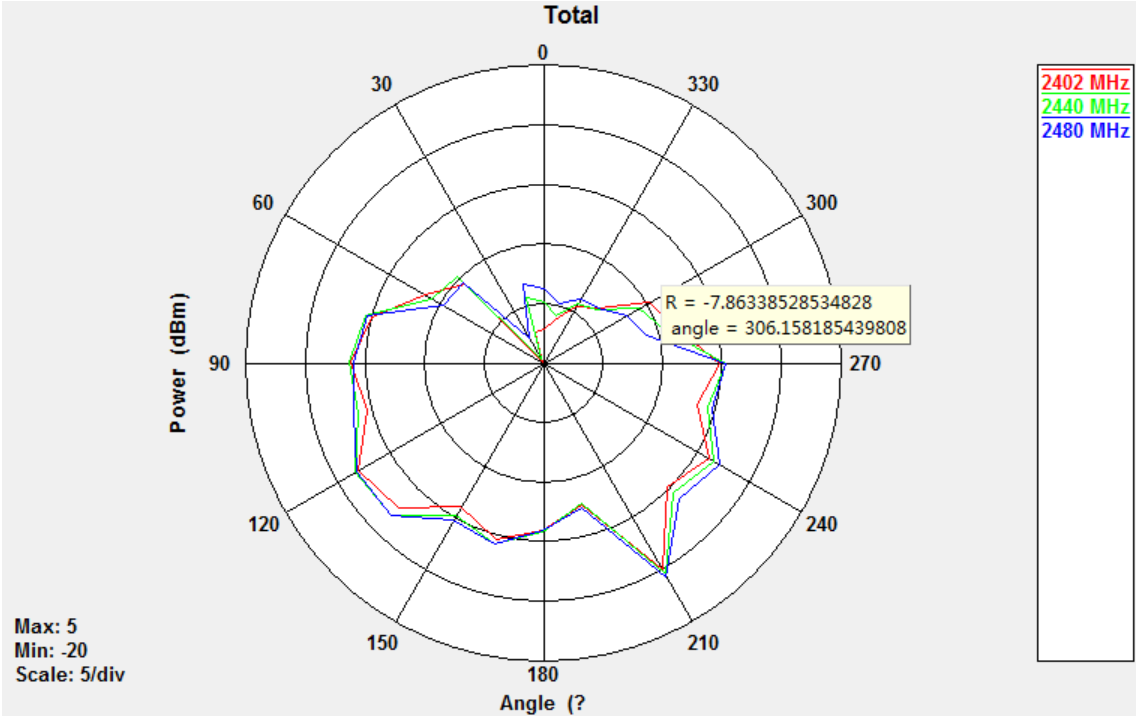
# Antenna Pattern

LK8302:

XY

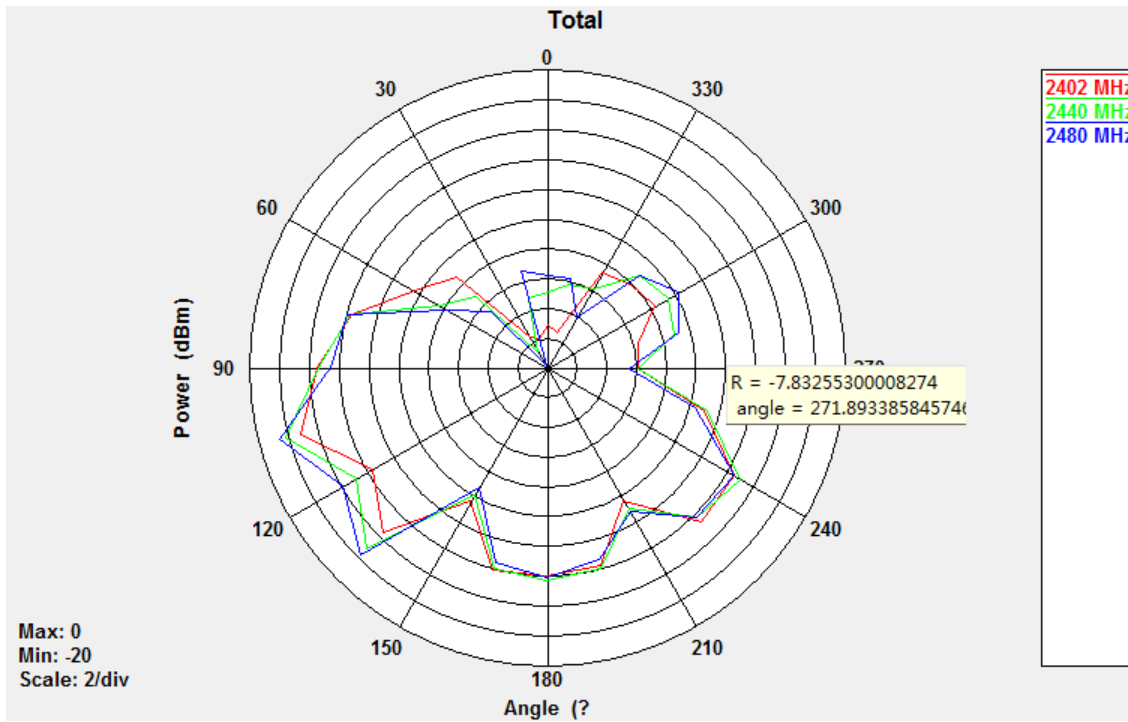


XZ



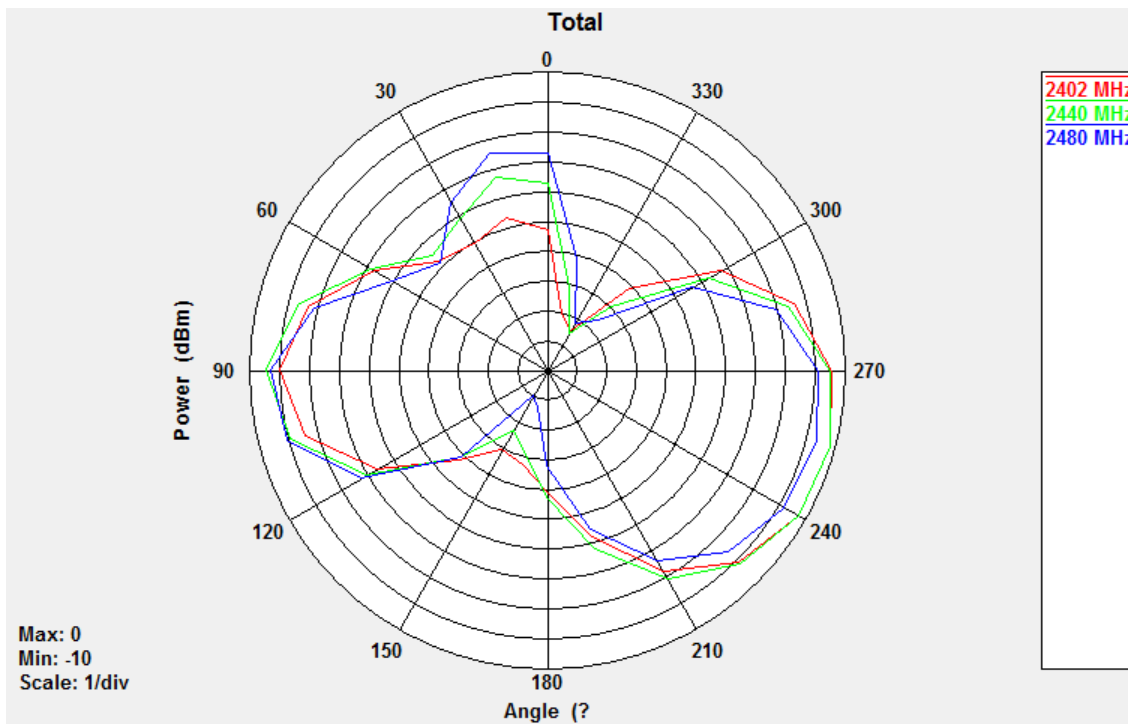


YZ

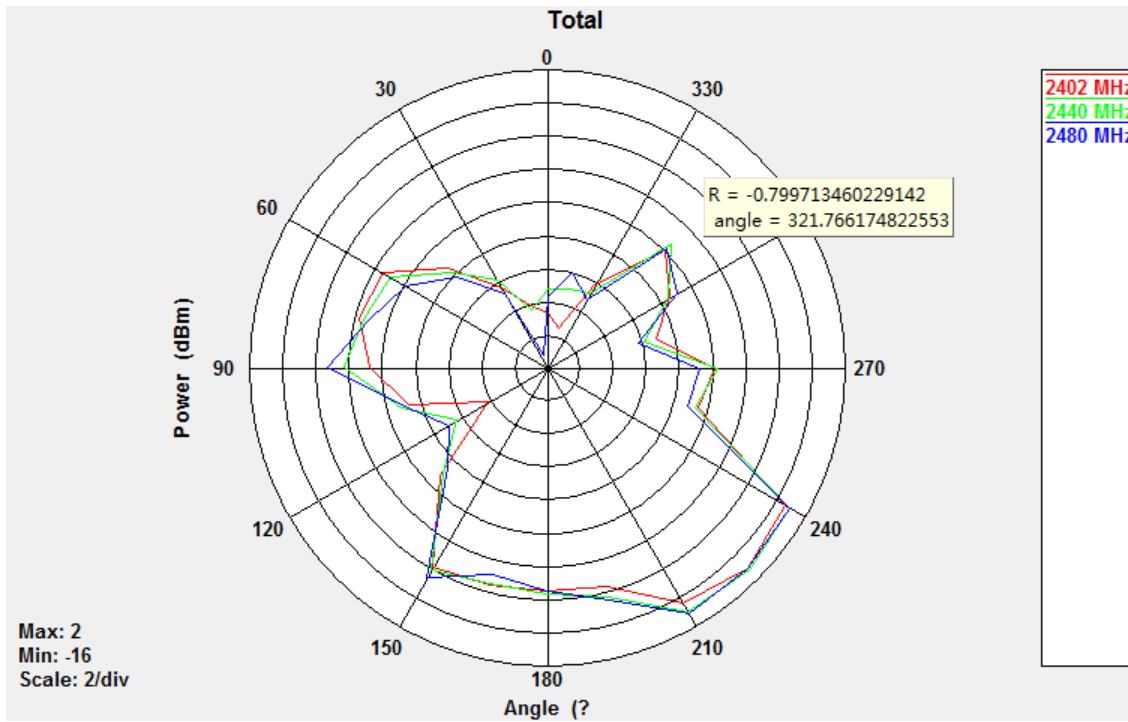


LK8303

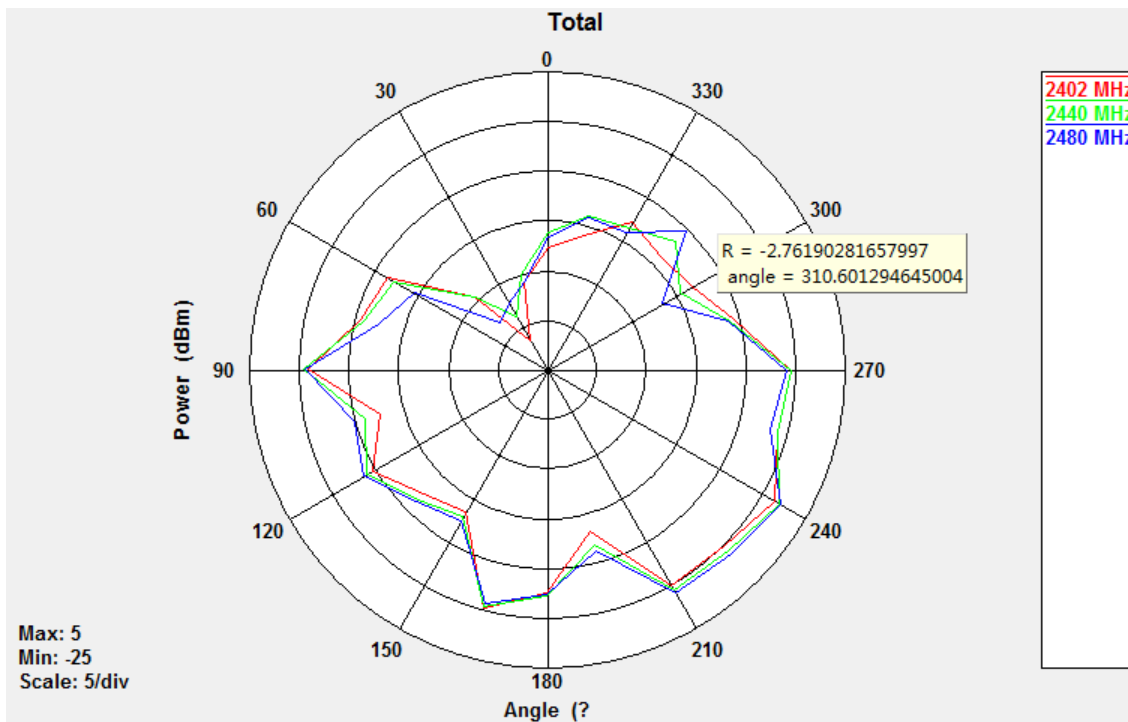
XY



XZ



YZ





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## Appendix A. Confirmation Letter

### Shenzhen Linkiing Technology

Floor 2, Building 5, Lihe Industrial Area, 1055 SongBai Road, Xili Town, Nanshan District, Shenzhen, China

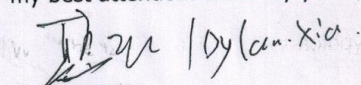
[www.linkiing.com](http://www.linkiing.com)

Date: March 8, 2021

We, Shenzhen Linkiing Technology. Declate on our sole responsibility for the 2.4G PCB Antenna of LK8302, LK8353, LK8620 and LK8627 as below:

The 2.4G antenna of LK8302, LK8353, LK8620 and LK8627 designs are the same, the parameters are the same.

Should you have any questions pr comments regarding this matter, please have my best attention. Sincerely yours,



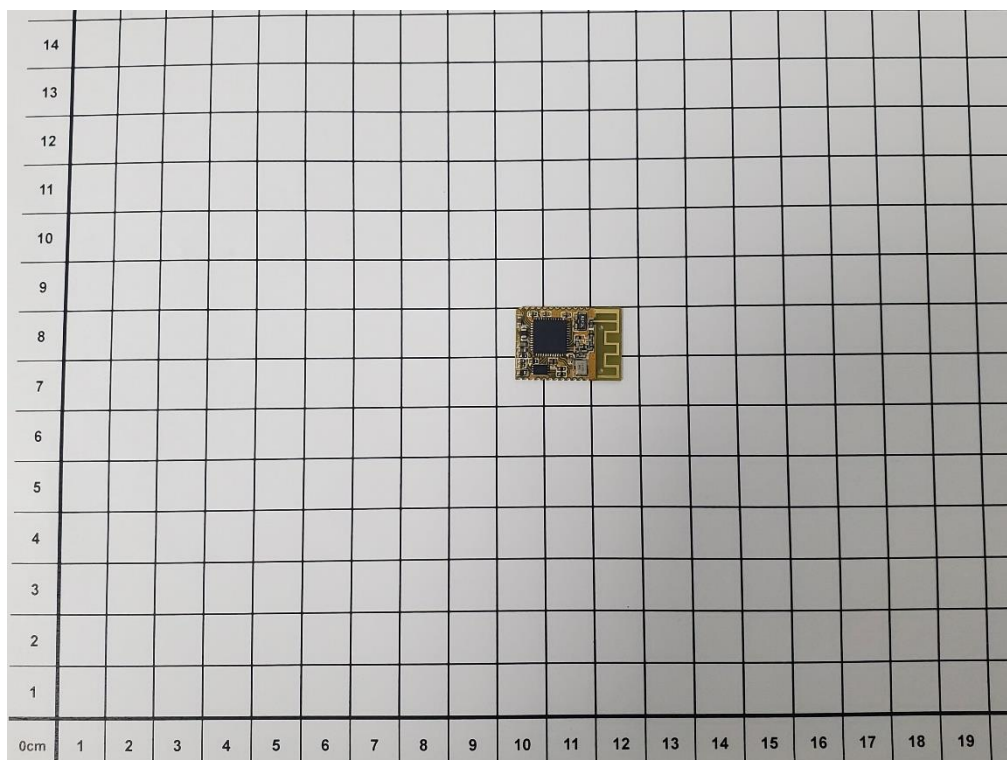
Contact Person: Dylan Xia

Company: Shenzhen Linkiing Technology.

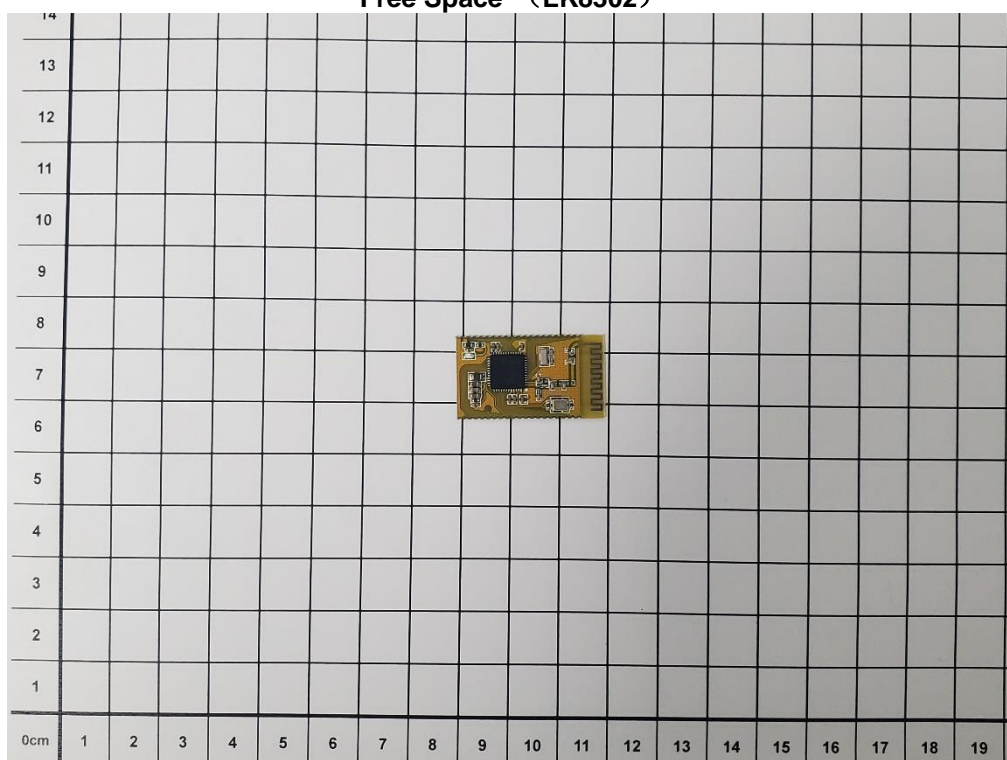
Tel: 0755-86718235

Email: [Dylan.xia@linkiing.com](mailto:Dylan.xia@linkiing.com)

## Appendix B. EUT Photographs



Free Space (LK8302)



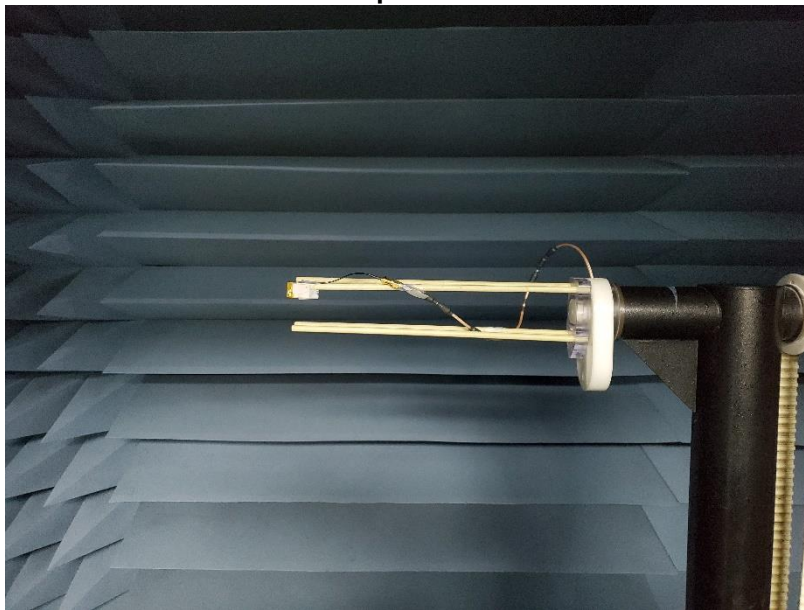
Free Space (LK8303)



## Appendix C.EUT SETUP Photographs



**Free Space (LK8302)**



**Free Space (LK8303)**