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

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification

RELEASE CONTROL RECORD

REPORT NO.	REASON FOR CHANGE	DATE ISSUED
OR210301001	Original release	2021.03.10

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GENERAL INFORMATION

APPLICANT:	Shenzhen Linkiing Technology co.,LTD
MANUFACTURER:	Haoda Circuit Group
MODEL NO.:	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

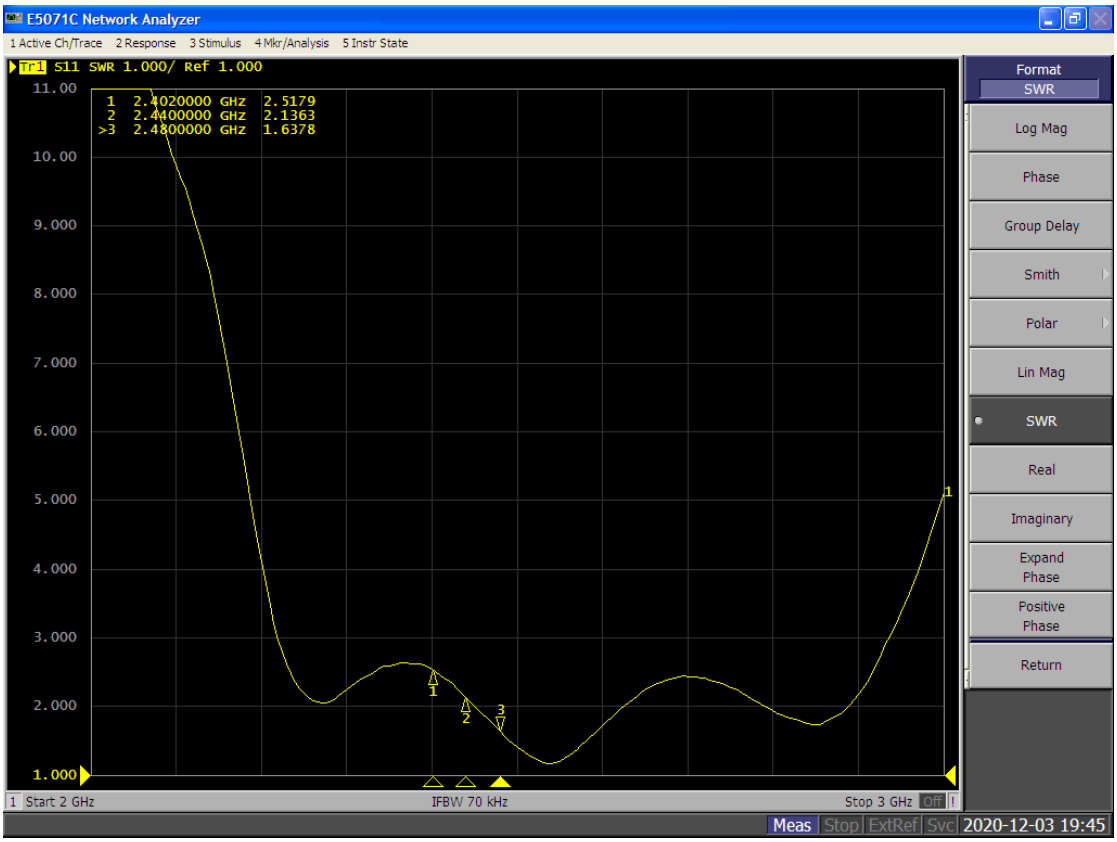
2. Measurement Uncertainty

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

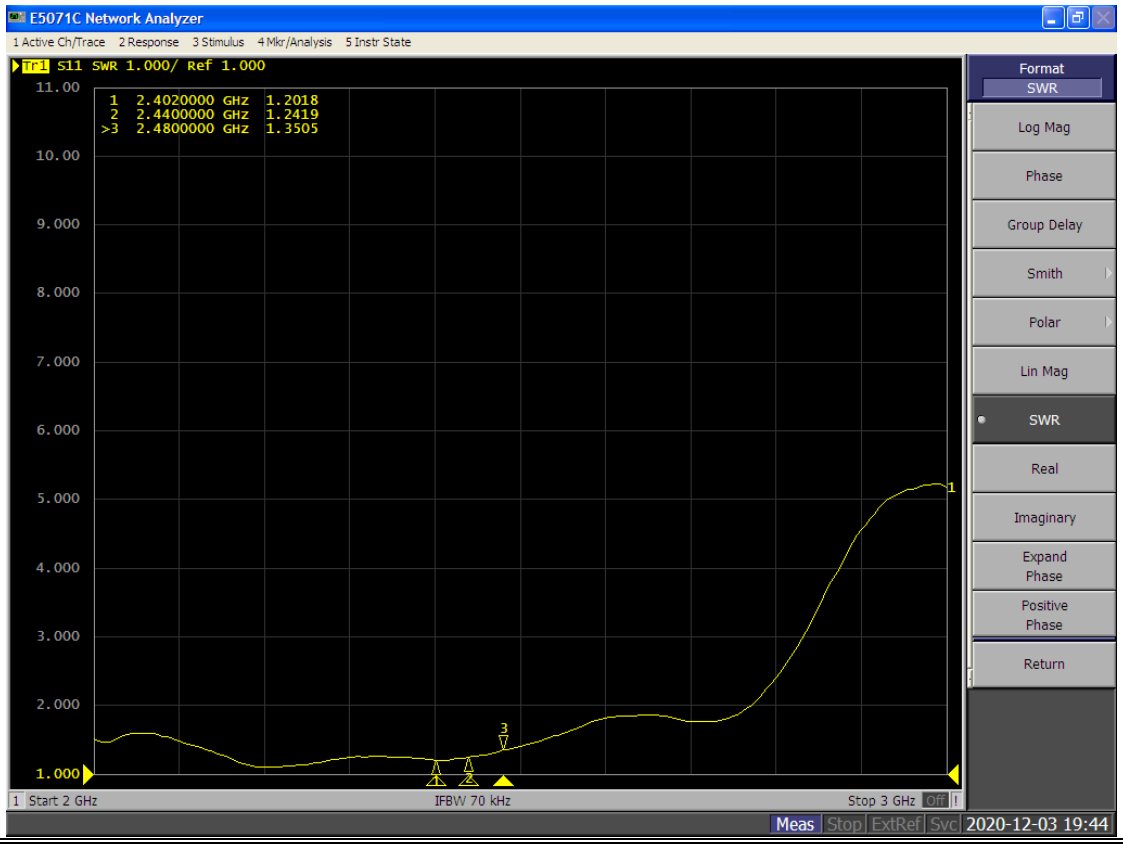
3. Characteristics of antenna

3.1. VSWR

LK8302:

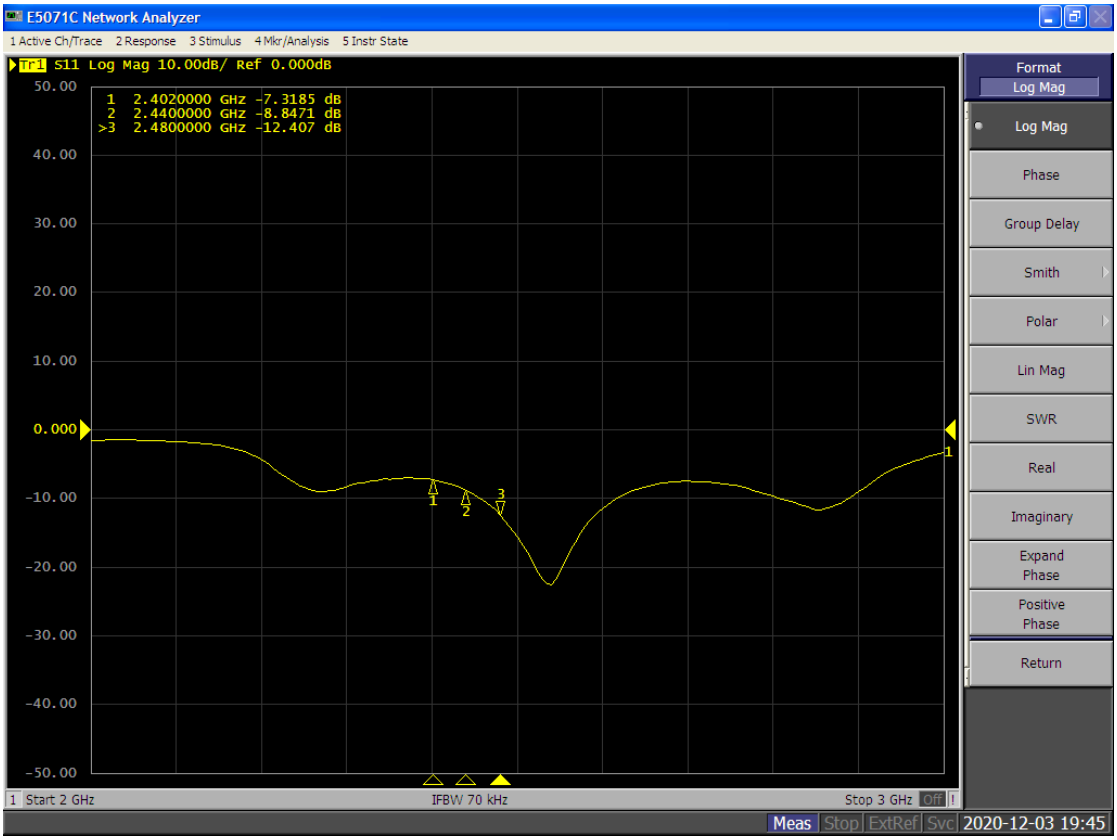


LK8303:



3.2. S11

LK8302:



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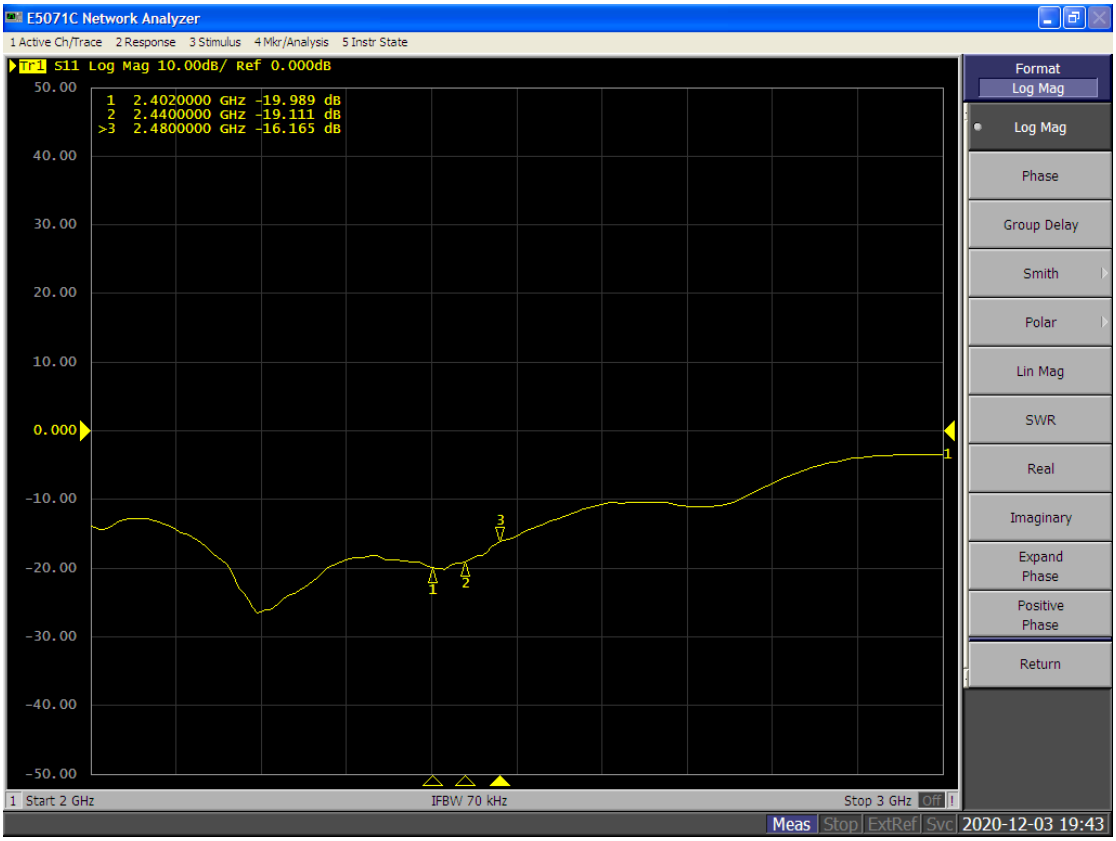


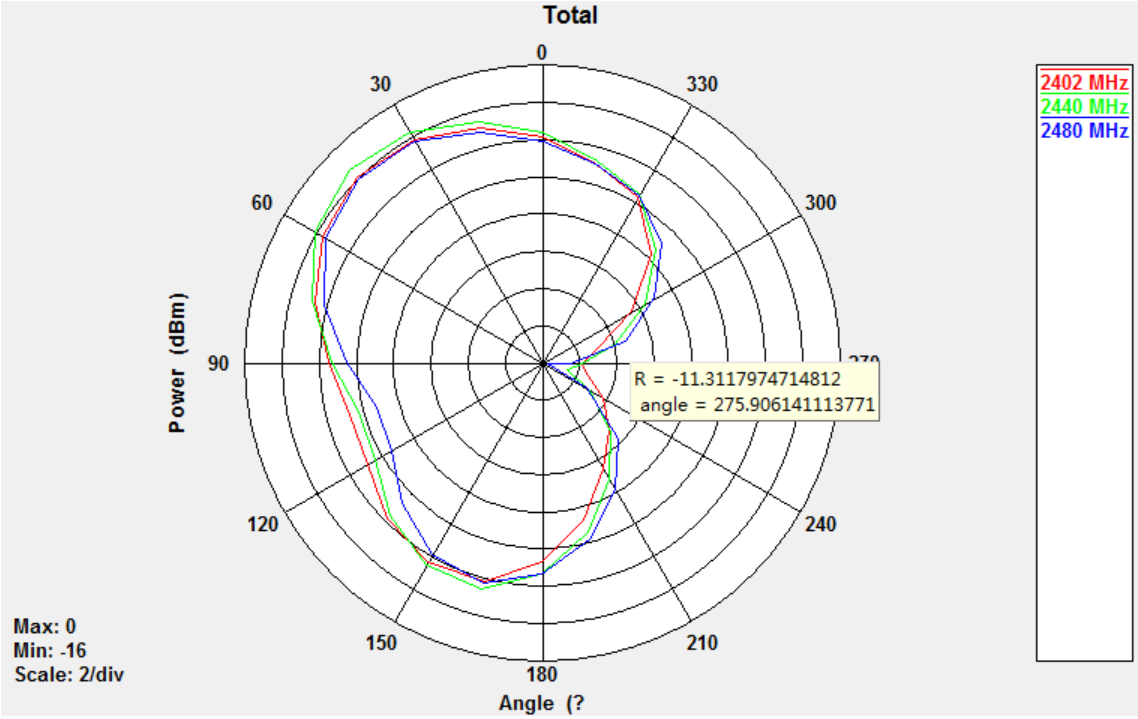
3.3. 3D Antenna Gain-Free Space

Model	Frequency (MHz)	Directivity (dBi)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
LK8353	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

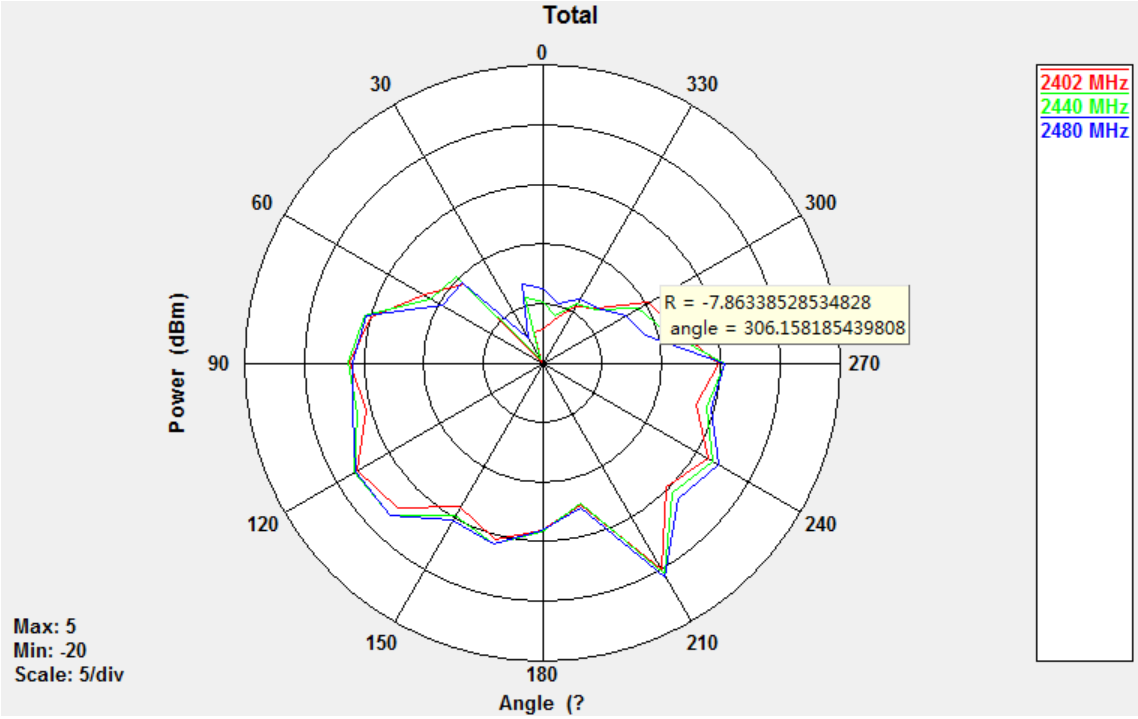
Antenna Pattern

LK8302:

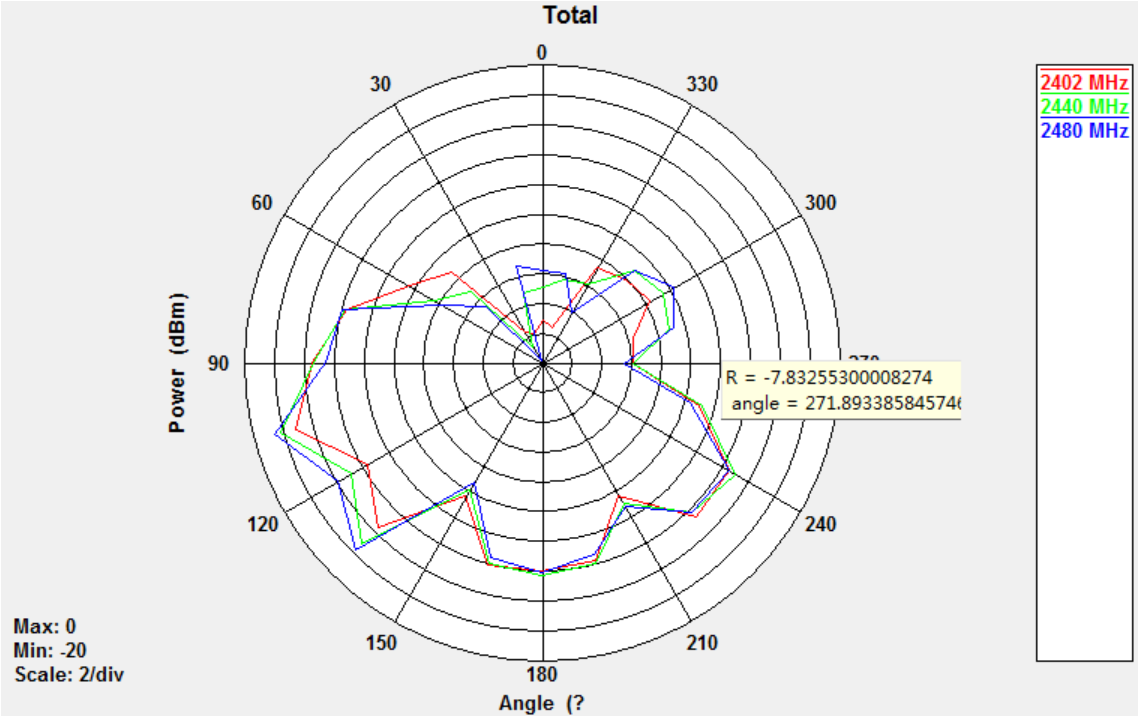
XY



XZ

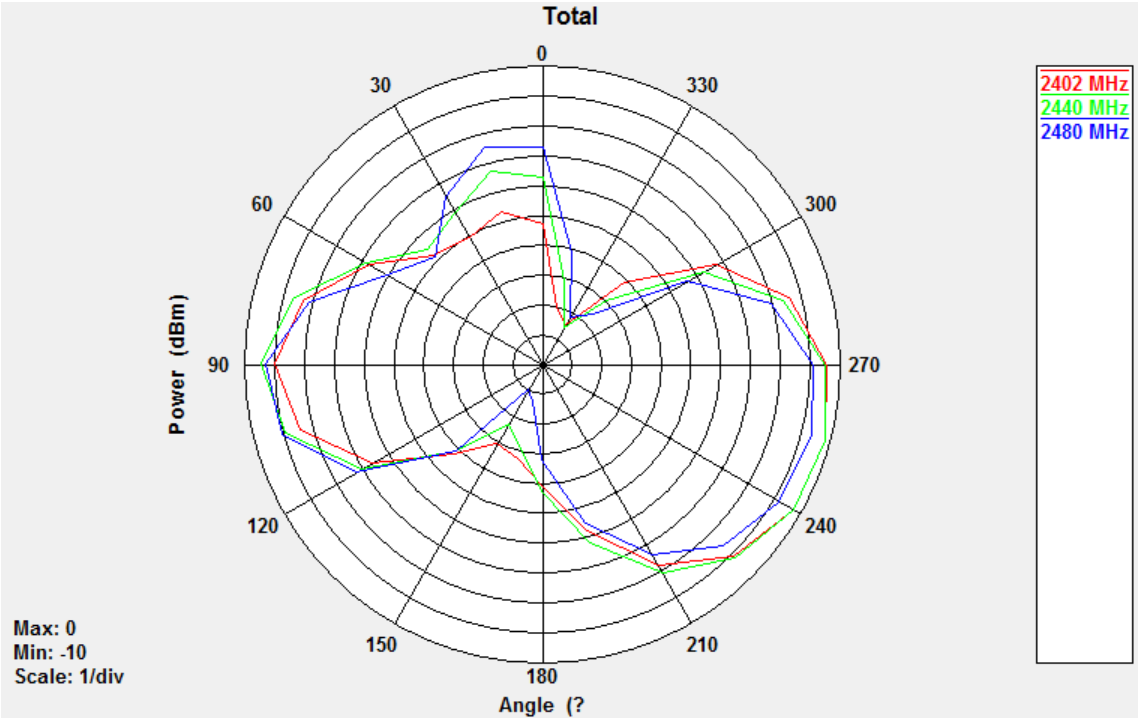


YZ

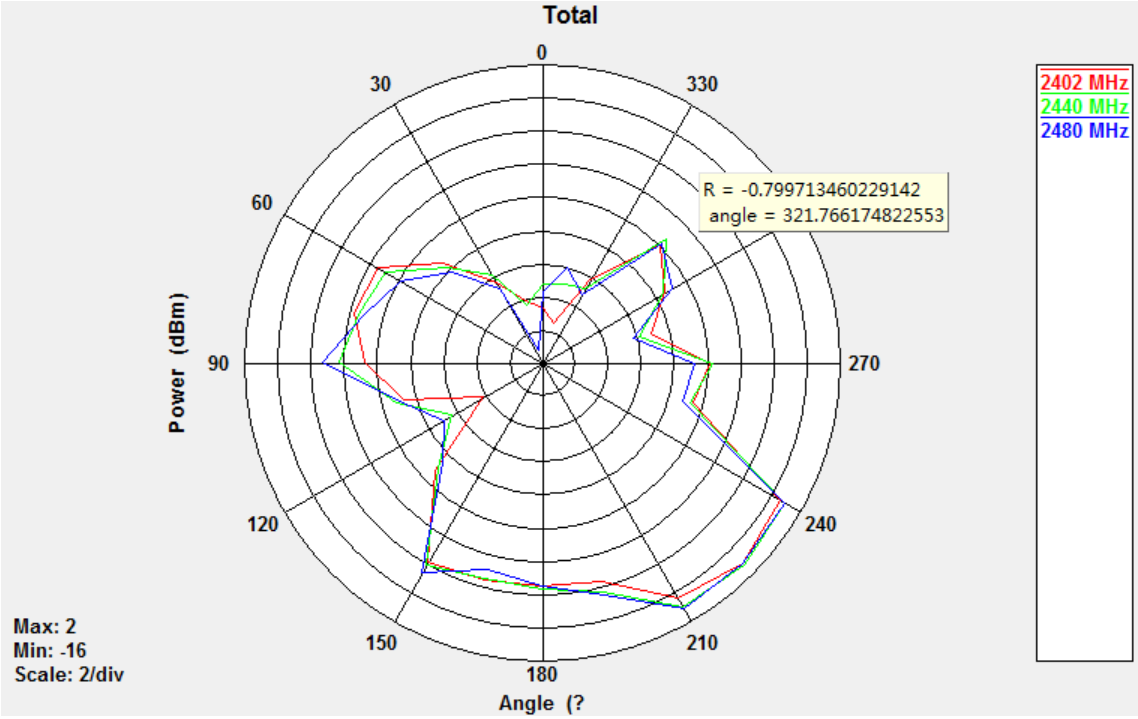

Total
0
30
330
60
300
90
270
120
240
150
210
180
Power (dBm)
Angle (?
2402 MHz
2440 MHz
2480 MHz
R = -7.83255300008274
angle = 271.89338584574
Max: 0
Min: -20
Scale: 2/div

LK8303

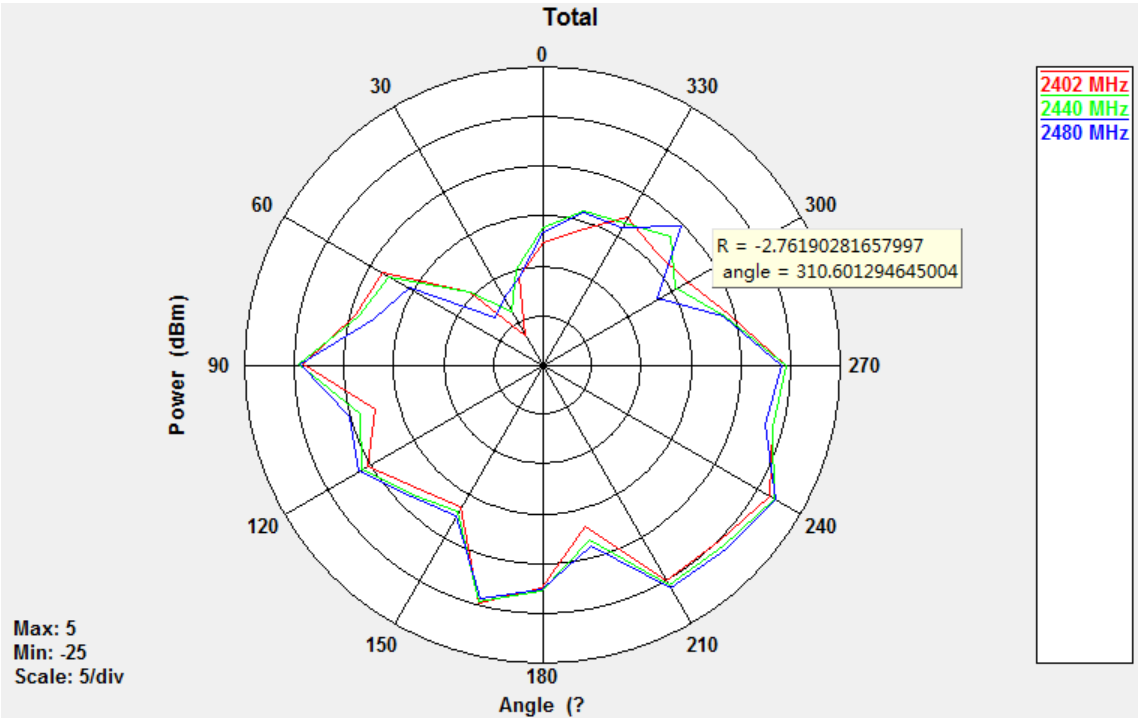
XY


Total
0
30
330
60
300
90
270
120
240
150
210
180
Power (dBm)
Angle (?
2402 MHz
2440 MHz
2480 MHz
Max: 0
Min: -10
Scale: 1/div

XZ


Total
0
30
330
60
90
270
120
240
150
210
180
Power (dBm)
Angle (?
R = -0.799713460229142
angle = 321.766174822553
2402 MHz
2440 MHz
2480 MHz
Max: 2
Min: -16
Scale: 2/div

YZ


Total
0
30
330
60
300
90
270
120
240
150
210
180
Power (dBm)
Angle (?
R = -2.76190281657997
angle = 310.601294645004
2402 MHz
2440 MHz
2480 MHz
Max: 5
Min: -25
Scale: 5/div

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

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,

Dylan Xia

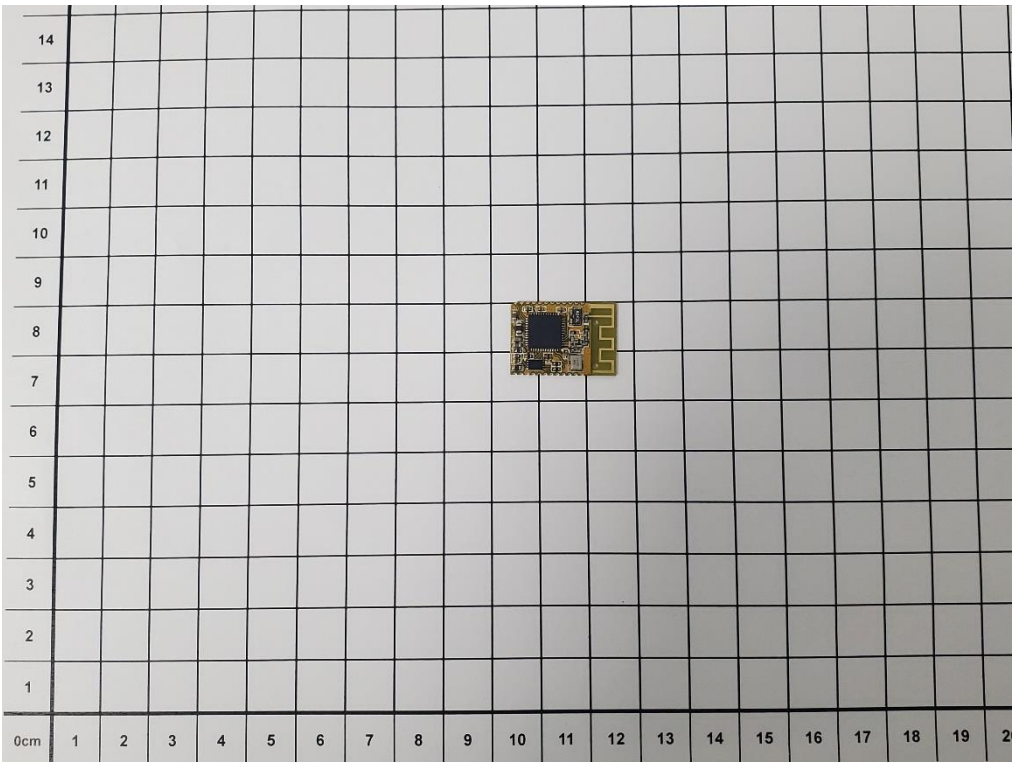
Contact Person: Dylan Xia

Company: Shenzhen Linkiing Technology.

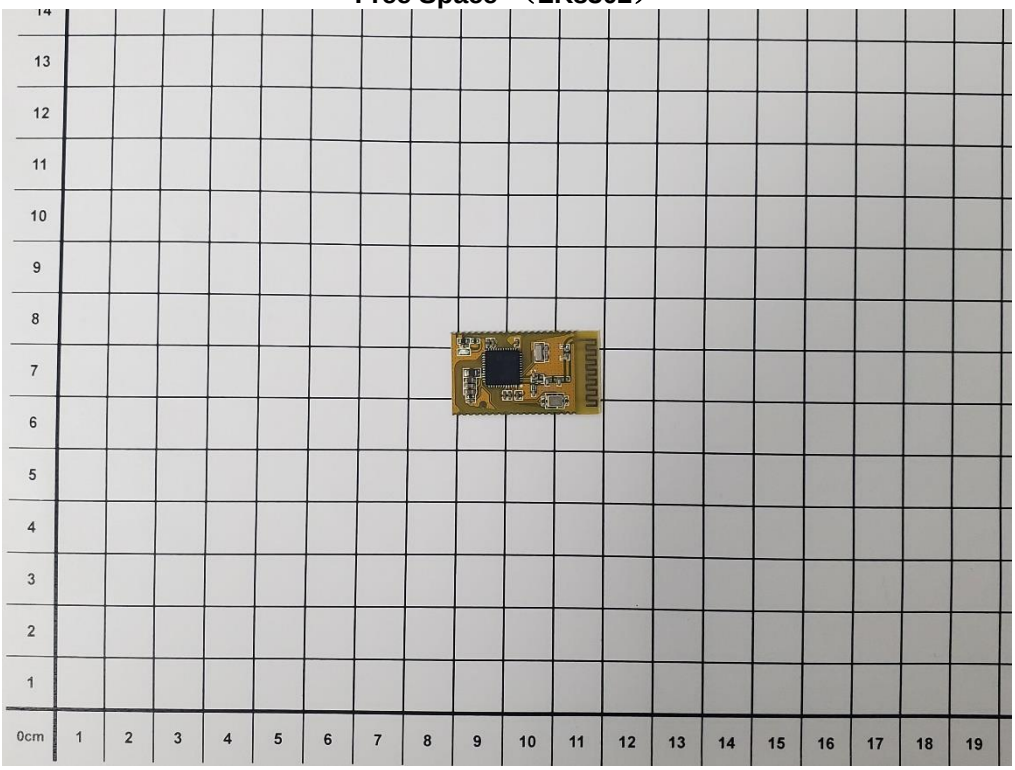
Tel:0755-86718235

Email:Dylan.xia@linkiing.com

Appendix B. EUT Photographs



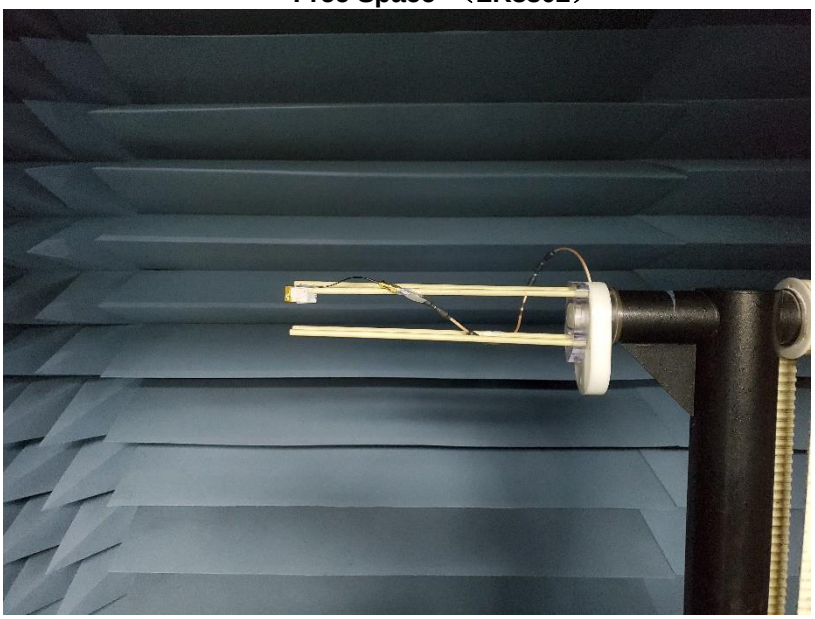
Free Space （LK8302）



Free Space （LK8303）

Appendix C.EUT SETUP Photographs

Free Space （LK8302）



Free Space （LK8303）