



YONG CHENG INTERNATIONAL(OTA)

A3调测报告

Antenna Test Report

◆ 日期 2025年06月06日

Application:

WLAN, 802.11b/g, Bluetooth, WLAN, etc...

Features

SMD, high reliability, ultra Impact, Omni-directional

Part number Information

RANT **2012** **F** **245** **X** **5**
 (A) (B) (C) (D) (E) (F)



(A) Product Type	Chip Antenna
(B) Size Code	2.0x1.2mm(+/-0.2mm)
(C) Material	High K material
(D) Frequency	2.4 ~ 2.5GHz
(E) Feeding mode	PIFA & Single Feeding
(F) Antenna type	Type=5

Electrical Specification

Working Frequency Range	2400 ~2484 MHz
Bandwidth	84 (Min.)
Peak Gain	1.7 dBi (Typ.)
Impedance	50 Ohm
Return loss	10 dB (Min)
Polarization	Linear
Azimuth Beamwidth	Omni-directional
Operation Temperature(°C)	-40 ~85°C
Resistance to Soldering Heats	10sec. (@ 280°C)
Termination	Ni / Au (Leadless)

The specification is defined on EVB.

Dimension and Terminal Configuration



Dimension (mm)	
L	2.05+/-0.15
W	1.20+/-0.15
T	0.65+/-0.10

No.	Terminal Name
1	Feeding/GNG
2	GND



Bottom

咏成國際科技有限公司

電話: 13530576606

RAIN International Technology Co., Ltd.

2.4GHz 2012 Chip Antenna: RANT2012F245X5





Test item	
1	Matching parameter
2	Network debugging antenna S parameters
3	Microwave darkroom test OTA active data
4	Measurement of antenna efficiency field pattern in microwave darkroom
5	measuring distance
6	Assembly item
7	summary of commissioning test



Customer

KLX

Project name

A3

frequency
band

2400MHZ-2500MHZ

engineer:

CK

Date

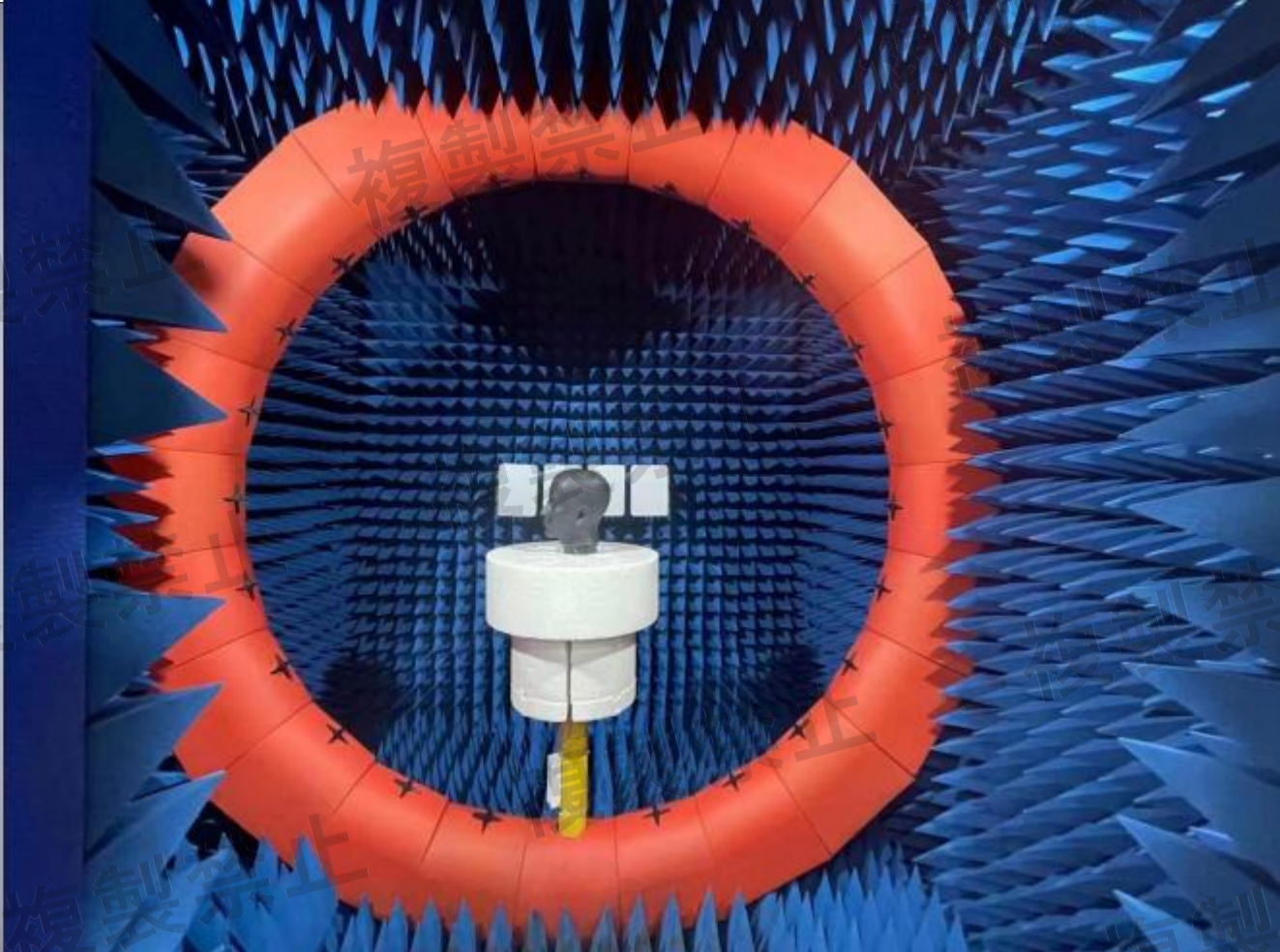
2025/06/06

phone:

13530576606

1.测试工具

矢量网络分析仪&综测仪	Agelent Techmologies E5071B & R&S CMW500
暗室	Atenlab M3
测试工程师	CK
温度	25℃
湿度	65% (RH)





Antenna Placement

ANT:2012F245X5(咏成国际)

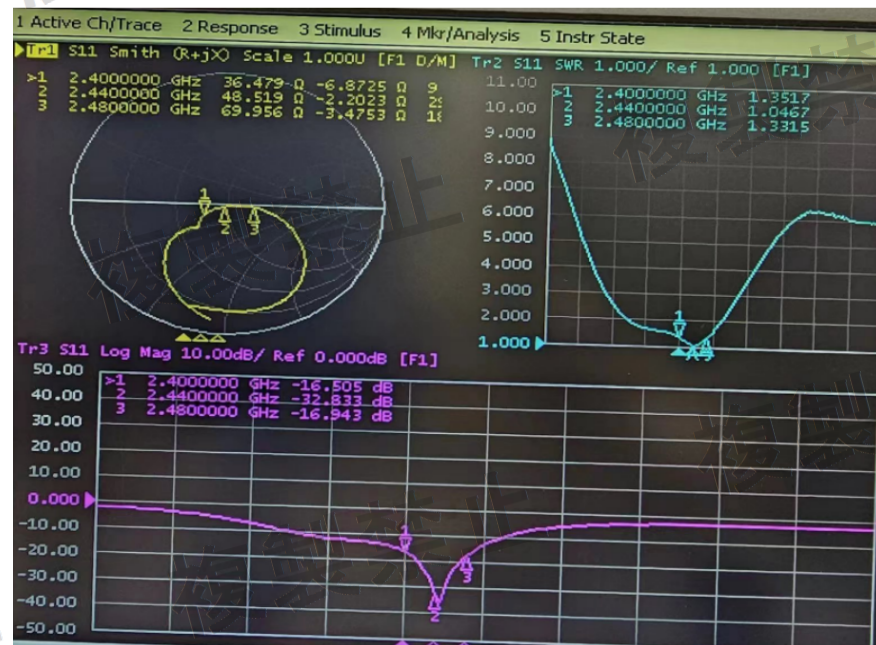
L/R:Matching Circuit: 左右参数

S11、SWR、smith chart:

L



R

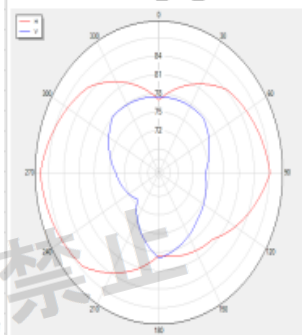


Antenna active test data

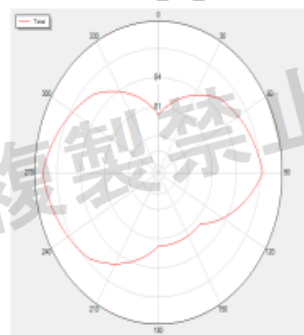
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1L#	Channel	TRP	TIS	TRP	TIS		R#	Channel	TRP	TIS	TRP	TIS
	CH 0	3.67	-86.55	1.88	-82.81			CH 0	2.4	-85.37	1.98	-83.78
	CH 39	3.36	-88.36	1.73	-82.05			CH 39	1.42	-85.49	0.17	-80.76
	CH 78	3.17	-89.59	-3.09	-80.48			CH 78	0.48	-85.33	-1.66	-80.74
A3		Free		Human			A3		Free		Human	
2L#	Channel	TRP	TIS	TRP	TIS		2R#	Channel	TRP	TIS	TRP	TIS
	CH 0	2.33	-84.35	2.6	-82.01			CH 0	2.28	-86.06	0.99	-81.01
	CH 39	3.19	-87.19	1.87	-83.91			CH 39	1.22	-85.68	0.27	-80.79
	CH 78	3.73	-89.19	-1.53	-82.26			CH 78	0.65	-84.88	-1.24	-80.94
A3		Free		Human			A3		Free		Human	
3L#	Channel	TRP	TIS	TRP	TIS		3R#	Channel	TRP	TIS	TRP	TIS
	CH 0	2.16	-83.97	1.7	-82.2			CH 0	1.98	-85	0.59	-80.96
	CH 39	3.41	-86.88	1.35	-83.14			CH 39	1	-84.91	-0.43	-79.87
	CH 78	2.93	-87.98	-1.08	-78.74			CH 78	0.95	-85.46	-2.51	-79.12

#-L-TIS The antenna pattern of the free field

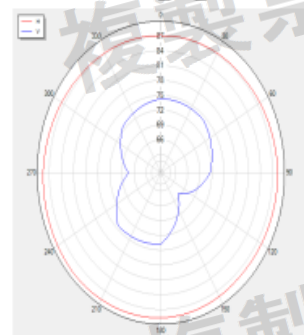
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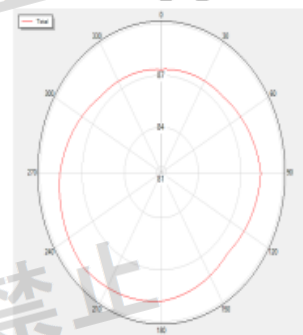
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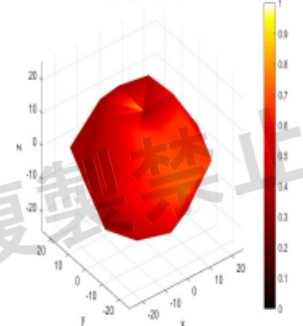
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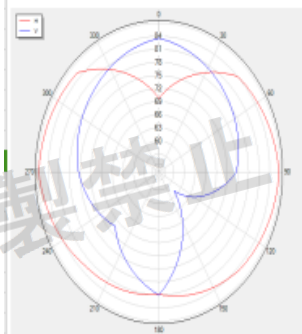
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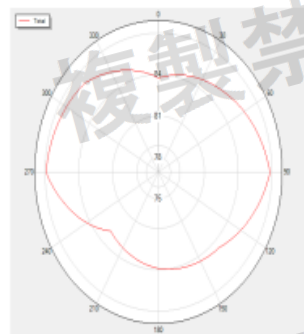
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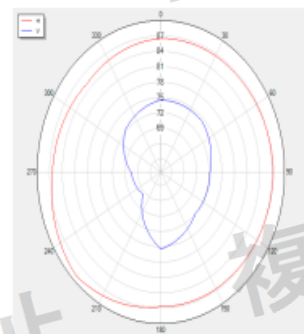
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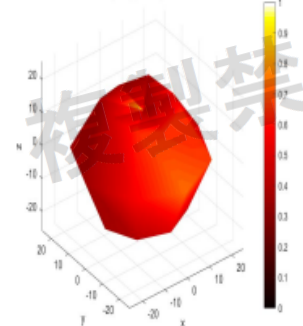
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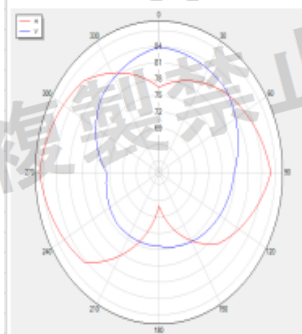
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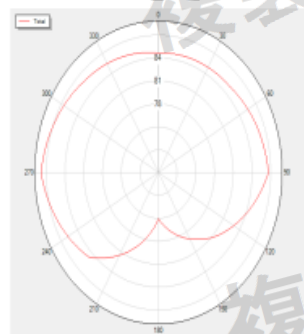
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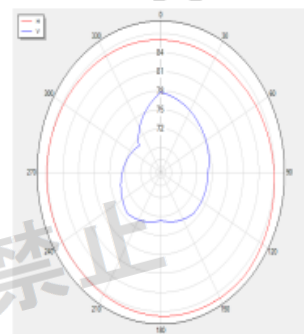
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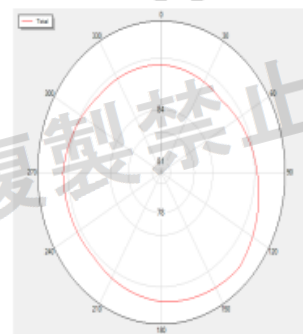
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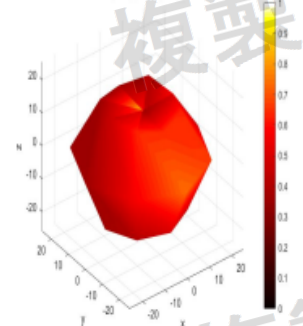
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BLUETOOTH_Tis_V78 Total



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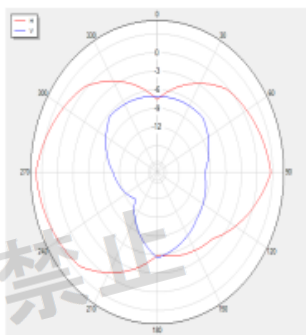




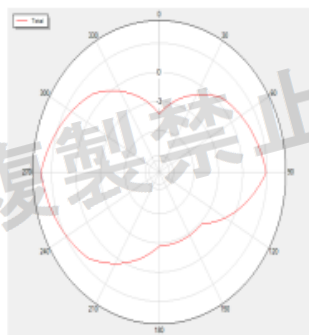
#-L

-L-TRP The antenna pattern of the free field

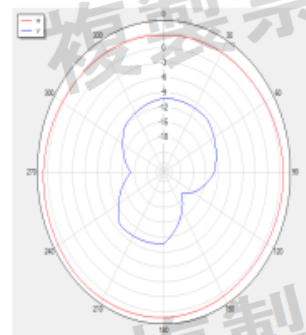
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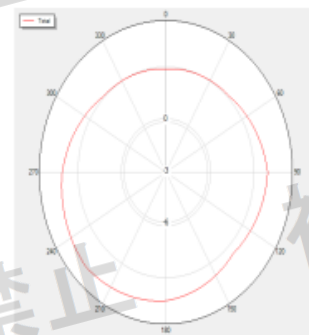
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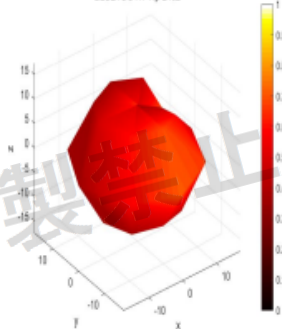
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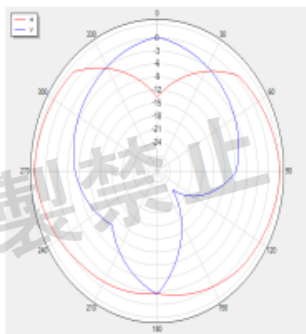
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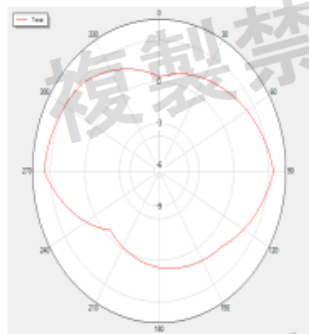
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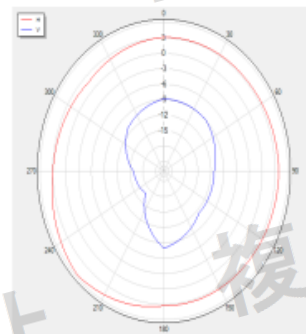
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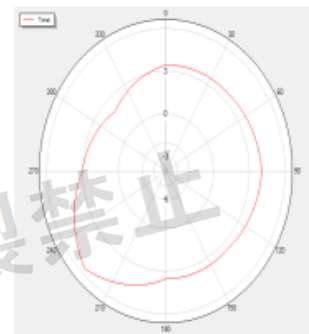
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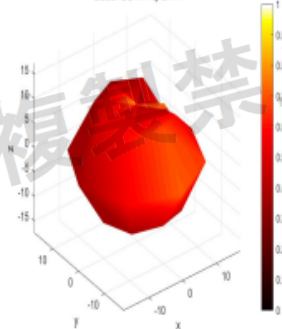
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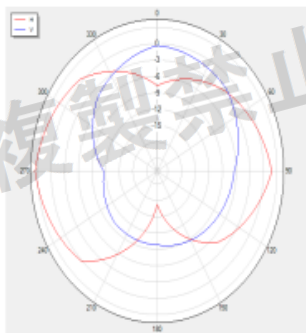
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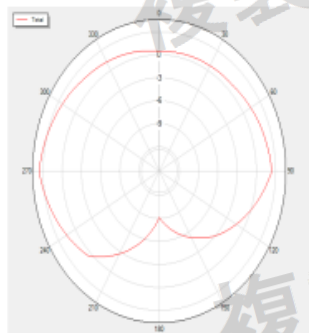
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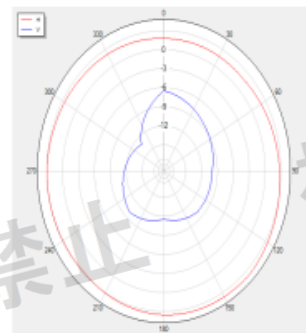
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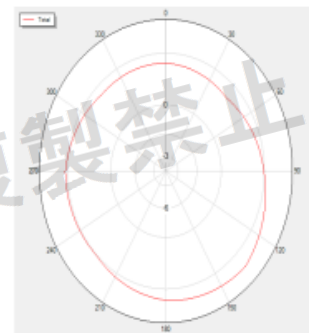
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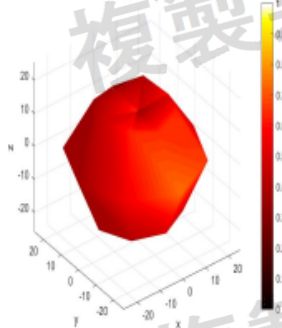
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BLUETOOTH_Trp_V78 Total



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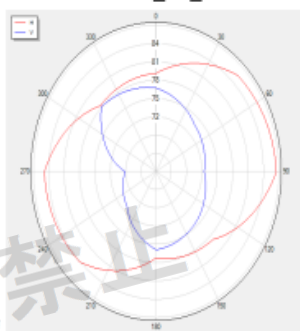




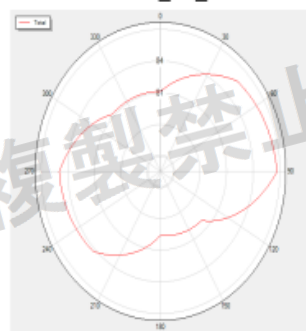
#-R

-R-TIS The antenna pattern of the free field

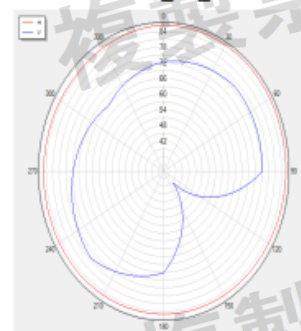
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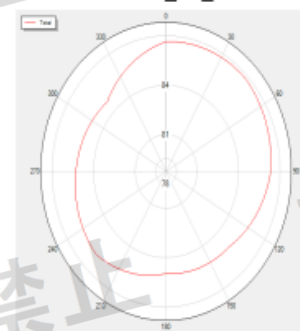
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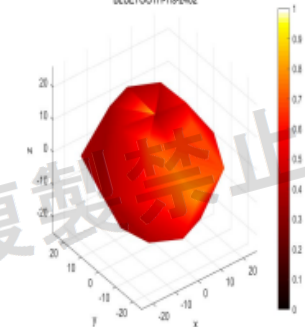
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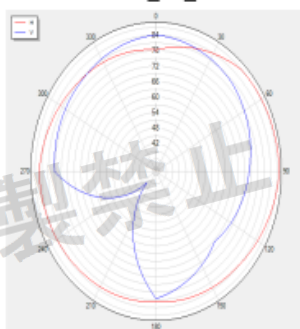
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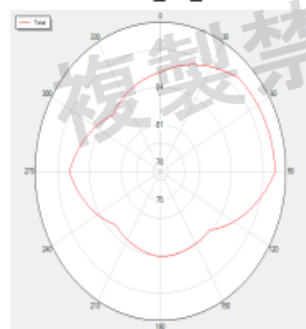
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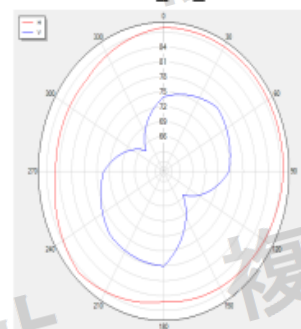
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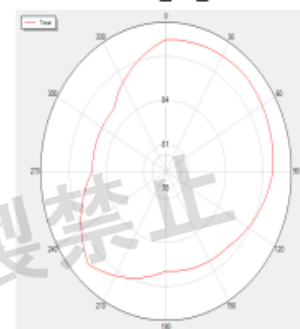
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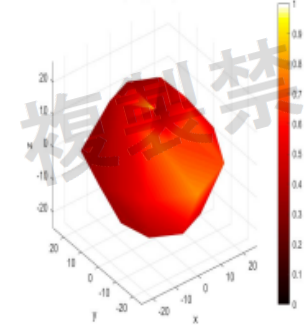
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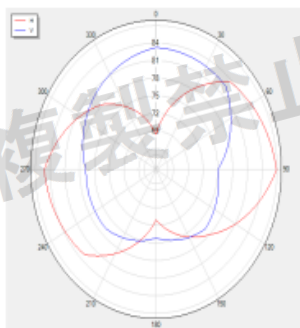
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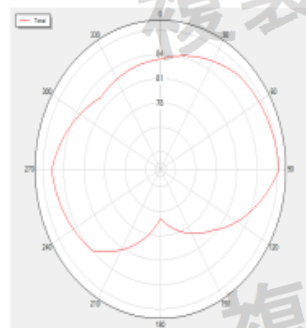
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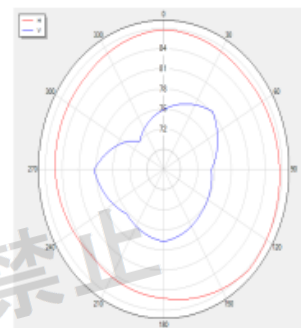
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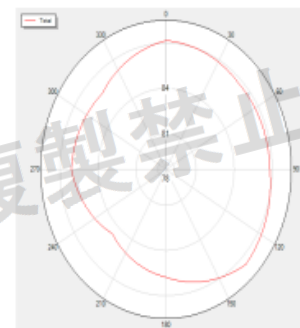
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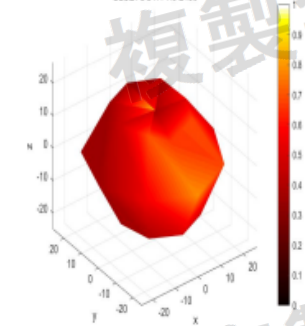
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BLUETOOTH_Tis_V78 Total



BLUETOOTH_Tis-2480

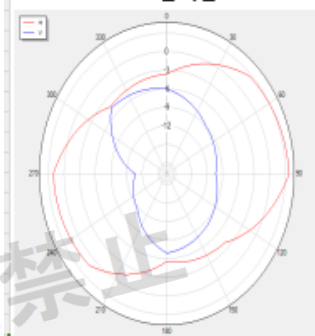




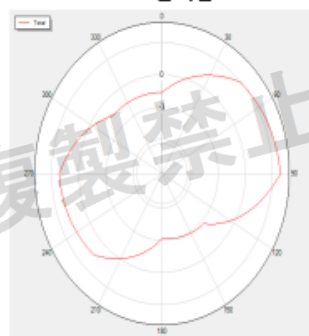
#-R

-R-TRP The antenna pattern of the free field

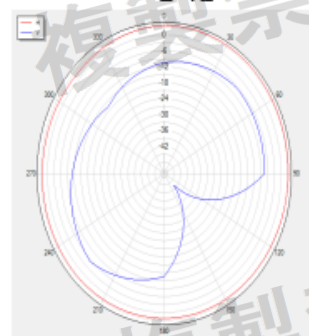
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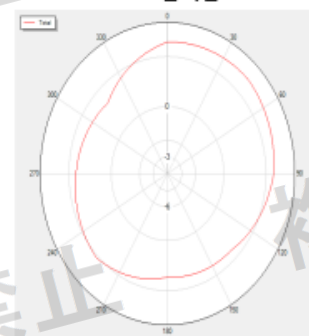
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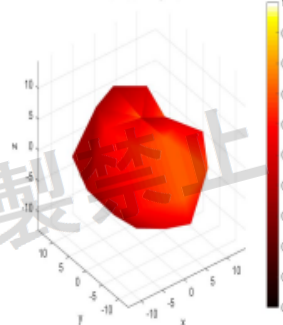
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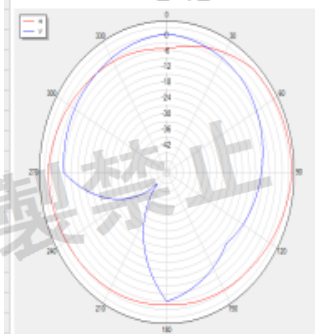
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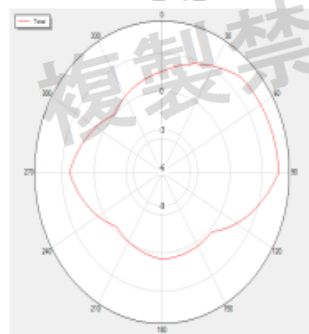
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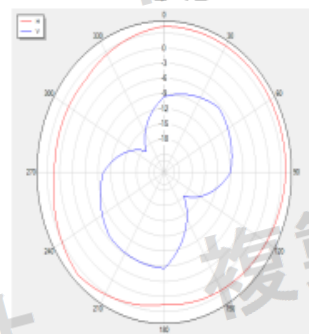
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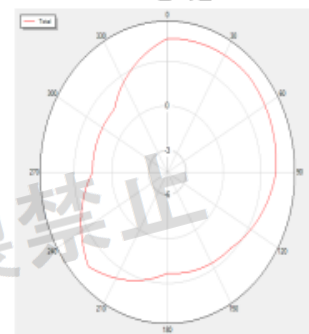
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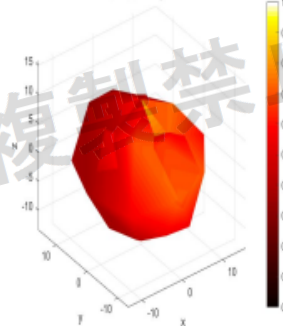
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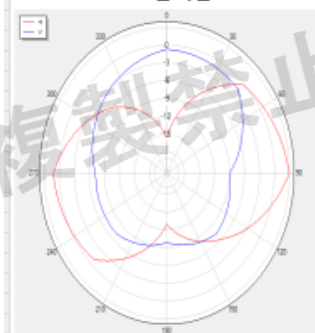
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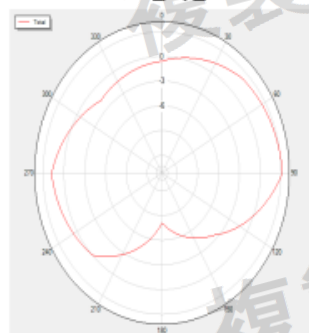
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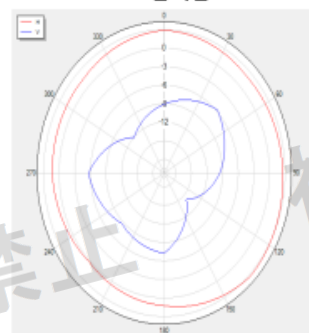
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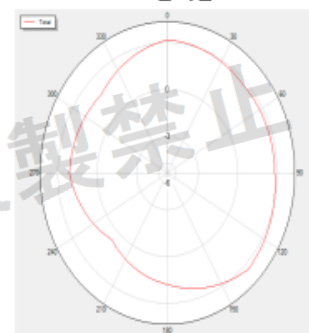
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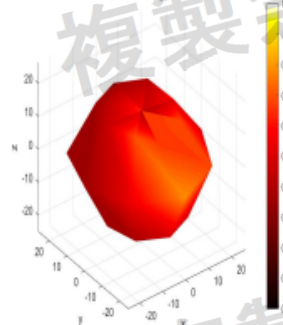
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BLUETOOTH_Trp_V78 Total



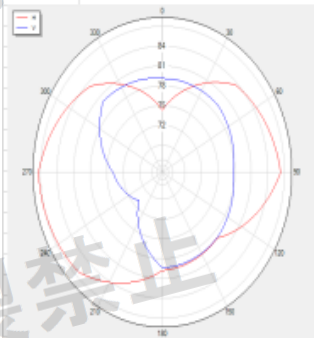
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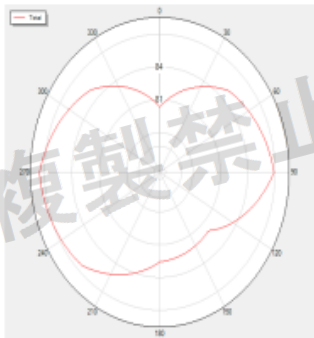
-L-TIS-Antenna pattern simulating a human head

#-L

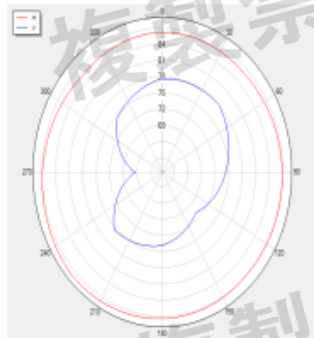
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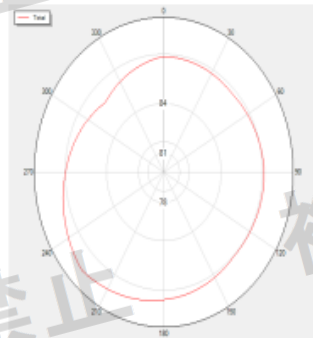
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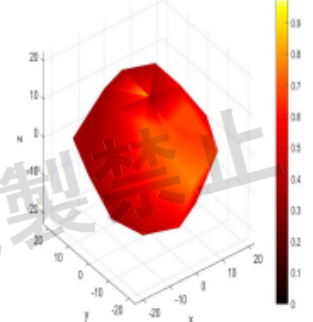
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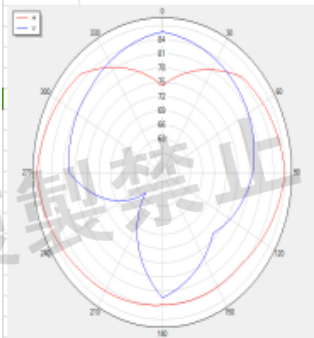
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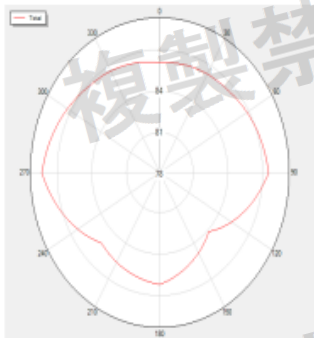
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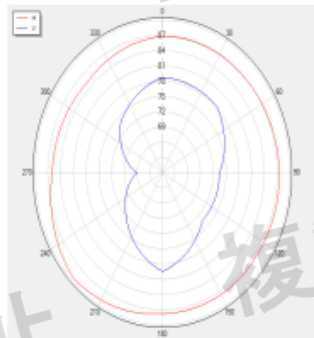
BLUETOOTH_Tis_H39 Polar



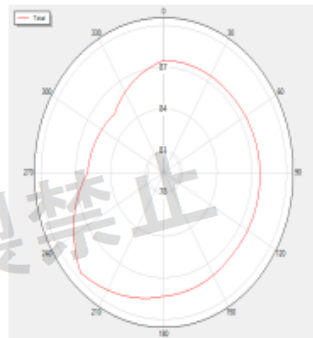
BLUETOOTH_Tis_H39 Total



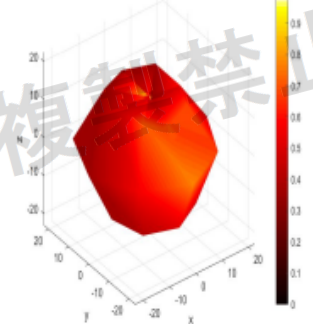
BLUETOOTH_Tis_V39 Polar



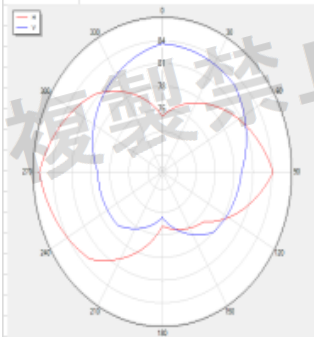
BLUETOOTH_Tis_V39 Total



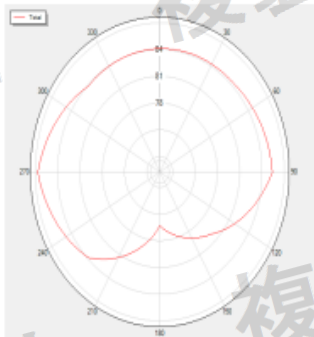
BLUETOOTH-Tis-2441



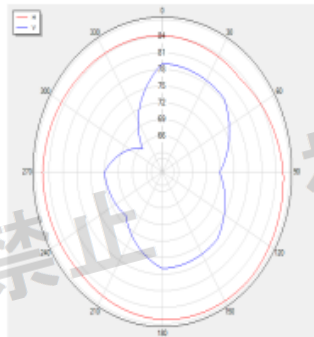
BLUETOOTH_Tis_H78 Polar



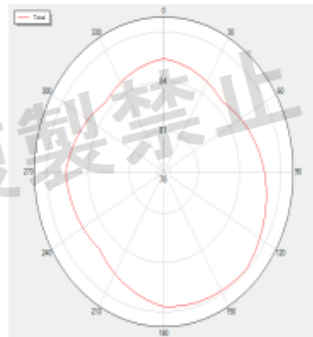
BLUETOOTH_Tis_H78 Total



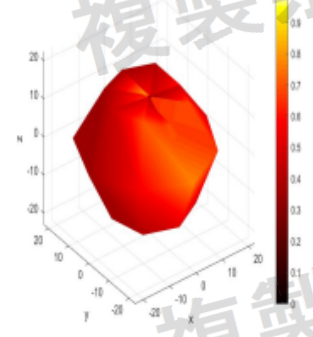
BLUETOOTH_Tis_V78 Polar



BLUETOOTH_Tis_V78 Total



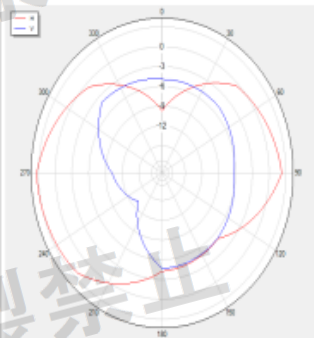
BLUETOOTH-Tis-2450



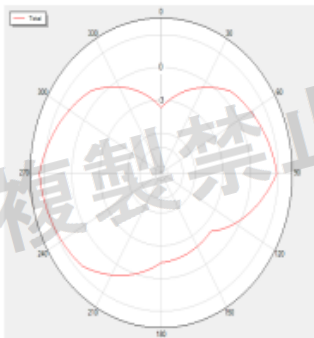
-L-TRP-An antenna pattern simulating a human head

#-L

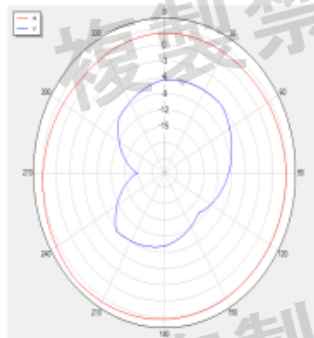
BLUETOOTH_Trp_H0 Polar



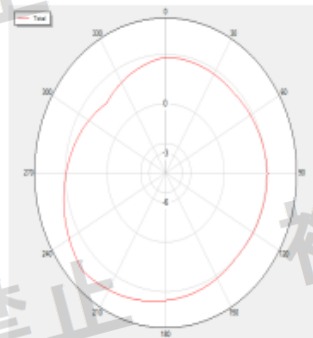
BLUETOOTH_Trp_H0 Total



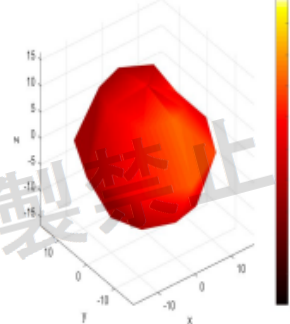
BLUETOOTH_Trp_V0 Polar



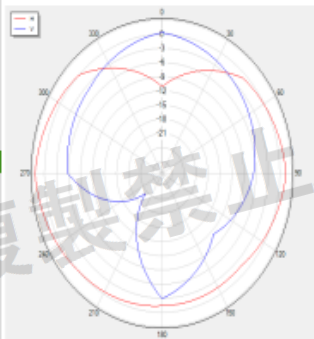
BLUETOOTH_Trp_V0 Total



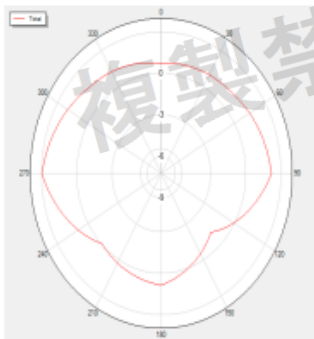
BLUETOOTH_Trp-2402



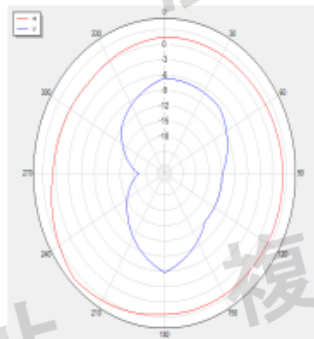
BLUETOOTH_Trp_H39 Polar



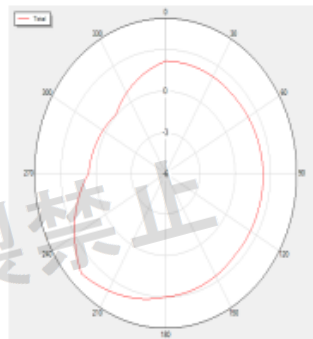
BLUETOOTH_Trp_H39 Total



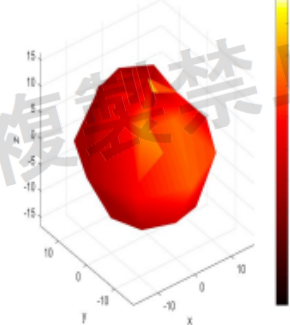
BLUETOOTH_Trp_V39 Polar



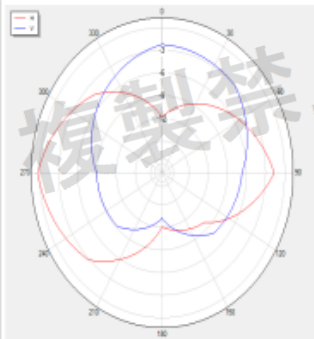
BLUETOOTH_Trp_V39 Total



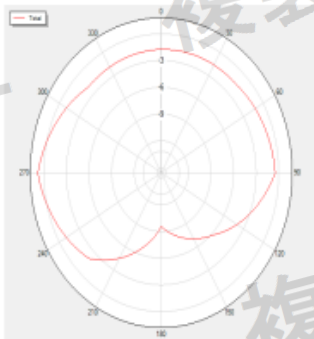
BLUETOOTH_Trp-2441



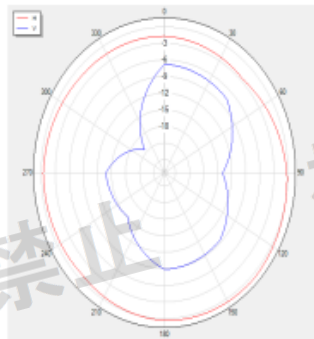
BLUETOOTH_Trp_H78 Polar



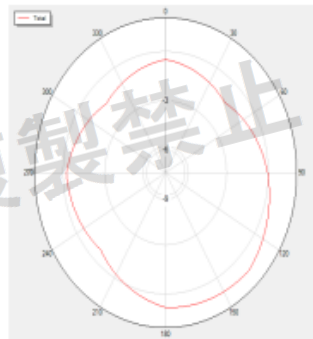
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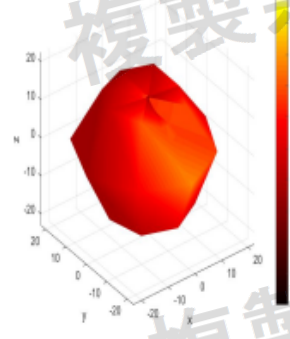
BLUETOOTH_Trp_V78 Polar



BLUETOOTH_Trp_V78 Total



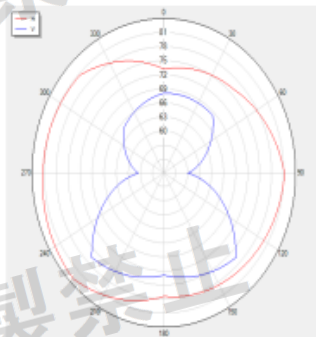
BLUETOOTH_Trp-2480



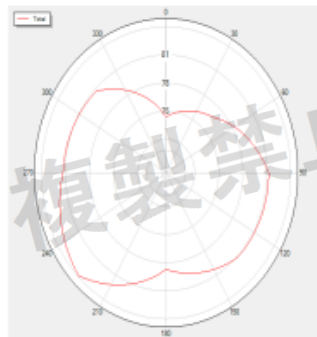
-R-TIS-An antenna pattern simulating a human head

#-R

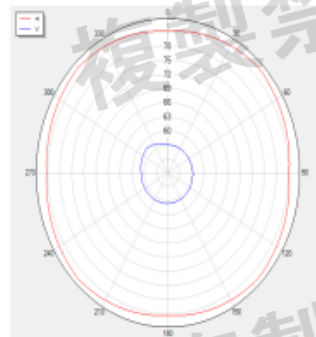
BLUETOOTH_Tis_H0 Polar



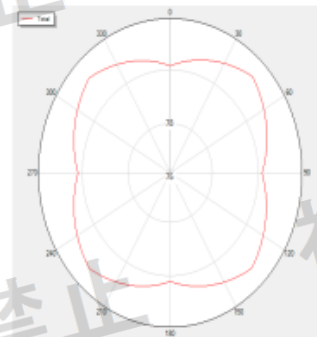
BLUETOOTH_Tis_H0 Total



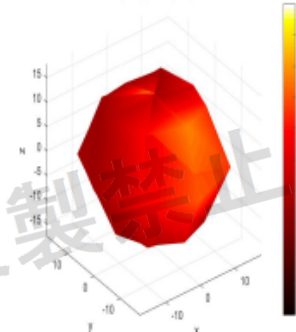
BLUETOOTH_Tis_V0 Polar



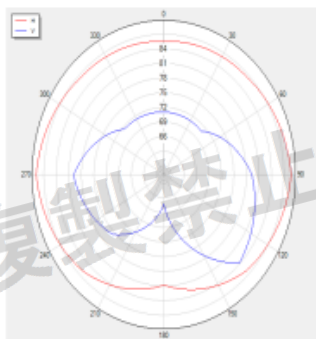
BLUETOOTH_Tis_V0 Total



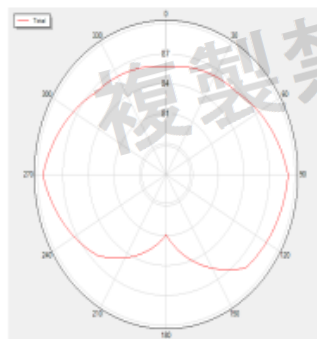
BLUETOOTH-Tis-2402



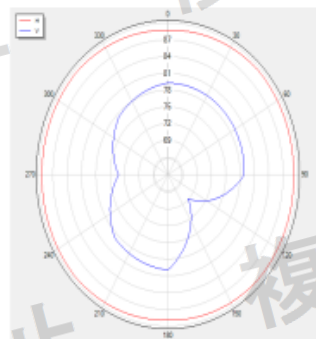
BLUETOOTH_Tis_H39 Polar



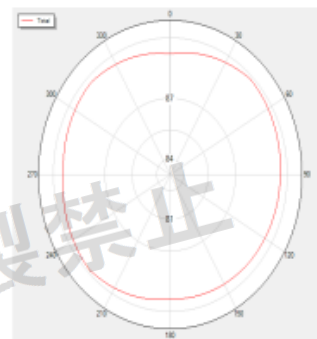
BLUETOOTH_Tis_H39 Total



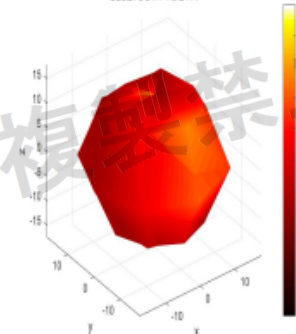
BLUETOOTH_Tis_V39 Polar



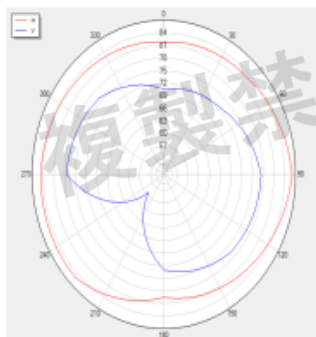
BLUETOOTH_Tis_V39 Total



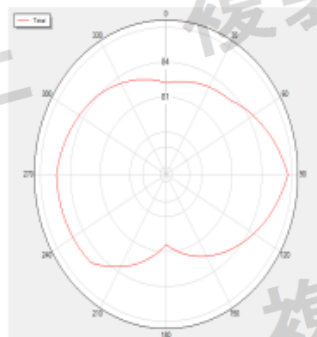
BLUETOOTH-Tis-2441



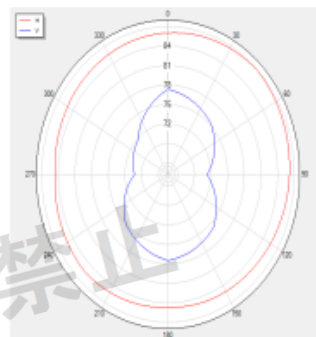
BLUETOOTH_Tis_H78 Polar



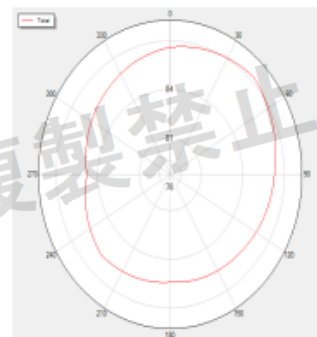
BLUETOOTH_Tis_H78 Total



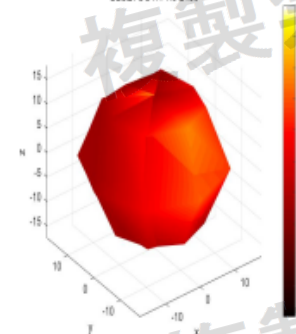
BLUETOOTH_Tis_V78 Polar



BLUETOOTH_Tis_V78 Total



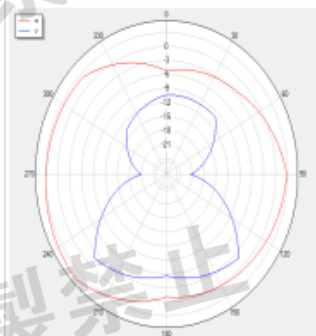
BLUETOOTH-Tis-2450



-L-TRP-An antenna pattern simulating a human head

#-R

BLUETOOTH_Trp_H0 Polar



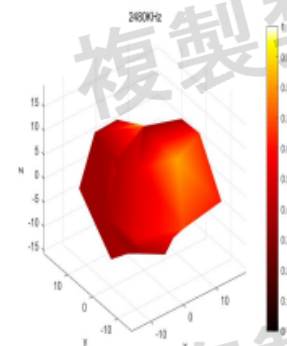
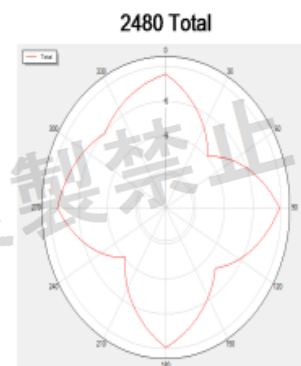
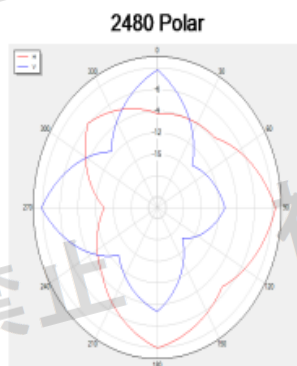
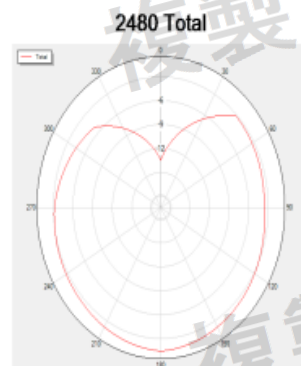
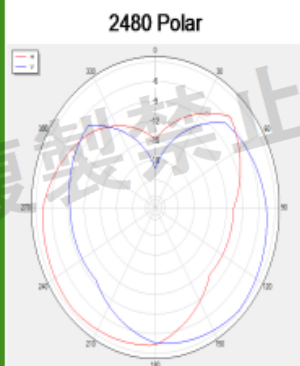
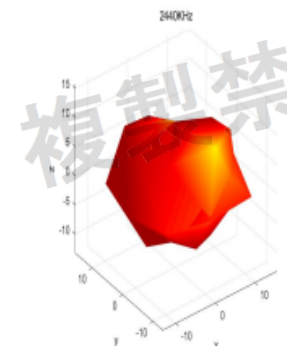
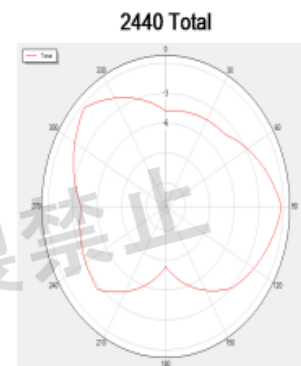
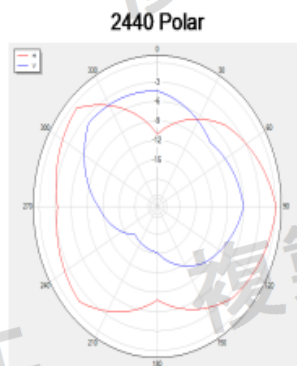
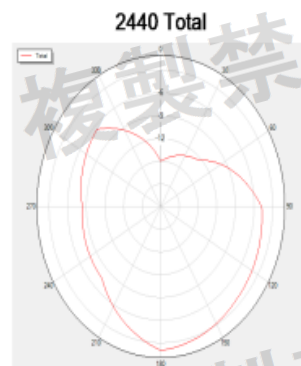
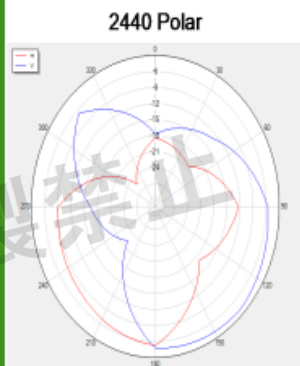
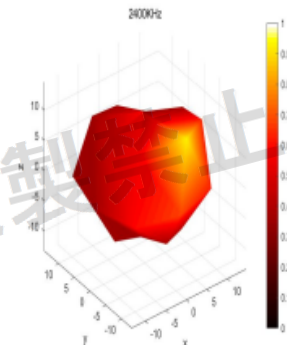
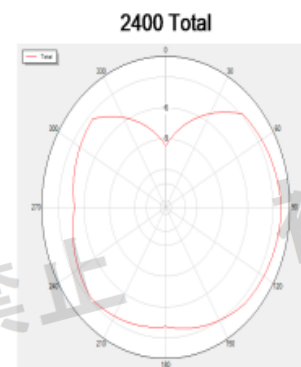
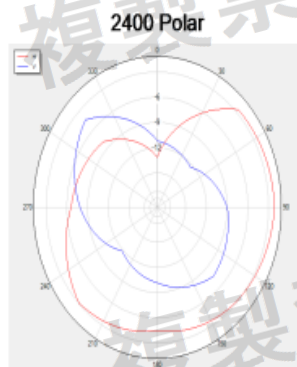
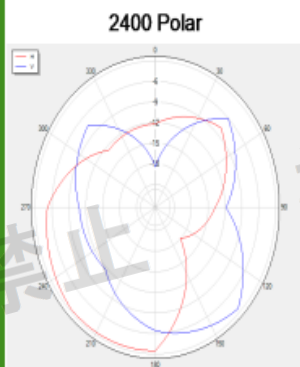
Antenna efficiency gain

天线效率与增益图

L				R			
Frequency	Effic	Perce	Gain	Frequency	Effic	Perce	Gain
2400	-6.81	22.85%	1.87	2400	-6.81	22.85%	1.87
2440	-6.79	22.87%	1.89	2440	-6.8	22.86%	1.88
2480	-6.8	22.86%	1.88	2480	-6.82	22.84%	1.86

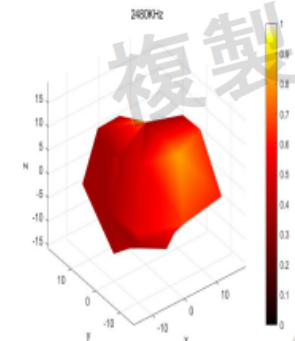
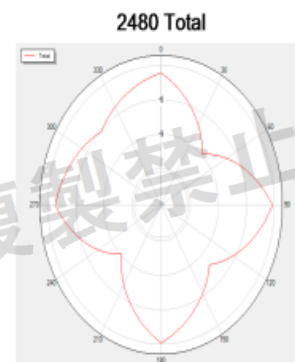
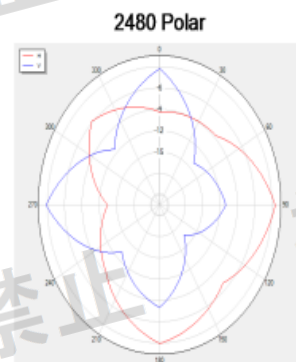
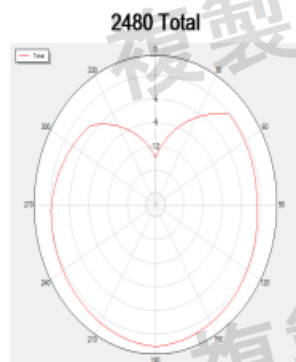
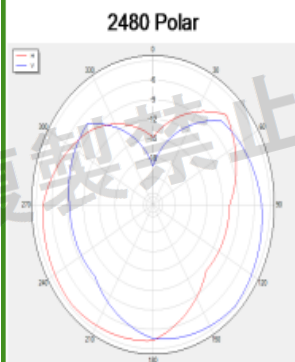
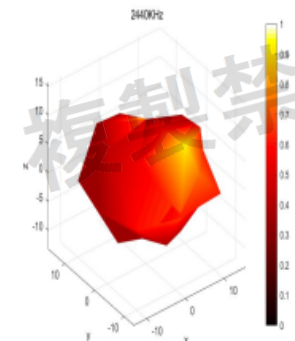
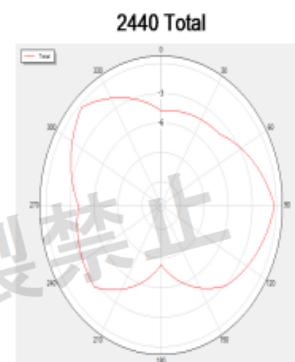
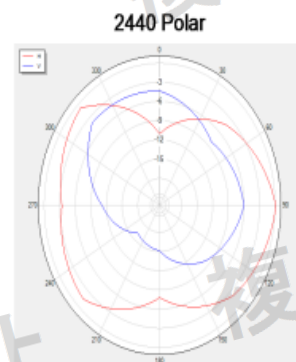
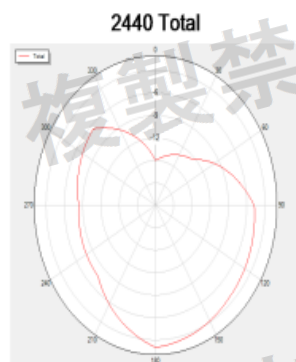
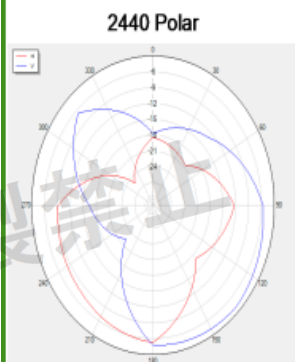
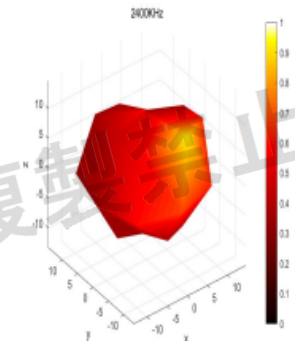
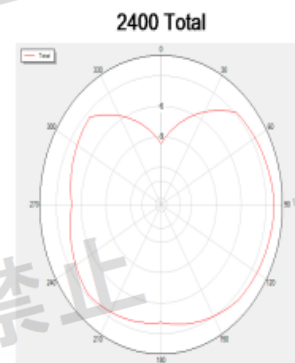
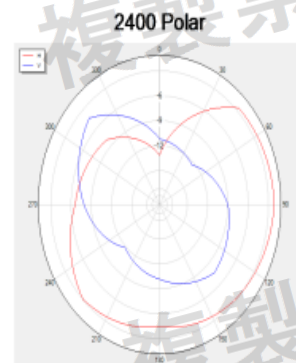
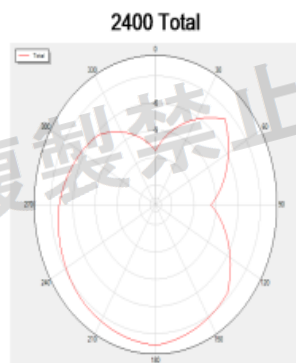
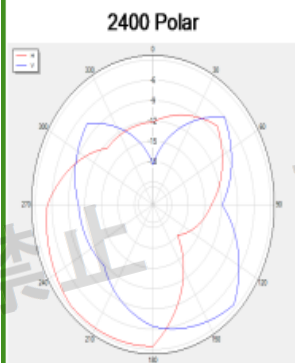
#-R

Antenna radiation pattern 2400.00MHz/2440.00MHz/2480.00MHz



#-L

Antenna radiation pattern 2400.00MHz/2440.00MHz/2480.00MHz



measuring distance

a. Environme

test project	Trying hard not to hear		Pocket test requirement		descr
A3			right front	OK	The iPhone5 was tested over 14+ meters in the park
		OK	front-left	OK	
			right rear	OK	
			left rear	OK	

b. summarize

A3 machine actual test, OTA data test, basically distance matching, our park grass test effect is excellent

assembly method

Thank you for watching

Wish you enjoy your life

2023-5-12