



ShenZhen Huaxinwei communication technology
Co.,Ltd.

Antenna test report

Customer Name: FreeYond

Project Name: 2306004M

Designer: Zhang Jun

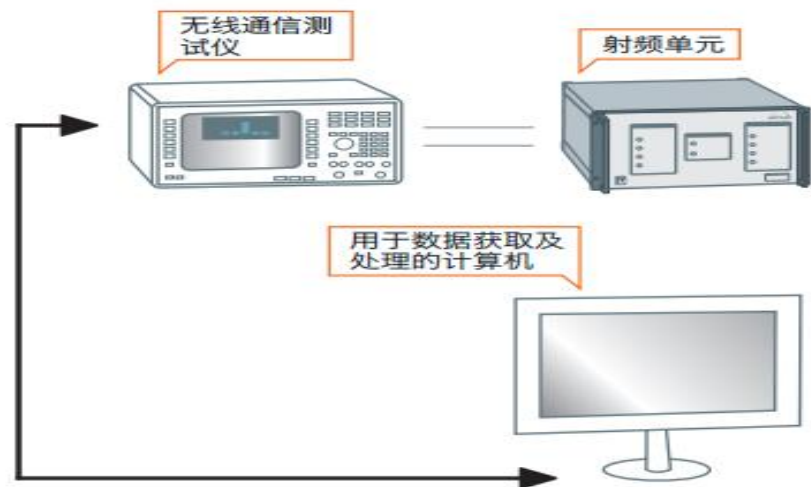
Date: 2023/04/28



The customer name		FreeYond	Project Name	2306004M
NO.	project	Detailed above		
1	spectrum	GSM850/1800+WCDMA B1/2/4/5/8+LTE-B1/2/3/4/5/7/8/12/17/20/28/66/38/40/41+GPS/WIFI/BT		
2	Project type	The testing environment for this antenna report is tested together with the phone. (Shenzhen FreeYond Technology Co Ltd; FCC ID:2A8FE-F9S; Model: 2306004M)		
3	Antenna space area			
4	Feed point type			
5	The sensitivity			
6	Type of antenna			
7	The length of the PCB board			
8	note	Debugging prototype		
RF		Zhang Jun	13430515055	hxw_xiaozhang@126.com

1、Test system and test equipment

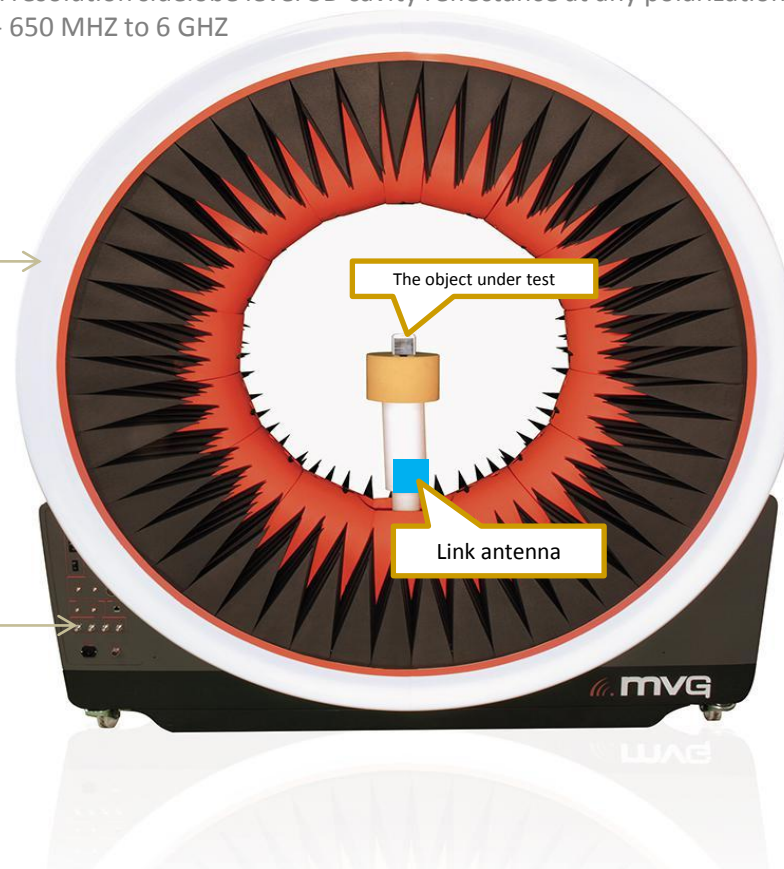
System Brand: MVG(SATIMO) measurement features: gain • pattern beamwidth cross polarization resolution sidelobe level 3D cavity reflectance at any polarization cavity reflectance (line or arc) antenna efficiency TRP, TIS, EIRP and EIS. Frequency band: StarLab 6 GHZ - 650 MHZ to 6 GHZ



TIS预计测量时间 (一个信道每隔30° 取样)

灵敏度算法 \ 标准	GSM GPRS EDGE	CDMA 1 x RTT 1 x EvDO	WCDMA HSDPA LTE FDD/TDD	Wi-Fi 802.11 a/b/g/n	CTIA 批准方法
RSSI模式+线性化+TIS补偿	8 min		10 min		是
EIS模式+TIS补偿		5 min		5 min	是 ²
快速CDMA		8 min			No
EIRP模式+TIS补偿				10 min	No

1、根据RTC
2、根据协议

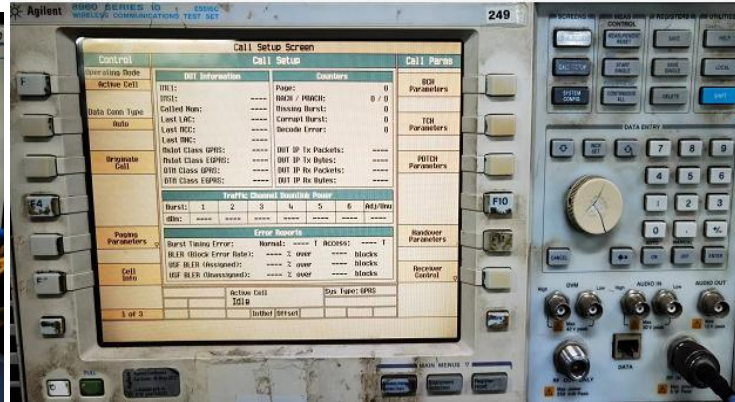


TIS 3D方位切割强度图



TRP 3D方位切割强度图

Test Equipment

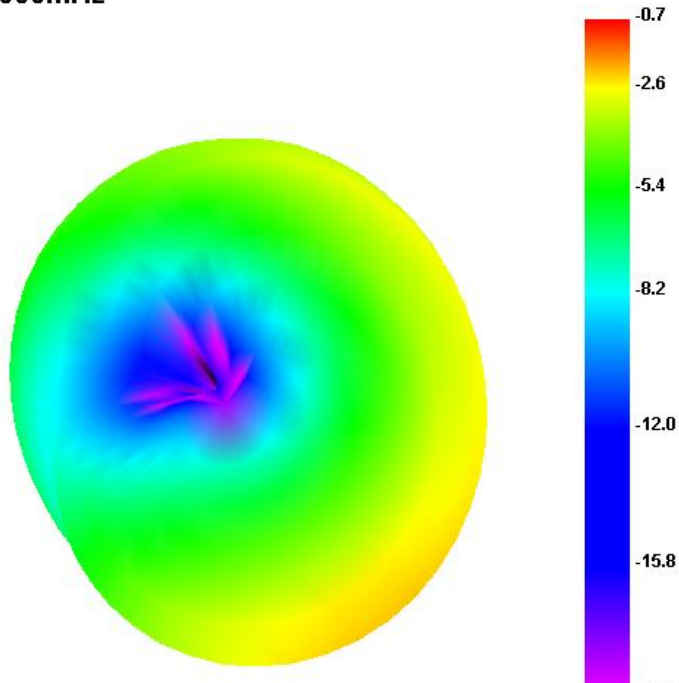


Efficient (2G+3G+4G+2. 4G-WiFi /BT)

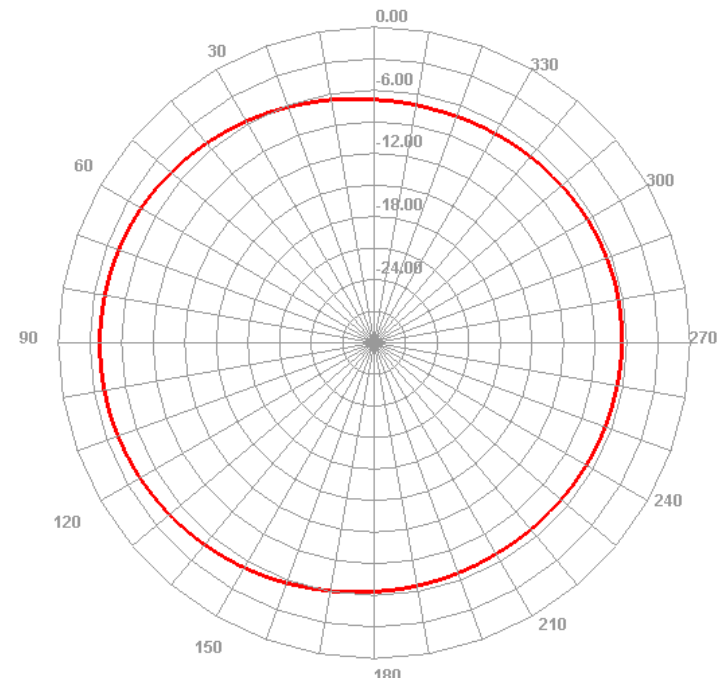
Main PEAK GAIN			
2G:	Frequency range	Effi %	Gaim dBi
GSM850	824~894Mhz	21.80	-0.71
3G:			
W5	824~894Mhz	21.80	-0.71
4G:			
LTE-B5	824~894Mhz	21.80	-0.71
Div PEAK GAIN			
2G:	Frequency range	Effi %	Gaim dBi
PCS1900	1850~1990Mhz	30.81	0.81
3G:			
W2	1850~1990Mhz	30.81	0.81
W4	1710~2155Mhz	31.07	0.92
4G:			
LTE-B1	1920~2170Mhz	37.45	0.91
LTE-B2	1850~1990Mhz	30.81	0.81
LTE-B3	1710~1880Mhz	28.62	0.63
LTE-B4	1710~2155Mhz	31.07	0.92
LTE-B7	2500~2690Mhz	28.01	1.12
LTE-B8	880~960Mhz	20.84	-1.05
LTE-B12	698~746Mhz	19.03	-1.42
LTE-B17	704~746Mhz	19.04	-1.42
LTE-B20	791~862Mhz	20.84	-0.71
LTE-B28	708~798Mhz	19.05	-1.42
LTE-B66	1710~2170Mhz	31.08	0.92
LTE-B38	2570~2620Mhz	28.02	1.12
LTE-B40	2300~2400Mhz	29.21	1.14
LTE-B41	2500~2690Mhz	28.03	1.12
GPS/BT/WIFI PEAK GAIN			
	Frequency range	Effi %	Gaim dBi
2. 4G-WIFI	2400~2500Mhz	42.52	1.37
BT	2400~2500Mhz	42.51	1.37
GPS	1575Mhz	38.73	0.43

Efficient (791–894MHz)

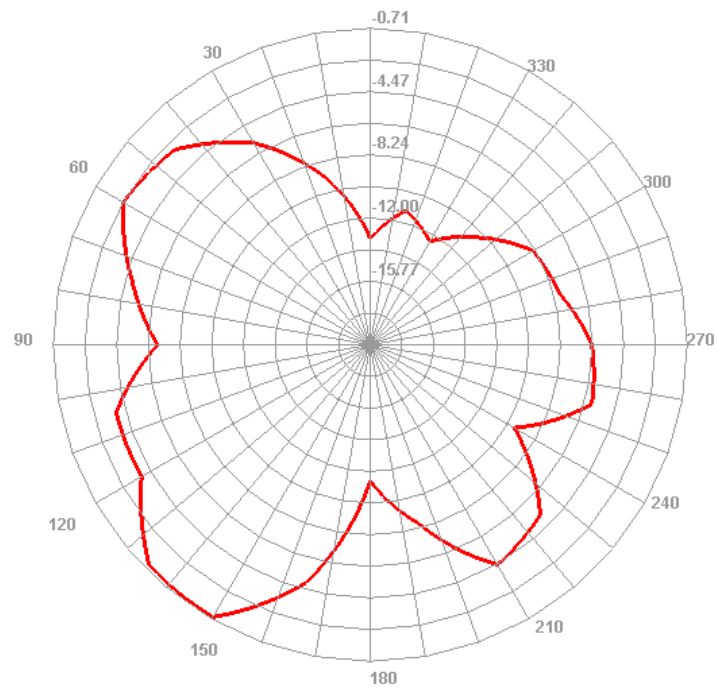
830.000MHz



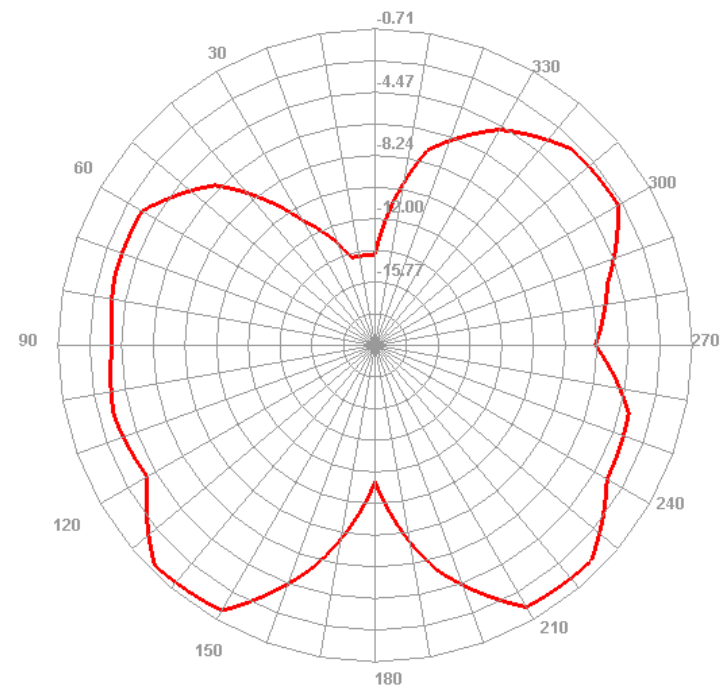
830.000MHz H



830.000MHz E1

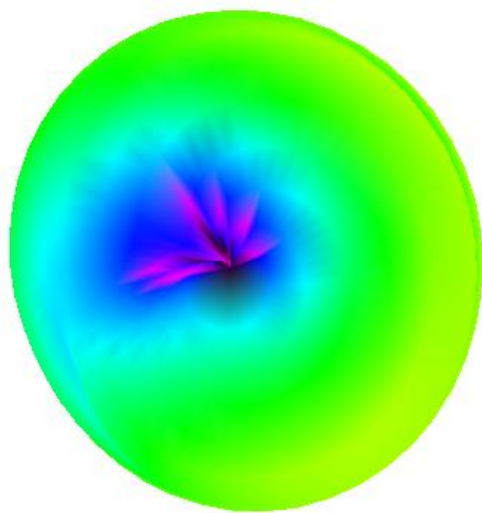


830.000MHz E2

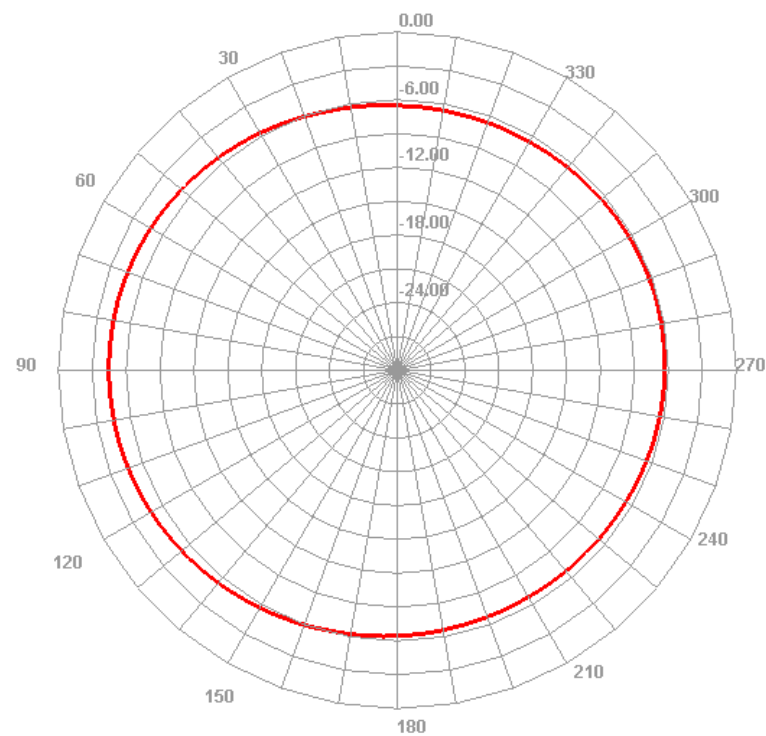


Efficient (880–960MHz)

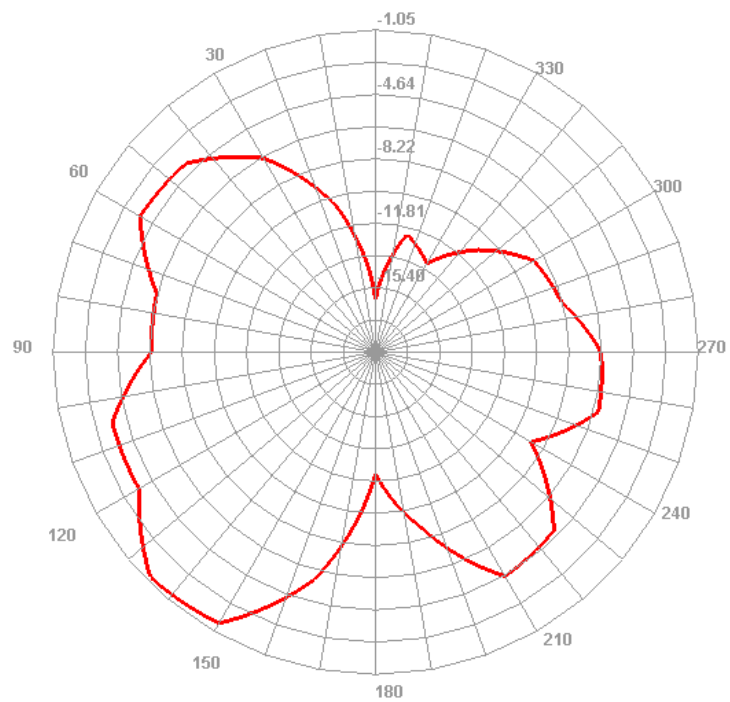
900.000MHz



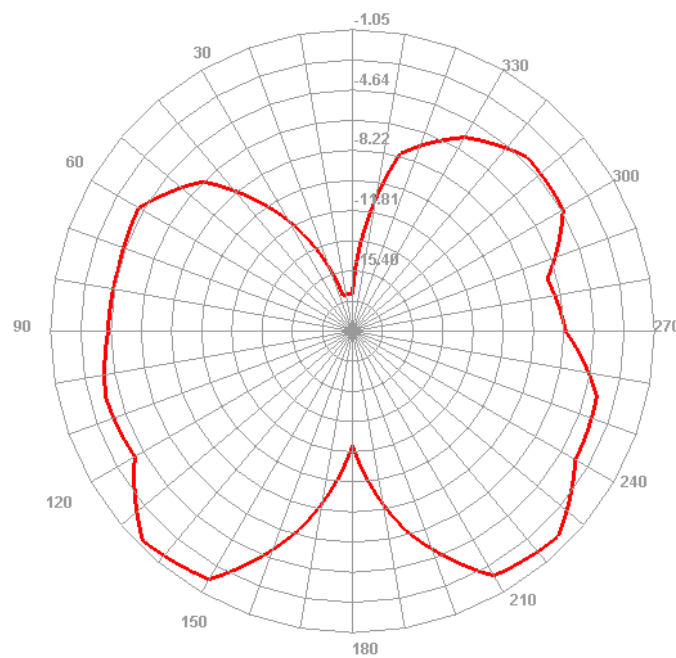
900.000MHz H



900.000MHz E1

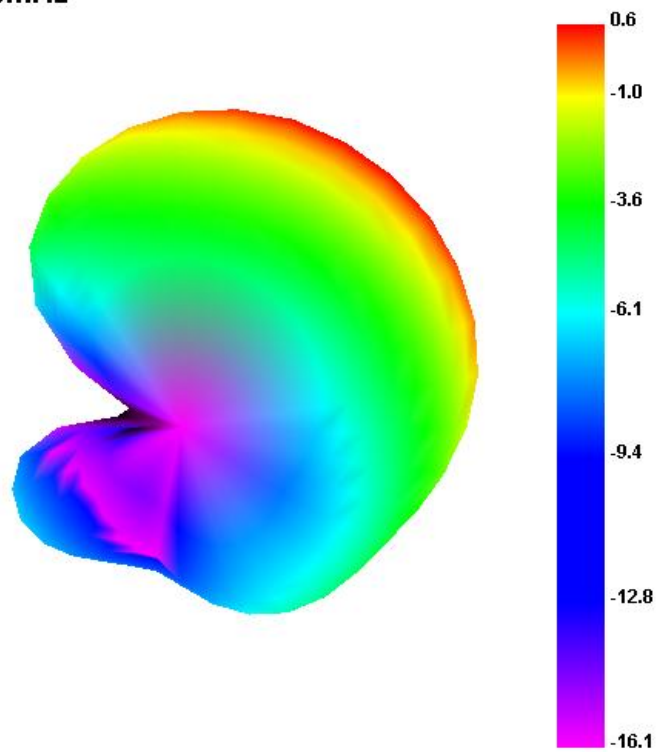


900.000MHz E2

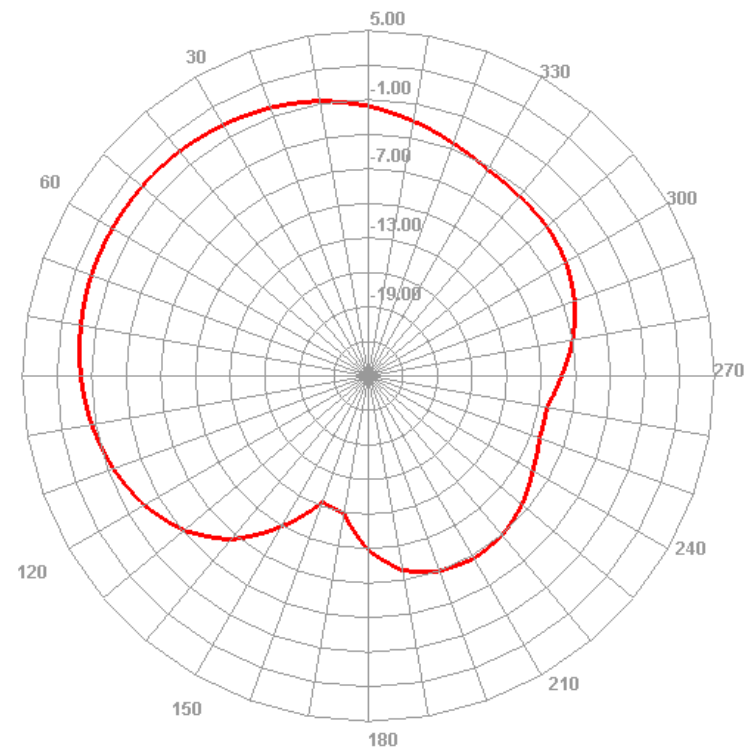


Efficient (1710–1880MHz)

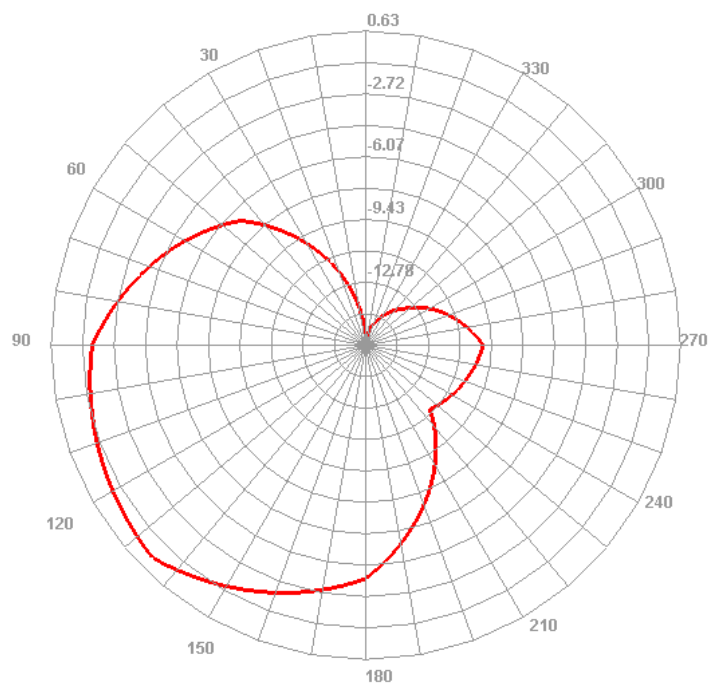
1820.000MHz



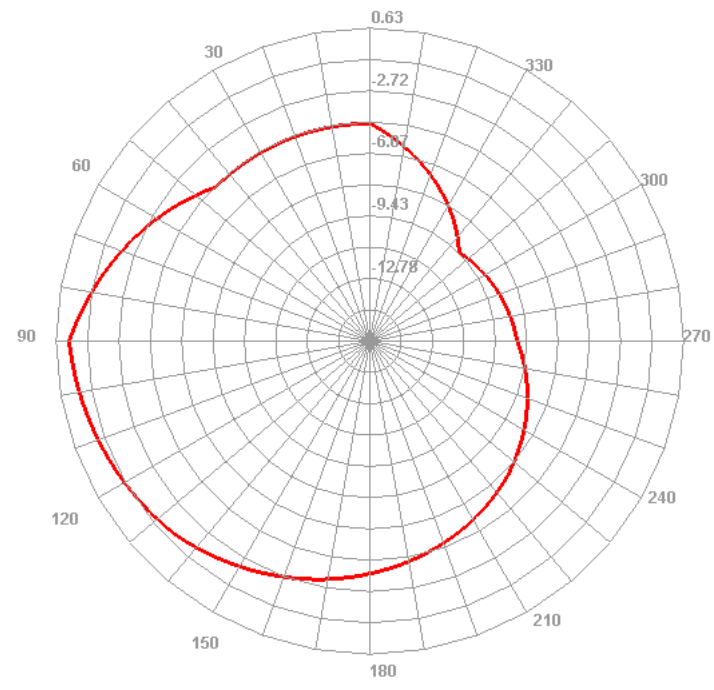
1820.000MHz H



1820.000MHz E1

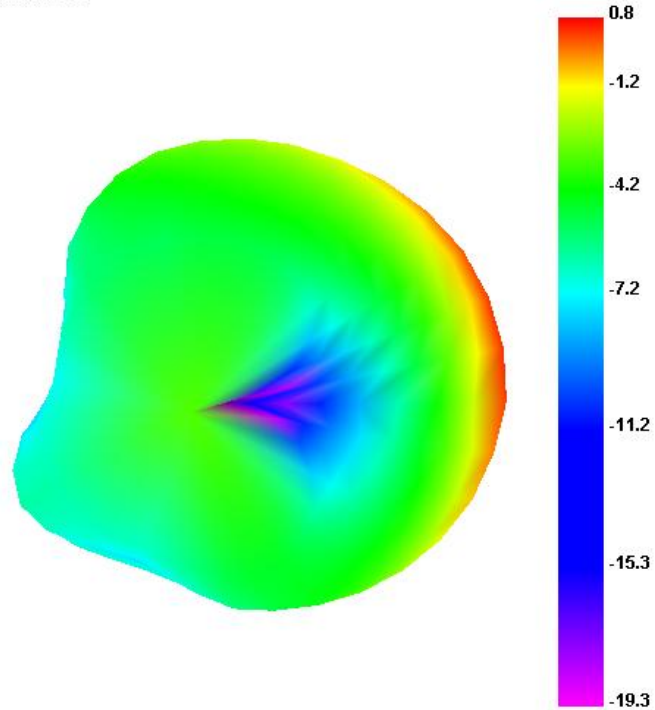


1820.000MHz E2

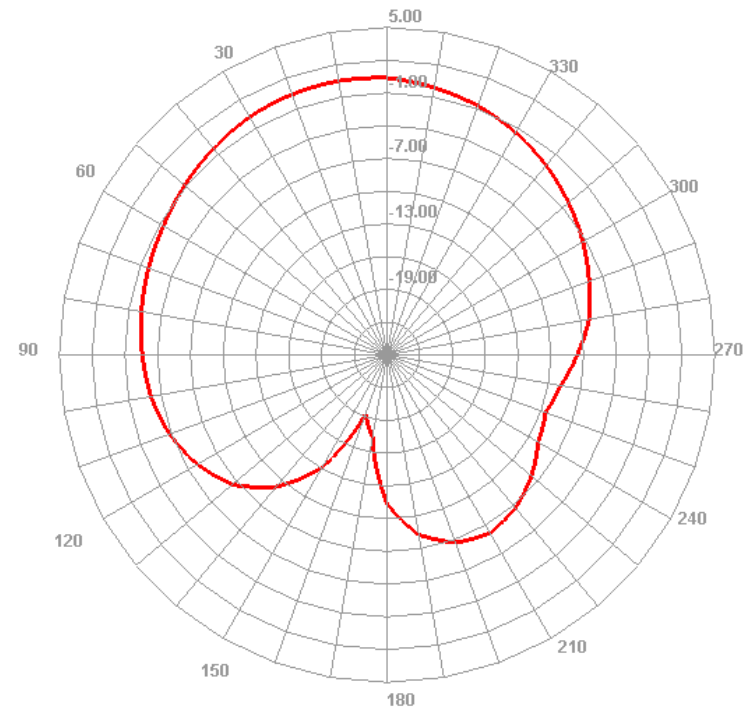


Efficient (1710-1990MHz)

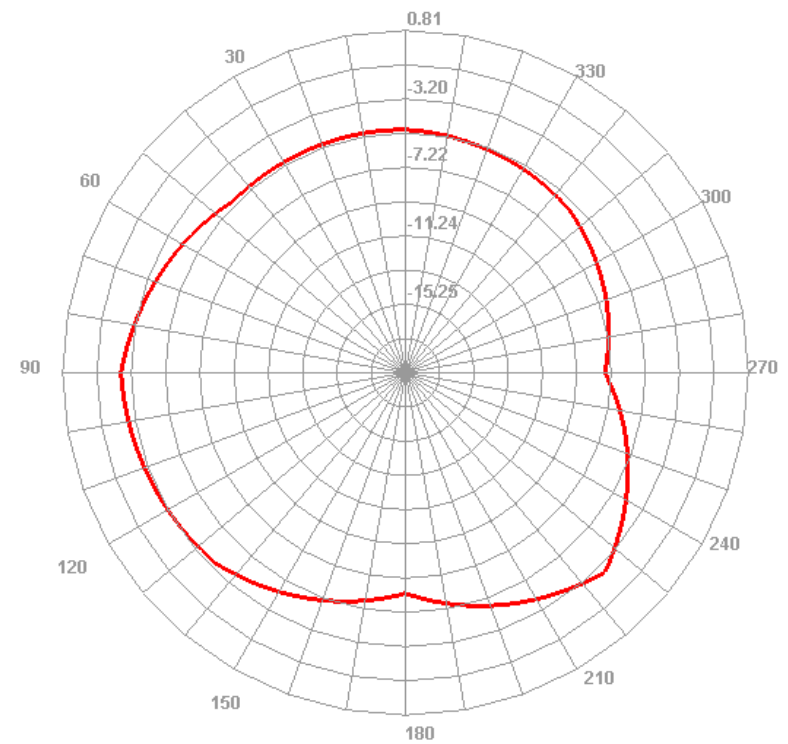
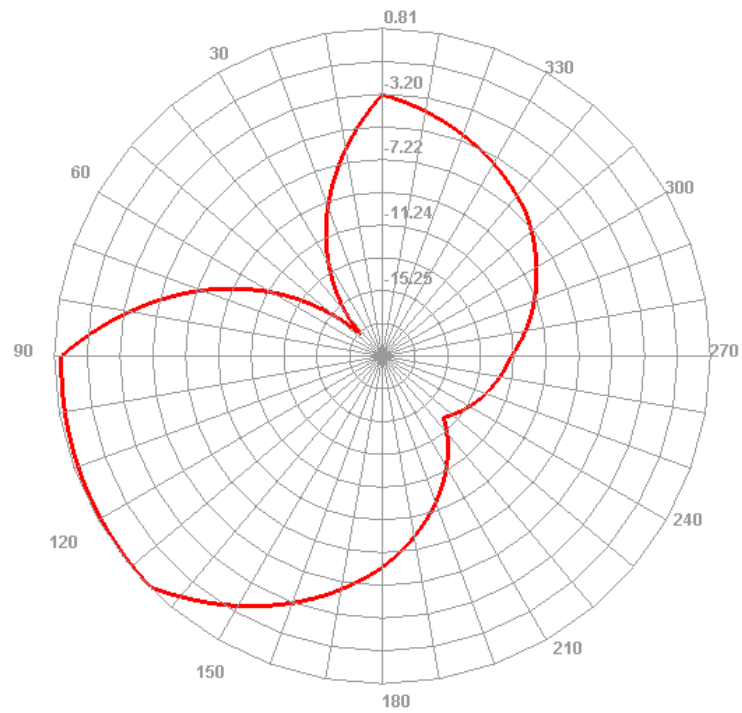
1920.000MHz



1920.000MHz H

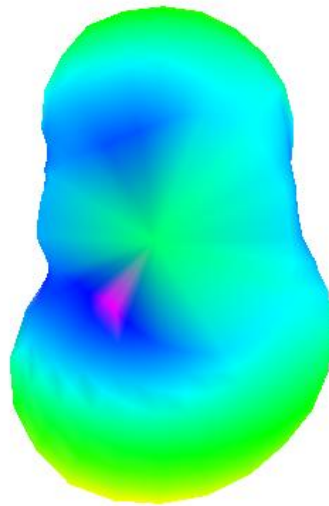


1920.000MHz E1

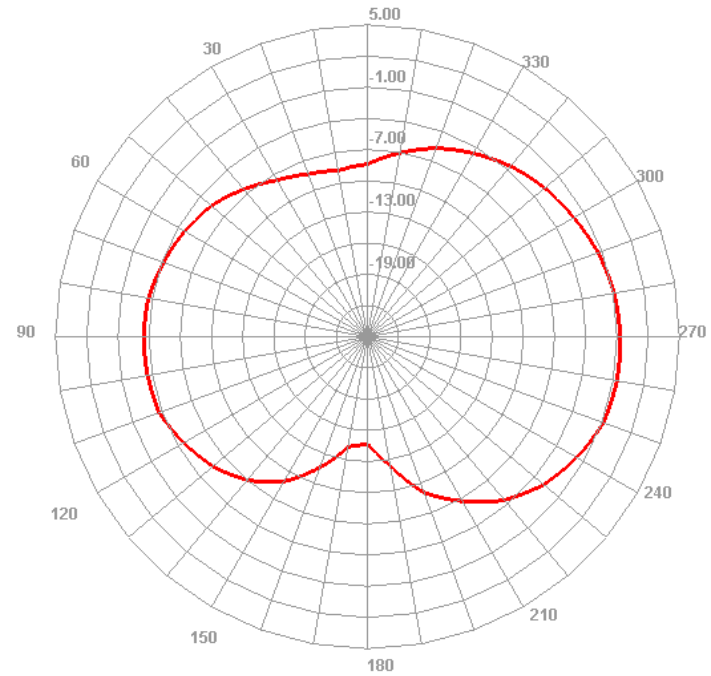


Efficient (1920-2170MHz)

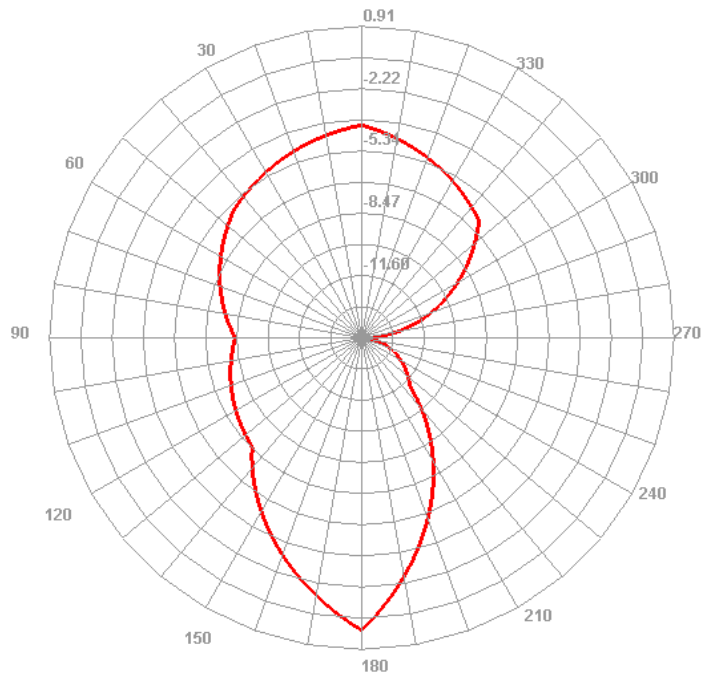
2010.000MHz



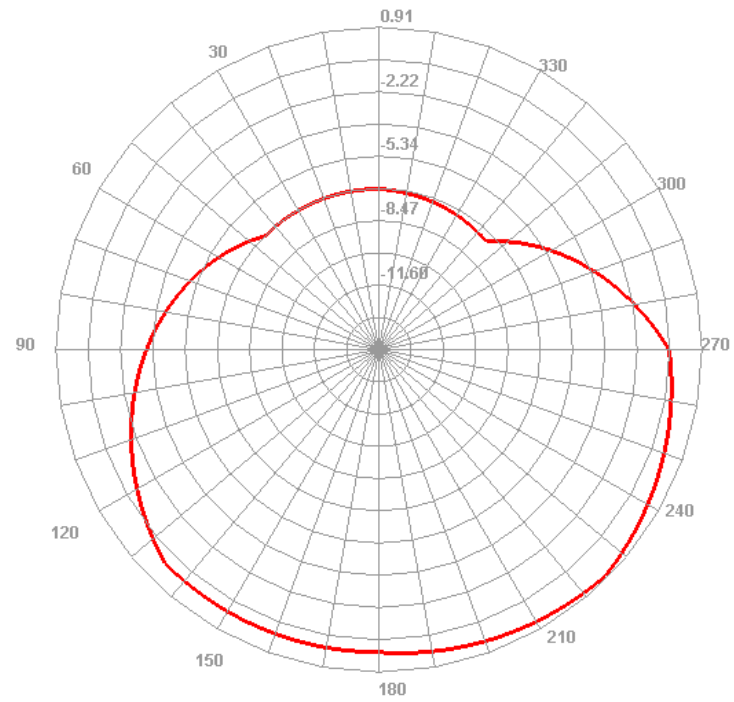
2010.000MHz H



2010.000MHz E1

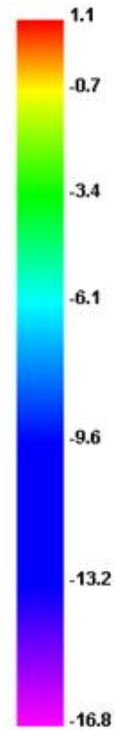
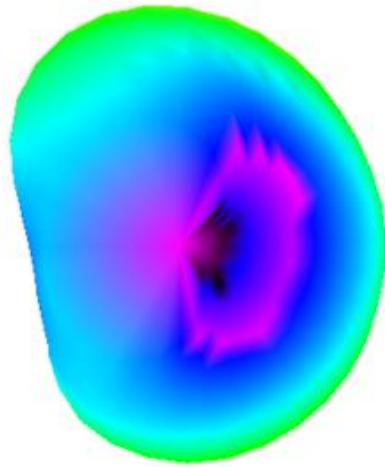


2010.000MHz E2

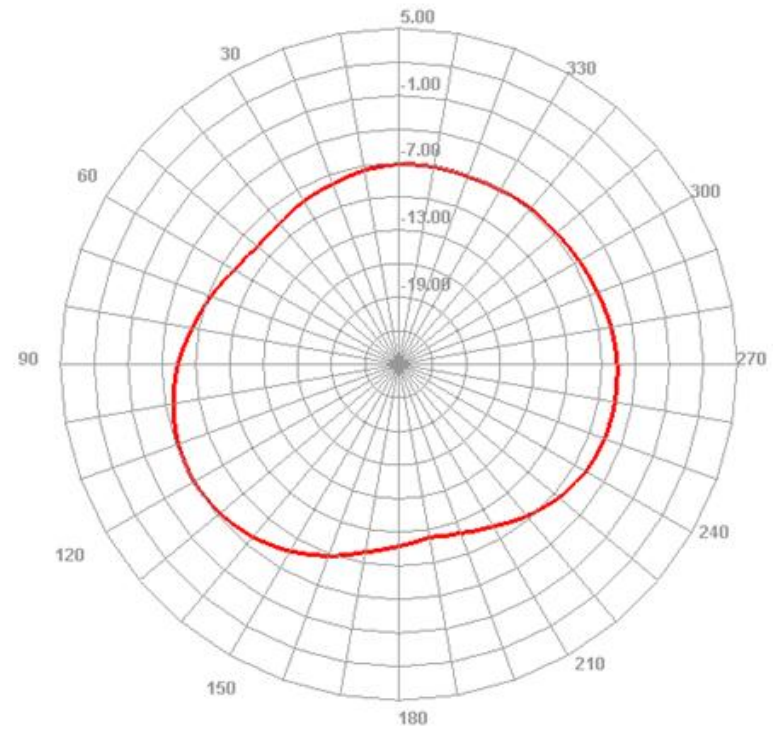


Efficient (2500–2690MHz)

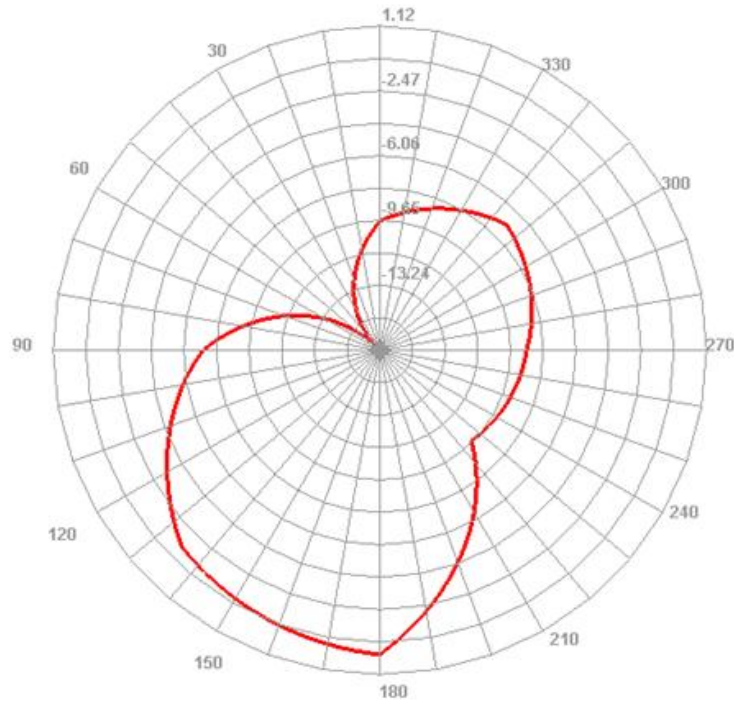
2660.000MHz



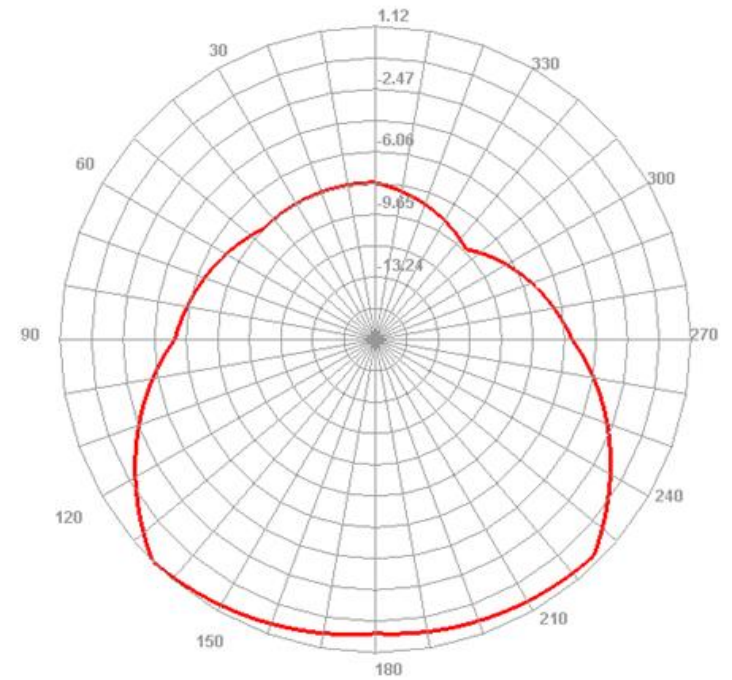
2660.000MHz H



2660.000MHz E1

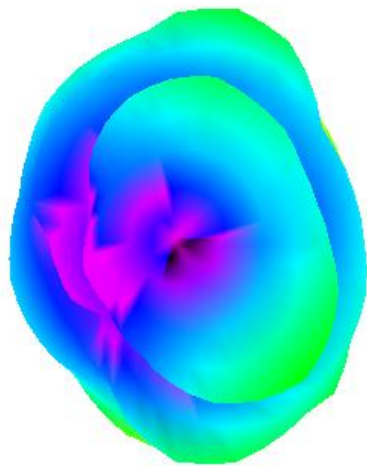


2660.000MHz E2

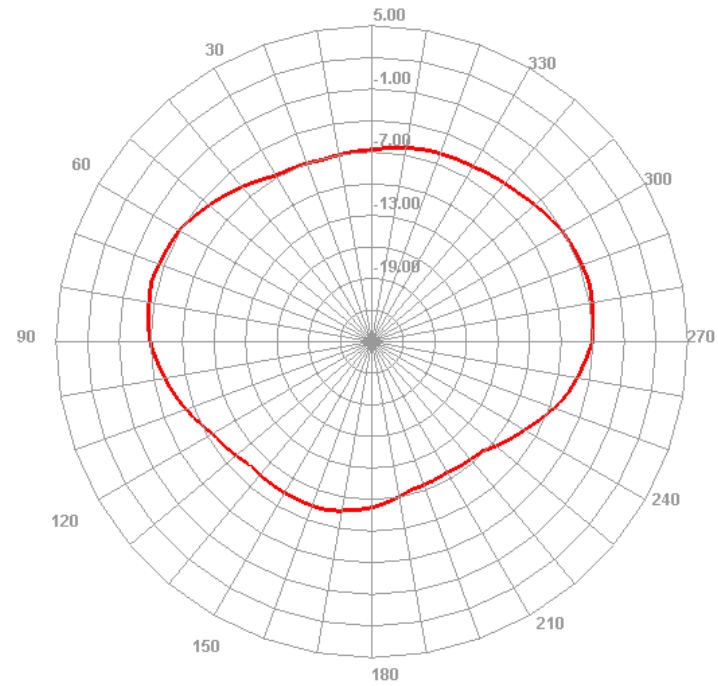


Efficient (2300–2400MHz)

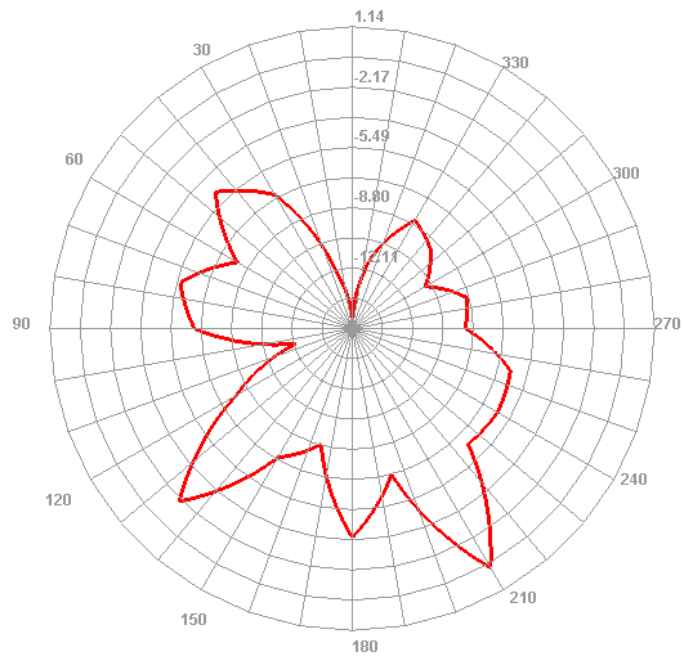
2370.000MHz



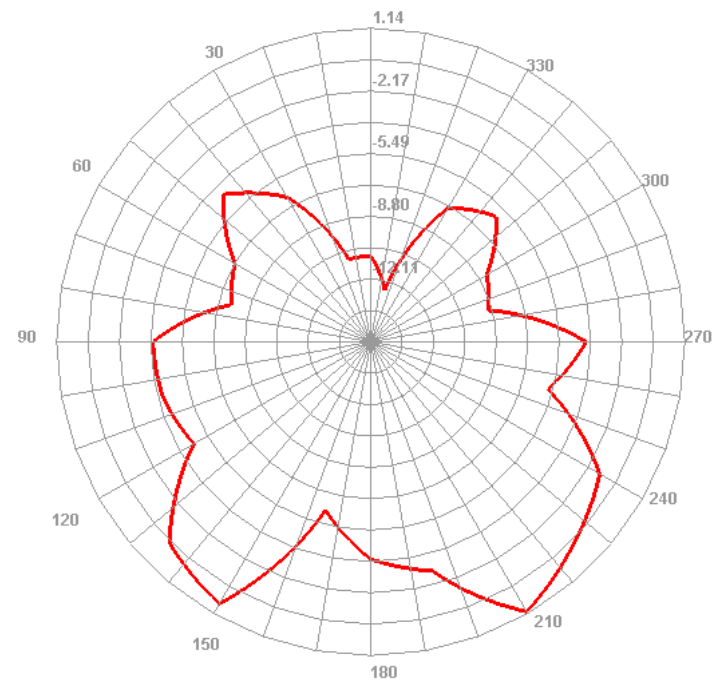
2370.000MHz H



2370.000MHz E1

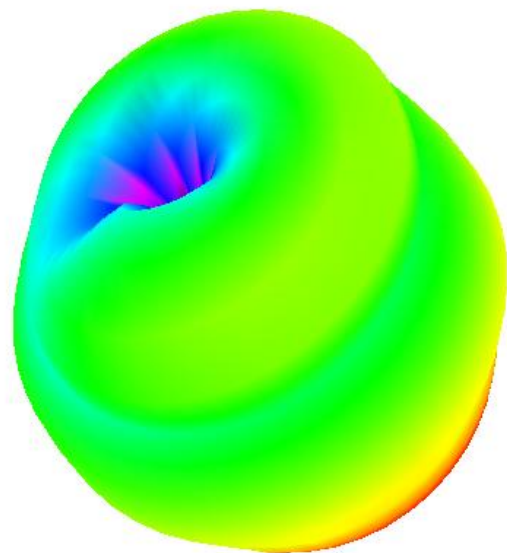


2370.000MHz E2

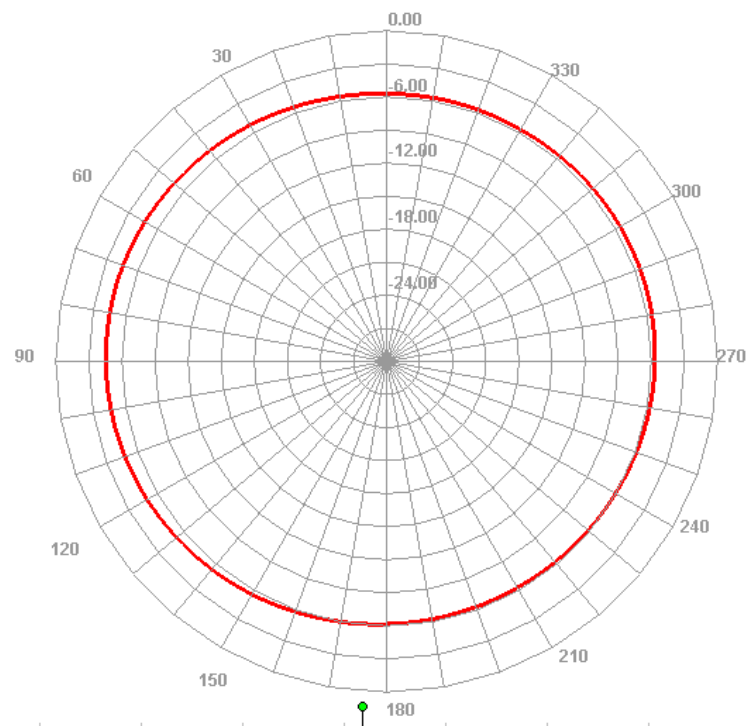


Efficient (698–798MHz)

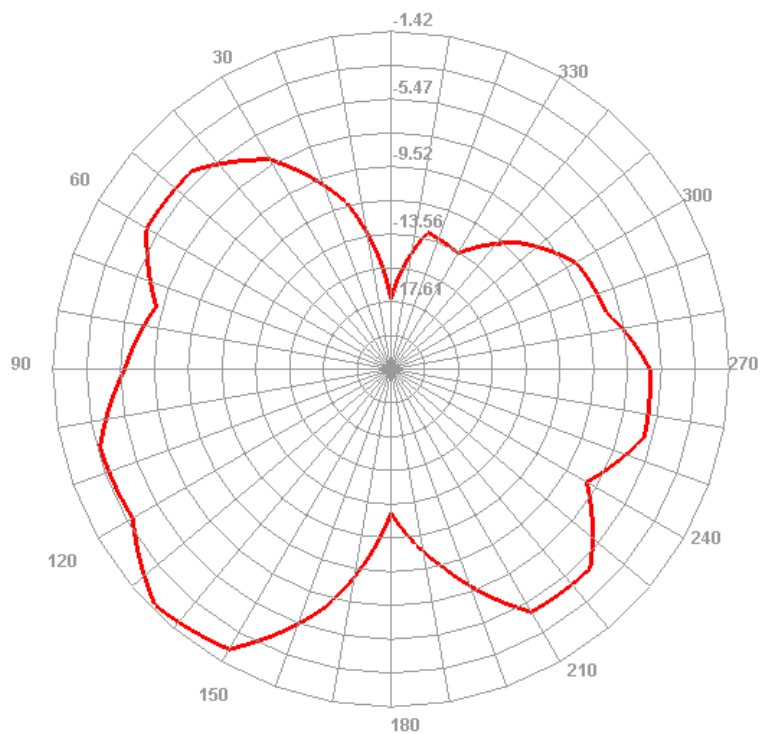
710.000MHz



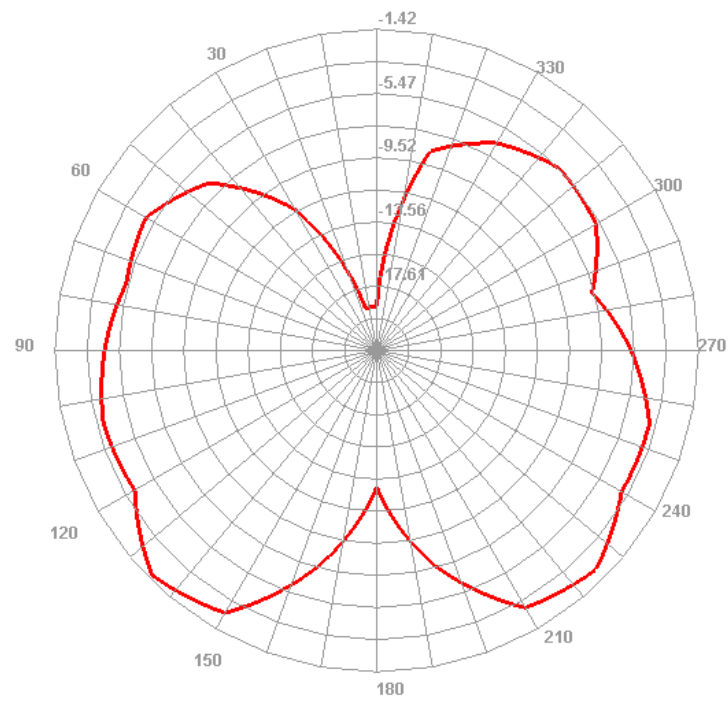
710.000MHz H



710.000MHz E1

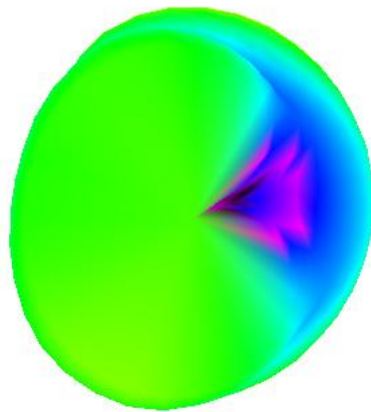


710.000MHz E2

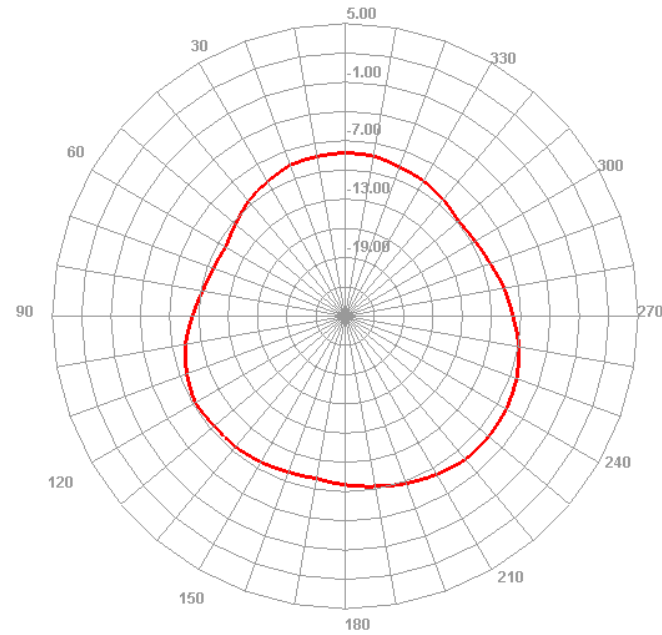


Efficient (2.4G-WIFI/BT 2400-2500MHz)

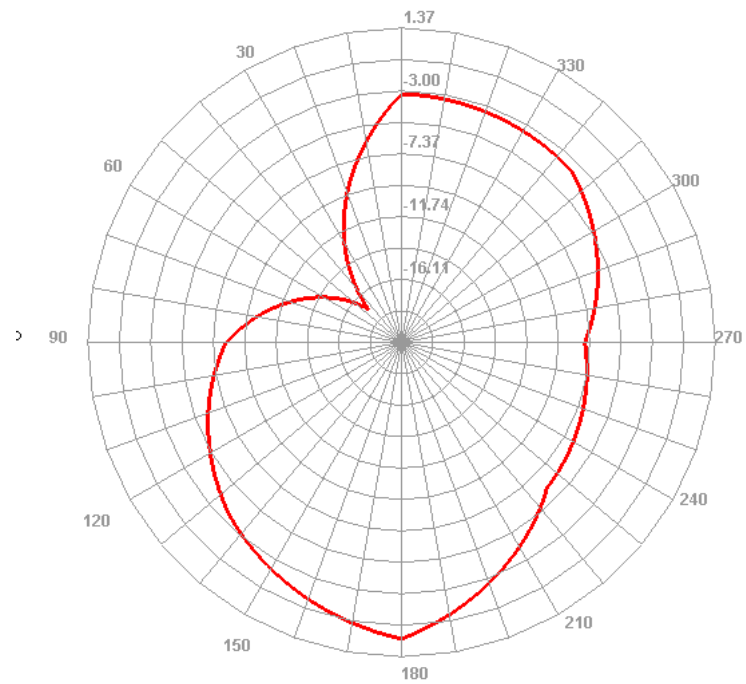
2450.000MHz



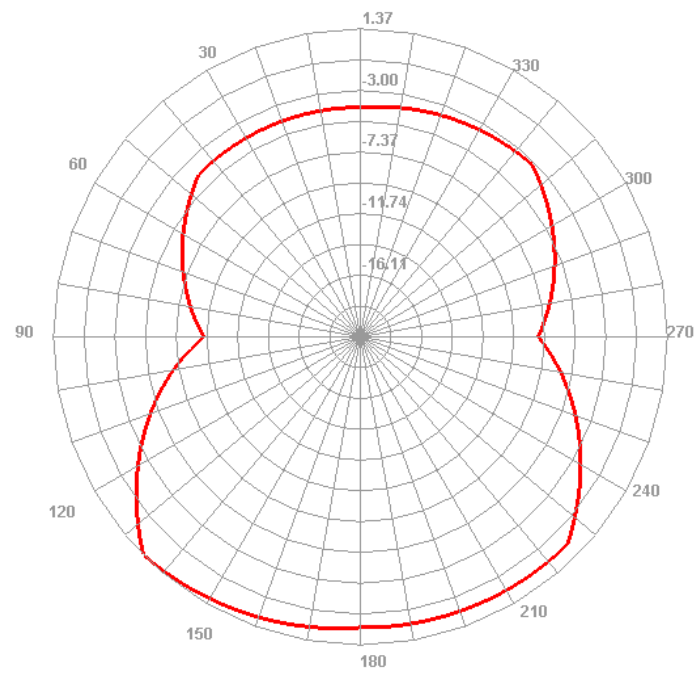
2450.000MHz H



2450.000MHz E1

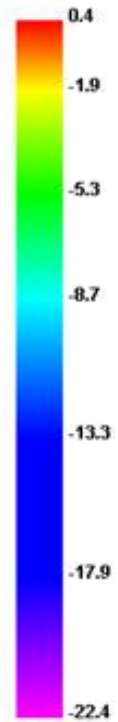
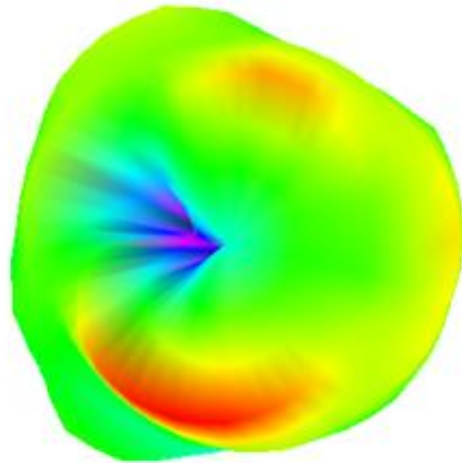


2450.000MHz E2

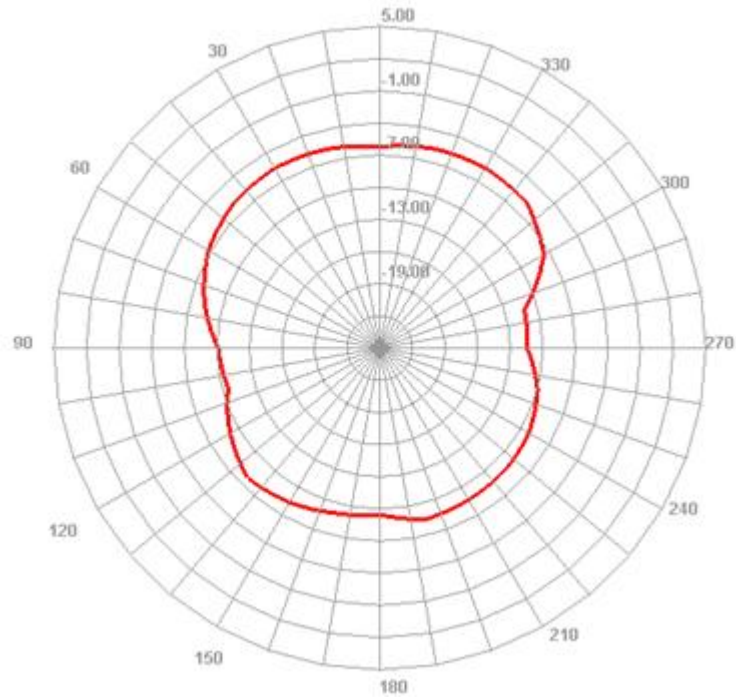


Efficient (GPS 1575.42MHz)

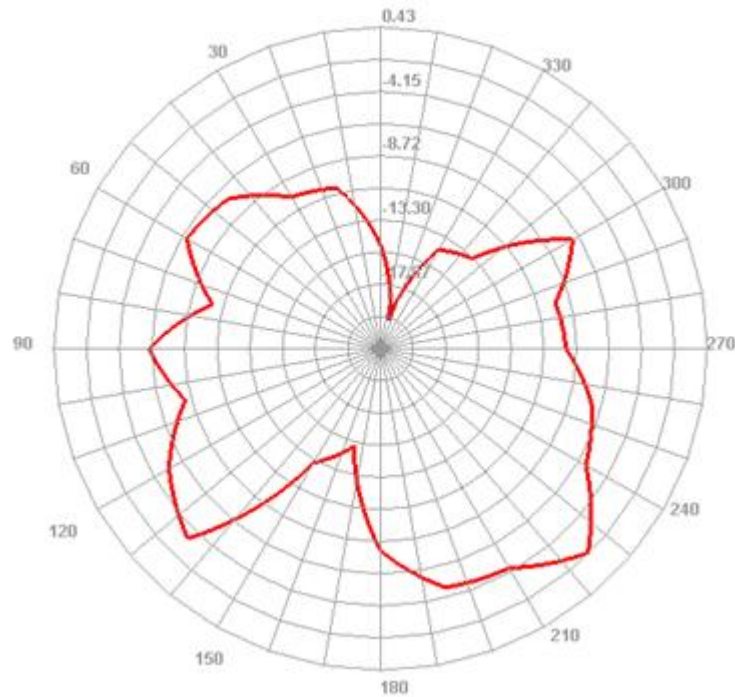
1575.491MHz



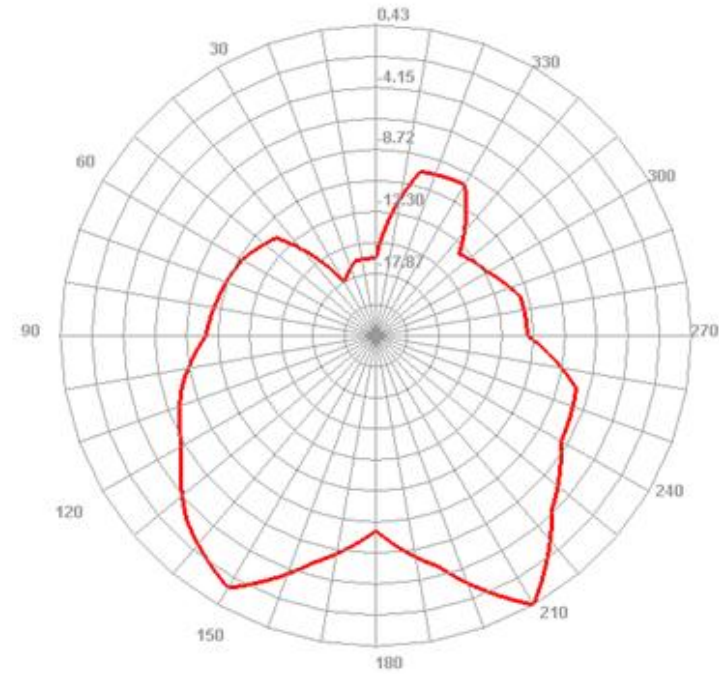
1575.491MHz H



1575.491MHz E1



1575.491MHz E2



substrate	half to 1/3	
	half and half	✓
	1 pair and a half	
	one-to-one	

Hand tear line back glue map-back

Amplification at A

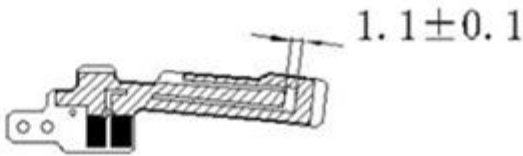
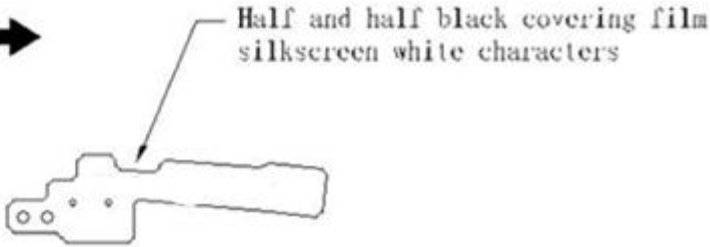
- | | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

- The front side is the covering film 13-20 μm
- The second layer is copper Cu 18 μm
- The third layer is 20 μm pure ADI 13-18 μm
- The fourth substrate PI 12.5 μm
- Back adhesive 3M300LSE 9471 50 μm

Huaxin Micro Communication Technology Co. LTD				
		unit: mm	name: FPC	date: 2023-04-19
General tolerance:		Material number:	design: zhuoshunster	
±0.5		material: FPC+3H9471	R F:	
±0.25		Surface treatment: clean	confirm:	
±0.05		color:	proportion: 1:1	version: A
±0.05				
ANGULAR $\angle = 0.5^\circ$				

☐ VO. 1
☐ VO. 2
☐ VO. 3
☐ VO. 4
☐ VO. 5
☐ VO. 6
☐ VO. 7
☐ VO. 8
☐ VO. 9
☐ VO. 10

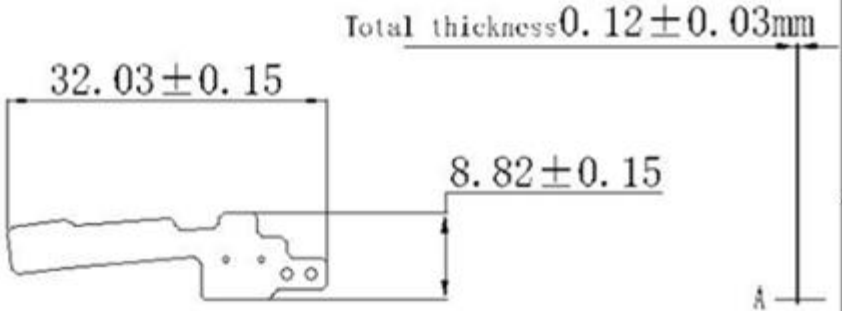
Shape - screen printing



Finished product drawing-front

version	Modify the content	modifier	date of revision

substrate	Half to 1/3	
	Half and half	✓
	A pair and a half	
	one-to-one	

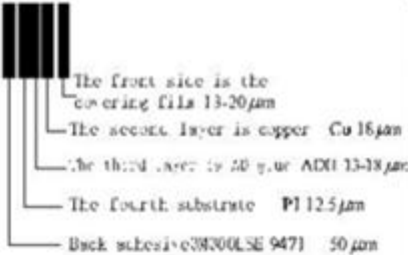


Hand tear line back glue map-back

NOTES:

- 1. Gunned paper: 3M300LSE;
- 2. The gold finger has a gilded surface0.5~3u~;Attention to materials, No oxidation is allowed in this position.
- 3. The overall thickness should be less than or equal to0.12mm;
- 4. Precise tolerance range:±0.03mm;
- 5. Only the product diagram is allowed to conduct electricity;

Amplification at A



Huaxin Micro Communication Technology Co. LTD					
	unit: mm	name: FPC	date: 2023-04-19		
General tolerance: L ±0.5 B ±0.25 XX ±0.05 XXX ±0.05 ANGULAR <= 0.5°		Material number:		design: zhuoshunshen	
		material: FPC+3M9471		R F:	
		Surface treatment: clean		confirm:	
		color:	proportion: 1:1	version: A	

- ▽ V0.1
- ▽ V0.2
- ▽ V0.3
- ▽ V0.4
- ▽ V0.5
- ▽ V0.6
- ▽ V0.7
- ▽ V0.8
- ▽ V0.9
- ▽ V0.10

--

substrate	half to 1/3	
	half and half	✓
	a pair and a half	
	one-to-one	



Technical drawing of a mechanical part showing a cross-section. The dimension 10.6 ± 0.1 is indicated for a specific feature.

Technical drawing of a mechanical part. The drawing shows a cross-section of a component with a central rectangular feature. The dimensions are as follows:

- Top horizontal dimension: 37.96 ± 0.15
- Left vertical dimension: 12.14 ± 0.15
- Right vertical dimension: Total thickness $0.12 \pm 0.03\text{mm}$

The drawing includes a section line 'A' on the right side, indicating a cross-section.

☐ VO. 1
☐ VO. 2
☐ VO. 3
☐ VO. 4
☐ VO. 5
☐ VO. 6
☐ VO. 7
☐ VO. 8
☐ VO. 9
☐ VO. 10

Amplification at A

- 
- The front side is the covering film 13-20 μm
 The second layer is copper Cu 16 μm
 The third layer is AD glue ADI 13-18 μm
 The fourth substrate PI 12.5 μm
 Back adhesive 39300(LE 9471) 50 μm

Huaxin Micro Communication Technology Co. LTD			
	unit: mm	name: FPC	date: 2023-04-19
General tolerance: . ±0.5 .X ±0.25 .XX ±0.05 .XXX ±0.05 ANGULAR $\angle = 0.5^\circ$		Material number:	design: zhushunshier
		material: FPC+3H9471	R F:
		Surface treatment: clean	confirm:
		color:	proportion: 1:1 version: A