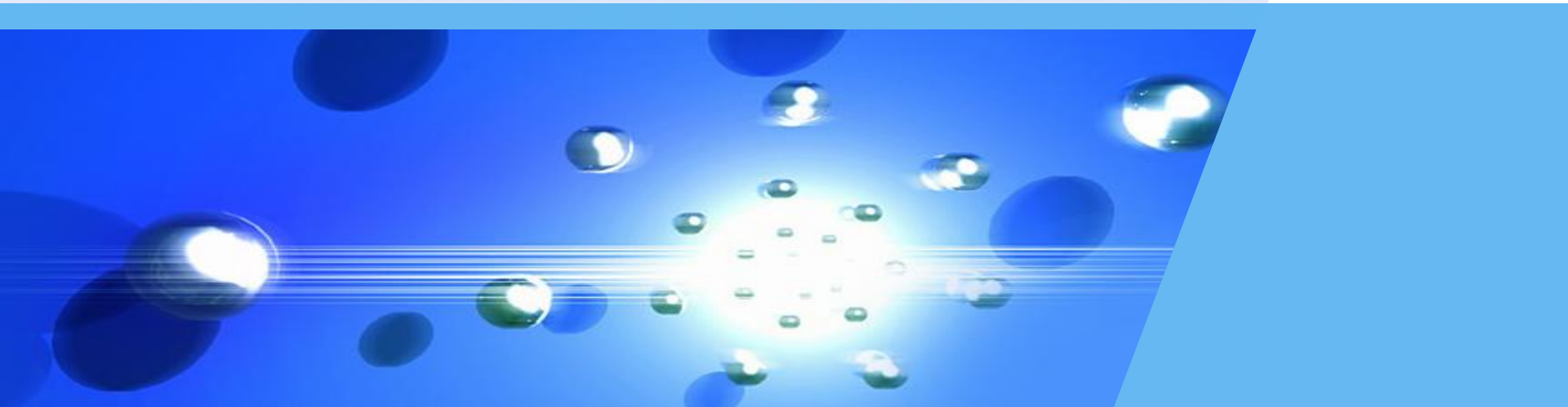


专业的**RF**研发机构



# 深圳市恒信达通信科技有限公司

Antenna test debugging report

射频工程师: 曾庆雄

Contact number:**13265760393**

# Project information

1

client:**CD**

2

project:**K23**

3

Frequency band**2.4GHZ-2.48GHZ**

4

**Note:**

# Introduction of the company's main

list

Main test item

equipment

S parameter

Return loss: Standing wave  
ratio :Smith circle chart

E5071C Network analyzer

Coupling power test

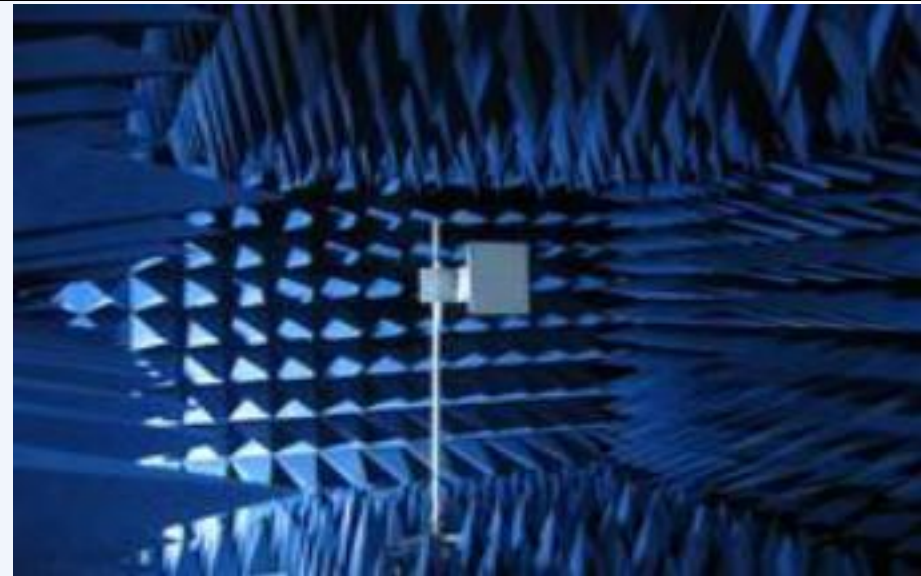
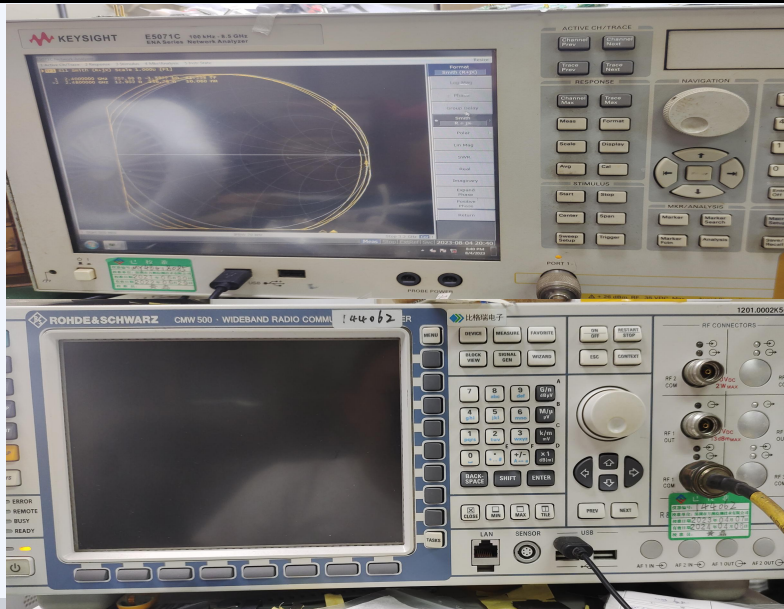
Transmission power and reception  
sensitivity

CMW500 Comprehensive tester


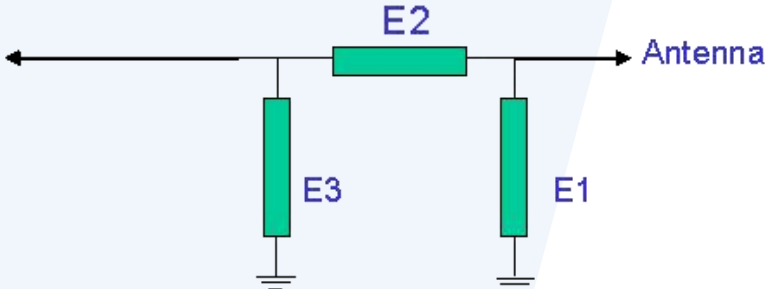

Radiation and gain

Radiation pattern: Antenna  
gain :3D data

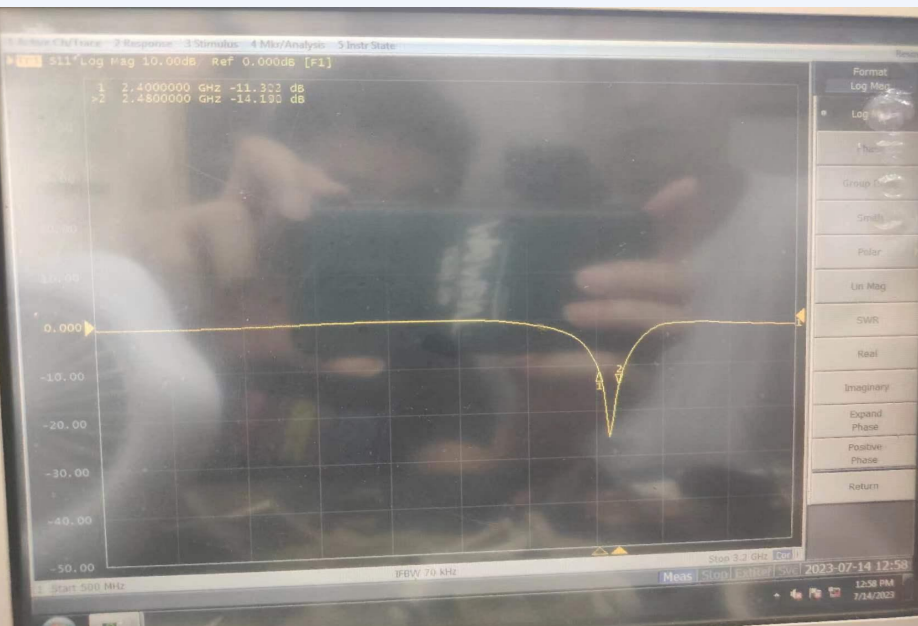
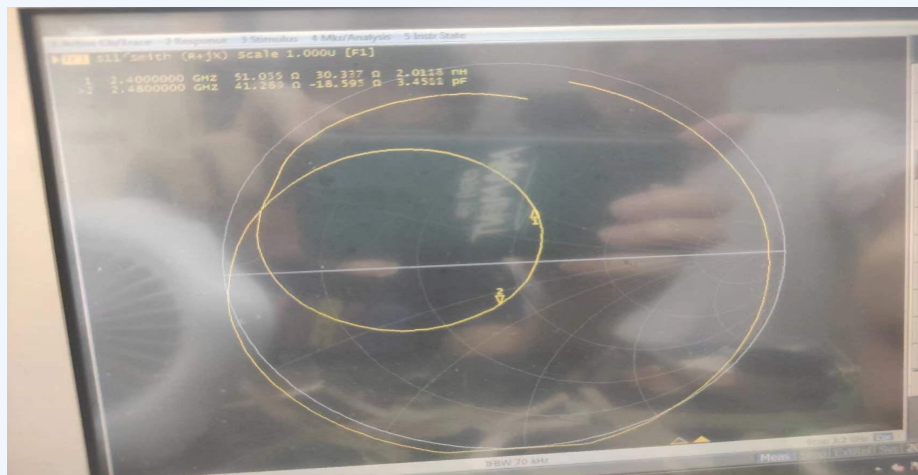
1. 3D microwave darkroom: 7x4x3 m (3D)  
2. CMW500



# Mobile phone antenna project design debugging instructions

Operating frequency	2.4-2.48GHZ	Test engineer	曾庆雄	edition	V4
Drawing of complete machine		Antenna matching circuit			
					
Machine antenna drawing		Matching specification			
			L	R	
		E1	2PF	2PF	
		E2	0R	1.5NH	
		E3	NC	NC	

# Below is the passive S-parameter diagram

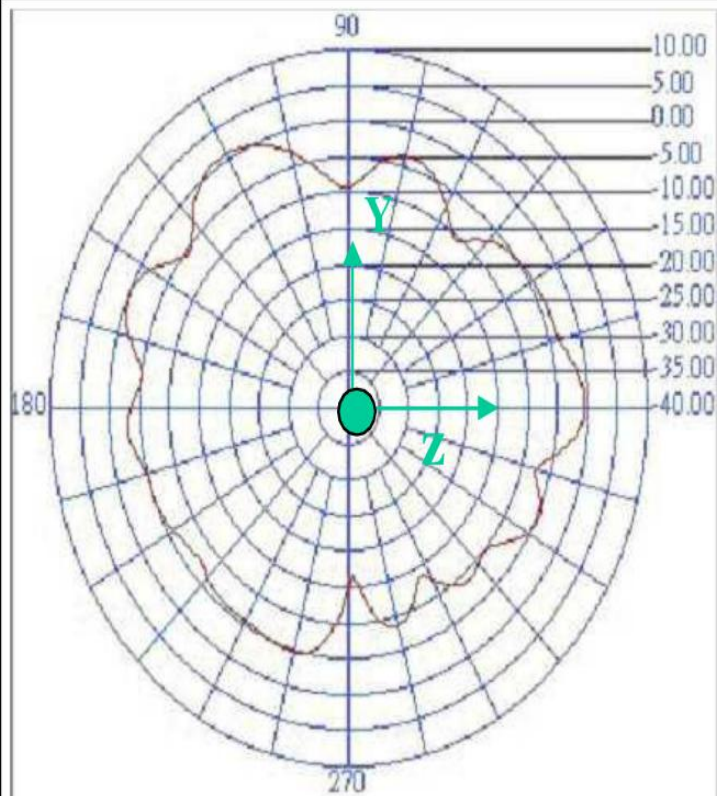




# Y - Z Plane

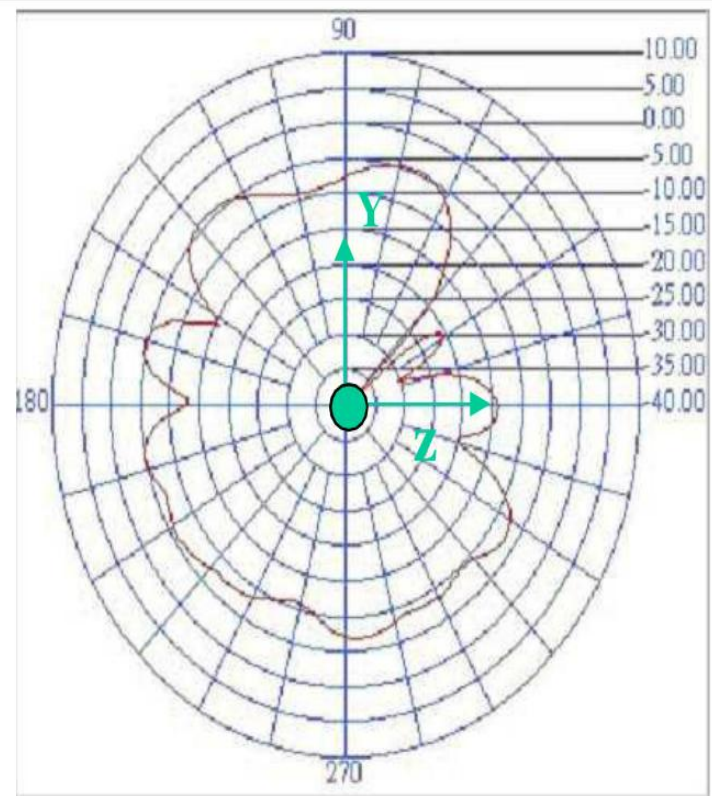
Average Gain = -3.185 dBi

## Horizontal



Peak Gain = 0.95dBi  
Average Gain = -4.26 dBi

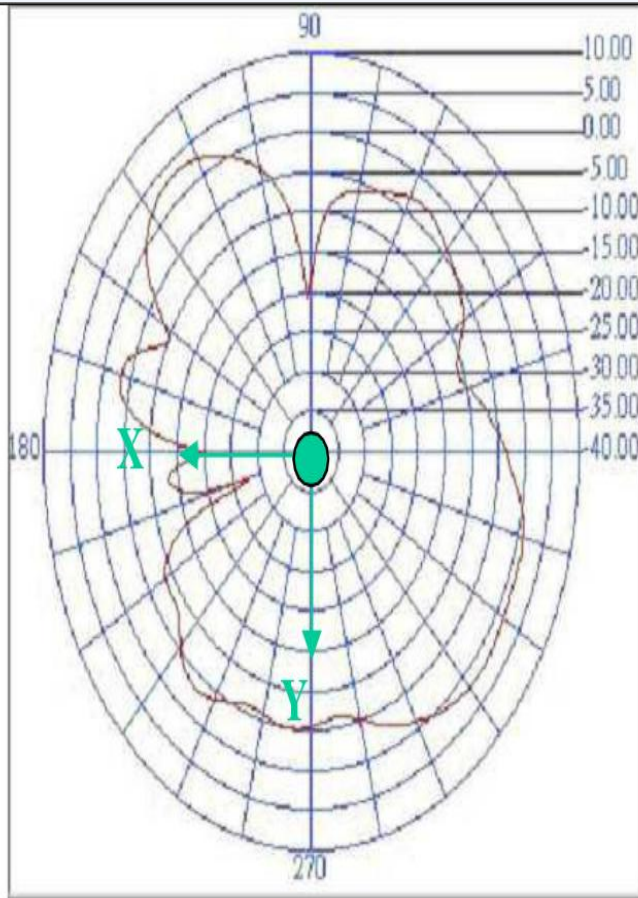
## Vertical



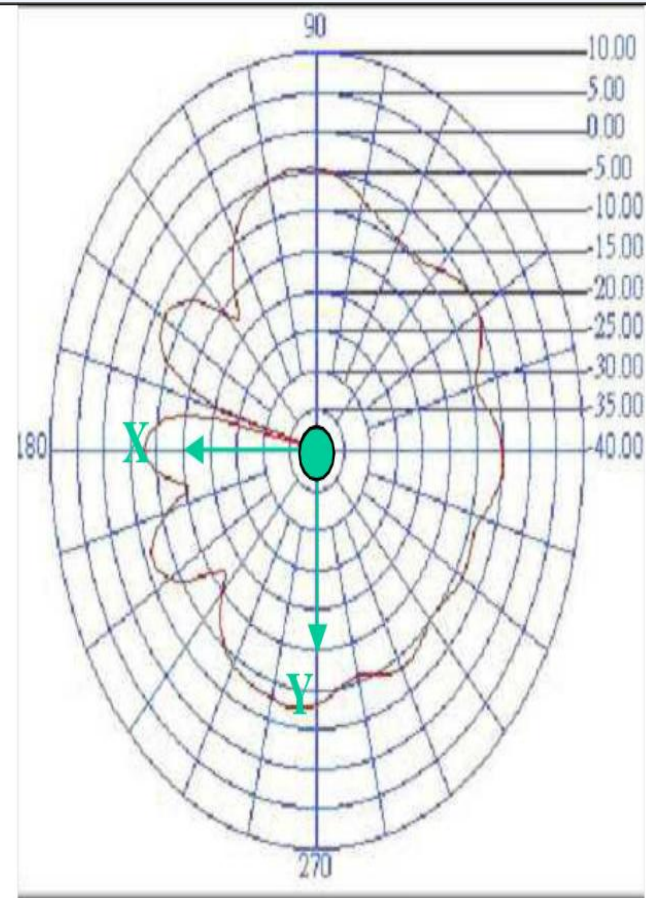
Peak Gain = -4.05dBi  
Average Gain = -8.03 dBi

**X - Y  
Plane**

Average  
Gain=  
-1.543 dBi



Peak Gain= 3.19 dBi  
Average Gain= -2.65 dBi

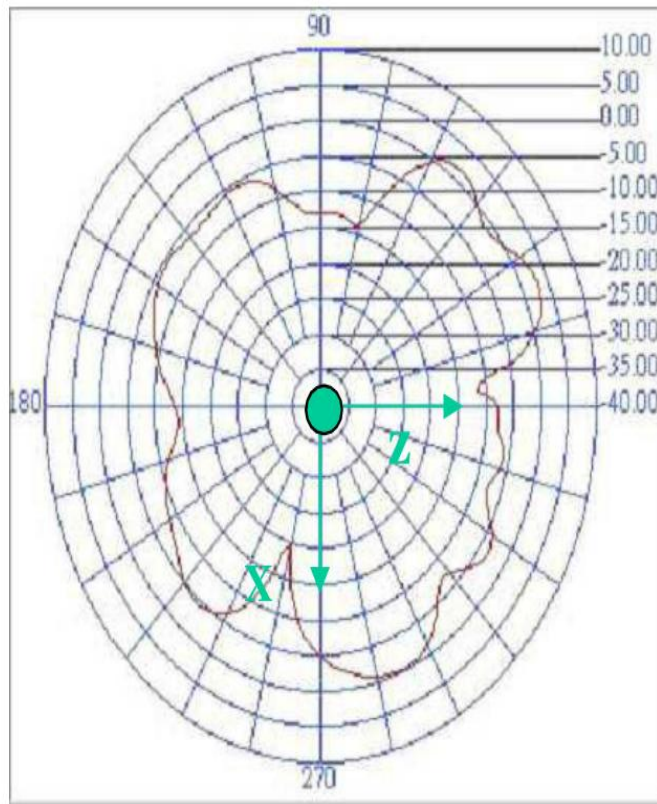


Peak Gain= -4.48 dBi  
Average Gain= -8.02 dBi

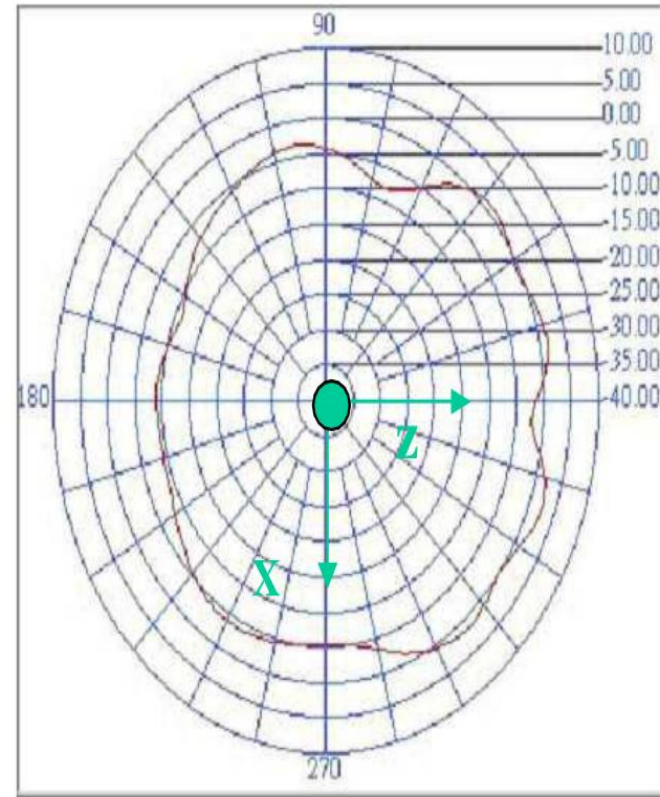


## X - Z Plane

Average  
Gain=  
-0.99 dBi



Peak Gain= 3.05 dBi  
Average Gain= -4.10dBi



Peak Gain= 2.49 dBi  
Average Gain= -2.47 dBi

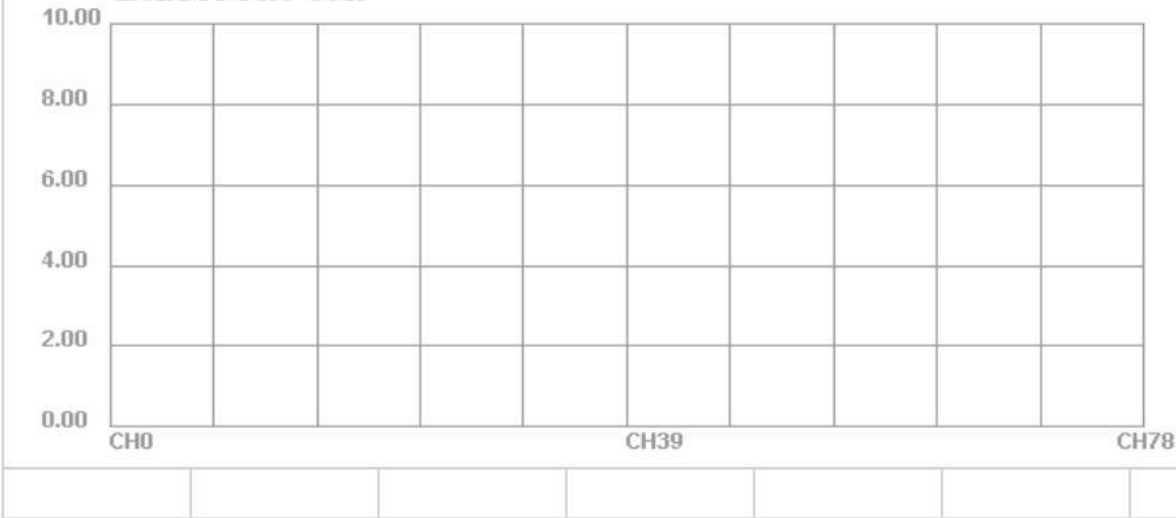


The following data are L-antenna far-field TRP data in 3D microwave darkroom

Test Result	Bluetooth TRP		
	0	39	78
Frequency (MHz)	2402	2441	2480
TRP (dBm)	-2.19	-1.41	-1.72
NHPRP (dBm) 45	-3.58	-2.78	-3.05
MAX (dBm)	0.75	1.65	1.23
EIRP peak	0.75	1.65	1.23
Min (dBm)	-10.31	-8.01	-8.68
Attenuation Horiz	43.34	43.34	43.34
Attenuation Vertic	43.24	43.24	43.24

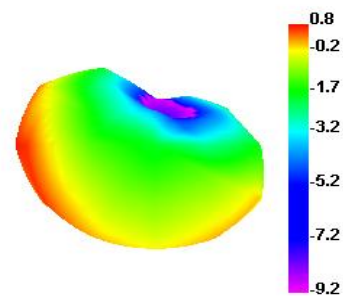
Application Information	
04Version	5.256.357
TotalTime	16m 20s 24ms
AdditionalInfor	7CDEFB04AF9

Bluetooth TRP

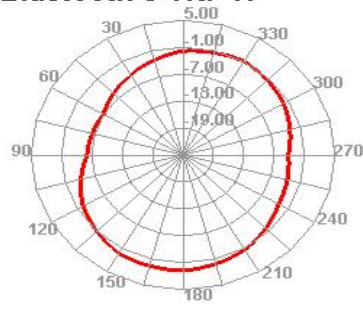


The following is the far field 3D image of L antenna in 3D microwave darkroom

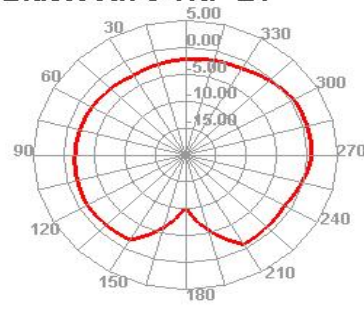
Bluetooth 0 TRP



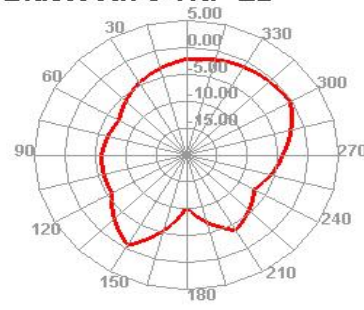
Bluetooth 0 TRP H



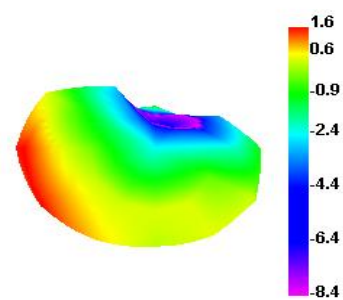
Bluetooth 0 TRP E1



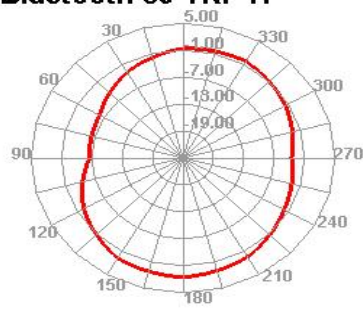
Bluetooth 0 TRP E2



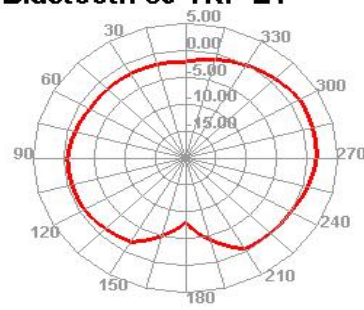
Bluetooth 39 TRP



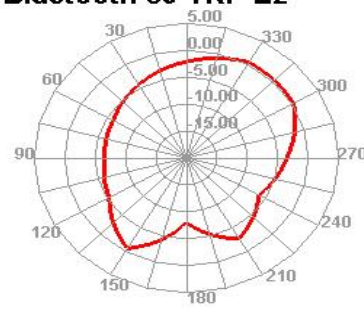
Bluetooth 39 TRP H



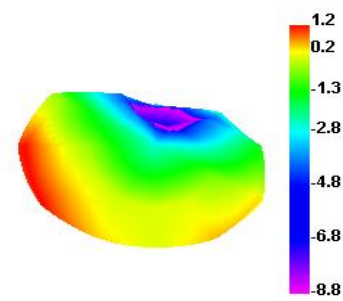
Bluetooth 39 TRP E1



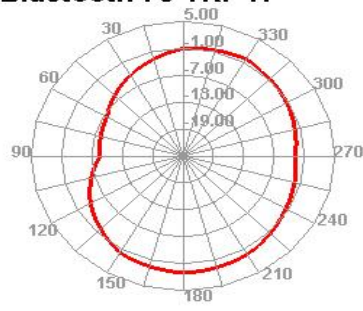
Bluetooth 39 TRP E2



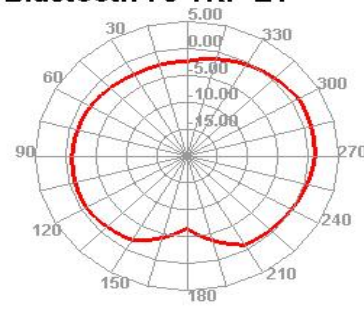
Bluetooth 78 TRP



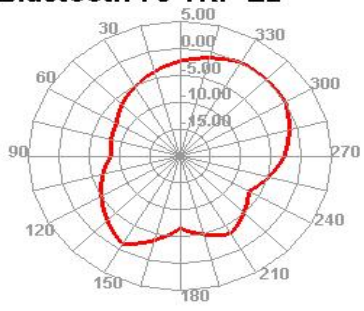
Bluetooth 78 TRP H



Bluetooth 78 TRP E1



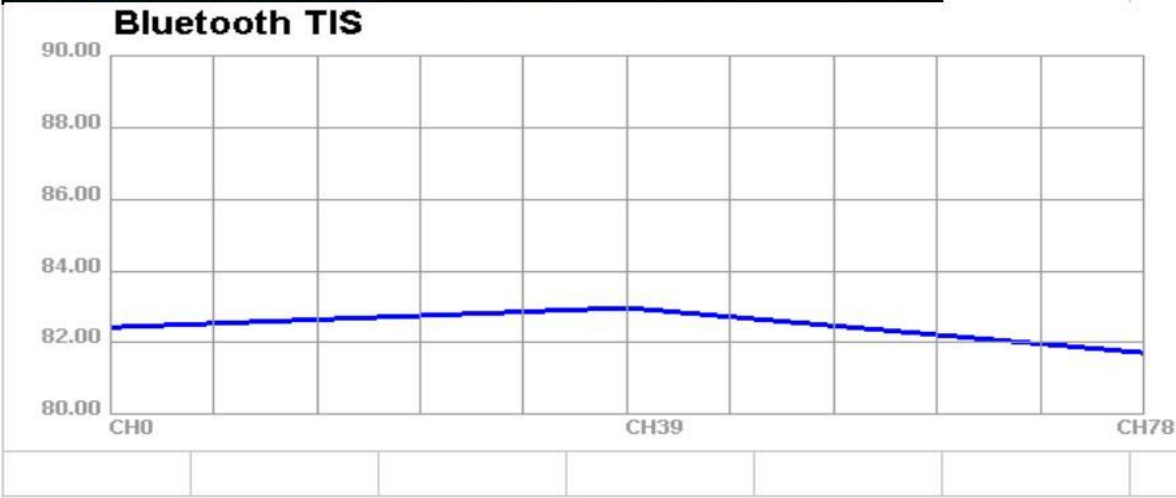
Bluetooth 78 TRP E2



The following data are far field TIS data of L antenna in 3D microwave darkroom

Test Result	Bluetooth TIS		
	0	39	78
Frequency (MHz)	2402	2441	2480
TIS (dBm)	-82.43	-82.98	-81.72
NHPIS (dBm) 45	-81.05	-81.6	-80.39
RSSI Ave	-2.19	-1.41	-1.72
MaxPosRSSI	-0.38	0.26	0
MaxPosSens	-84.24	-84.64	-83.44
MAX (dBm)	0.75	1.65	1.23
EIS peak	0.75	1.65	1.23
Min (dBm)	-10.31	-8.01	-8.68
Attenuation Horiz	43.34	43.34	43.34
Attenuation Vertic	43.24	43.24	43.24

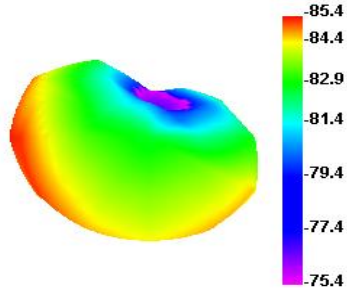
Application Information	
04Version	5.256.357
TotalTime	16m 20s 24ms
AdditionalInfor	7CDEFB04AF9



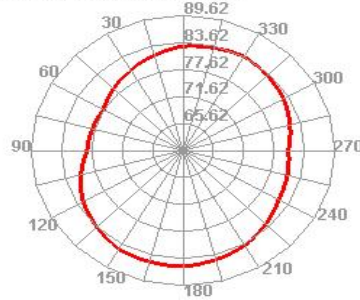


The following is the far field 3D image of L antenna in 3D microwave darkroom

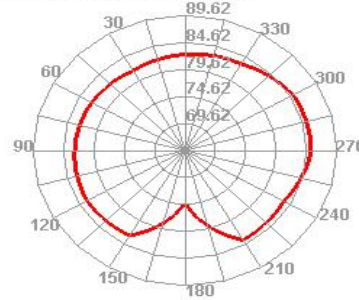
**Bluetooth 0 TIS**



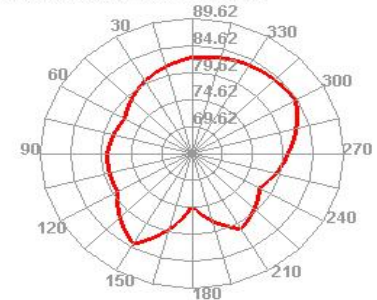
**Bluetooth 0 TIS H**



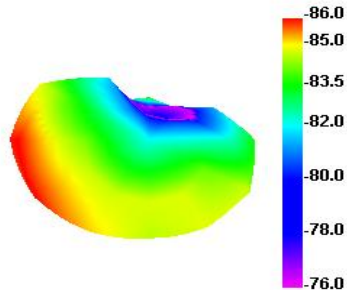
**Bluetooth 0 TIS E1**



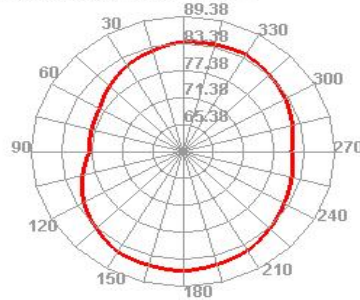
**Bluetooth 0 TIS E2**



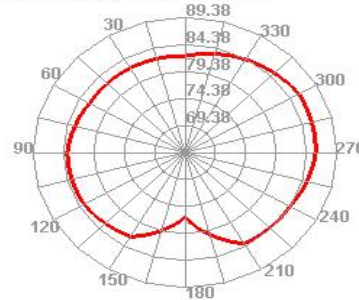
**Bluetooth 39 TIS**



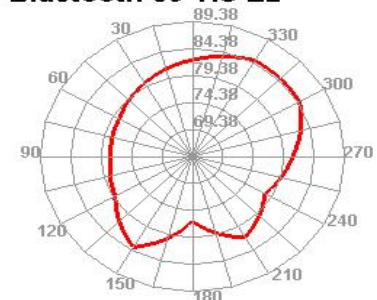
**Bluetooth 39 TIS H**



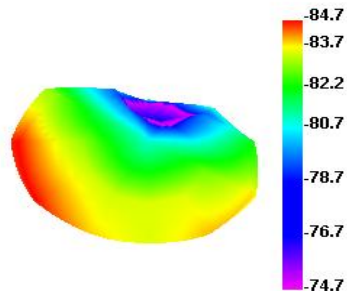
**Bluetooth 39 TIS E1**



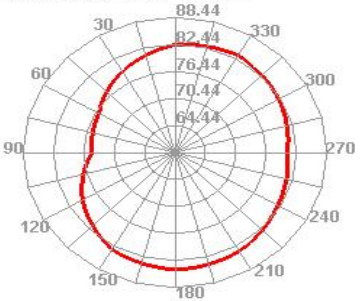
**Bluetooth 39 TIS E2**



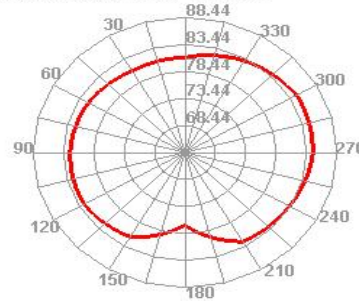
**Bluetooth 78 TIS**



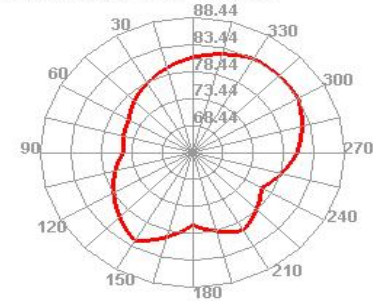
**Bluetooth 78 TIS H**



**Bluetooth 78 TIS E1**



**Bluetooth 78 TIS E2**

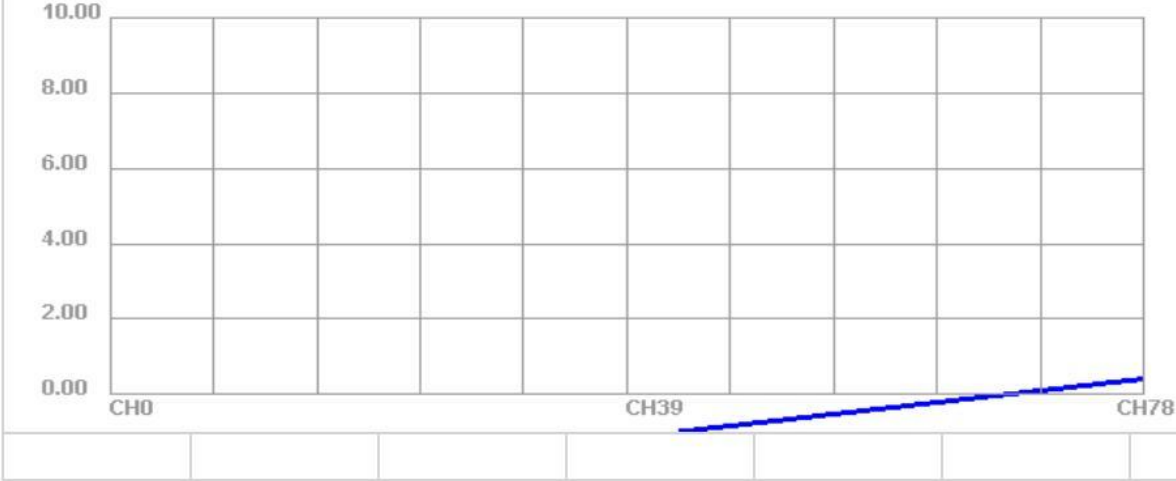


The following data are far field TRP data of R antenna in 3D microwave darkroom

Test Result	Bluetooth TRP		
	0	39	78
Frequency (MHz)	2402	2441	2480
TRP (dBm)	-3.78	-1.14	0.42
NHPRP (dBm) 45	-5.18	-2.57	-0.97
MAX (dBm)	-0.79	2.06	3.45
EIRP peak	-0.79	2.06	3.45
Min (dBm)	-11.21	-7.47	-7.11
Attenuation Horiz	43.34	43.34	43.34
Attenuation Vertic	43.24	43.24	43.24

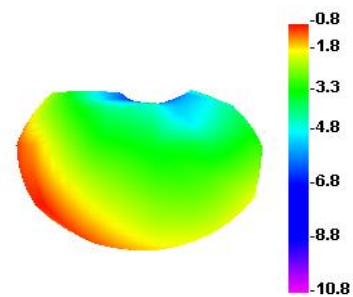
Application Information	
04Version	5.256.357
TotalTime	16m 23s 952ms
AdditionalInfor	97800CB812F

Bluetooth TRP

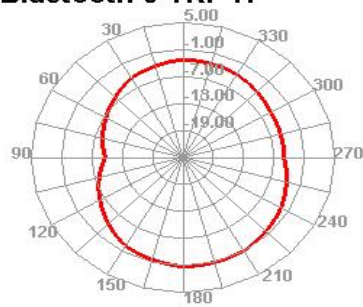


The following is the far field 3D image of R antenna in 3D microwave darkroom

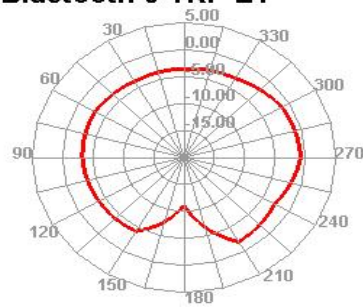
Bluetooth 0 TRP



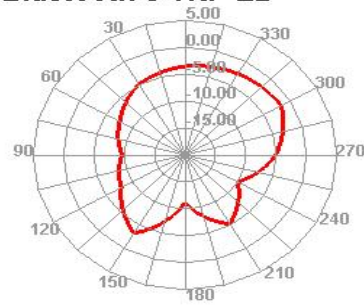
Bluetooth 0 TRP H



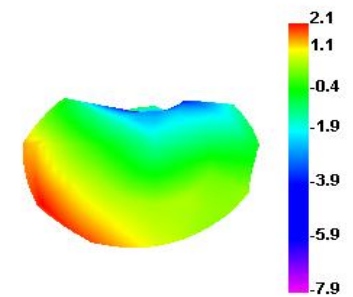
Bluetooth 0 TRP E1



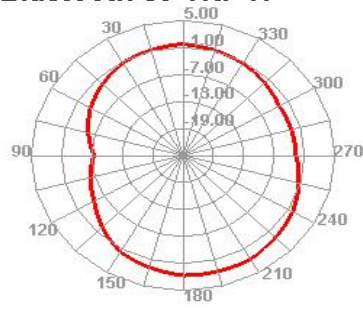
Bluetooth 0 TRP E2



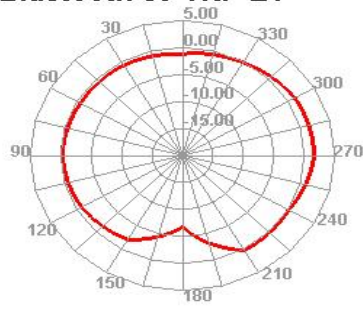
Bluetooth 39 TRP



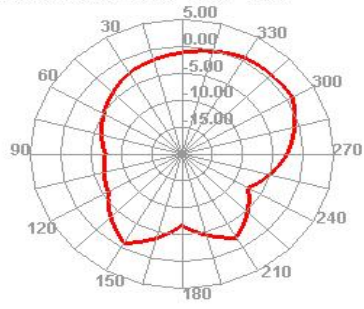
Bluetooth 39 TRP H



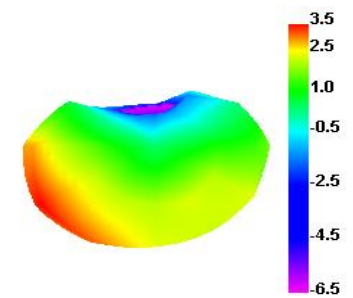
Bluetooth 39 TRP E1



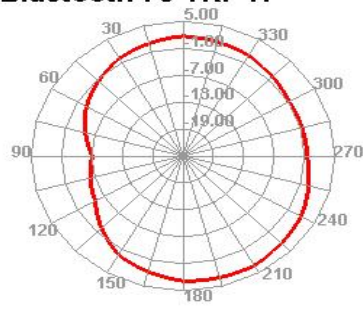
Bluetooth 39 TRP E2



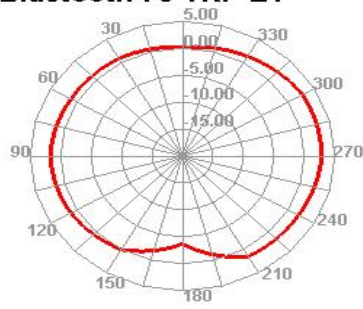
Bluetooth 78 TRP



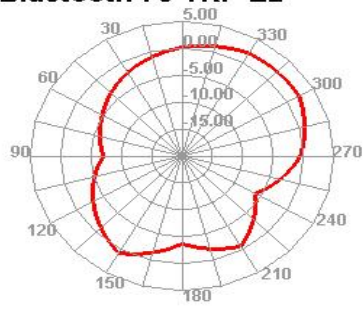
Bluetooth 78 TRP H



Bluetooth 78 TRP E1



Bluetooth 78 TRP E2

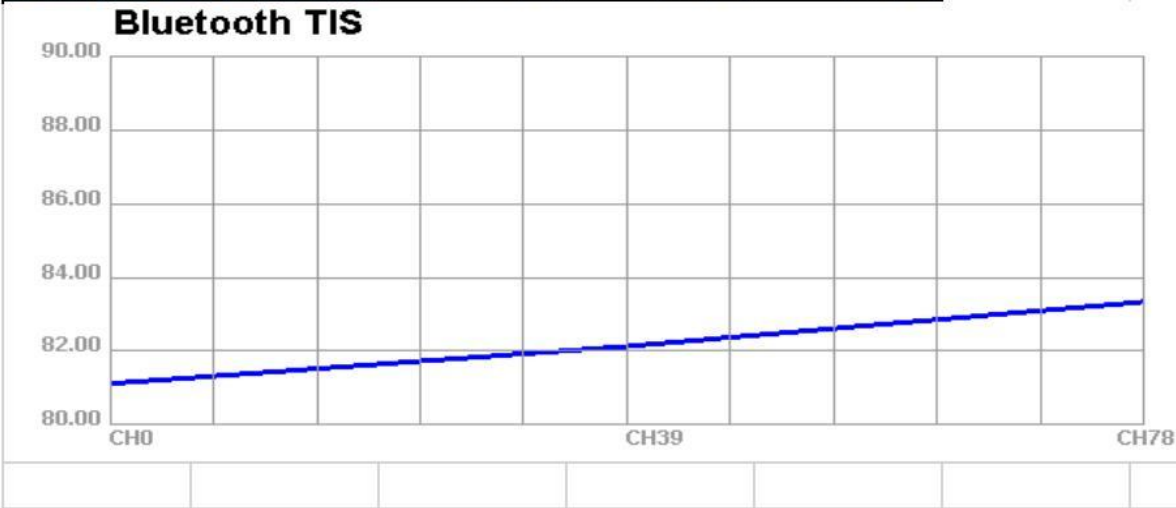




The following data are far field TIS data of R antenna in 3D microwave darkroom

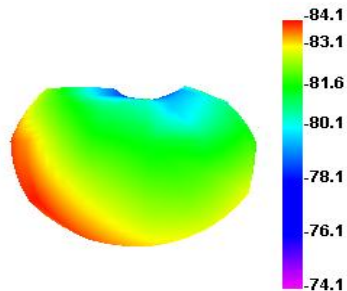
Test Result	Bluetooth TIS		
	0	39	78
Frequency (MHz)	2402	2441	2480
TIS (dBm)	-81.12	-82.13	-83.34
NHPIS (dBm) 45	-79.72	-80.7	-81.95
RSSI Ave	-3.78	-1.14	0.42
MaxPosRSSI	-2.06	0.57	1.92
MaxPosSens	-82.84	-83.84	-84.84
MAX (dBm)	-0.79	2.06	3.45
EIS peak	-0.79	2.06	3.45
Min (dBm)	-11.21	-7.47	-7.11
Attenuation Horiz	43.34	43.34	43.34
Attenuation Vertic	43.24	43.24	43.24

Application Information	
04Version	5.256.357
TotalTime	16m 23s 952ms
AdditionalInfor	97800CB812F

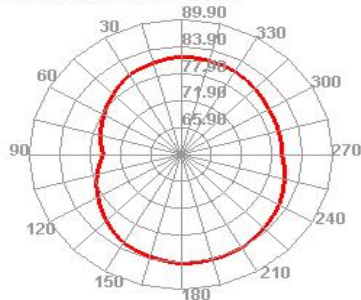


The following is the far field 3D image of R antenna in 3D microwave darkroom

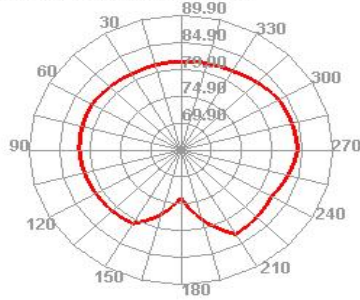
**Bluetooth 0 TIS**



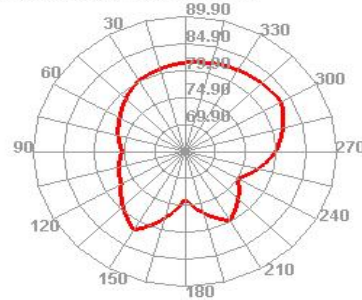
**Bluetooth 0 TIS H**



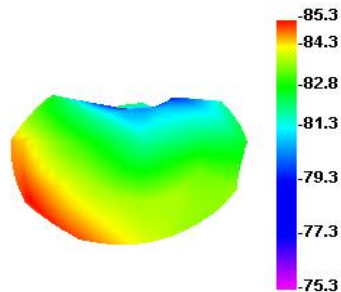
**Bluetooth 0 TIS E1**



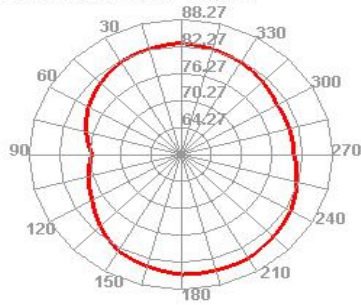
**Bluetooth 0 TIS E2**



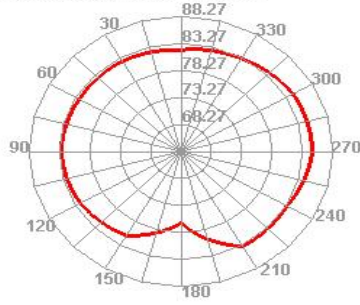
**Bluetooth 39 TIS**



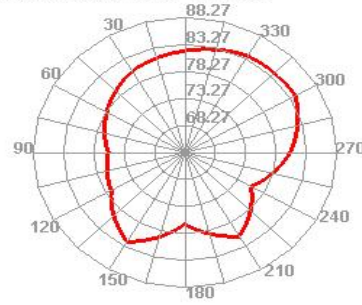
**Bluetooth 39 TIS H**



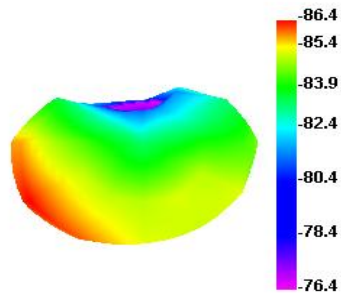
**Bluetooth 39 TIS E1**



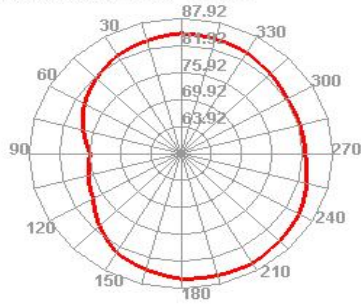
**Bluetooth 39 TIS E2**



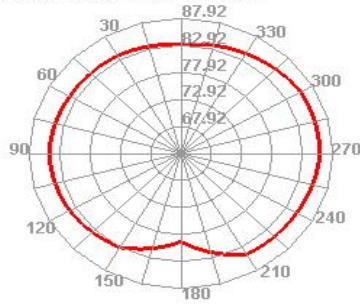
**Bluetooth 78 TIS**



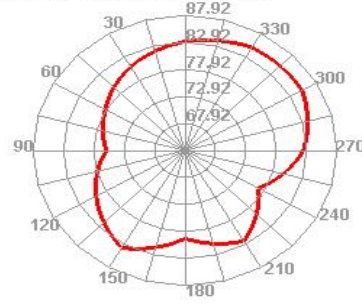
**Bluetooth 78 TIS H**



**Bluetooth 78 TIS E1**



**Bluetooth 78 TIS E2**



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Thank You !

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