

## HA01 Antenna Test Report

Customer	达发
Project	HA01
Antenna Revision	A1
Product Description	FPC
Product No	
DATE	2024. 3. 28

# ***Product Overview & Dimension***

**Front**



# Purpose

This report is to measure the performance of BT antenna for HA01. The antenna operating frequency at 2.4~2.5GHz, All test data are showed as below.

## ***Content***

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  - 4.4 OTA Data
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## 2. Test System

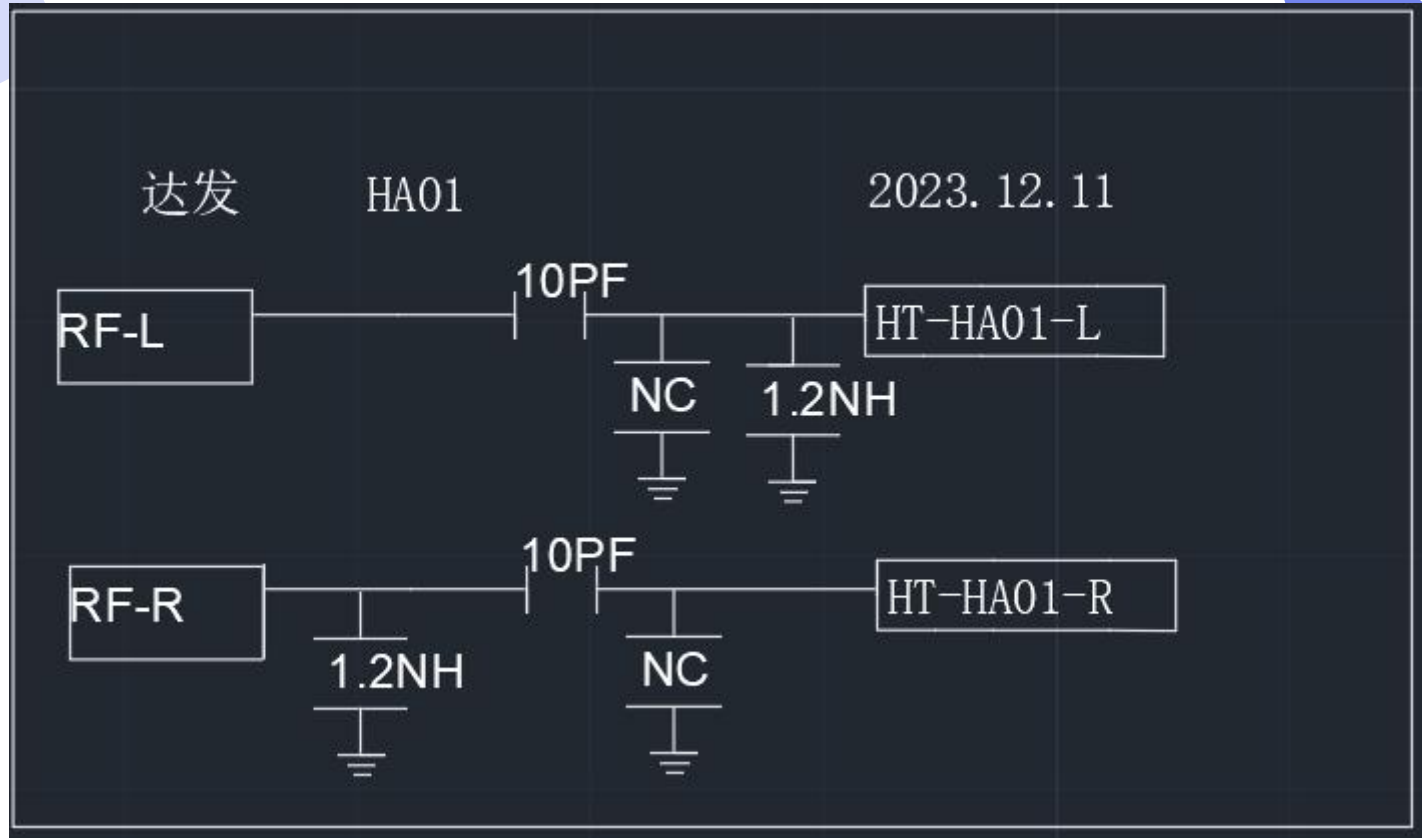
Sequence Number	Test Item	equipment
S parameter	VSWR	Agilent 5071C & Agilent 5062A
OTA Test	TRP&TIS	CMW500 & CMW270 ETS&SATIMO
Gain & Efficiency	Gain & Efficiency	ETS&SATIMO Agilent 5071C



## S11—(BT ANT)



(L-R)



苹果5 室外测试 8m

苹果6 室外实测 18m

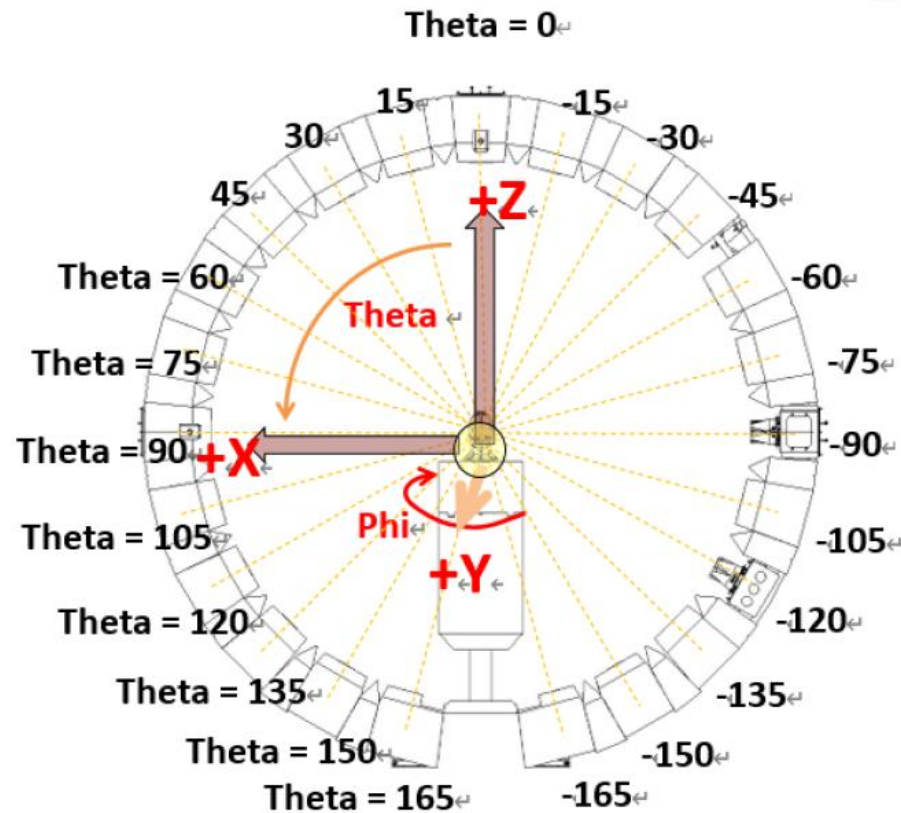
红米NOTE9

室外实测 16m



# Test Result

## Sample status & coordinates





# Test Result

## Gain & Efficiency—BT- ANT(L/R)



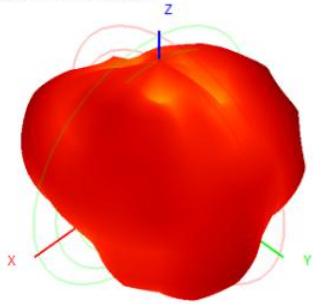
### 深圳市合拓科技有限公司

Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Efficiency (dBi)	-7.65	-7.47	-7.42	-7.20	-7.20	-7.32	-7.27	-7.21	-7.22	-7.23	-7.26
Gain (dBi)	-1.99	-2.46	-1.91	-1.81	-2.03	-1.71	-2.01	-2.52	-2.59	-2.28	-2.41
Efficiency (%)	17.19	17.92	18.11	19.06	19.07	18.54	18.74	19.02	18.97	18.91	18.79
Directivity (dB)	5.65	5.01	5.51	5.39	5.16	5.61	5.26	4.69	4.63	4.95	4.85
Peak Gain Position (Theta)	60.00	60.00	60.00	75.00	75.00	75.00	75.00	75.00	75.00	90.00	60.00
Peak Gain Position (Phi)	135.00	300.00	300.00	300.00	300.00	300.00	300.00	315.00	315.00	60.00	135.00
Efficiency ThetaPol (%)	11.45	12.07	12.43	13.48	13.51	13.12	13.35	13.57	13.61	13.55	13.59
Efficiency PhiPol (%)	5.74	5.85	5.68	5.58	5.56	5.42	5.39	5.46	5.37	5.36	5.20
Upper Hem. Efficiency (%)	11.88	12.38	12.60	12.98	12.78	12.32	12.52	12.57	12.49	12.51	12.31
Lower Hem. Efficiency (%)	5.31	5.54	5.51	6.08	6.29	6.22	6.23	6.45	6.48	6.41	6.48

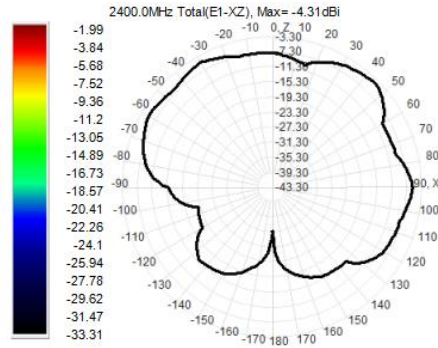
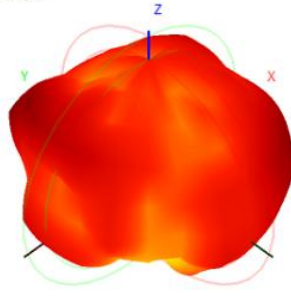
# Test Result

2D&3D — BT-ANT

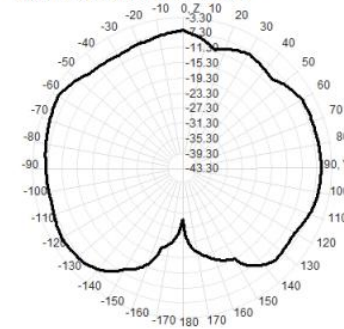
2400.0MHz H+V, Eff: 17.2%



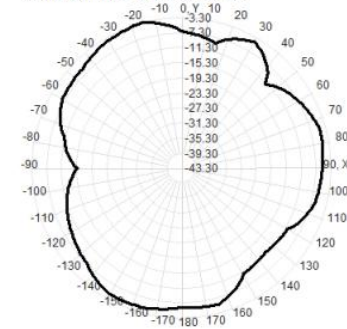
Back View



2400.0MHz Total(E2-YZ), Max=-5.13dBi

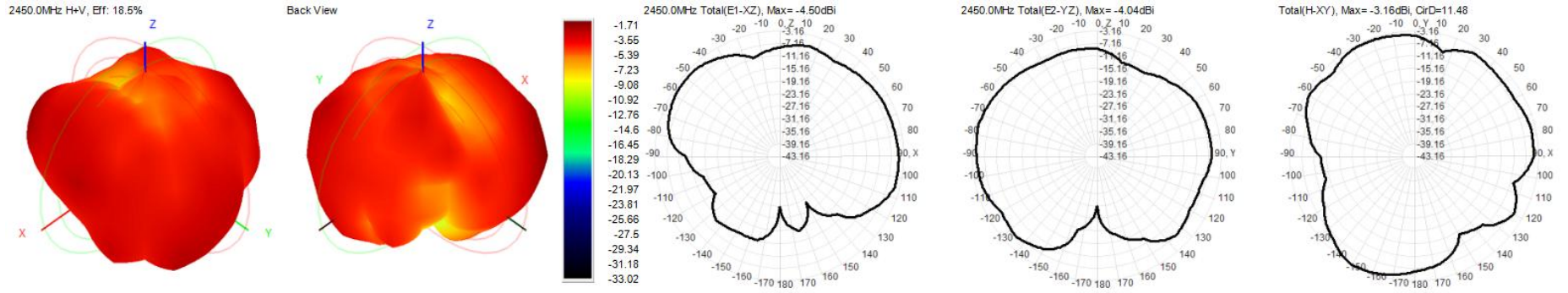


Total(H-XY), Max=-3.30dBi, CirD=12.28



# Test Result

2D&3D — BT-ANT

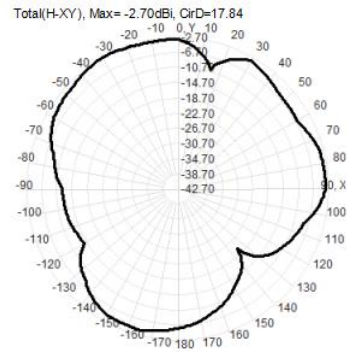
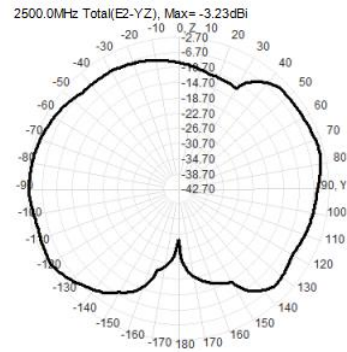
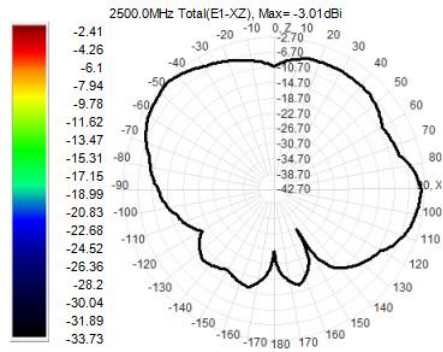
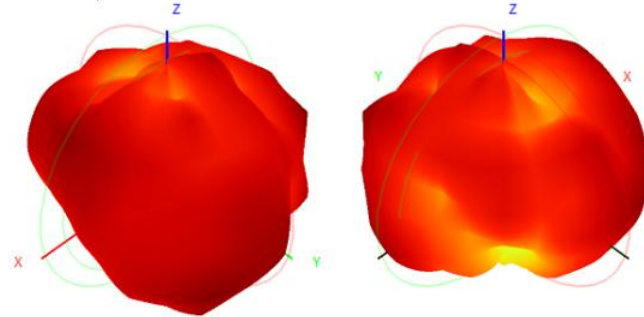


# Test Result

2D&3D — BT-ANT

2500.0MHz H+V, Eff: 18.8%

Back View



**OTA DATA(L)--自由空间**

Test Equipment:	R&S CMW500			
Test Condition:	3D chamber			
Band	Wireless Protocol	Channel	TRP(dBm)	TIS(dBm)
BT		0	-1.01	-87.99
		39	-0.02	-86.38
		78	-0.67	-85.49

**OTA DATA(R)--自由空间**

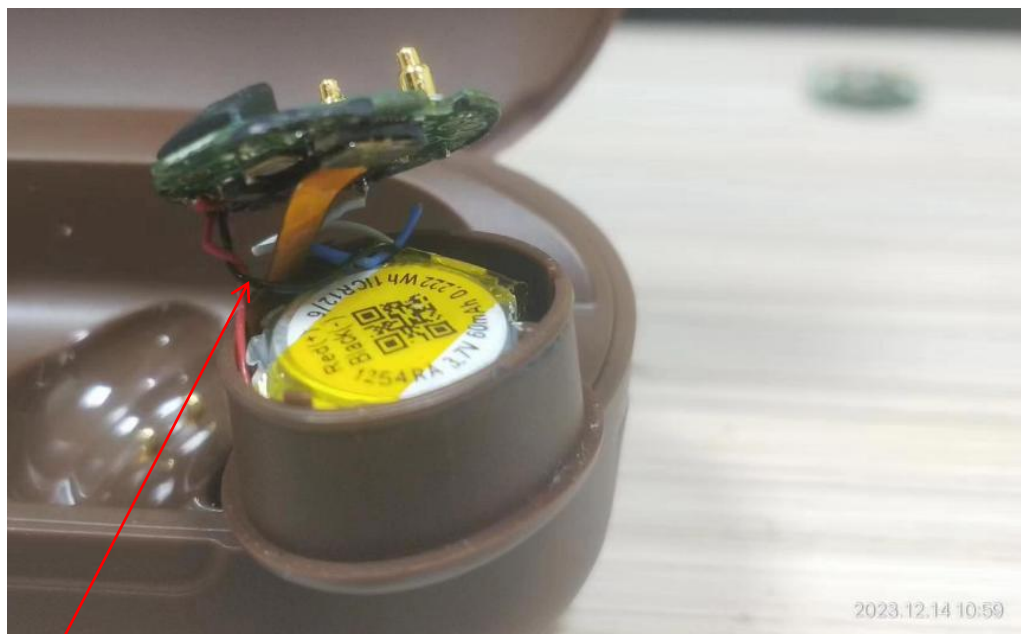
Test Equipment:	R&S CMW500			
Test Condition:	3D chamber			
Band	Wireless Protocol	Channel	TRP(dBm)	TIS(dBm)
BT		0	-2.47	-86.22
		39	-0.92	-85.26
		78	0.75	-86.42

### OTA DATA(L)--头模

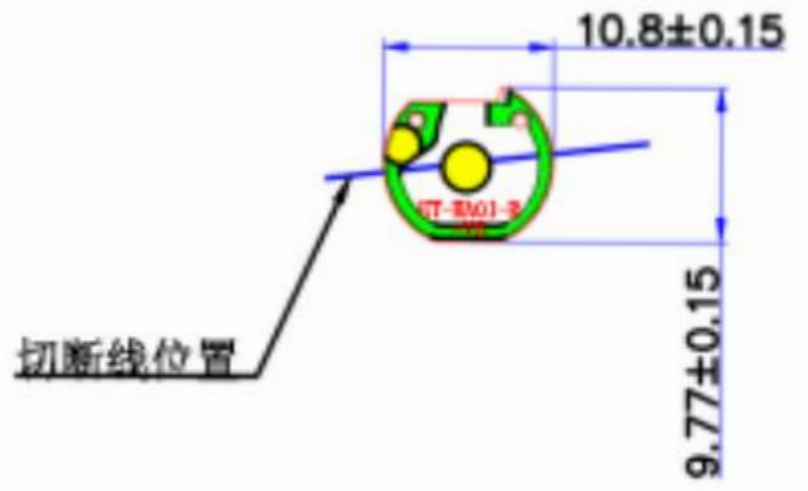
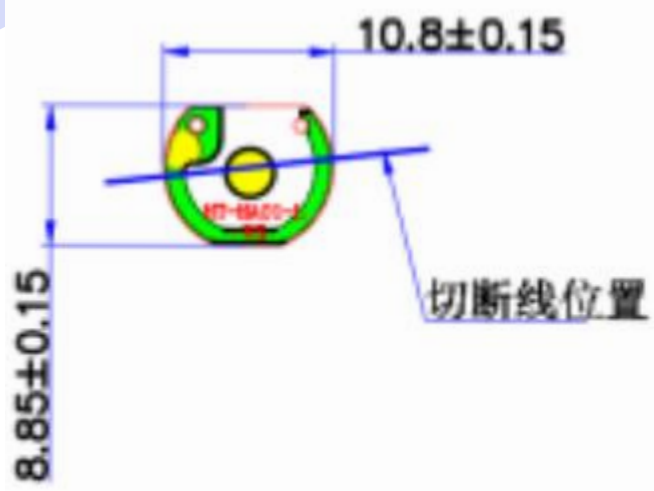
Test Equipment:	R&S CMW500			
Test Condition:	3D chamber			
Band	Wireless Protocol	Channel	TRP(dBm)	TIS(dBm)
BT		0	-3.13	-85.33
		39	-2.19	-85.25
		78	-2.47	-83.32

### OTA DATA(R)--头模

Test Equipment:	R&S CMW500			
Test Condition:	3D- chamber			
Band	Wireless Protocol	Channel	TRP(dBm)	TIS(dBm)
BT		0	-3.62	-86.24
		39	-1.87	-86.01
		78	-1.65	-82.78



电池线需绕线两圈以上，  
电池喇叭线不要搭在一起。





# *Thanks for your comment!*

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