

倍思 (Baseus)

# 样品承认书

## Parts Approval Sheet

生产供应商: 国质信 (Nqi)

Supplier

物料名称: BT 天线 (BT antenna)

Parts Name

适用项目: EA10

Applicable projects

Nqi 料号: Nqi-EA10-BT-FB-V6

Parts No

天线类型: FPC Antenna

Antenna Type

客户料号:

Quantity

送样日期: 2024/01/26

Send out Date

文件编号: Nqi-RD-SPEC-20231229

Document No

承认日期:

Approve Date

样品版本: V6

Version

Supplier		Customer	
Approved By	Prepared By	Engineering Dept	Quality Dept

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## 承认书履历表

(Admission resume)

日期 (Date)	天线版本 (Antenna version)	变更原因 (Reason for change)	变更内容 (Change content)	备注 (remark)
2024. 01. 26	V6			首版发行 (First edition release)
2024. 03. 08	V6		完善数据 (refine data)	



## 目录 (Catalogue)

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## 一.样品图片及装配方式 (Sample picture and assembly method) :

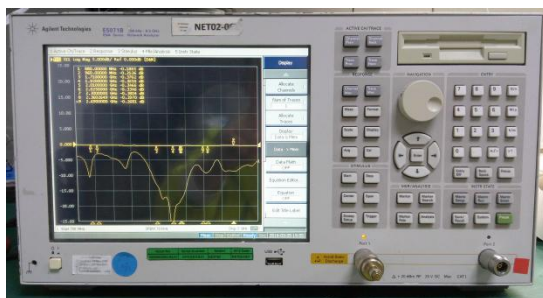
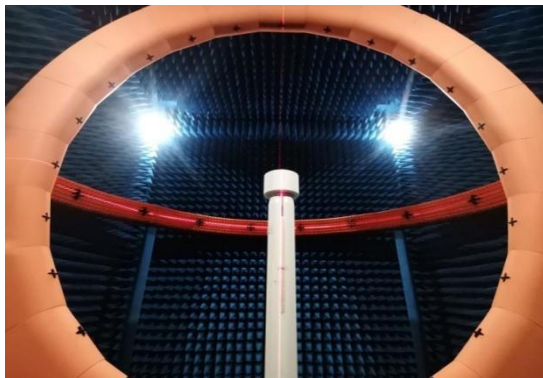


## 二.测试设备及项目 (Test equipment and items) :

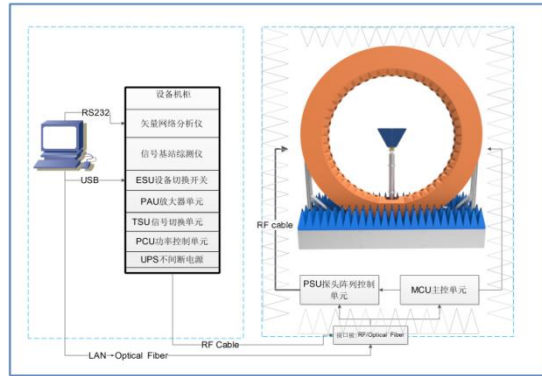
类别 (Class)	测试项目 (Test item)	设备 (Equipment)
1. S parameter	1. 回波损耗(RL) 2. 驻波比 (VSWR) 3. 史密斯原图 (Smith chart)	网分 (VNA) : Agilent E5071B  R&S ZVB8  Protek A333
2. 耦合测试 (Coupling testing)	1. 发射功率 (MAX Power) 2. 接收灵敏度 (MIN Sens)	1. 2G/3G Tester: Agilent 8960 2. The coupling box: TESCOM TC-5060A 3. 3D Chamber: ETS 3D Chamber (5x3x3)
3. 3D 无源测试 (Passive Test)	1. 效率 (Effeciency) 2. 增益 (Gain) 3. 辐射方向图 (radiation pattern)	1. 3D Chamber: TEM24 3D Chamber (5x5x5) ETS 3D Chamber (5x3x3) 2. 网分 (VNA) : Agilent E5071B R&S ZVB8



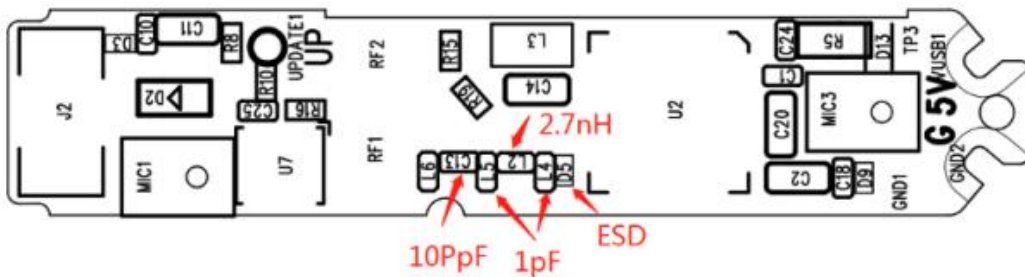
<p>4.3D 有源测试 (Active Test)</p>	<p>1. 3D 功率 (TRP) 2. 3D 灵敏度 (TIS) 3. 吞吐量 (Throughput rate)</p>	<p>1. 3D Chamber: TEM24 3D Chamber (5x5x5) ETS 3D Chamber (5x3x3) 2.2G/3G Tester: Agilent 8960 3.4G Tester: MT8820C/CMW500 4.WIFI/BT/NB-iot Tester: CMW500 5. 5G Tester: SP9500-CTS 6.Head: HEAD-P10 (FACE-P10)</p>
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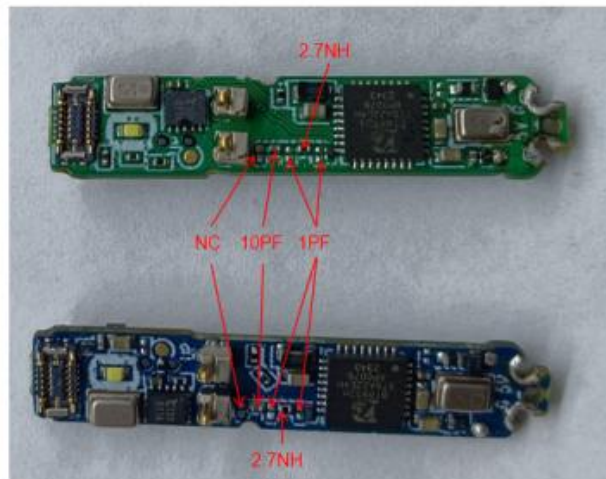
三.暗室连接及坐标 (Chamber connection and coordinates) :



四.天线匹配网络 (Antenna matching network) :



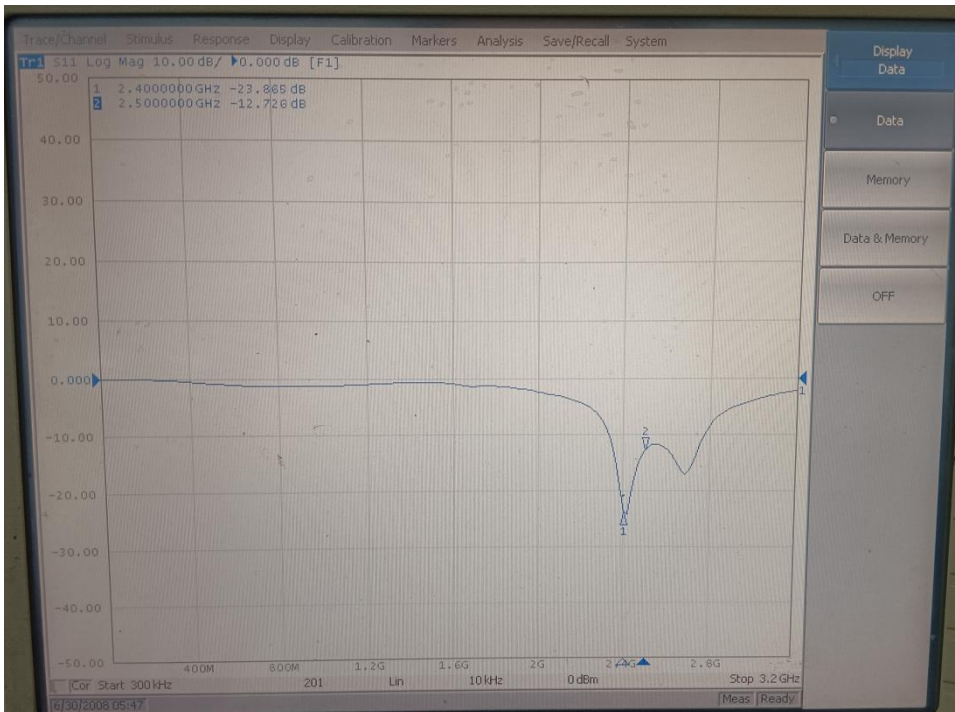
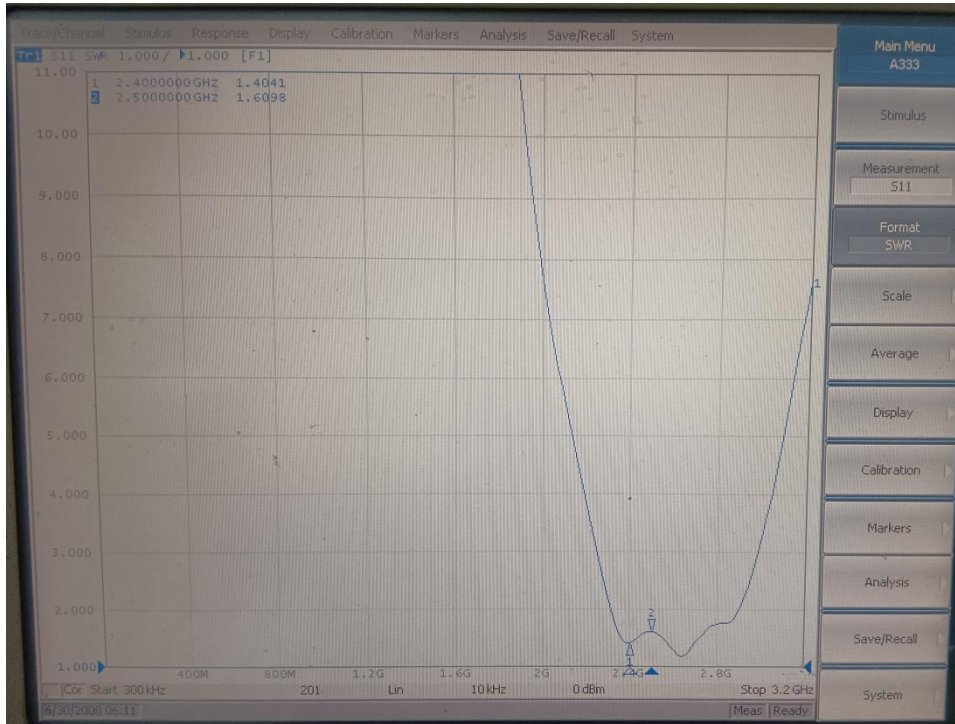
Tag Number	parameter
RF1/RF2	V6
L6	NC
C13	10PF
L5	1PF
L2	2.7NH
L4	1PF
D5	ESD



## 五.天线电性能测试数据 (Antenna electrical performance test data) :

### 5. 1. 天线无源参数 (Antenna passive parameters)

#### 5.1.1. 天线回波损耗/驻波比 (RL/VSWR)



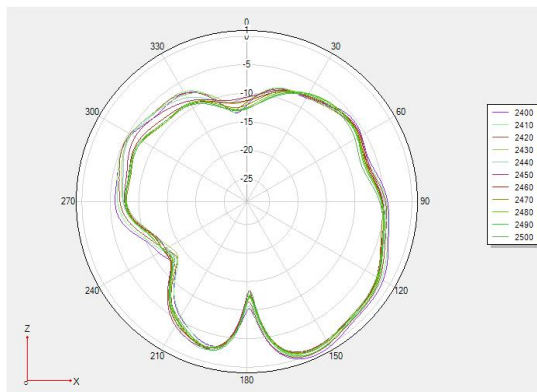


5.1.2. 天线效率 Efficiency/增益 Gain/方向图 Radiation pattern

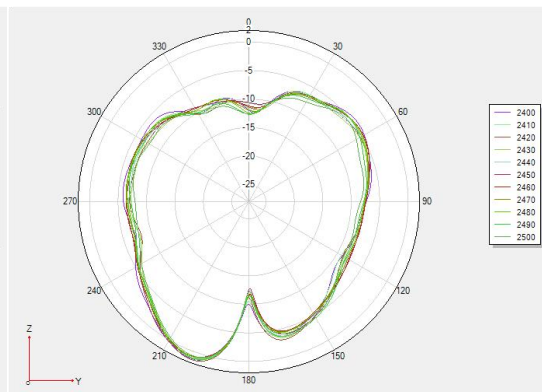
自由空间 (Free Space)

Frequency (MHz)	Efficiency (dB)	Efficiency (%)	MAX Gain dBi
2400	-4.6	34.67	2.3
2410	-4.81	33.04	2.02
2420	-4.65	34.28	2.22
2430	-4.82	32.96	1.78
2440	-4.49	35.56	2.18
2450	-4.46	35.81	2.41
2460	-4.69	33.96	2.47
2470	-4.64	34.36	2.87
2480	-4.66	34.2	2.92
2490	-4.49	35.56	3.15
2500	-4.8	33.11	2.76

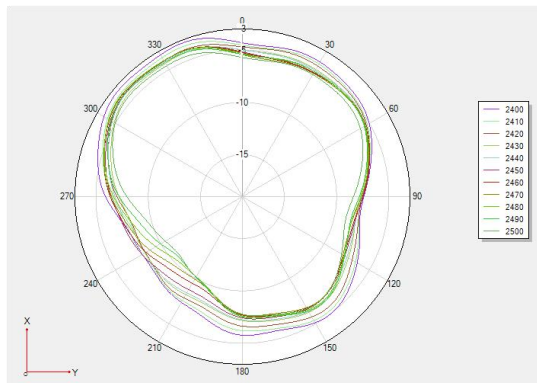
2D 方向图 (2D Radiation pattern)



Phi=0 freq@2.4g



Phi=90 freq@2.4g

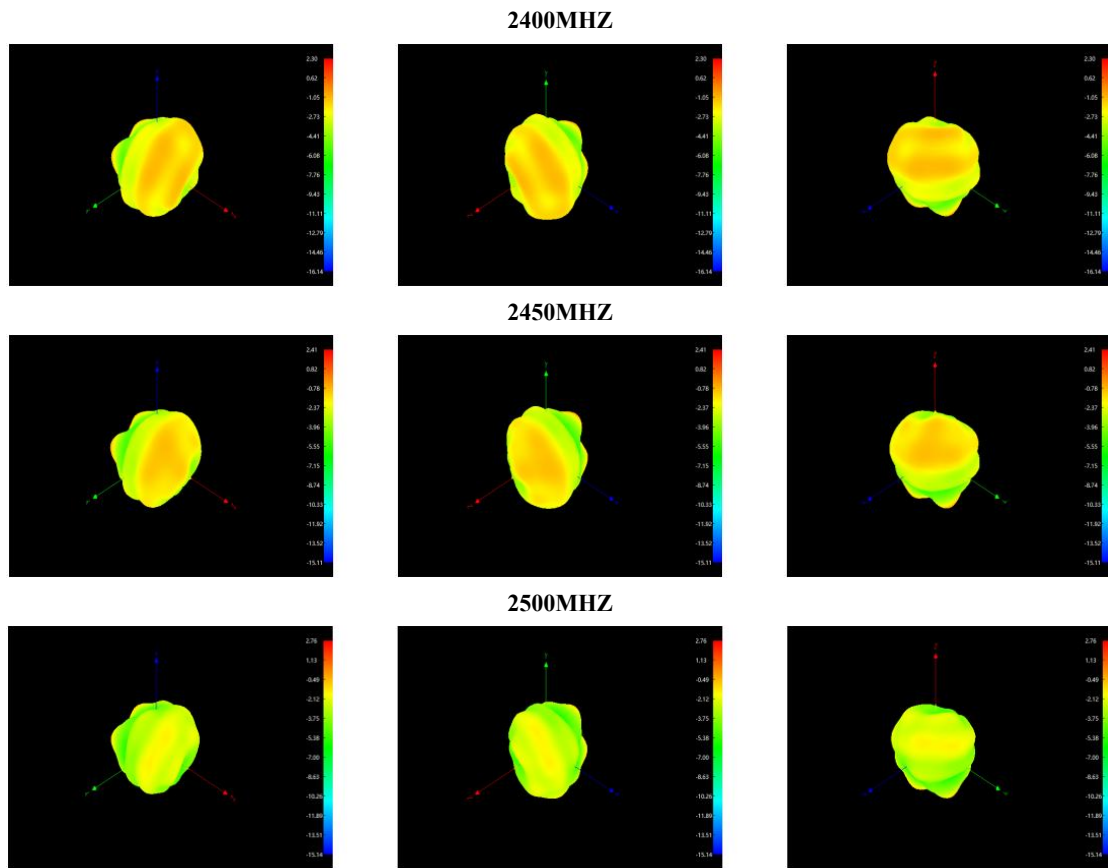


Theta=90 freq@2.4g





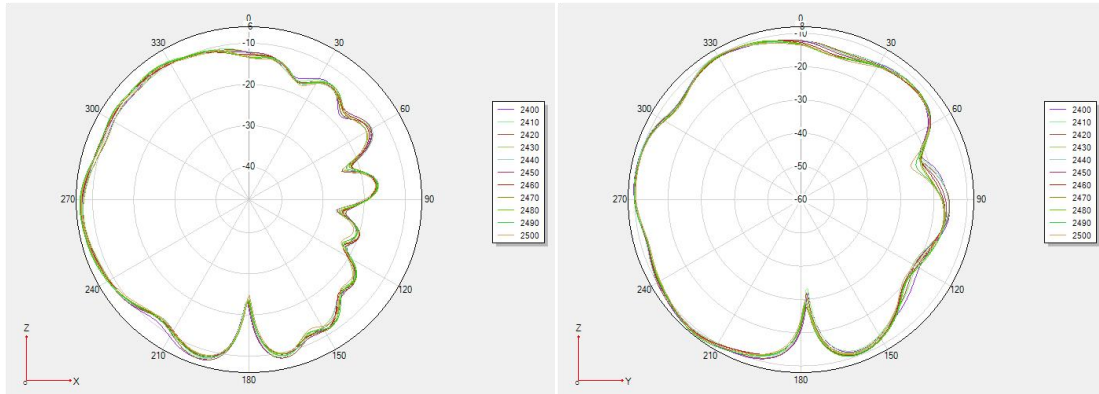
3D 方向图 (3D Radiation pattern)



人头耳 (Head and Ear)

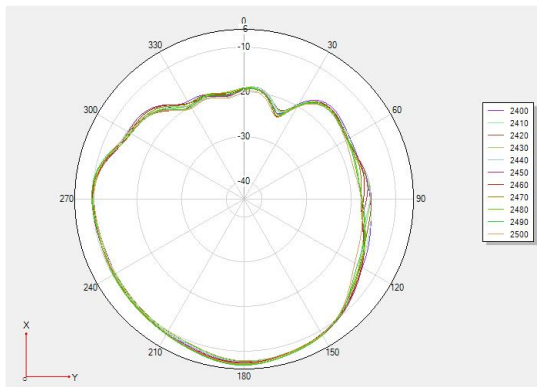
Frequency (MHz)	Efficiency (dB)	Efficiency (%)	MAX Gain dBi
2400	-12.9	5.13	-6.46
2410	-12.98	5.04	-6.67
2420	-12.81	5.24	-6.37
2430	-12.94	5.08	-6.75
2440	-12.62	5.47	-6.52
2450	-12.71	5.36	-6.79
2460	-12.9	5.13	-6.75
2470	-12.78	5.27	-6.48
2480	-12.64	5.45	-6.22
2490	-12.32	5.86	-6.09
2500	-12.48	5.65	-6.36

2D 方向图 (2D Radiation pattern) unit: dBi



**Phi=0 freq@2.4g**

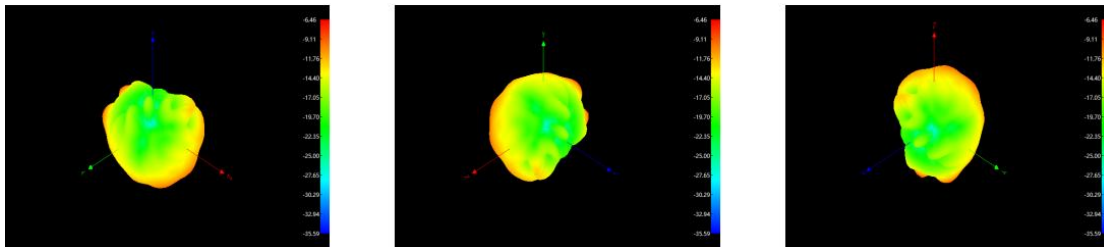
**Phi=90 freq@2.4g**



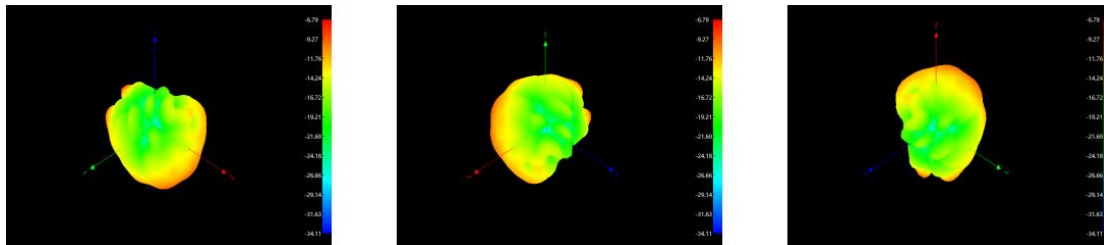
**Theta=90 freq@2.4g**

3D 方向图 (3D Radiation pattern) unit: dBi

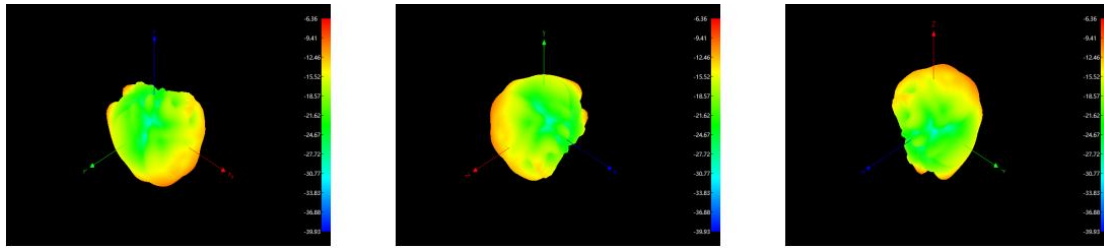
**2400MHZ**



**2450MHZ**



2500MHZ



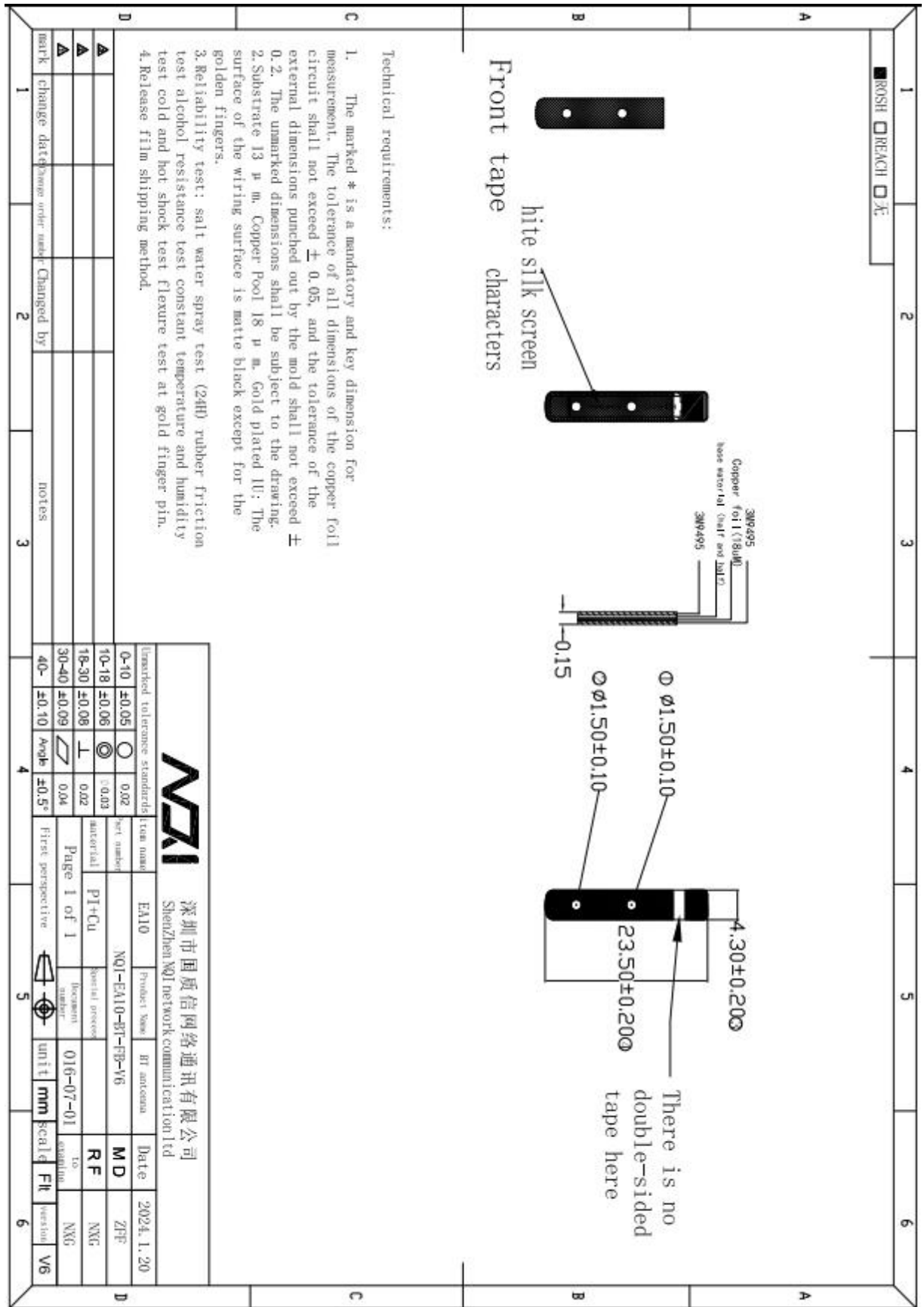
## 5.2 天线有源参数 ( Antenna Active parameter)

### 5.2.1 TRP/TIS

NQI ANT TRP&TIS parameter Summary of EA10					
Free space (自由状态)		Test	Bluetooth TRP&TIS		
		Result	0	39	78
	L	TRP (dBm)	1.06	2.43	3.16
		TIS (dBm)	-81.96	-80.31	-81.25
	R	TRP (dBm)	0.44	2.43	2.82
		TIS (dBm)	-82.31	-81.11	-82.36
Head and ear (二代人头耳)		Test	Bluetooth TRP&TIS		
		Result	0	39	78
	L	TRP (dBm)	2.04	2.62	2.63
		TIS (dBm)	-81.51	-80.82	-81.9
	R	TRP (dBm)	-1.05	1.37	1.18
		TIS (dBm)	-80.97	-80.32	-81.73



六.天线结构图纸 (Antenna structure drawing) :





七、天线包装图纸 (Antenna package drawing) :

Stage name: PCS inspection packag		Product number: EAI		Effective time: 2023.12.29		Version: A	
Product name: BT		No: /		Page number: 1 page total 1 page			
Packing instruction book							
<b>Typography</b>							
Materials:							
NO	PART NUMBER	PART NAME	QTY	VENDER	NOTE		
1	/	/	/	/	/		
Finger Gloves							
Operation Steps:							
1 : Check the appearance of the product is flat, there is no dirt, scratches, copper leakage, poor printing and other undesirable phenomena. 2 : Key dimension inspection (see engineering drawing) 3 : The product is arranged in PE bag according to the rule; if it is found to be defective, remove the defective product; 4 : Mass output goods to be packed, affixed to the outer box label; label location requirements consistent.							
Points to note:							
1 : It is forbidden to have crease fracture, copper leakage, poor gold plating and serious size problems during 2 : The material number and quantity corresponding to each product shall be indicated.							
Made:	He Ping	check	hejuan	Approval	Yang Xiaoyin		



八、重点尺寸检验报告 (Key dimension inspection report) :

Dimensional inspection report



Customer	Baseus	Entry name	EA10 BT						
Material	FPC	<input checked="" type="checkbox"/>	ROHS						
Appearance inspection items	<input type="checkbox"/> Lacquer leakage <input type="checkbox"/> Wire breakage <input type="checkbox"/> Short circuit <input type="checkbox"/> Scratches <input type="checkbox"/> Dirty <input type="checkbox"/> Cracking (missed processing) Number of defects: 0								
Functional or dimensional inspection records									
NO	ck serial num	nsional tolera	Inspection results					ing instrum	Judgment
			1	2	3	4	5		
FPC	1	1.5 ± 0.1	1.55	1.52	1.52	1.51	1.53	DN	OK
	2	1.5 ± 0.1	1.53	1.52	1.53	1.51	1.54	DN	OK
	3	4.30 ± 0.2	4.38	4.32	4.36	4.33	4.37	DN	OK
	4	23.5 ± 0.2	23.58	23.55	23.56	23.51	23.54	DN	OK
pass	<input checked="" type="checkbox"/>	fail	<input type="checkbox"/>	Not processed through methods		<input type="checkbox"/>	do over again	<input type="checkbox"/>	Special procurement use
Measurement instrument code description: Projector PP plug gauge PG height gauge HG angle gauge AG vernier caliper N digital caliper DN outer diameter microm Three coordinate 3D thread gauge SG special fixture SE visual inspection E									
Remarks:									
Tested by:							Zhou Peng		

## 九、环境及可靠性试验 (Environment and reliability test) :

### 9.1.盐雾测试报告 (Salt spray test report)

ShenZhen NQI network communication ltd

#### Salt spray test report

Product name	BT-L antenna	Sample Qty	2PCS	Test date	2024/01/24
Customer	BASEUS	Part/No.	NQI-EA10-BT-FB-V6	Product spec.	FPC
Test time	≤8H ≤12H ≤24H <input checked="" type="checkbox"/> 48H ≤72H				
Test Item	Salt spray test				
Test Requirement					
Condition items	Setting		Reference		
Concentration of salt solution	5±1%		GB/T10125-1997		
PH of salt solution	6.5-7.2				
Test room Temperature	35±2℃				
Salt solution barrel temperature	35±2℃				
Saturated air barrel temperature	47±1℃				
Test room relative humidity	85±2%RH				
Pressure of compressed air	1.00±0.01KG/CM <sup>2</sup>				
Sample place angle	15-30°				
Collected volume of salt spray	1.0-2.0ml (80cm <sup>2</sup> /H)				
Result of measurement					
1. Test diagram & test method					
Pre-test sample	Sample after test			Result determination	
				√ PASS NO PASS Deviation	

Controlled form: NQI-ST-01



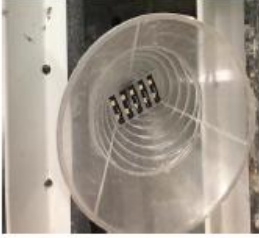

Producer: zhangfangfar Checked: weidaofa

Approval:

niuxinggang



9.2.低温储存试验 (Cryogenic storage test)

ShenZhen NQI network communication ltd				
Cryogenic storage test report				
Report date 202329 June			Report no: 20220115-1	
Product name	EA10-BT antenna	No	NQI-EA10-BT-FB-V3	
PART NAME ATION		CUSTOMER P/N		
Customers	Baseus	Number of tests	2PCS	
CUSTOMER		CHECK QTY		
Test criteria	Enterprise standards	Test time	2023/12/27	
TEST STANDARD		THE TEST OF TIME	2023/12/29	
<b>一. Test conditions/methods</b>				
The samples were stored at $-40 \pm 3^{\circ} \text{C}$ for 48 hours and at room temperature for 2 hours.				
<b>二. Criteria</b>				
After the test, to meet the following requirements, that is, qualified;				
1.FPC appearance no discoloration, foaming, ink off, deformation, viscosity unchanged;				
2.Voltage standing wave ratio (VSWR) test qualified				
<b>三. Test results</b>				
Description of test results				
1.The overall appearance of the sample is good, FPC appearance no discoloration, blistering, coating off, deformation;				
2.The test waveform is consistent with the seal sample.				
FINAL RESULT	PASS		REJECT	
surveyor INSPECTOR	Lo Wing-sau	check CHECKED BY	Chen Yicai	
The form number: WI-QC-036/B01/A0				
<b>四. Test photos</b>				
1.Pre-test sample		2. Test photos		
				
3.Test diagram		4. Graphic representation of the post-test samples		
				
<b>五. The test involves equipment information</b>				
erial numb	The name of the device	Specifications and models	Calibration date	Time for next calibration
1	Programmable constant temperature and humidity box	LK-150G	2023. 1. 26	2024. 1. 25