

I-TOP DESIGN TECHNOLOGY CO., LTD

APPLICATION FOR APPROVAL

Customer Name	Honsenn Technology Co.,Ltd
Model Name.	BN970_Bluetooth_Antenna
Part NO.	FPC Antenna
Customer P/N.	58AA. 0004T. 10300
Environmental Requirement	RoHS
Description	BT-2400MHZ-2500MHZ/ ϕ 0.64MM/L=30MM
Publish Date	2025. 07. 30
Versions	V8. 0
approval cause	New Product

Manufacturer sign

APPROVED BY	CHECKED BY	DRAWN BY

Customer sign

Structural Validation	Electronic Verification	Acoustic Validation	Engineering Verification	Quality Validation

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四、 The basic parameters

A. Electrical Characteristics	
Frequency	2400MHZ-2500MHZ
VSWR	< 3.0
Avg Efficiency	>30%
Impedance	50 ± 25 Ohm
Polarization	Linear
Peak Gain	2.4GHZ:3.65dBi
B. Material & Mechanical Characteristics	
Material of Radiator	FPC black
Cable Type	Four
Connector Type	Φ0.64 L=30MM
Dimension	25.00*18.00±0.15MM
C. Environmental	
Operation Temperature	- 20 °C ~ + 60 °C
Storage Temperature	- 20 °C ~ + 60 °C

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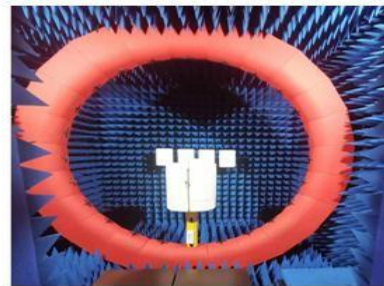
五、Introduction

Microwave darkroom and no reflection chamber, absorbing short wave darkroom dark room. Microwave darkroom by electromagnetic shielding room, filtering and isolation, grounding device, the ventilation duct, indoor distribution system, monitoring system, ceiling wave material part. It is based on the wave absorbing material as the lining of the shield room, it can absorb the most of the electromagnetic energy into the six wall is a better simulation of the free space conditions.

The main working principle of microwave anechoic chamber is according to the electromagnetic wave in the medium from the low magnetic guide magnetic direction of propagation rules, absorbing materials to guide the electromagnetic wave using high permeability, through resonance, a substantial absorption of electromagnetic wave radiation energy, by coupling the electromagnetic energy into heat energy.

main performance:

Frequency range:400MHz ~ 6GHz ceiling reflected wave loss materials: 400MHz ~ 6GHz is equal to or more than 15dB (microwave absorbing material by composite wave absorbing materials, namely tapered containing carbon sponge suction wave material paste in ferrite).



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六、Test Report

Those specifications were specially defined for BN970 model.

1. Prototype position:



2. Environmental treatment:

The original assembly setup remains unchanged

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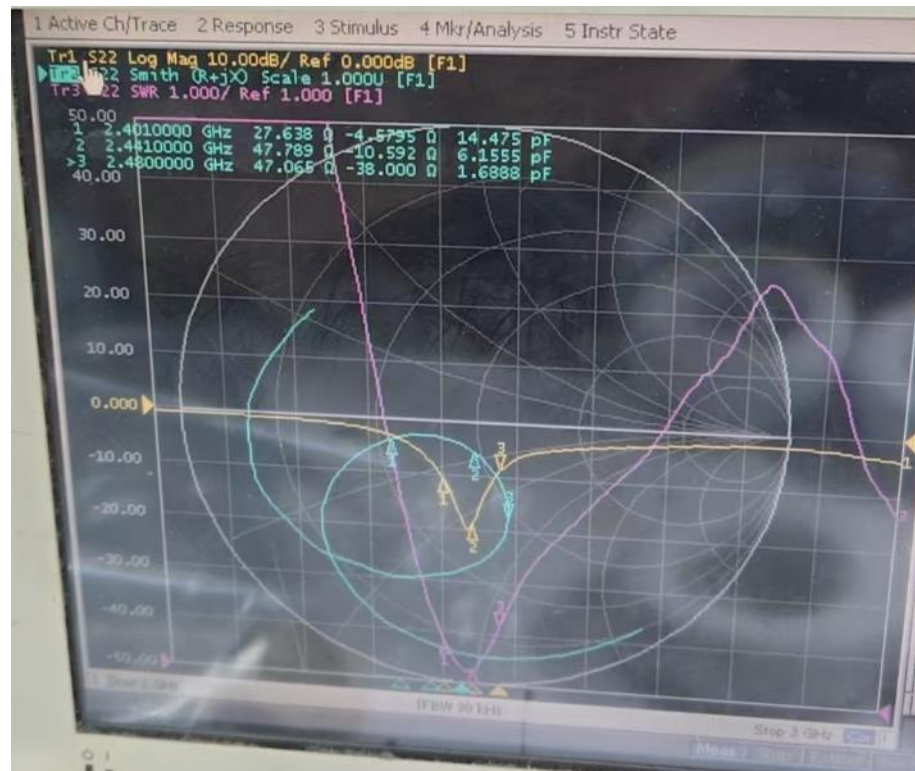
3. VSWR

1. Measuring Method

A 50 Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the VSWR.

Keeping this jig away from metal at least 20cm

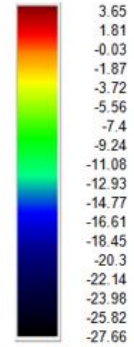
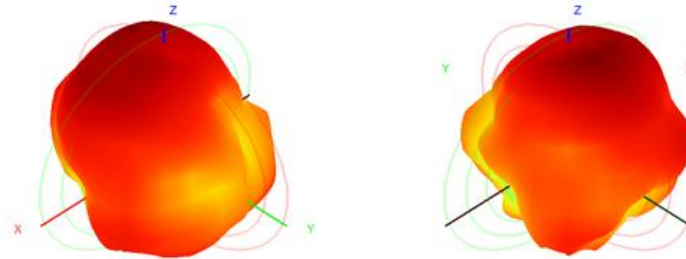
2. Measurement frequency points and VSWR value



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3. 2D/3D field pattern diagram

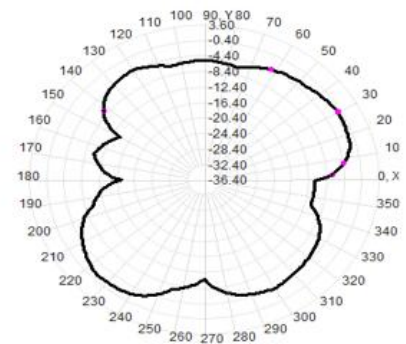
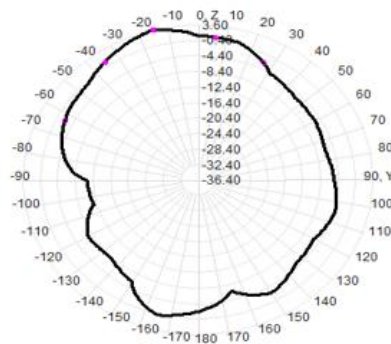
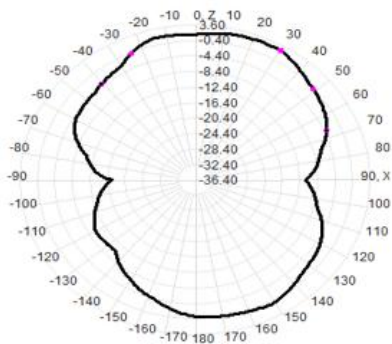
2450MHZ



Total(E1-XZ)

Total(E2-YZ)

Total(H-XY)



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4. Passive efficiency & Gain

Frequency (MHz)	Efficiency (%)	Gain (dBi)
2400	39.58	3.03
2410	41.48	3.16
2420	42.64	3.16
2430	46.16	3.57
2440	44.41	3.46
2450	46.28	3.65
2460	45.56	3.55
2470	42.76	3.22
2480	42.93	3.12
2490	43.33	2.97
2500	40.28	2.42

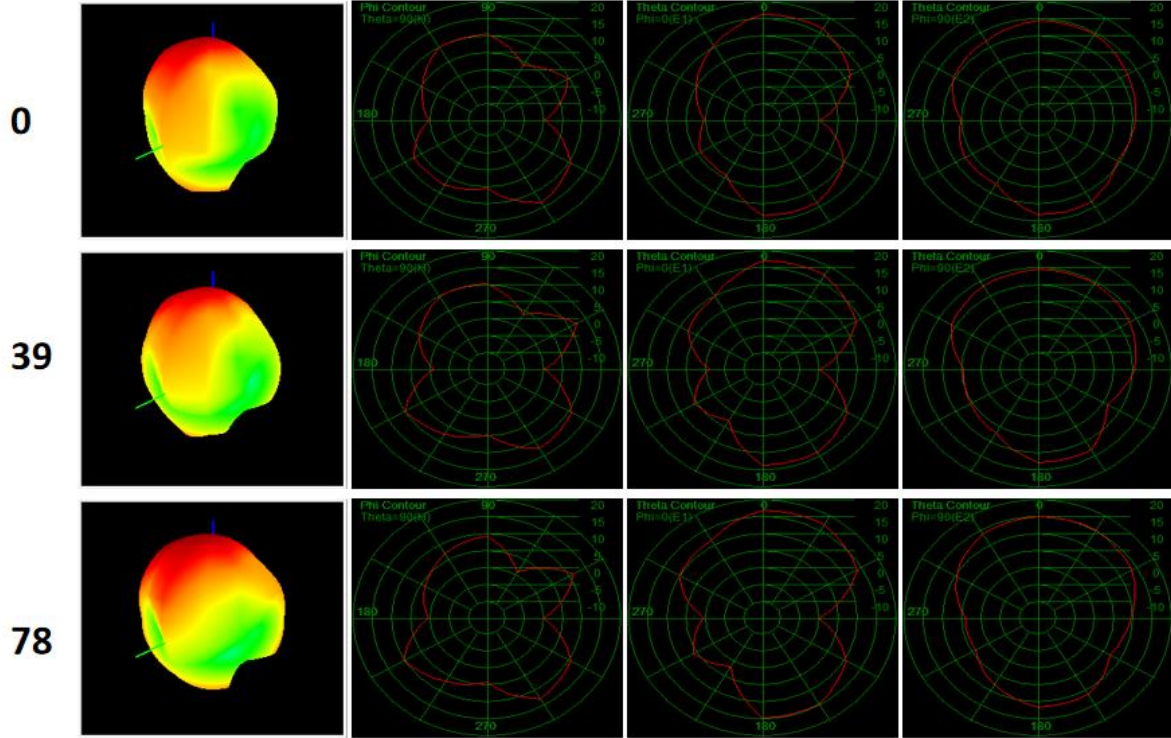
5. OTA active

Free space			Head model space		
BAND	TRP (dBm)	TIS (dBm)	BAND	TRP (dBm)	TIS (dBm)
0	10.13	-94.81	0	9.80	-94.45
39	10.45	-91.54	39	10.22	-91.32
78	10.72	-92.93	78	10.58	-92.78

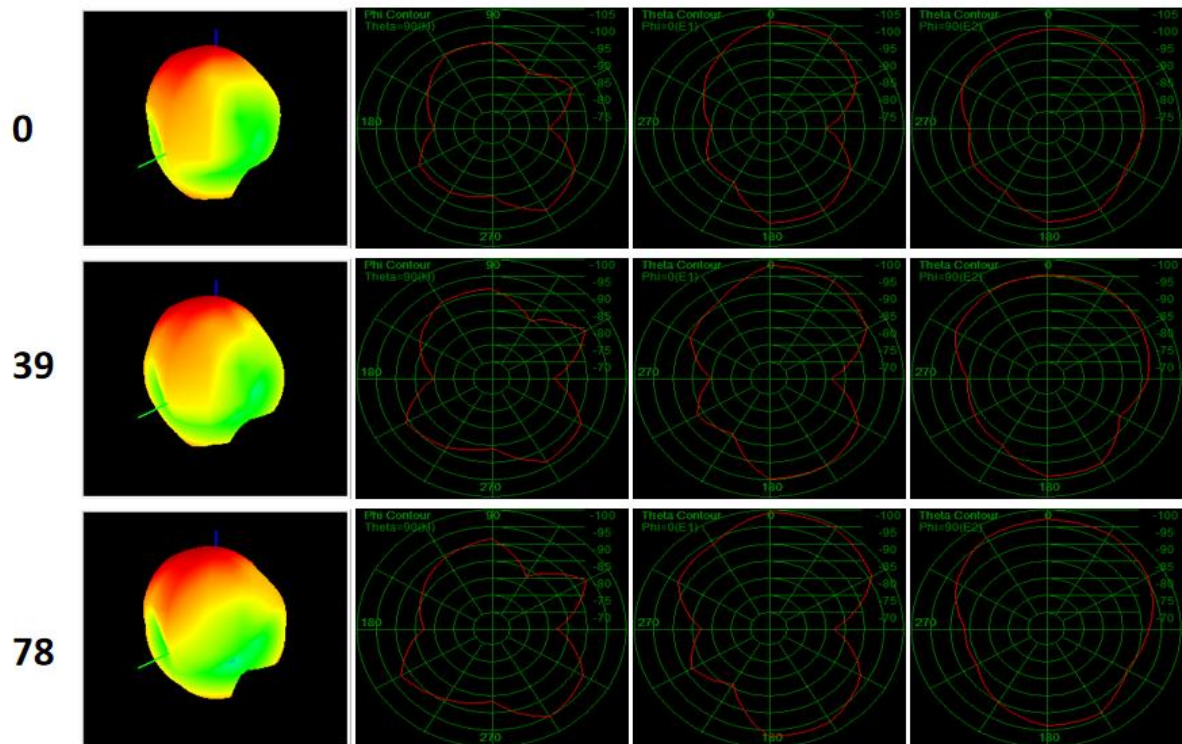
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6. Active 3D&2D field pattern diagrams

Free space TRP

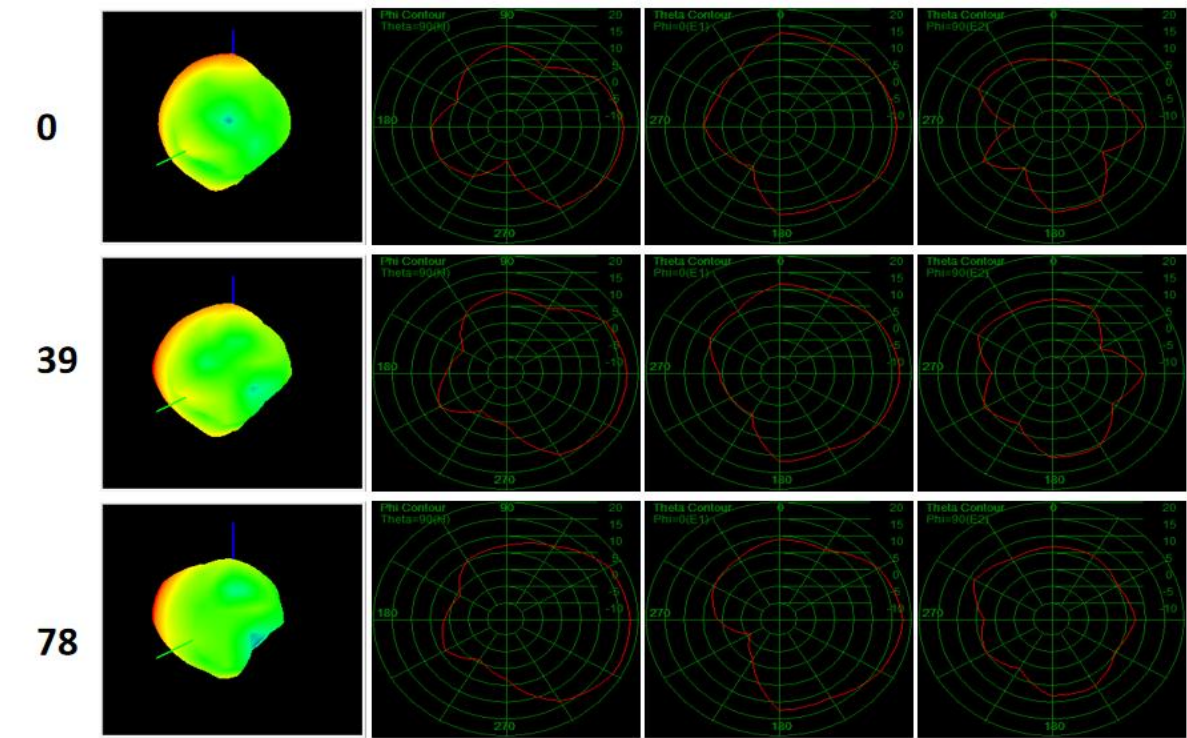


Free space TIS

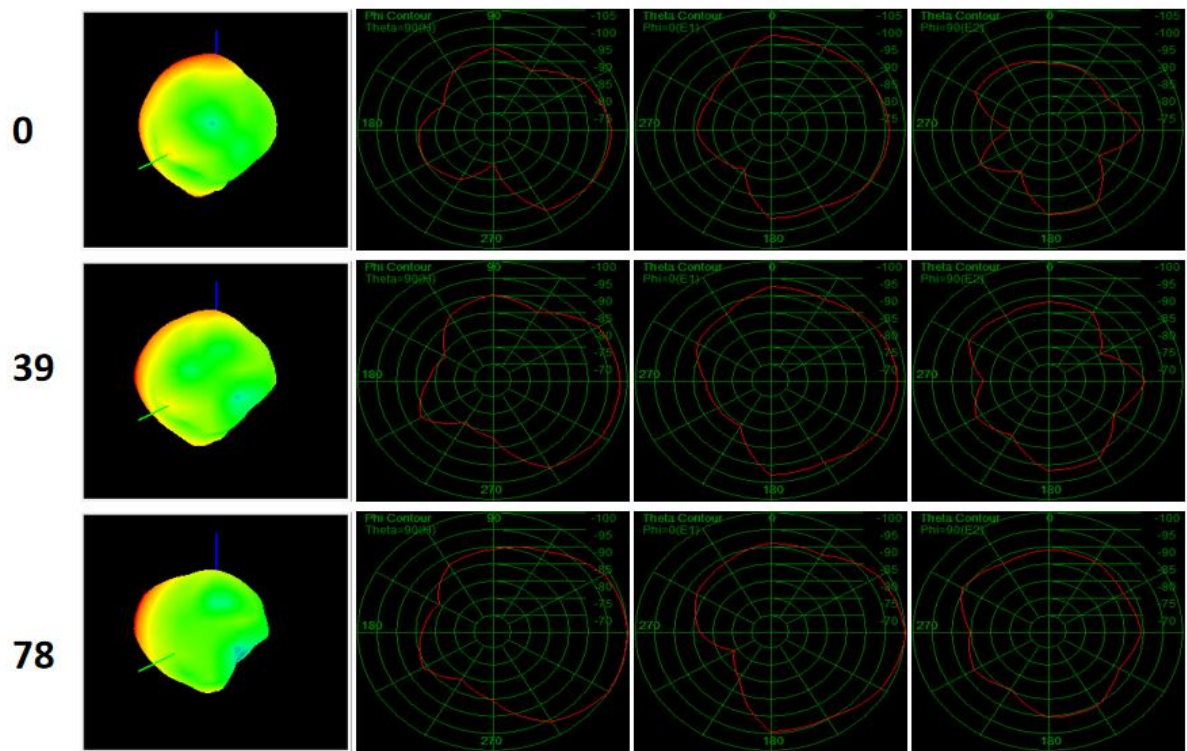


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Head model space-TRP

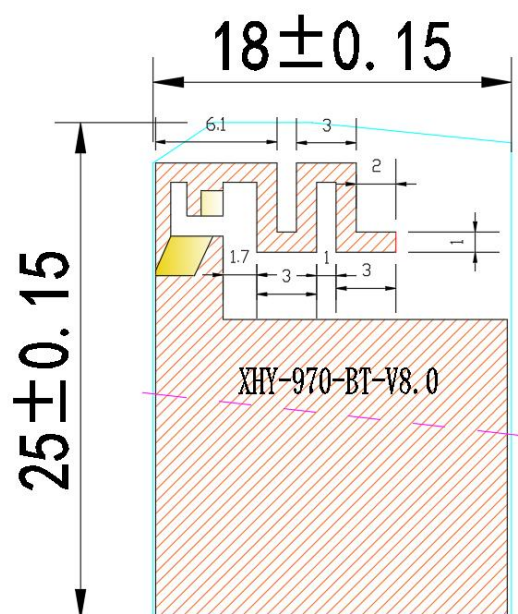


Head model space-TIS

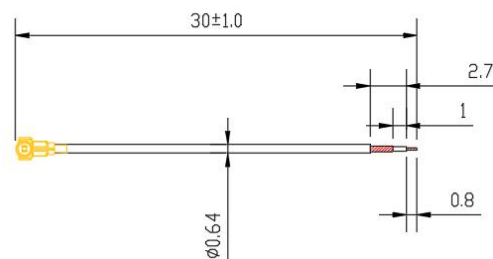
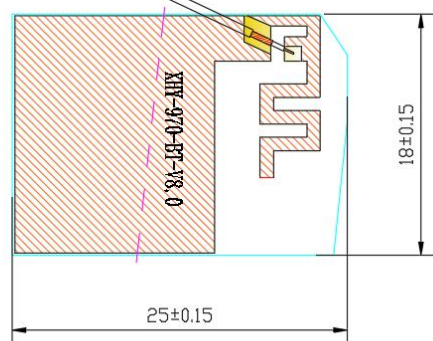
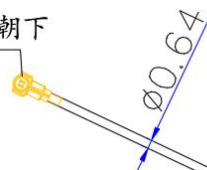


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七、Product Drawing



4代端子, 焊接端子口朝下



注:

1: 金手指OSP



1: 布铜区域



2: 基材区域



- 3、背胶采用3M 300LSE, 粘性在300MP以上, 无特别说明, 背胶外形与基材一致, 覆在基材背面, 背胶做半切;
- 4、FPC材质电解铜、单面版, 铜箔为一对半基材, 柔韧性要好;
- 5、产品覆油后经180°折弯表面无裂痕现象, 柔韧性要好;
- 6、金手指表面镀沉金3~5u", 不可有氧化现象, 以铜箔相接处, 经180°折弯之后无裂痕、不导通现象, 非模样可不电镀;
- 7、走线及孔精确公差范围: ±0.03mm, 外形尺寸公差控制在0.1mm以内;
- 8、未标注尺寸按CAD电子图档1:1量取;
- 9、未开模产品打样外形需要用激光切割, 如果用手工切割, 要注意外形要切割准一些, 已开模产品打样外形需要用模具冲切;
- 10、所来非模样, 需要切割好外形之后, 在送样到我司;
- 11、表面印字, 具体内容及位置见图

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八、RoHS

Antenna D7. TXBK9703 meets RoHS requirements See electronic file for details.

九、Product packaging instructions

A. packing should meet the moistureproof, vibration, pressure and mildew proof, etc.

B. the smallest packing unit logo must have the manufacturer trademarks, product model, name, code and quantity.

C. in the attached packing list, certificate of approval, and the factory inspection report.

*****END*****