

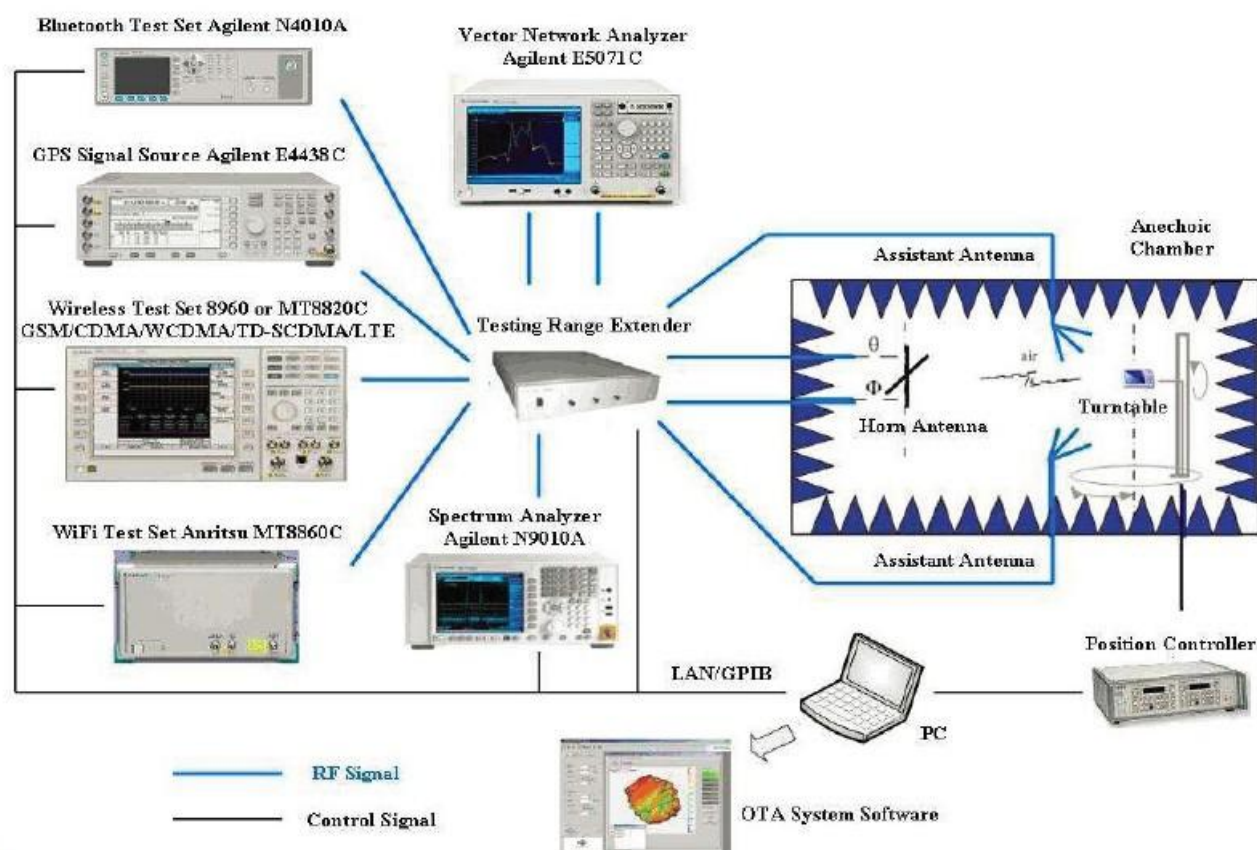
Antenna specification for approval

Customer name	中翔达润		
Model	07		
Antenna band	BT2400-2483HZM		
Antenna type	FPC		
Antenna material	铜箔		
FPC color	黑色		
Material number	07-FPC-V1.1		
厂商承认签章 Baren accepted the signature		客户承认签章 Client acknowledges signature	
structure		Purchase	
QC		structure	
radio frequency		engineering	
To examine		QC	
日期 date	盖章区 Seal area	日期 date	盖章区 Seal area

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一: Device Support & Testable Antenna Types



天线功能	频率范围	测试仪器	测试方式	测试标准
2G天线 (GSM)	824MHz-960MHz, 1710MHz-1990MHz	5071B、8960、 OTA暗室	有源测试、无源测试	索沃德标准、客户要求
3G天线 (WCDMA/TDSCDMA/CDMA-EVDO/2000)	824MHz-960MHz, 1710MHz-2170MHz	5071B、8960、 OTA暗室	有源测试、无源测试	索沃德标准、客户要求
4G天线 (LTE-FDD/LTE-TDD)		5071B、CMW500、 SP8011、OTA暗室	有源测试、无源测试	索沃德标准、客户要求
WIFI天线	2.4GHz-2.48GHz, 5.15GHz-5.35GHz, 5.725GHz-5.825GHz	5071B、CMW500、 OTA暗室、路由器 、PC	有源测试、无源测试 、APK实测、吞吐量 测试	索沃德标准、客户要求
BT天线	2.4GHz-2.48GHz	5071B、OTA暗室 、蓝牙音箱	无源测试、实测	索沃德标准、客户要求
定位天线 (GPS、GLONASS、北斗、伽利略)	1575.42MHz±10MHz 1602MHz±0.5625MHz 1561MHz±2.046MHz	5071B、OTA暗室 、APK	无源测试、实测	索沃德标准、客户要求
NFC天线	13.56MHz	5071B、专用测试 治具、OTA暗室、 APK	无源测试、实测	索沃德标准、客户要求
遥控天线	433MHz	5071B、OTA暗室	无源测试、实测	索沃德标准、客户要求

二: Overview

(1)Antenna performance

1. This approval sheet supports for MID project. FPC antennas include in this project. This report is for the performance of BT antenna.
2. Antenna shape size: Meet the requirement of MID
3. Antenna band: 2400MHz~2500MHz
4. Antenna material: Antenna material meet the requirement of MID
5. Adhesive performance: Adhesive performance meet the requirement of MID
6. Antenna performance meet the spec below:

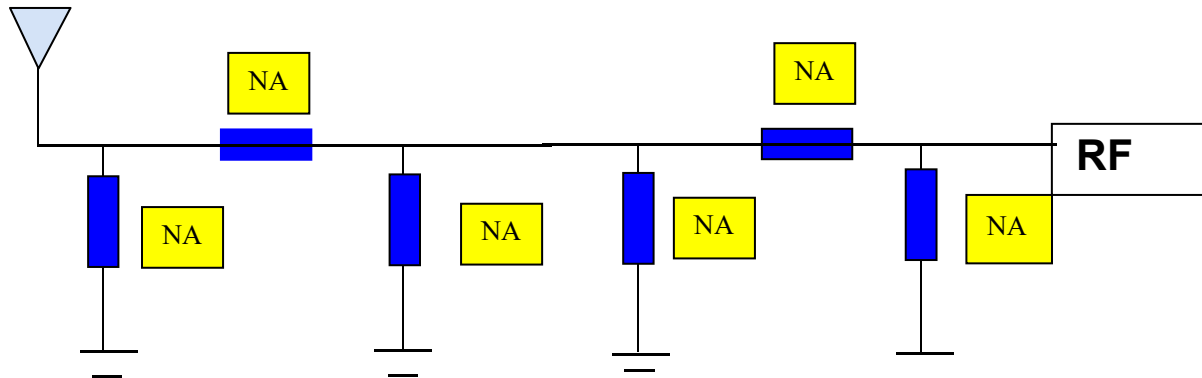
Description	FM	Units
VSWR	≤ 5	
Antenna Gain	1.25	dBi
Antenna Efficiency	≥ 20	%
Feed Impedance	50 ohms	
Operating Temperature	-40 to +85 deg C	
Polarization / Azimuth	Linear / Omni-directional	

(2)Mechanical Information

Mechanical Dimension	
Cable Length	NA
Description	BT
Material	FPC
Coaxial Cable	NA
Environmental	
Operation Temperature	-40 to +85 deg C
Storage Temperature	-40 to +85 deg C

≡: matching circuit diagram & machine picture & antenna picture

(1) matching circuit



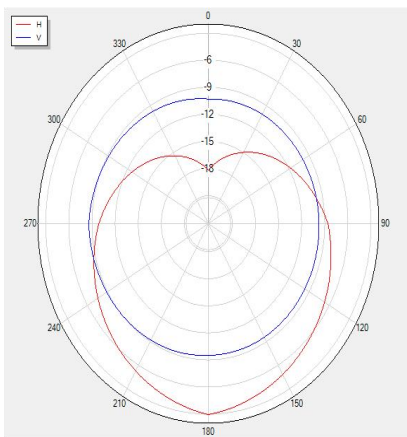
(2) Machine pictures & antenna pictures

1: Gold Finger OSP; 3: Surface Black Matte Ink; 4: Complies with the latest environmental protection requirements: RoHS & REACH

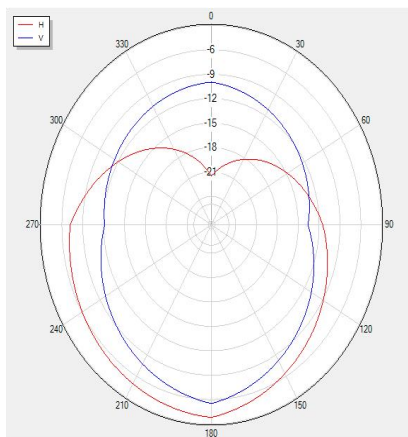
四：efficiency gain

Frequency	Effic	Percen	Gain
2400	-5.09	30.98%	-0.57
2410	-4.84	32.83%	-0.27
2420	-5.14	30.63%	-0.55
2430	-5.06	31.2%	-0.34
2440	-5.65	27.26%	-0.27
2450	-5.69	26.99%	-0.13
2460	-5.7	26.9%	0.39
2470	-5.44	28.58%	0.94
2480	-5.13	30.71%	1.25
2490	-5.04	31.31%	1.23
2500	-4.68	34.02%	1.19

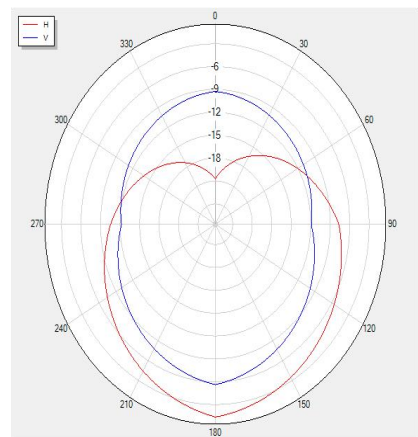
2400 Polar



2450 Polar



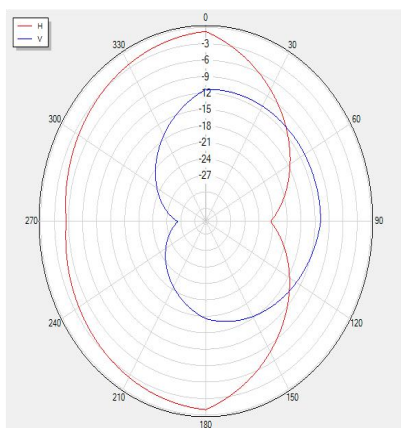
2500 Polar



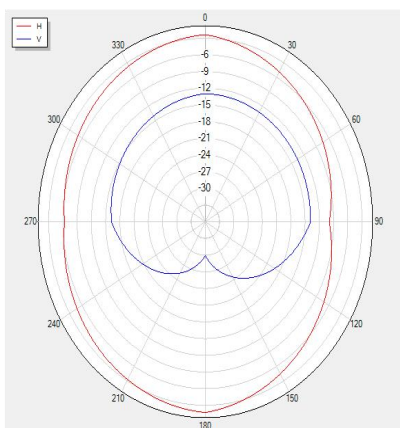
五: OTA data

Standard	Band	Chan	BW	Freq	Type	MAX	TRP/TIS	
BT	BLUETOOTH	0	1	2402	Trp	3.22	1.73	L
BT	BLUETOOTH	39	1	2441	Trp	2.38	1.4	
BT	BLUETOOTH	78	1	2480	Trp	3.7	1.75	
BT	BLUETOOTH	0	1	2402	Tis_Rssi	-87.64	-85.15	
BT	BLUETOOTH	39	1	2441	Tis_Rssi	-86.14	-84.36	
BT	BLUETOOTH	78	1	2480	Tis_Rssi	-88.88	-85.43	
Standard	Band	Chan	BW	Freq	Type	MAX	TRP/TIS	
BT	BLUETOOTH	0	1	2402	Trp	4.33	2.05	R
BT	BLUETOOTH	39	1	2441	Trp	3.58	2.51	
BT	BLUETOOTH	78	1	2480	Trp	5.05	1.54	
BT	BLUETOOTH	0	1	2402	Tis_Rssi	-85.69	-84.41	
BT	BLUETOOTH	39	1	2441	Tis_Rssi	-84.98	-83.92	
BT	BLUETOOTH	78	1	2480	Tis_Rssi	-85.09	-83.58	

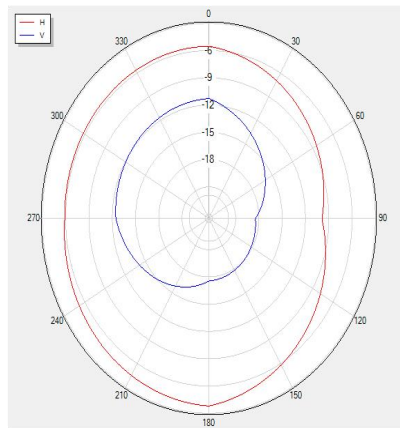
BLUETOOTH_Trp_H0 Polar



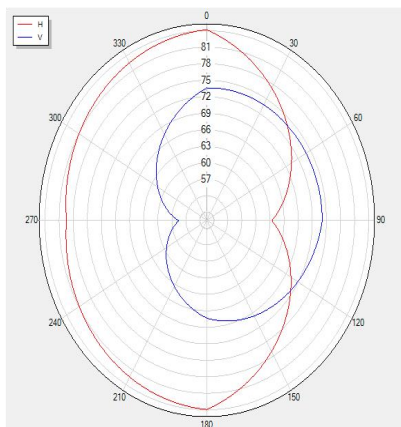
BLUETOOTH_Trp_H39 Polar



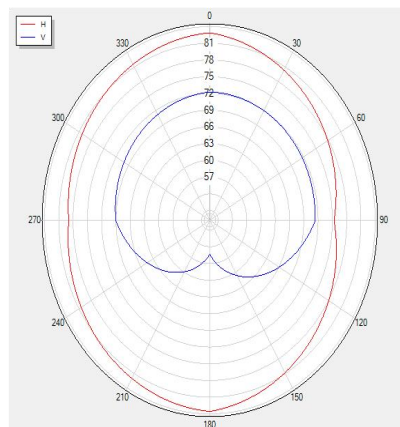
BLUETOOTH_Trp_H78 Polar



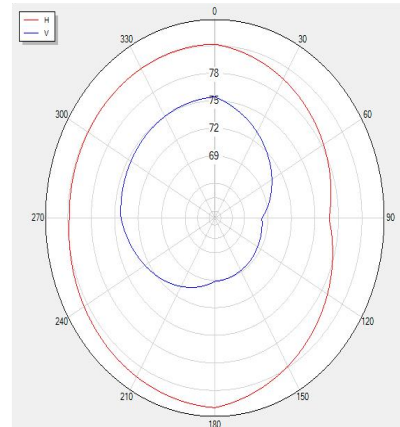
BLUETOOTH_Tis_Rssi_H0 Polar



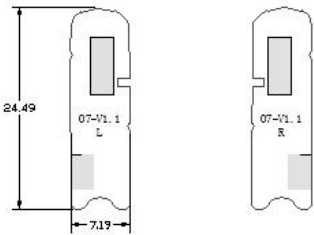
BLUETOOTH_Tis_Rssi_H39 Polar



BLUETOOTH_Tis_Rssi_H78 Polar



六: structural drawings

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环保要求: ☒ ROSH ☐ REACH ☐ 无																																																																																						
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Technical Requirements: 1. Dimensions marked with * are mandatory and key dimensions. The dimensional tolerance of all copper foil lines shall not exceed ± 0.05 , and the dimensional tolerance of die-cut external shape shall not exceed ± 0.1 . Unmarked dimensions shall be based on the graphics. 2. Base material: $12.5\mu\text{m}$; Copper foil: $18\mu\text{m}$; Nickel plating: $1.5\sim 5.0\mu\text{m}$; Gold plating: $1\mu\text{m}$; The surface of the wiring layer except for pads shall be matte black and non-gold-plated. 3. Reliability tests: Salt spray test (48H); Rubber friction test; Alcohol resistance test; Constant temperature and humidity test; Thermal shock test; Flexibility test at gold finger pin area. 4. Character requirements: Bright white; Font: Arial; Font size as shown in the diagram. 5. is the wiring area, is the gold-plated area.																																																																																						
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<table border="1"><tr><td colspan="4">未注公差标准</td><td colspan="8">深圳市咏成国际科技有限公司 Shenzhen Yongcheng International Technology Co., Ltd</td></tr><tr><td>0-10</td><td>± 0.05</td><td></td><td>0.02</td><td>机种</td><td>耳机</td><td>品名</td><td>07-FPC-V1.1</td><td>日期</td><td colspan="3">20251024</td></tr><tr><td>10-18</td><td>± 0.06</td><td></td><td>$\phi 0.03$</td><td>料号</td><td colspan="3"></td><td>MD</td><td colspan="3"></td></tr><tr><td>18-30</td><td>± 0.08</td><td></td><td>0.02</td><td>材料</td><td>PI 1铜半</td><td>特殊工艺</td><td></td><td>RF</td><td colspan="3"></td></tr><tr><td>30-40</td><td>± 0.09</td><td></td><td>0.04</td><td colspan="4">共 3 页 第 1 页</td><td>文件编号</td><td>016.03.15</td><td>审核</td><td></td></tr><tr><td>40-</td><td>± 0.10</td><td>Angle</td><td>$\pm 0.5^\circ$</td><td colspan="4">第一视角</td><td></td><td>单位</td><td>mm</td><td>比例</td><td>FIT</td><td>版本</td><td>A00</td></tr></table>												未注公差标准				深圳市咏成国际科技有限公司 Shenzhen Yongcheng International Technology Co., Ltd								0-10	± 0.05		0.02	机种	耳机	品名	07-FPC-V1.1	日期	20251024			10-18	± 0.06		$\phi 0.03$	料号				MD				18-30	± 0.08		0.02	材料	PI 1铜半	特殊工艺		RF				30-40	± 0.09		0.04	共 3 页 第 1 页				文件编号	016.03.15	审核		40-	± 0.10	Angle	$\pm 0.5^\circ$	第一视角					单位	mm	比例	FIT	版本	A00
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