

安特微智能通讯（深圳）有限公司

Ante intelligent Communications(shenzhen)CO.,Ltd

编号：ATW-GC-003 A/0

天线承认书ANT APPROVAL

客户名称Customer: 臻柏声学

客户料号Customer P/N: G06120000003

物料编码Material Code: ATWE-01-0436-010

产品名称Product Name: ZM201-Pro-RX-2.4G 天

线天线签发日期Issued Date: 2023-04-27

厂商承认栏Supplier confirm:

拟制 Prepared by	审核 Reviewed by	批准 Approved by

客户承认栏Customer confirm:

确认 Checked by	审核 Reviewed by	批准 Approved by

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制/修订变更履历表Change history

版本 Version	日期 Date	变更描述 Description	备注 Remark
V0	2023-04-27	初版	

一、目的Purpose:

1. 通过本承认书对产品特性和检验标准的描述，与客户之间能够更好地进行沟通，达成一致的意见，避免因未充分沟通引起的产品质量纠纷。Through the description of product characteristics and inspection standards in this recognition letter, we can better communicate with customers, reach a consensus, and avoid product quality disputes caused by insufficient communication.
2. 本公司产品需要在贵司外协工厂使用时，请将本承认书内容联络贵司外协。
When our products need to be used in your outsourcing factory, please contact your outsourcing company for the content of this acknowledgment.

3. 使用环境的注意事项Precautions for Operating Environment:

FPC 天线是按照一般使用环境设计的（0~25 摄氏度，湿度 30%~70% 常压）。在以下场合长时间使用时会降低产品的质量，使用时请注意：

The FPC antenna is designed according to the general usage environment (0-25 degrees Celsius, temperature 30-70% atmospheric pressure). Prolonged use in the following situations can reduce the quality of the product. Please note when using:

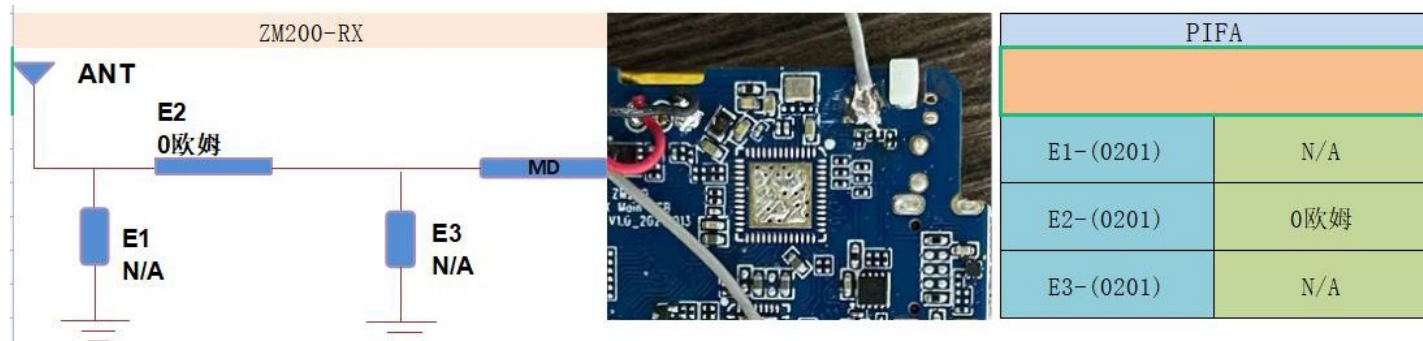
3. 1. 还原性气体（C12, H2S, NH3 等）Reducing gases (C12, H2S, NH3, etc.).
 3. 2. 挥发性/易烯性气体环境Volatile/flammable gas environment.
 3. 3. 直接接触水或湿度较大结露的场所Places in direct contact with water or with high humidity and condensation.
 3. 4. 油脂、药液、有机溶液的场所Places for fats, medicinal liquids, and organic solutions.
 3. 5. 震动的场所Place of vibration.
 3. 6. 阳光直射的场所Places with direct sunlight.
- ### 4. 保管与使用Storage and Use
- 为防止产品变色，可焊性下降，以及在装配时发生发泡异常，需遵守以下保管条件。
To prevent product discoloration, decreased solderability, and abnormal foaming during assembly, the following storage conditions must be observed.
- 4.1. 高温高湿环境会导致产品变色，建议在恒温、恒湿的环境中管理保管。High temperature and humidity environments can cause product discoloration. It is recommended to manage and store in a constant temperature and humidity environment.
 - 4.2. FPC 的PI 薄膜非常容易吸湿，在吸湿状态如果温度急剧变化会产生发泡现象，建议在装配（SMT等）之前按照条件进行预备烘烤。烘烤后的产品请尽量在2HR内使用。The PI film of FPC is very hygroscopic, and if the temperature changes sharply in the hygroscopic state, foaming phenomenon will occur. It is recommended to prepare and bake according to the conditions before assembly (SMT, etc.). Please try to use the baked product within 2HR as much as possible

二、产品材料Product material:

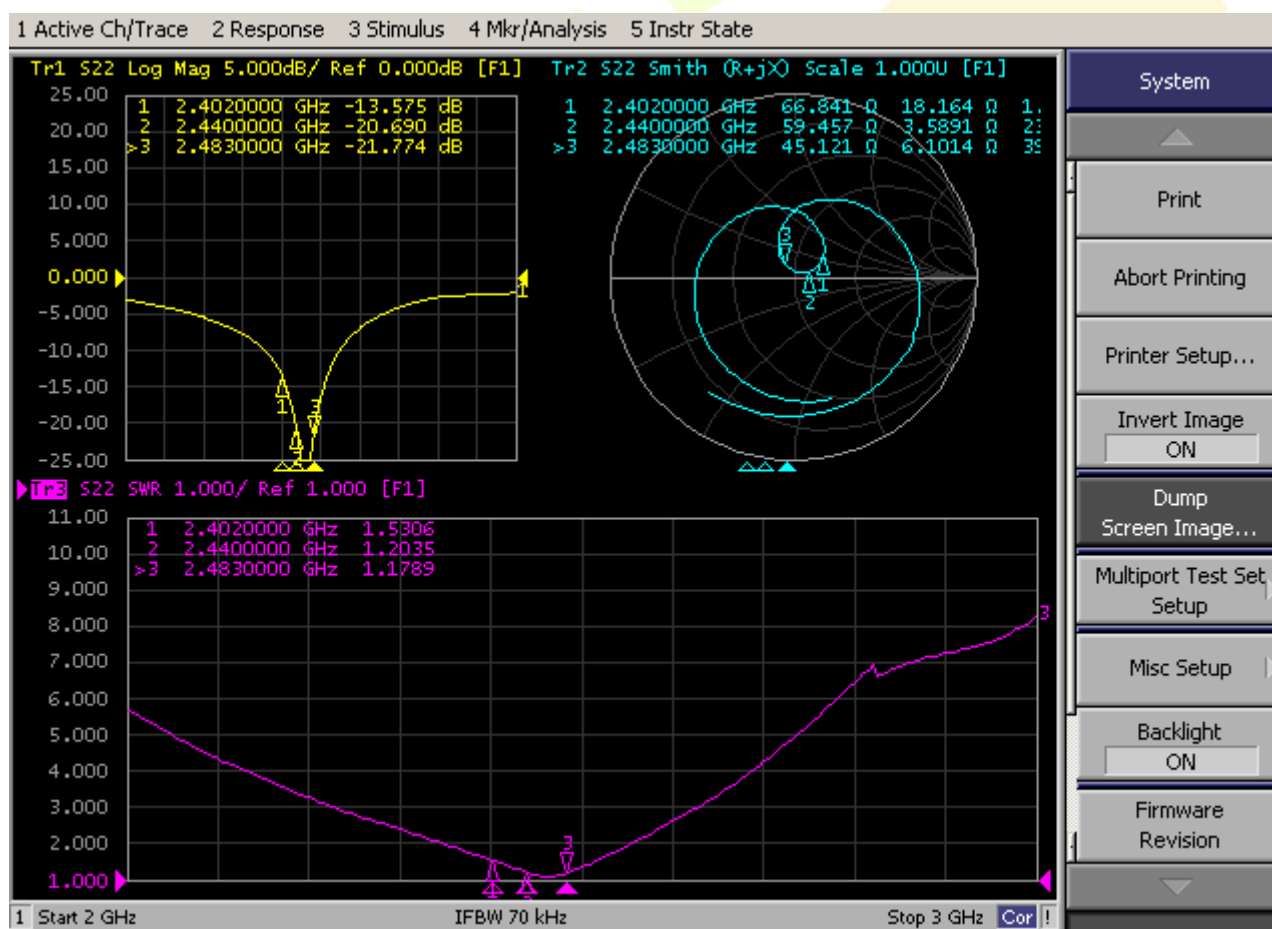
FPC 基材FPC Material	电解铜,一对一材质.单面板Electrolytic copper, one-on-one material, single panel
3M 胶纸3M tape	3M9471
表面处理Surface Treatment	丝印哑光黑油/哑白字符Silk screen matte black oil/matte white characters

三、天线测试数据ANT Test Data

4.1 天线匹配电路Antenna matching circuit



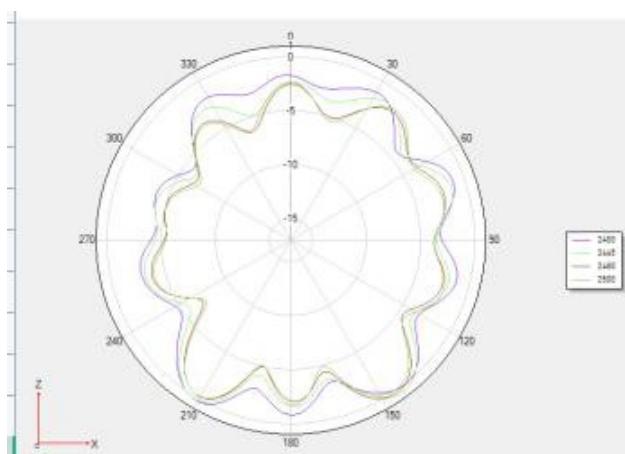
4.2 无源数据（回波损耗）Passive Data (Return Loss)



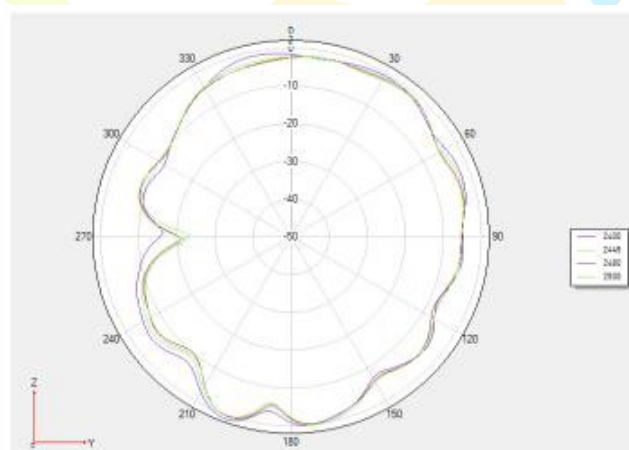
4.4 天线效率Antenna efficiency

2.45		
Frequency / MHz	Efficiency / dB	Efficiency / %
2400	-2.42	57.28
2410	-2.63	54.58
2430	-2.63	54.58
2450	-2.86	51.76
2460	-2.61	54.83
2470	-2.6	54.95
2480	-2.64	54.45
2490	-2.56	55.46

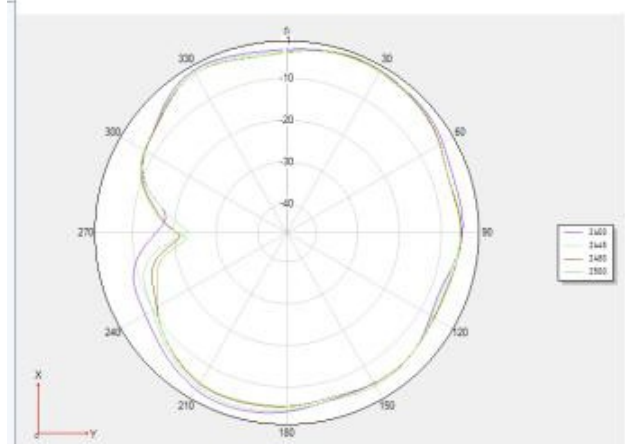
4.5 2D 方向图2D directional map



Phi 0 2D图

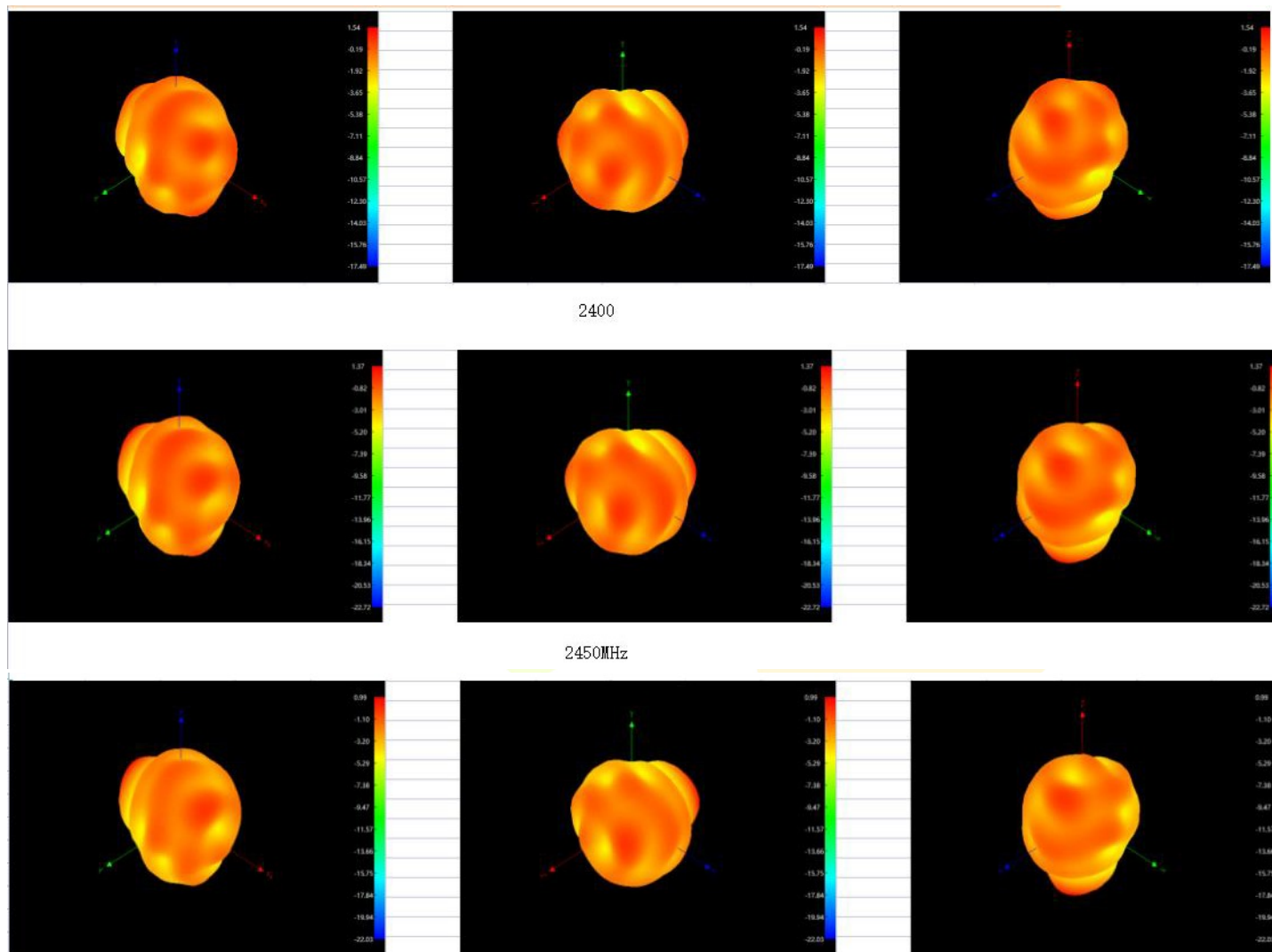


Phi 90 2D图

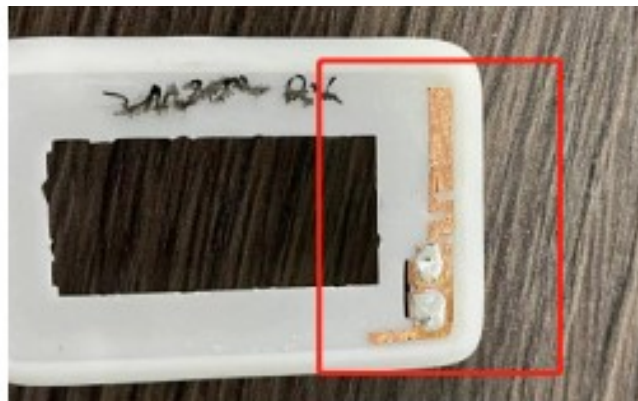


Theta 90 2D图

4.6 3D 方向图 3D directional map

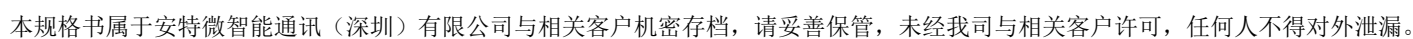


4.7 实物图 Physical image

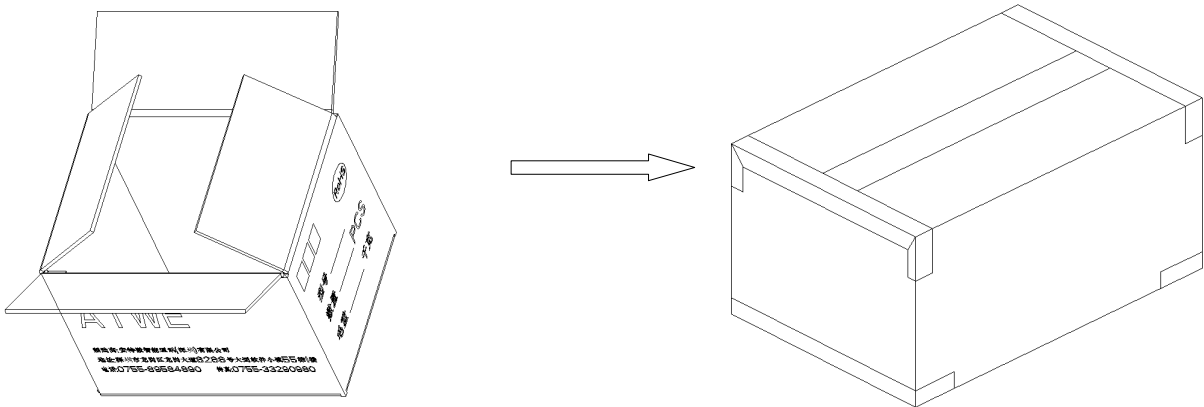


四、可靠性测试报告 Reliability Test Report

检测项目 Test Item	ZM201-Pro-RX-2.4G 天线 ZM201-Pro-RX-2.4G ANT		
	试验方法Test Method	判定标准Judgment criteria	判定
镀层附着力测试	3M600 胶带测试镀层	无脱落 OK，否则 NG	OK
热应力测试	预烘 120℃升温至 280℃,取出烘干	分层、气泡 NG	OK
	40X 体视镜观察	通孔铜层断裂、分层 NG	OK
可焊性测试	将产品放入阻焊剂预浸, 在放入 235℃±5℃锡炉浸锡 10 秒	导线变色、分层、气泡 NG	OK
	40X 体视镜观察	上锡达焊盘 95%以上OK，否则NG	OK
耐焊性测试	将产品放入阻焊剂预浸, 在放入 235℃±5℃锡炉浸锡 10 秒	焊盘上锡 OK，否则 NG	OK
用3M 胶带测试	用 3M 胶带测试	用3M 胶带测试，热固胶（补强板）无脱落、分层。	OK
		用3M 胶带测试，压敏胶（补强板）无脱落、分层。	OK
		用3M 胶带测试，基材无脱落、分层。	OK
		用3M 胶带测试，保护膜无脱落、分层。	OK
弯折性试验	从产品中取 5PCS, 拿住试样的一端，使它围绕 1mm 的针规,以试样弯折区部位为轴心，往一个方向弯折180 度15 次	表面出现严重皱折,电器性能无影响 OK	OK
	40X 体视镜观察	铜面无断裂 OK	OK
测试：杨美珍		审核：邓平	
结果判定： 合格			



六、包装方式Package method

ATWE产品包装规范 Product Packaging Specification	
产品名称： ZM201-Pro-RX-2.4G天线 Product Name: ZM201-Pro-RX-2.4G ANT	版本： V0
一、半切模整版排废出货--实际排版数量以量产正式开模为准。	
(排版参考示意图)	
二、整版套入PE 封口袋封装---数量以实际订单为准。	
三、装大箱。（数量以实际订单与包装数量为准）	四、封箱，外箱贴我司生产标签和ROHS标签
 The diagram illustrates the packaging workflow. On the left, a flat net for a cardboard box is shown, featuring the ATWE logo and contact information: 深圳市安特威智能科技有限公司, 深圳市宝安区西乡街道铁岗社区铁岗大道288号, 电话: 0755-89564960, 传真: 0755-33260960. An arrow points to the right, where a fully assembled and sealed rectangular cardboard box is depicted.	
注：由于该项目未进行试产及正式量产，以上包装方式仅供参考，具体包装以试产订单或正式量产为准！	