



Ai-WB2 系列模组定频测试使用手册

版本 V1.0

版权 ©2022

文件制定/修订/废止履历表

版本	日期	制定/修订内容	制定	核准
V1.0	2022.08.17	首次制定	陈莹莹	徐宏

一、测试准备

1.1 硬件准备

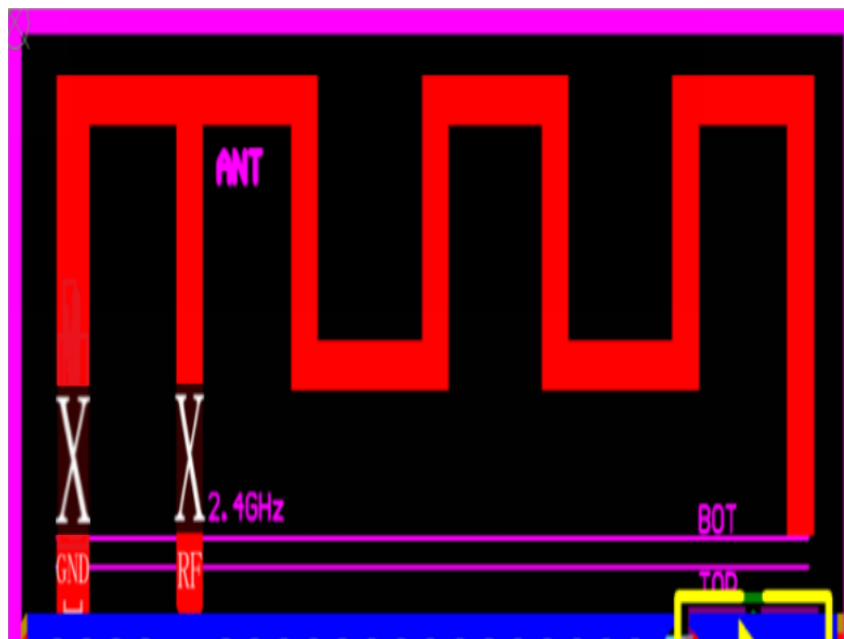
硬件清单：

硬件	数量
Ai-WB2-12F 模组	1 个
USB 转 TTL 模块	1 个
杜邦线	若干
馈线	1 根

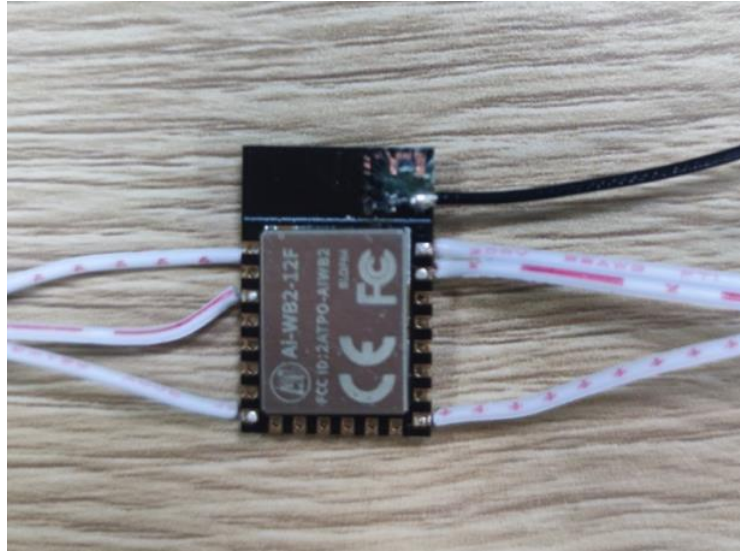
馈线焊接说明：

因模组认证测试需要连接射频测试仪器(如:CMW-500,频谱仪)，板载天线的模组 Ai-WB2-12F 模组需要人为断开原来天线

注意：X 区域为割掉区域

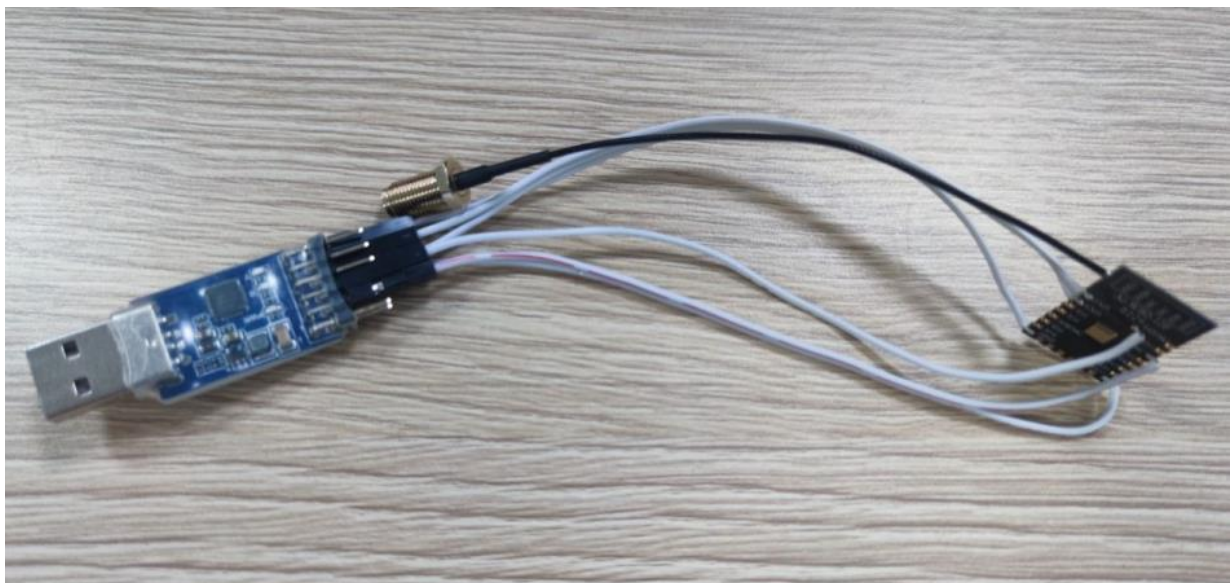


为了得到更好的效果，可将天线中的地线部分按照信号线的方法做割线处理，如下为效果图：



接线说明:

Ai-WB2-12F 模组	USB 转 TTL 模块
3V3	3V3
GND	GND
RXD	TXD
TXD	RXD
EN	RTS
IO8	DTR



1.2 固件烧录

首先运行 “BLDevCube.exe”，在 Chip Type 中选择 BL602/604，进入如下烧写界面，选择要烧录的文件，定频固件需要烧录的文件有：

- 1、Factory Params 分区： chips\bl602\device_tree\bl_factory_params_loTKitA_40M.dts
 - 2、Partition Table 分区： chips\bl602\partition\partition_cfg_2M.toml
 - 3、Boot2 Bin 分区： chips\bl602\builtin_imgs\boot2_iap_v5.3\boot2_iap_release.bin
 - 4、MFG 分区： chips\bl602\builtin_imgs\mfg_v2.47\gu\mfg_gu_95663febd_40m_autoboot.bin
- 烧录界面如下：



COM Port: 选择与芯片连接的 COM 口号（若无显示 COM 口，则点击 “Refresh” 按钮刷新 COM 口选项）

Chip Erase 选项选择：True

点击 “Create & Download” 按钮，开始下载固件，当显示 “Success”，则表示固件下载完成。

烧录完成，启动信息如下：

```
===== FlashCfg magiccode @0x42049c18, code 0x47464346 =====
mid          0x5E
clkDelay     0x1
clkInvert    0x1
sector size  4KBytes
page size    256Bytes

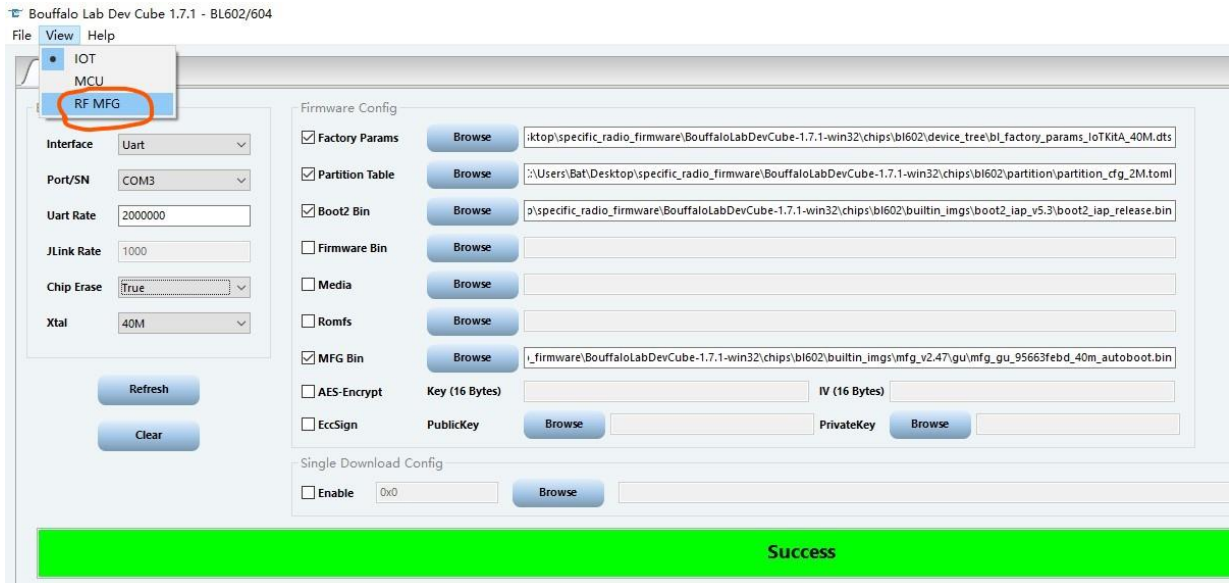
[ 0][0][32mINFO 0][0m: hal_board.c: 869] [MAIN] [BOARD] [FLASH] addr from partition is 001f8000, ret is 0
[ 0][0][32mINFO 0][0m: hal_board.c: 875] [MAIN] [BOARD] [XIP] addr from partition is 23087000, ret is 0
rfparam>pwr_mode is bf
rfparam>pwr_offset[14]: 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
rfparam>pwr_11b[4]: 20,20,20,18,
rfparam>pwr_11g[8]: 18,18,18,18,18,18,14,14,
rfparam>pwr_11n[8]: 18,18,18,18,18,16,14,14,
rfparam>xtal_mode is MF
rfparam>cap_code[5]: 36,36,0,60,60,
rfparam>tcal_en_tcal = 0
rfparam>tcal.linear_or_follow = 1
rfparam>tcal.Tchannels[5]: 2412,2427,2442,2457,2472,
rfparam>tcal.Tchannel_os[5]: 180,168,163,160,157,
rfparam>tcal.Tchannel_os_low[5]: 199,186,170,165,160,
rfparam>tcal.Troom_os = -1
rfparam>pwr_ble = 13
rfparam>>applying wifi pwr-----
rfparam>>apply power 11b ok
rfparam>>apply power 11g ok
rfparam>>apply power 11n ok
rfparam>>applying wifi pwoffset-----
rfparam>pwr_mode is bf
rfparam>>No written slot found
rfparam>>no pwoffset in efuse
rfparam>>use rftlv pwoffset
rfparam>>tlv pwr_offset[14]: 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
rfparam>>use pwr_offset from f
rfparam>pwr_offset[14]: 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
rfparam>>applying wifi pwoffset ok
rfparam>>applying xtal code-----
rfparam>>xtal_mode is MF
rfparam>>xtal[1]: 36,
rfparam>>Read slot:2
rfparam>>Use Efuse capcode:22
rfparam>>apply cap code ok
rfparam>>applying tcal-----
rfparam>>apply tcal ok
rfparam>>applying pwr_ble and pwoffset_ble-----
rfparam>>apply pwr_ble and pwoffset_ble ok
rfparam>>all ok
[OS] Starting aos_loop_proc task...
[OS] Starting MFG task...
[OS] Starting TCal task...
[OS] Starting OS Scheduler...
Init CLI with event Driven
RF cal slots=3

[11:43:52.027]收<◆Read slot:2
No written slot found
Read slot:0
power ate read err
power ate slot 4
BD_ADDR:00:00:00:00:00:01
MFG GU Start
Omg
0x40000000=6c0100ef
0x40001004=30100036
#

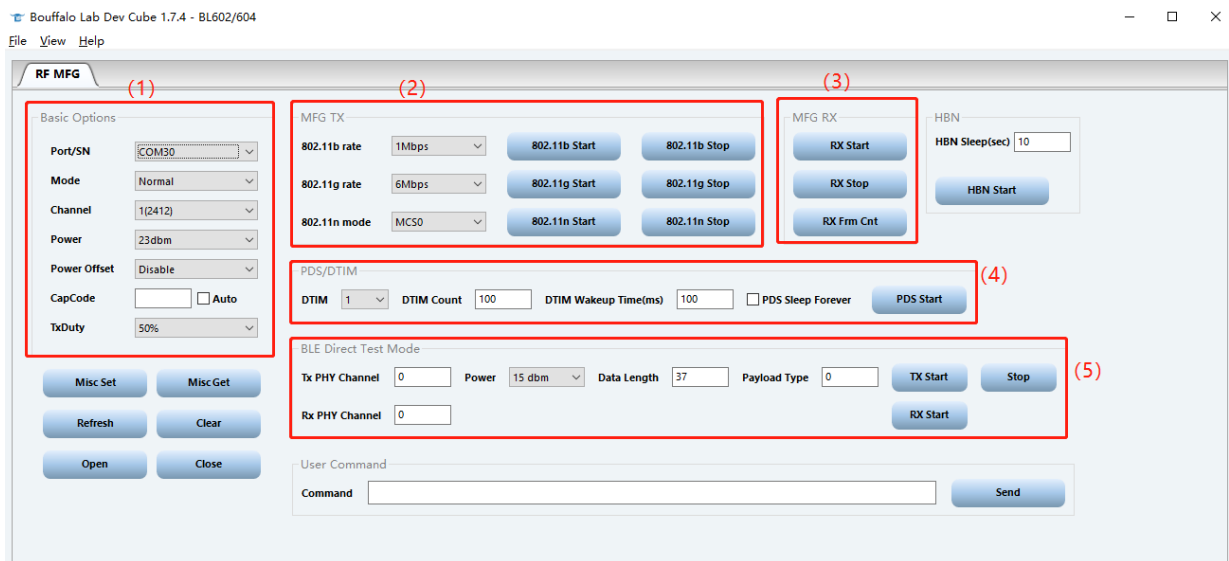
[11:43:52.161]收<◆mfg temp trim 0
```

1.3 做射频测试

(1) 切换界面至射频测试界面，点击“View”，选择“RF MFG”界面。



(2) 射频测试界面介绍



(1) 基础配置部分：

Mode: 测试模式选择，选择默认“Normal”；

Channel: 选择 WiFi 射频通道；

Power: 设置信号强度；

不同制式推荐的最大功率如下表：

Mode	Rate	Maximum Power(dBm)
11n	MCS7	17
	MCS6	18
	MCS5	18
	MCS4	18
	MCS3	18
	MCS2	18
	MCS1	18
	MCS0	18
11g	54Mbps	18
	48Mbps	19
	36Mbps	20
	24Mbps	20
	18Mbps	20
	12Mbps	20
	9Mbps	20
	6Mbps	20
11b	11Mbps	18(BL606)/20(BL602)
	5.5Mbps	18(BL606)/20(BL602)
	2Mbps	18(BL606)/20(BL602)
	1Mbps	18(BL606)/20(BL602)

CapCode: 电容补偿, 默认设置 22

TxDuty: 配置默认值 50%

(2) 信号发射配置部分:

设置 11b、11g 或者 11n 数据包的测试速率, 点击测试数据包类型的 Start, log 区域将打印发送数据包数量, 再点击 Stop, 观察接收机接收情况;

(3) 信号接收配置部分:

点击 Rx Start 开始接收数据包, 点击 Rx Frm Cnt 获取接收包数量, 以及 RSSI 平均值;

(4) PDS 模式, DTIM 配置部分: (WiFi 低功耗模式)

DTIM: 设置多少个 Beacon 之后, 才有 DTIM 信息;

DTIM Count: 设置多少个 DTIM 之后, 芯片进入正常接收模式;

DTIM Wakeup Time: 设置芯片唤醒后, 保持接收状态的时间;

(5) 蓝牙测试配置部分：

Tx PHY Channel: 设置发射蓝牙信号通道

Power: 设置蓝牙发射功率

Data Length: 设置数据长度

Payload Type: 设置负载类型

负载类型如下表格：

Value	Parameter Description
0x00	PRBS9 sequence '1111111100000111101...' (in transmission order) as described in [Vol 6] Part F, Section 4.1.5
0x01	Repeated '11110000' (in transmission order) sequence as described in [Vol 6] Part F, Section 4.1.5
0x02	Repeated '10101010' (in transmission order) sequence as described in [Vol 6] Part F, Section 4.1.5
0x03	PRBS15 sequence as described in [Vol 6] Part F, Section 4.1.5
0x04	Repeated '11111111' (in transmission order) sequence
0x05	Repeated '00000000' (in transmission order) sequence
0x06	Repeated '00001111' (in transmission order) sequence
0x07	Repeated '01010101' (in transmission order) sequence

完成如上设置之后，点击 **Tx Start** 开始发送信号，点击 **Stop** 以停止发送；

Rx Channel: 设置接收信号通道

完成通道设置之后，点击 **Rx Start**，开始接收信号，点击 **Stop** 以停止接收；

二、联系我们

官方官网: <https://www.ai-thinker.com>

开发 DOCS: <https://docs.ai-thinker.com>

官方论坛: <http://bbs.ai-thinker.com>

样品购买: <https://anxinke.taobao.com>

商务合作: sales@aithinker.com

技术支持: support@aithinker.com

公司地址: 深圳市宝安区西乡固戍华丰智慧创新港 C 栋 403、408-410



联系电话：0755-29162996