6221B-UUC

Wi-Fi Dual-band 1x1 11ac + Bluetooth 4.2

Combo Module Datasheet

6221B-UUC Module Datasheet

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Customer Approval :

_____ Company

_____ Title

_____ Signature

_____ Date

_____ Fn-Link

Revision History

Version	Date	Revision Content	Draft	Approved
1.0	2019/10/29	Initial Release	Wesley	Stone
1.1	2019/11/08	Update section 4, 5 and 7 for CHIP_EN pin and thermal pad.	Wesley	Stone
1.2	2019/12/06	Update RF spec, add consumption data.	Wesley	Stone
1.3	2020/03/10	Refine section 2.	Wesley	Stone
1.4	2020/03/11	Modify freq. tolerance spec.	Wesley	Stone

CONTENTS

1 Overview

1.1 Introduction

The 6221B-UUC is a low-cost and low-power consumption module which has all of the Wi-Fi functionalities. It is based on Realtek RTL8821CU chipset, a highly-integrated IEEE 802.11a/b/g/n/ac MAC/Baseband/RF WLAN and Bluetooth Baseband/RF single chip. For Wireless LAN (WLAN) operation, this module supports 1-stream 802.11ac solution with Multi-user MIMO STA mode with USB2.0 network interface controller. For Bluetooth operation, it supports Bluetooth 2.1/4.2.

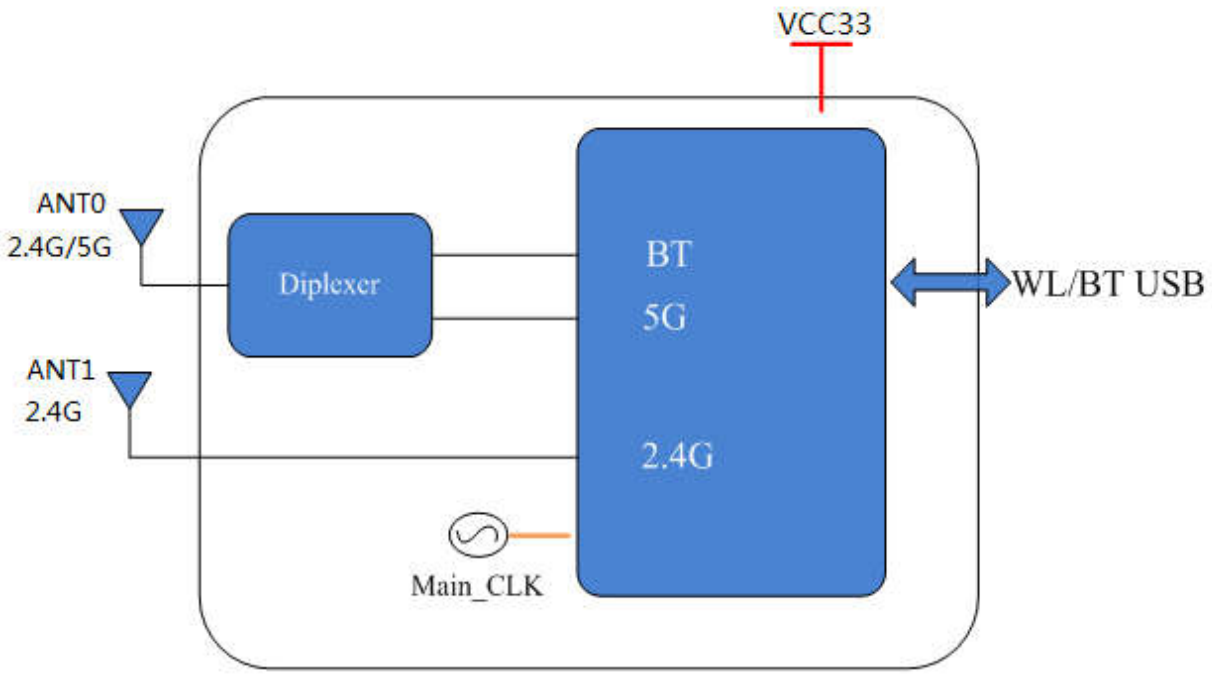
6221B-UUC complies with IEEE 802.11a/b/g/n/ac standard and it can achieve up to a speed of 433.3Mbps with single stream in 802.11ac to connect to the WLAN.

This compact module is a total solution for a combination of Wi-Fi and BT technologies.

1.2 Features

- Highly-integrated module for 5G 802.11ac, or 2.4G/5G 802.11n WLAN applications.
- Maximum PHY data rate up to 86.7MHz using 20MHz bandwidth, 200Mbps using 40Mhz bandwidth and 433.3Mbps using 80Mhz bandwidth.
- Backward compatible with 802.11a/b/g device.
- Support IEEE 802.11e QoS Enhancement and 802.11i (WPA, WPA2).
- Support IEEE 802.11h DFS.
- Wi-Fi Direct supports wireless peer to peer applications.
- Supports Bluetooth 4.2 and backward compatible with Bluetooth 2.1 + EDR.
- Bluetooth 4.0 Dual Mode support: Simultaneous LE and BR/EDR.
- Supports Bluetooth Low Energy.
- Integrated internal Class 1, Class 2 and Class 3 PA for Bluetooth.
- Enhanced BT/Wi-Fi Coexistence Control to improve transmission quality in different profiles.
- USB Multi-Function for both BT and WLAN.
- Single external power source 3.3V only.

1.3 Block Diagram



1.4 General Specification

Model Name	6221B-UUC
Product Description	Support Wi-Fi/Bluetooth functionalities
Dimension	L x W x H: 15 x 13 x 2.35 mm
Wi-Fi Interface	USB 2.0
BT Interface	USB 2.0
Operating temperature	0°C to 70°C
Storage temperature	-40°C to 125°C
RoHS	All hardware components are fully compliant with EU RoHS directive

1.5 Recommended Operating Rating

	Min.	Typ.	Max.	Unit
Operating Temperature	0	25	70	°C
Power Supply (VCC)	3.135	3.3	3.465	V

	Condition	Current Consumption(mA)
Typical Power Consumption (VCC=3.3V; BT on if no other statement)	WLAN/BT Disabled	2
	Wi-Fi 5G associated	93
	TX throughput (5G 11ac VHT80)	264
	RX throughput (5G 11ac VHT80)	136
	TX throughput (5G 11n HT20)	320
	RX throughput (5G 11n HT20)	107
	TX throughput (5G 11a OFDM54)	266
	RX throughput (5G 11a OFDM54)	130
	TX throughput (2.4G 11n HT40)	291
	RX throughput (2.4G 11n HT40)	115
	TX throughput (2.4G 11b CCK11)	283
	RX throughput (2.4G 11b CCK11)	141

※1.6 EEPROM Information

Wi-Fi

Vendor ID	
Product ID	

2 Wi-Fi RF Specification

2.1 Wi-Fi 2.4GHz RF Specification

Feature	Description
WLAN Standard	IEEE 802.11b/g/n, Wi-Fi compliant
Frequency Range	2.400 GHz ~ 2.497 GHz (2.4 GHz ISM Band)
Channels	2.4GHz：Ch1 ~ Ch14
Output Power	802.11b /11M : 16 ± 1.5 dBm @ EVM ≤ -9dB 1M : 17 ± 1.5 dBm @MASK comliant
	802.11g /54M : 15 ± 1.5 dBm @ EVM ≤ -26dB 6M : 17 ± 1.5 dBm @MASK comliant
	802.11n /MCS7 : 14 ± 1.5 dBm @ EVM ≤ -29dB MCS0 : 17 ± 1.5 dBm @MASK comliant
	Other data rate TX power control by 'power by rate'
Spectrum Mask	IEEE compliant
Freq. Tolerance	±15 ppm
Receive Sensitivity (11b) @8% PER	- 1Mbps: ≤ -92 dBm
	- 11Mbps: ≤ -85 dBm
Receive Sensitivity (11g) @10% PER	- 6Mbps: ≤ -89 dBm
	- 54Mbps: ≤ -71 dBm
Receive Sensitivity (11n,20MHz) @10% PER	- MCS=0: ≤ -89 dBm
	- MCS=7: ≤ -69 dBm
Receive Sensitivity (11n,40MHz) @10% PER	- MCS=0: ≤ -87 dBm
	- MCS=7: ≤ -67 dBm

2.2 Wi-Fi 5GHz RF Specification

Feature	Description
WLAN Standard	IEEE 802.11a/n/ac, Wi-Fi compliant
Frequency Range	4.900 GHz ~ 5.845 GHz (5.0 GHz ISM Band)
Number of Channels	5.0GHz: Please refer to the table[1]
Modulation	802.11a/n: 64-QAM,16-QAM, QPSK, BPSK 802.11ac: 256-QAM, 64-QAM,16-QAM, QPSK, BPSK
Output Power	802.11a /54M: 14 dBm ± 1.5 dB @ EVM ≤ -27dB 6M: 16 dBm ± 1.5 dB @ MASK comliant

	802.11n /MCS7: 13 dBm ± 1.5 dB @ EVM ≤ -29dB MCS0: 16 dBm ± 1.5 dB @ MASK comliant
	802.11ac/MCS7: 13 dBm ± 1.5 dB @ EVM ≤ -29dB MCS0: 16 dBm ± 1.5 dB @ MASK comliant
	802.11ac/MCS9: 10 dBm ± 1.5 dB @ EVM ≤ -33dB
	For other rate, Tx power is controlled by 'power by rate'
Receive Sensitivity (11a) @10% PER	- 6Mbps: ≤ -86 dBm
	- 54Mbps: ≤ -70 dBm
Receive Sensitivity (11n,20MHz) @10% PER	- MCS=0: ≤ -85 dBm
	- MCS=7: ≤ -67 dBm
Receive Sensitivity (11n,40MHz) @10% PER	- MCS=0: ≤ -83 dBm
	- MCS=7: ≤ -64 dBm
Receive Sensitivity (11ac,20MHz) @10% PER	- MCS=0: ≤ -86 dBm
	- MCS=8: ≤ -63 dBm
Receive Sensitivity (11ac,40MHz) @10% PER	- MCS=0: ≤ -83 dBm
	- MCS=9: ≤ -59 dBm
Receive Sensitivity (11ac,80MHz) @10% PER	- MCS=0: ≤ -80 dBm
	- MCS=9: ≤ -56 dBm

[1]5GHz Channel table

Band (GHz)	Operating Channel Number	Channel Center Frequency(MHz)
5.15GHz~5.25GHz	36	5180
	40	5200
	44	5220
	48	5240
5.25GHz~5.35GHz	52	5260
	56	5280
	60	5300
	64	5320
5.5GHz~5.7GHz	100	5500
	104	5520
	108	5540
	112	5560
	116	5580
	120	5600
	124	5620
	128	5640
	132	5660

	136	5680
	140	5700
5.725GHz~5.825GHz	149	5745
	153	5765
	157	5785
	161	5805
	165	5825

3 Bluetooth Specification

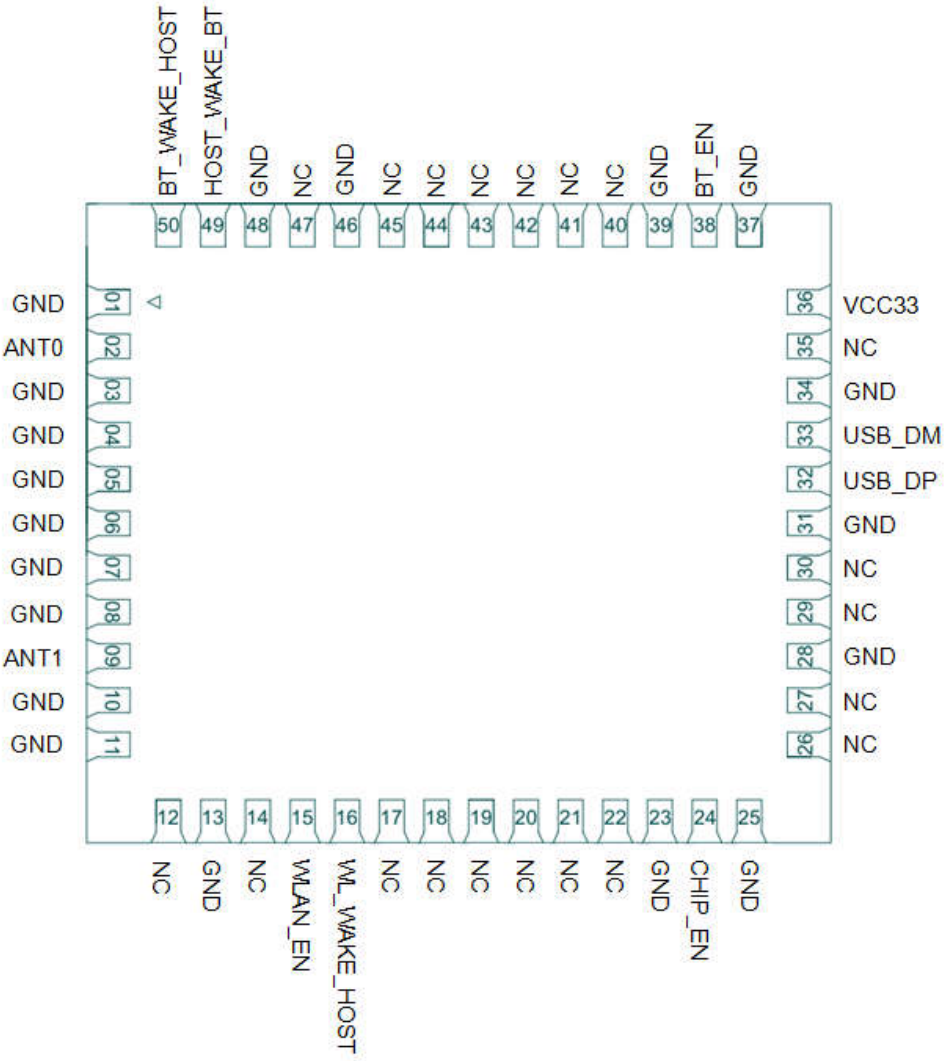
3.1 Bluetooth Specification

Feature	**Description**		
General Specification			
Bluetooth Standard	Bluetooth V4.2 of 1, 2 and 3 Mbps.		
Antenna Reference	Small antenna with 0~2 dBi peak gain		
Frequency Band	2402 MHz ~ 2480 MHz		
Number of Channels	79 channels		
Modulation	GFSK, π/4-DQPSK, 8DPSK		
RF Specification			
	Min.	**Typical.**	**Max.**
Output Power (Class 1.5)	4 dBm	8 dBm	12 dBm
Sensitivity @ BER=0.1% for GFSK (1Mbps)		-88 dBm	
Sensitivity @ BER=0.01% for π/4-DQPSK (2Mbps)		-85 dBm	
Sensitivity @ BER=0.01% for 8DPSK (3Mbps)		-81 dBm	
Maximum Input Level	GFSK (1Mbps):-20dBm		
	π/4-DQPSK (2Mbps) :-20dBm		
	8DPSK (3Mbps) :-20dBm		

4 Pin Assignments

4.1 Pin Outline

< TOP VIEW >



4.2 Pin Definition

PIN	Name	Type	Description	Voltage
1	GND	—	Ground connections	
2	ANT0	I/O	RF I/O chain0, Wi-Fi 5GHz and BT	
3~8	GND	—	Ground connections	
9	ANT1	I/O	RF I/O chain1, Wi-Fi 2.4GHz	
10~11	GND	—	Ground connections	
12	NC	—	Not connected	
13	GND	—	Ground connections	

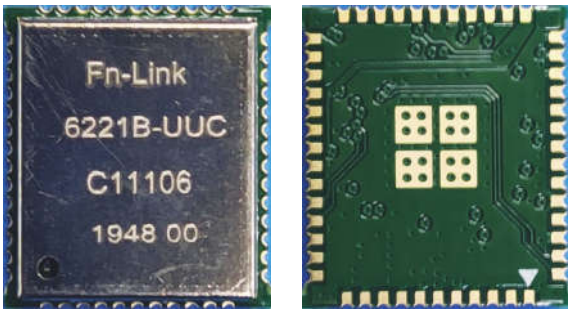
14	NC	—	Not connected	
15	WLAN_EN	I	Enable pin for WLAN device ON: pull high ; OFF: pull low	3.3V
16	WL_WAKE_HOST	O	WLAN to wake-up HOST	3.3V
17~22	NC	—	Not connected	
23	GND	—	Ground connections	
24	CHIP_EN	I/O	Enable pin for chipset. Pull low to shut down RTL8821CU. (Internal 47Kohm pull-high to 3.3V)	3.3V
25	GND	—	Ground connections	
26~27	NC	—	Not connected	
28	GND	—	Ground connections	
29~30	NC	—	Not connected	
31	GND	—	Ground connections	
32	USB_DP	I/O	USB2.0 differential pair D+ for WLAN and Bluetooth	
33	USB_DM	I/O	USB2.0 differential pair D- for WLAN and Bluetooth	
34	GND	—	Ground connections	
35	NC	—	Not connected	
36	VCC33	P	Main power input 3.3V	3.3V
37	GND	—	Ground connections	
38	BT_EN	I	Enable pin for Bluetooth device ON: pull high ; OFF: pull low	3.3V
39	GND	—	Ground connections	
40~45	NC	—	Not connected	
46	GND	—	Ground connections	
47	NC	I	Not connected	
48	GND	—	Ground connections	
49	HOST_WAKE_BT	I	HOST to wake-up Bluetooth device	3.3V
50	BT_WAKE_HOST	O	Bluetooth device to wake-up HOST	3.3V

P: POWER I: INPUT O: OUTPUT

5 Dimensions

5.1 Physical Dimensions and Module Photo

(Unit: mm)

<table>
<tr><td>L x W : 15 x 13 mm
 
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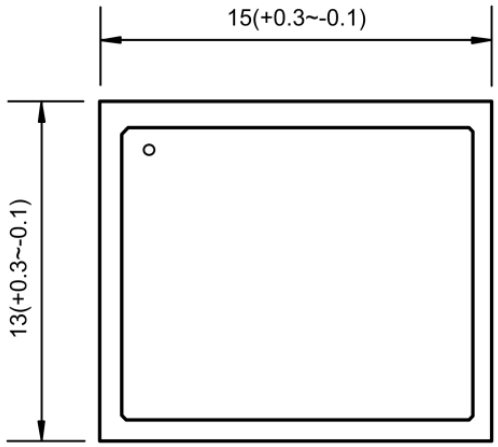
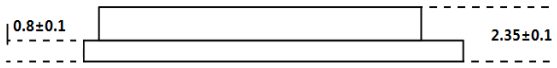
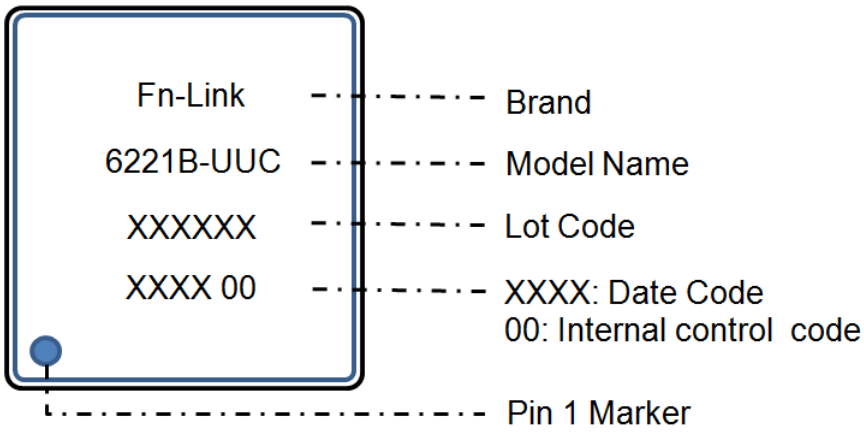
 
</td></tr>
<tr><td>H: 2.35 mm</td><td>< Side View >
 
</td></tr>
<tr><td>Weight</td><td>0.92g</td></tr>
</table>

5.2 Marking Description

< TOP VIEW >



5.3 Module Physical Dimensions

(Unit: mm)

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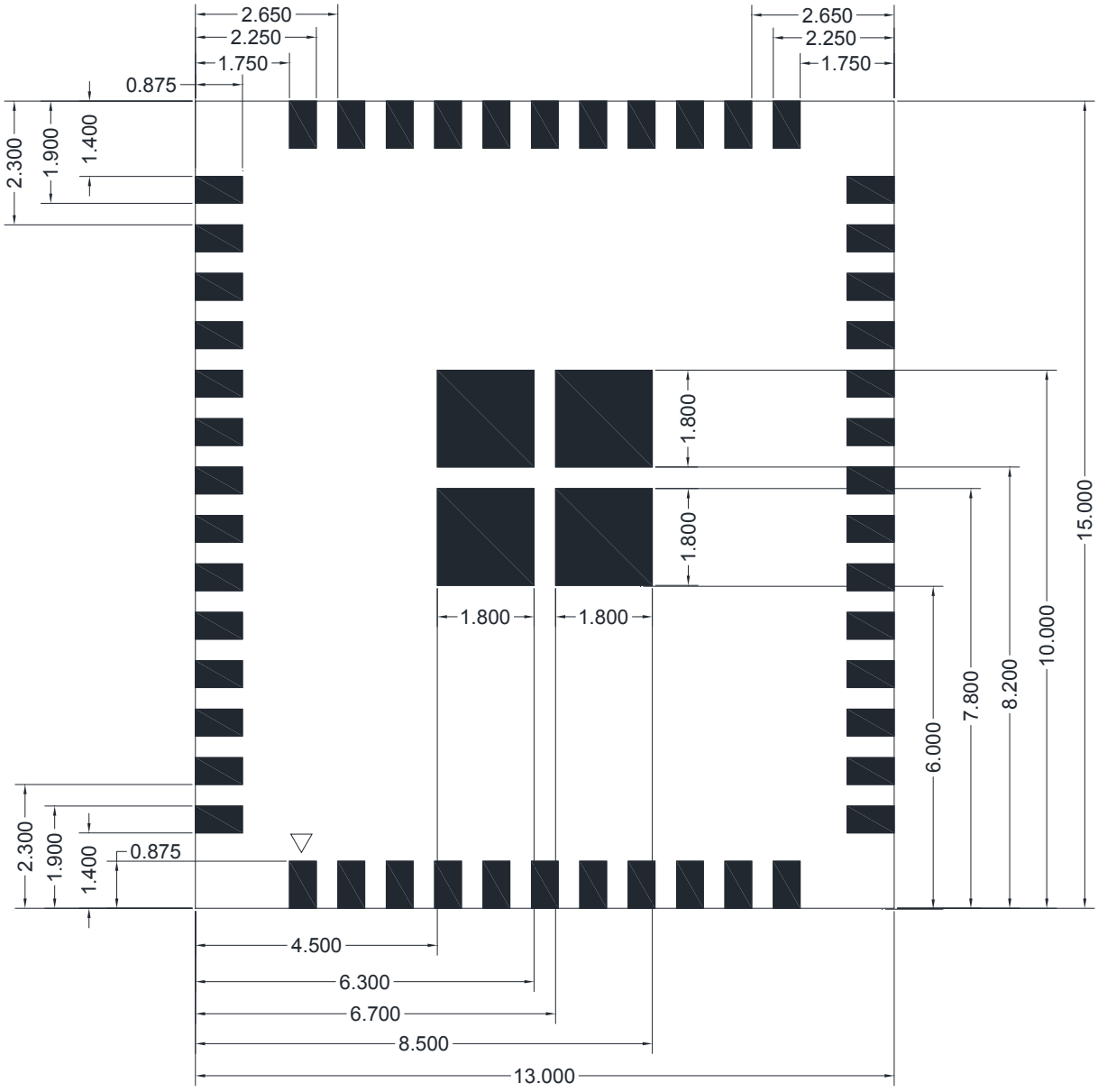

5.4 Layout Recommendation

(Unit: mm)

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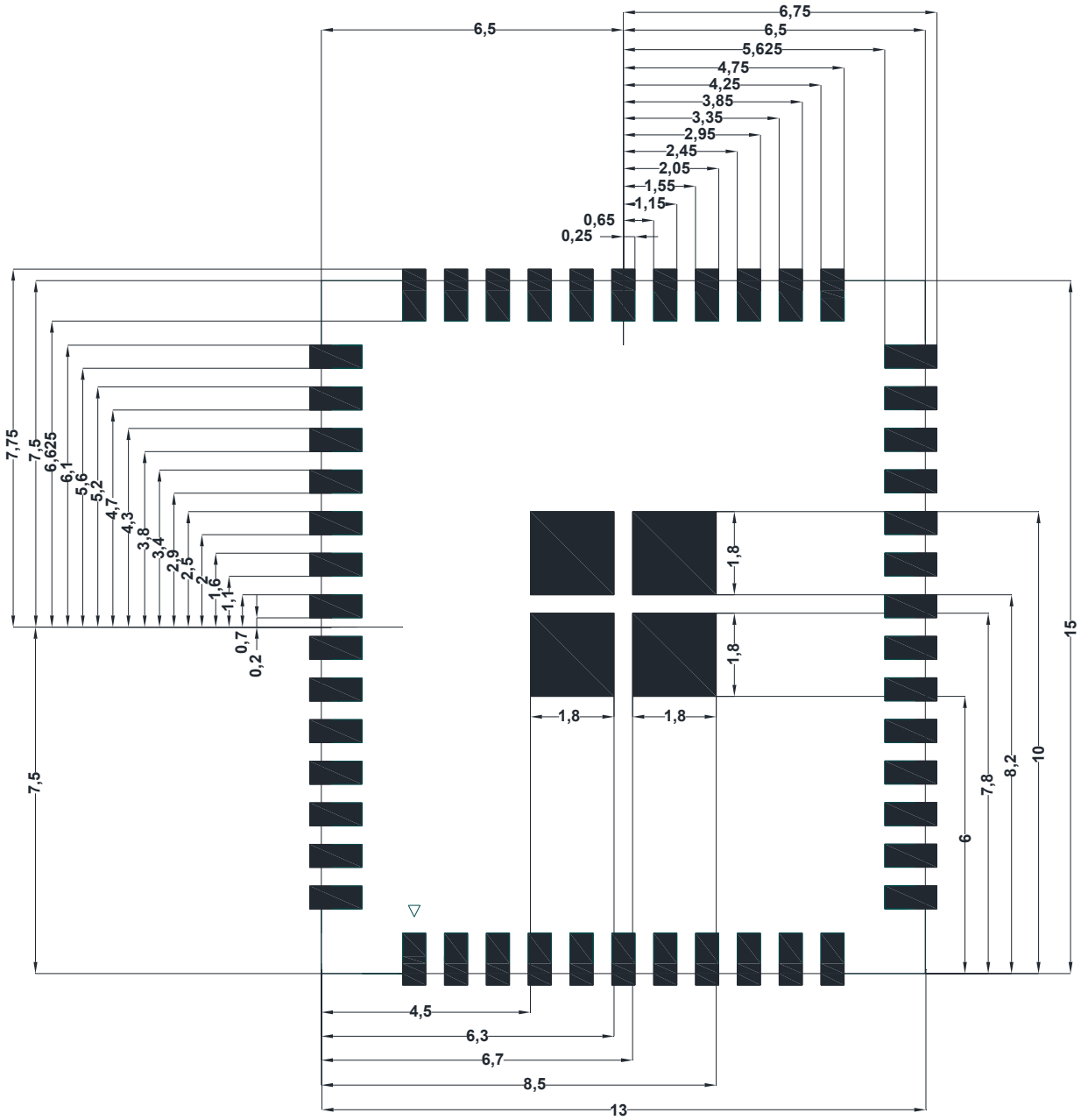
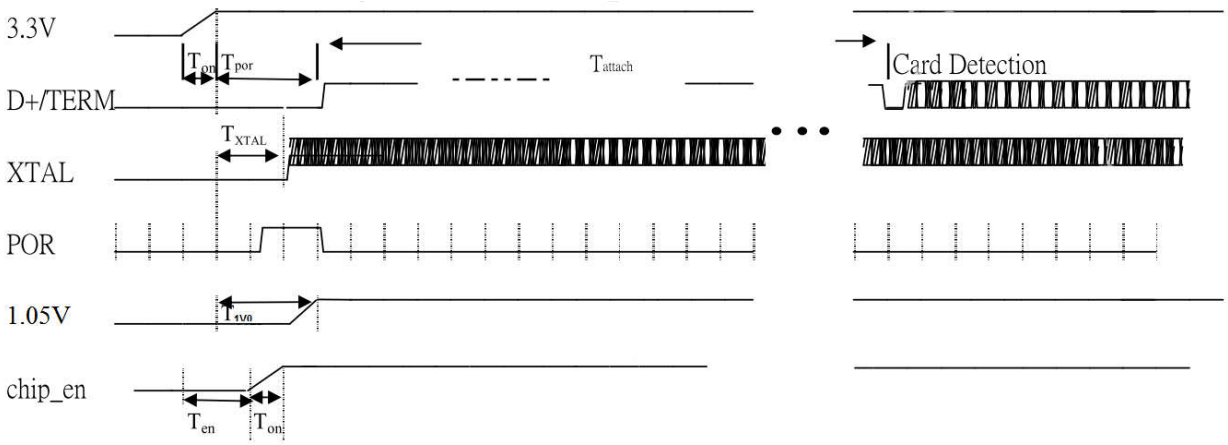


6 Interface Timing Specification

6.1 USB Bus Timing during Power On Sequence



T_{on}: the main power ramp on duration
T_{por}: the power on reset releases and power management unit executes power on tasks
T_{attach}: USB attach state
T_{xtal}: XTAL starts
T_{en}: interval between the rising point of 3.3V and chip_en

The power on flow description:

After main 3.3V ramp up, the internal power on reset is released by power ready detection circuit and the power management unit will be enabled. The power management unit enables the internal regulator and clock circuits.

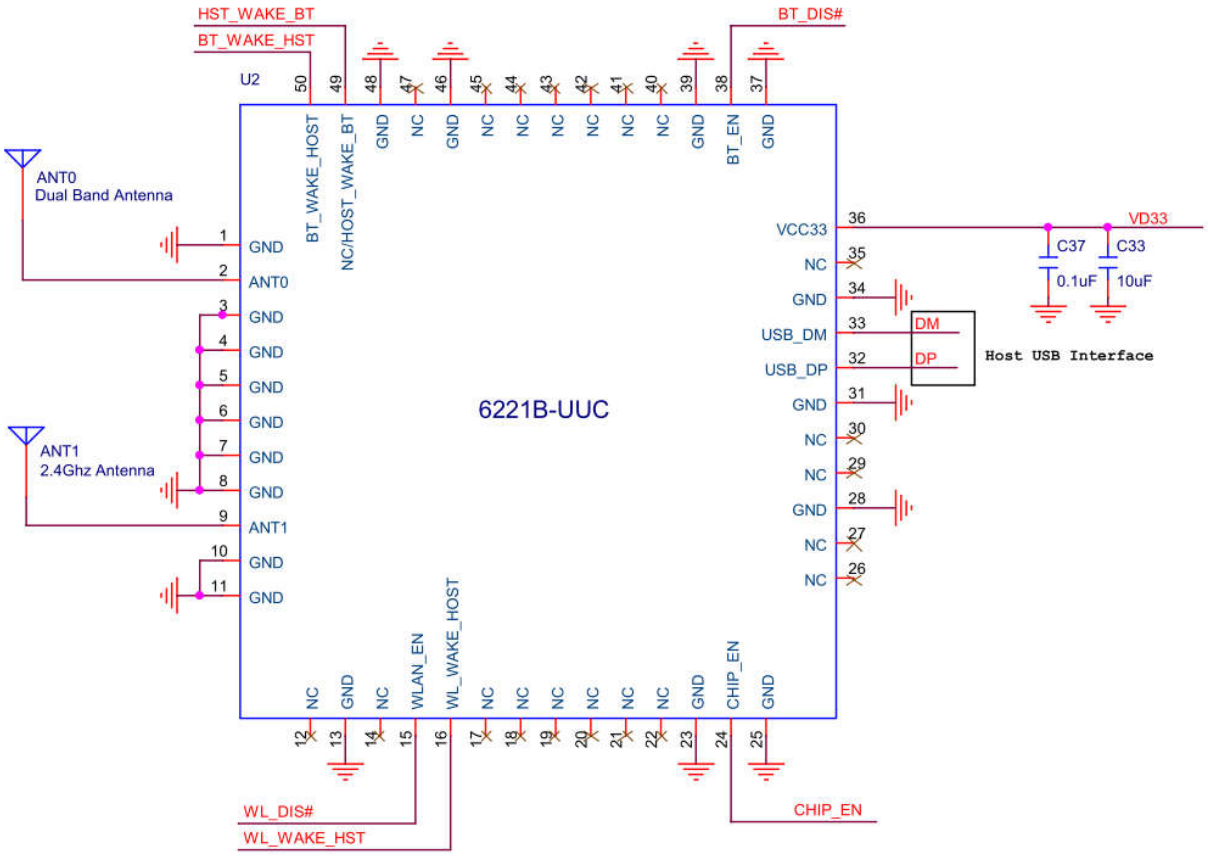
The power management unit also enables the USB circuits.

USB analog circuits attach resisters to indicate the insertion of the USB device.

The typical timing range:

	Unit	Min	Typical	Max
T_{on}	ms	--	1.5	5
T_{por}	ms	--	2	20
T_{xtal}	ms	--	1.5	8
T_{attach}	ms	100	250	--
T_{1V0}	ms	--	3	11
T_{en}	ms	0	0	5

7 Reference Design



Note: Module requires independent power supply , supply capacity ⩾ 600mA and ripple less than 100mV; Do not share power with amplifier, infrared device, camera, etc.

8 Ordering Information

Part No.	Description
FG6221BUUC-00	RTL8821CU, 802.11a/b/g/n/ac, Wi-Fi 1T1R, BT v4.2, USB2.0, 15x13mm, dual antennae (external)

9 The Key Material List

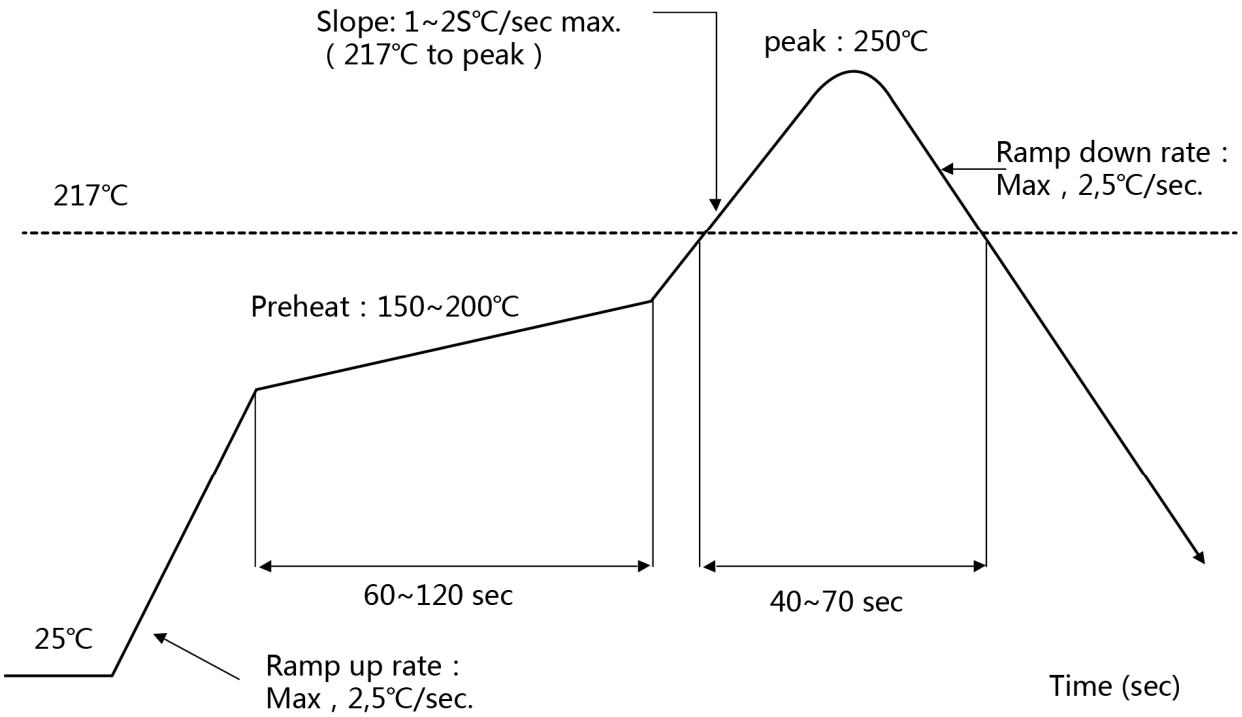
Main	Inductor	0603 2.2UH,±20% 850mA MPH160809S2R2MT (Sunlord)
Alternative	Inductor	0603, 2.2UH, 20%, 850mA, MGFL1608F2R2MT-LF (Microgate)
Main	Diplexer	DP1005-E2455FBT/LF (ACX)
Main	Crystal	2520 40MHZ 15PF, 10ppm SX25Y040000BF1T-C (TKD)
Alternative	Crystal	2520 40MHZ 15PF, 10ppm (TST)
Alternative	Crystal	2520 40MHZ 15PF, 10ppm -30+85℃ E2SB40E00001AE (HOSONIC)
Alternative	Crystal	2520 40MHZ 15PF, 10ppm 8Z40000022 (TXC)
Main	Chipset	RTL8821CU-CG, QFN56 (Realtek)

10 Recommended Reflow Profile

Referred to IPC/JEDEC standard.

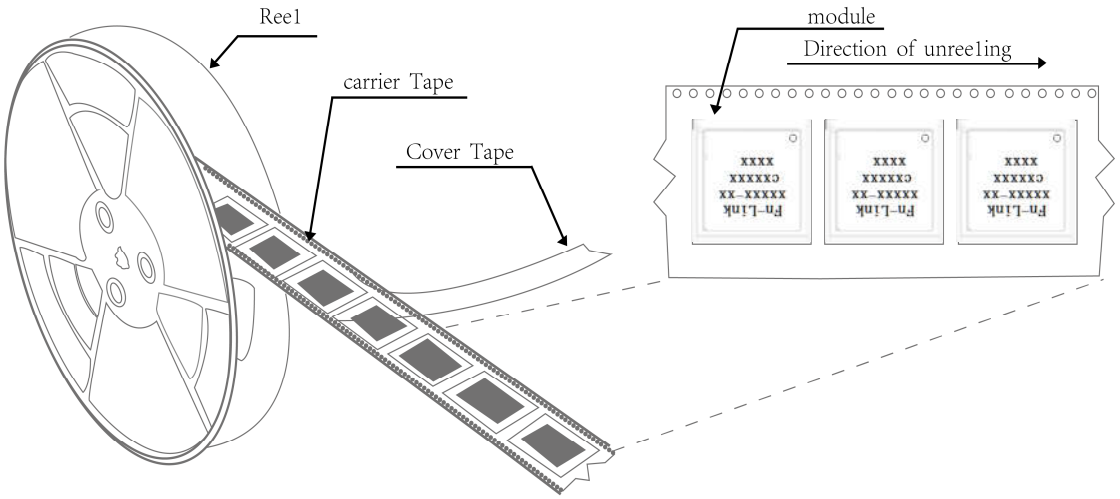
Peak Temperature : <250°C

Number of Times : ≤2 times



11 Package Information

11.1 Reel



11.2 Packaging Details

The take-up package:

Using self-adhesive tape

Color of plastic disc: blue

NY bag size: TBD

Internal box size: TBD

Carton size: TBD

11.3 Moisture Sensitivity

The modules is a Moisture Sensitive Level 3 device, in according with standard IPC/JEDEC J-STD-020, take care of all the requirements for this kind of components.
Moreover, please pay attention to following conditions:

a) Calculated shelf life in sealed bag: 12 months at <40°C and <90% RH

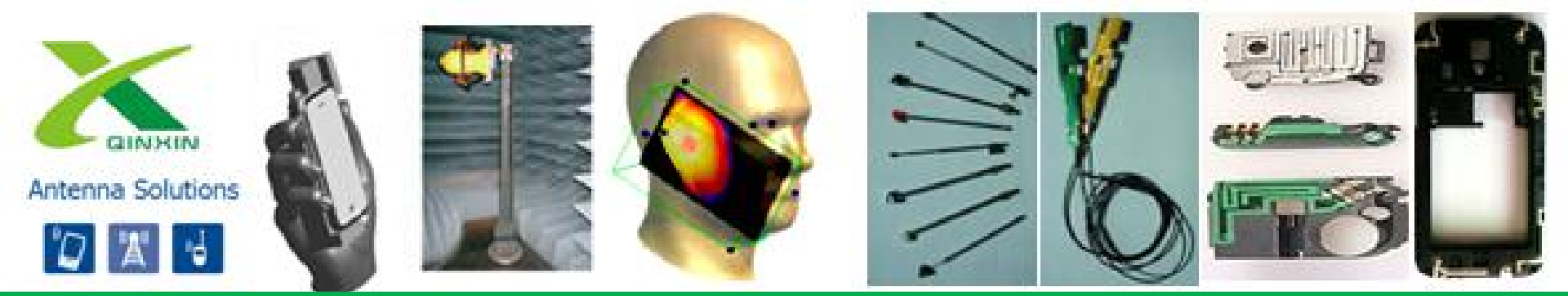
b) Environmental condition during the production: 30°C / 60% RH according to IPC/JEDEC J-STD-033A paragraph 5

c) The maximum time between the opening of the sealed bag and the reflow process must be 168 hours if condition

b) IPC/JEDEC J-STD-033A paragraph 5 is respected

d) Baking is required if conditions b) or c) are not respected

e) Baking is required if the humidity indicator inside the bag indicates 10% RH or more



天线测试报告 V1.0

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射频： 刘工

日期： 2020.08.12

目录

测试环境

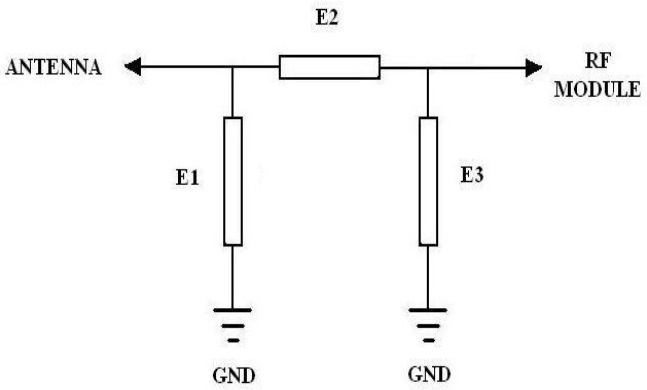
- 天线特性使用ETS测试系统微波暗室，微波暗室尺寸7m x 4m x 3m ，测试频率700MHz---6GHz.
- S11 测试使用Agilent E5071B 网络分析仪

微波暗室

Agilent E5071B 网络分析仪

1.匹配电路：

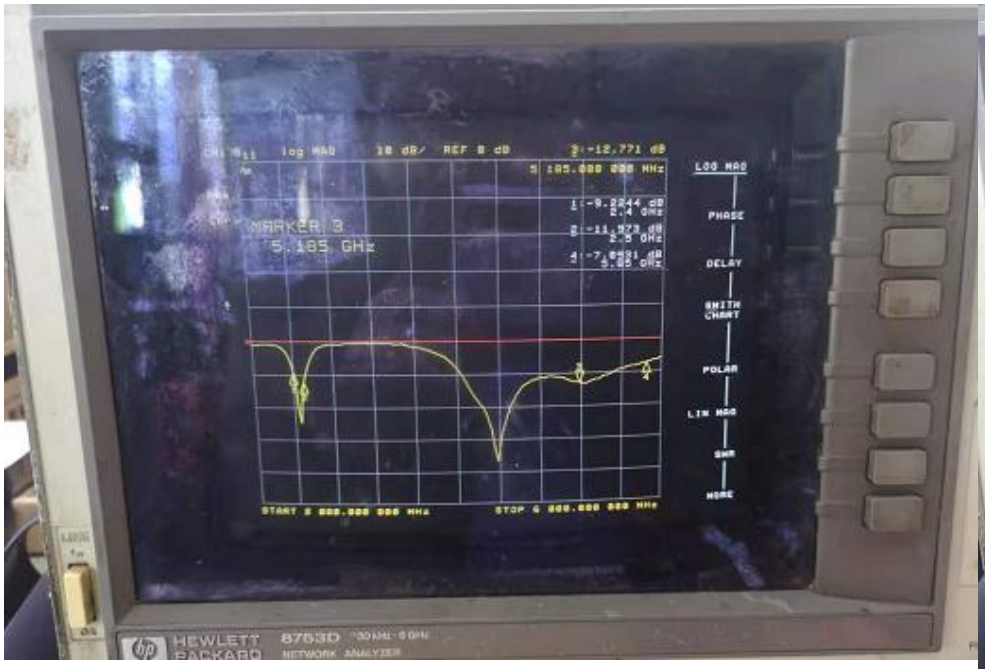
匹配电路是否有改动：否



WIFI	
Element	Value
E1	**无**
E2	**无**
E3	**无**

2.无源图

回波损耗图



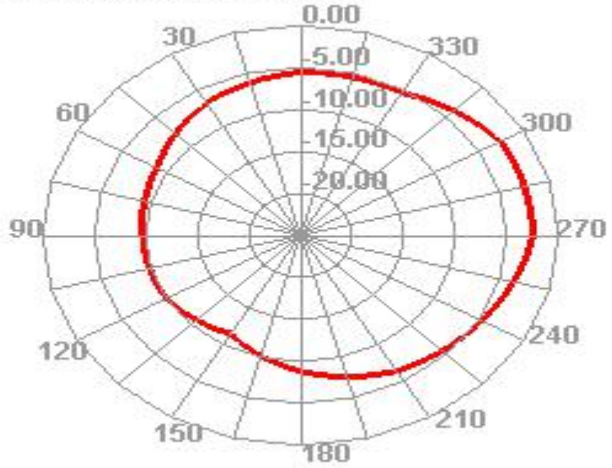
Smith 图

3.无源效率

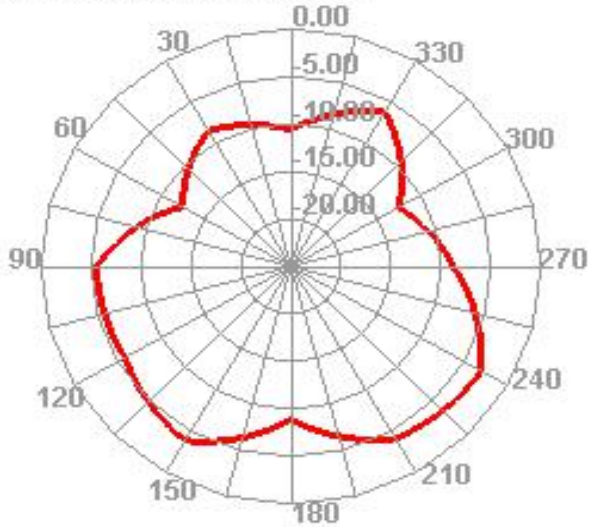
2.4-2.5GHz

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	36.65	-4.52	2.35
2410	35.79	-4.35	2.07
2420	35.46	-4.67	2.02
2430	37.56	-4.51	2.37
2440	38.27	-3.21	2.75
2450	40.45	-3.72	2.88
2460	42.16	-3.75	2.89
2470	42.71	-4.45	2.82
2480	39.54	-4.73	2.24
2490	38.78	-4.57	2.18
2500	37.68	-4.34	2.34

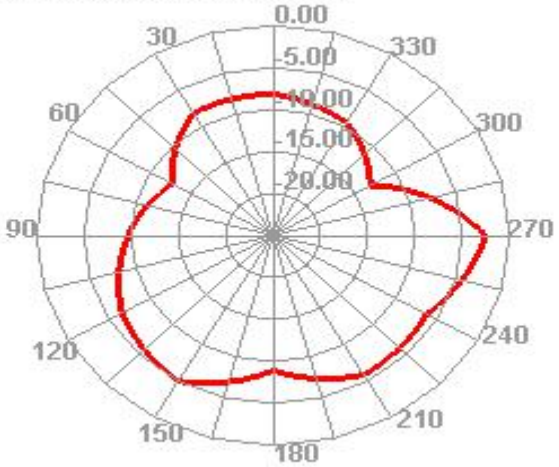
2410.000MHz H



2410.000MHz E1



2410.000MHz E2

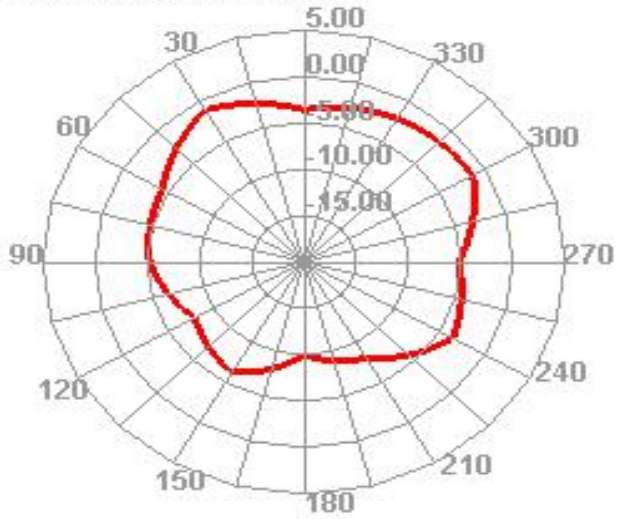


3.无源效率

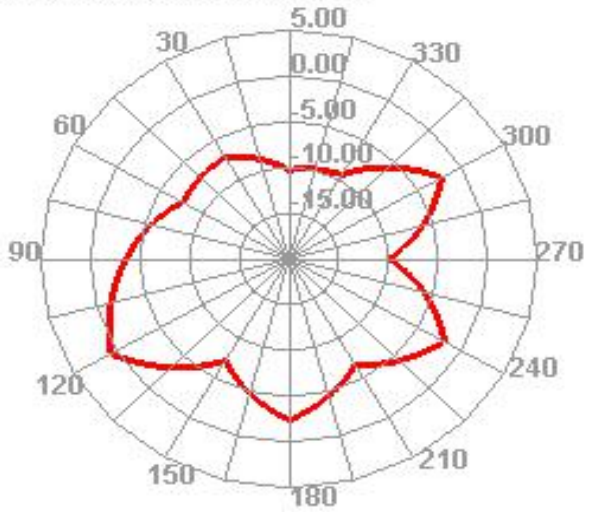
5.15-5.85GHz

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
5150	45.35	-4.52	1.29
5160	45.97	-4.44	1.46
5170	48.22	-4.18	1.56
5180	44.5	-4.62	1.41
5190	41.11	-5.07	1.55
5200	43.7	-4.72	1.17
5210	45.95	-4.44	1.12
5220	49.46	-4.04	1.55
5230	47.61	-4.25	1.26
5240	44.74	-4.59	1.09
5250	43.25	-4.78	1.21
5260	44.62	-4.61	1.23
5270	49.71	-4.01	1.67
5280	47.84	-4.22	1.48
5290	47.87	-4.22	1.58
5300	43.76	-4.72	1.19
5310	42.91	-4.83	1.11
5320	49.02	-4.09	1.05
5330	48.92	-4.1	1.17
5340	49.25	-4.06	1.3
5350	47.64	-4.24	1.29
5360	44.33	-4.64	1.87
5380	39.52	-4.03	1.69
5390	40.41	-3.93	1.88
5400	43.63	-3.6	2.26
5410	40.2	-3.96	1.95
5420	41.62	-3.81	2.19
5430	42.65	-3.7	2.34
5440	45.97	-3.38	2.64
5450	44.26	-3.54	2.51
5460	42.71	-3.69	2.28
5470	42.11	-3.76	2.28
5480	41.56	-3.81	2.21
5490	47.58	-3.23	2.89
5500	46.8	-3.3	2.82
5510	45	-3.47	2.54
5520	42.84	-3.68	2.35
5530	41.39	-3.83	2.19
5540	45.51	-3.42	2.56
5550	48.49	-3.14	2.66
5560	47.63	-3.22	2.77
5570	44.93	-3.47	2.42
5580	42.91	-3.67	2.2
5590	44.48	-3.52	2.33
5600	46.5	-3.33	2.39
5610	45.52	-3.42	2.28
5620	43.77	-3.59	2.07
5630	42.17	-3.75	1.91
5640	43.31	-3.63	2.09
5650	46.75	-3.3	2.42
5660	48.1	-3.18	2.48
5670	46.61	-3.31	2.11
5680	43.88	-3.58	1.88
5690	42.45	-3.72	1.6
5700	44.22	-3.54	1.78
5710	47.77	-3.21	2.09
5720	49.33	-3.07	2.29
5730	46.31	-3.34	1.73
5740	41.38	-3.83	1.52
5750	40.92	-3.88	1.25
5760	44.37	-3.53	1.51
5770	46.85	-3.29	1.8
5780	45.37	-3.43	1.61
5790	39.09	-4.08	0.92
5800	34.9	-4.57	0.77
5810	37.56	-4.25	0.87
5820	41.71	-3.8	1.23
5830	45.11	-3.46	1.41
5840	37.81	-4.22	0.72
5850	32.38	-4.9	0.66

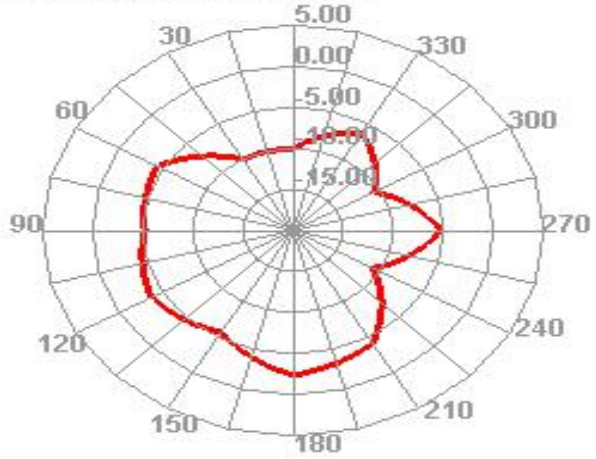
5180.000MHz H

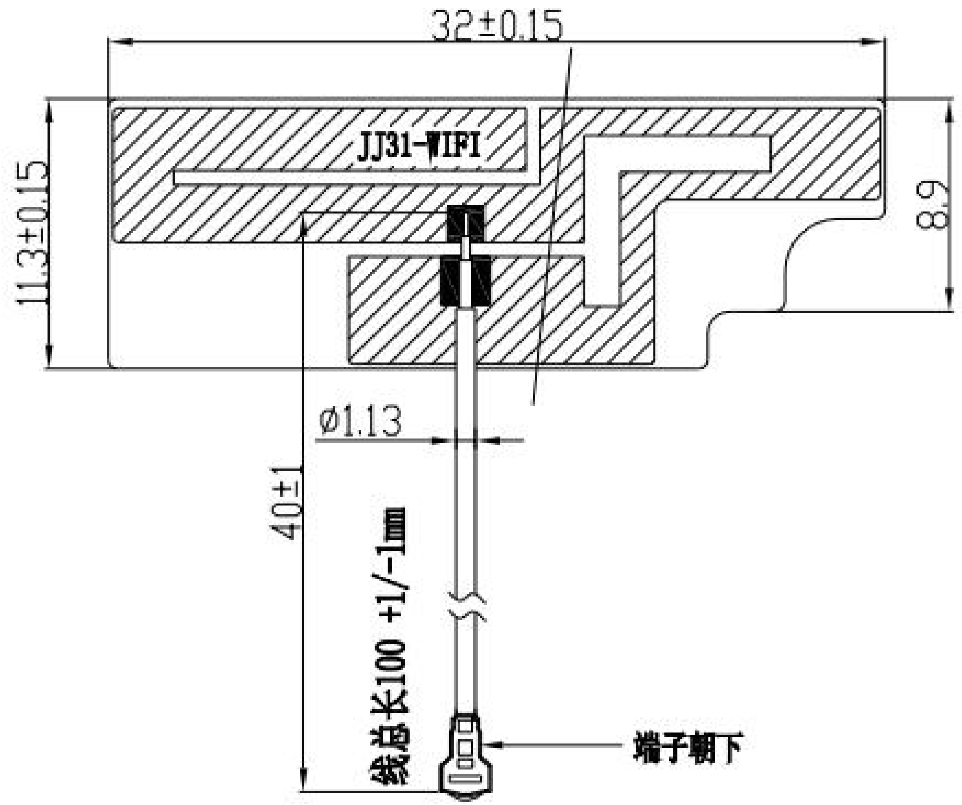


5180.000MHz E1



5180.000MHz E2





注:
1. 材料:FPC 基材:18/25, 表面颜色为哑光黑。
2. 反面整体背胶类型:3M-9471LE。
3. 表面不可以有污染物、擦伤、黑点。
4. 镀镍厚度2~6um，不可有镀镍后易断裂及脱落，导通不良，电路部分断铁等不良现象。
5. 背胶需要够热冲击实验：实验条件：-40~+85摄氏度 16个周期（一周期为30分钟）。
6. 该图为原尺寸比例图，*为重点管控尺寸

注：所有孔均为通孔，红色线为打断线。

GENERAL TOLERANCE TABLE			
LINEAR(MM)		ANGULAR	
DIVISION	TOLERANCE	DIVISION	TOLERANCE
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		
[illegible]	[illegible]		
[illegible]	[illegible]		

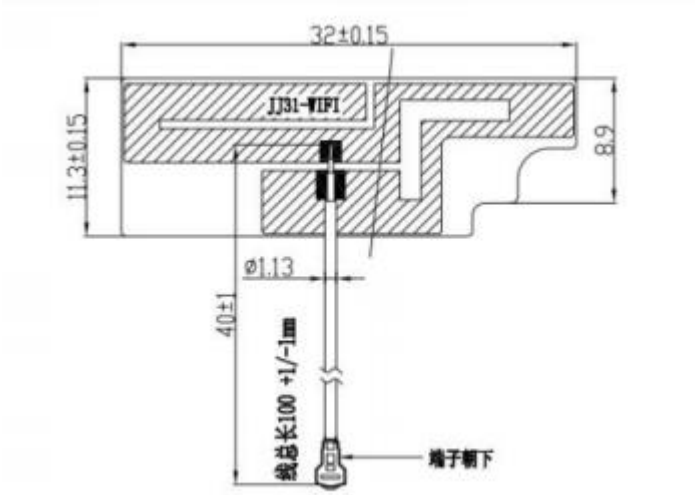
深圳市勤新科技有限公司

[illegible]		[illegible]	2020/10/22
PRODUCT NAME	[illegible]	[illegible]	[illegible]
PRODUCT ID	[illegible]	[illegible]	[illegible]
MATERIAL	[illegible]	[illegible]	[illegible]
SCALE	1:1 mm	SIZE A4	SHEET 1 of 1

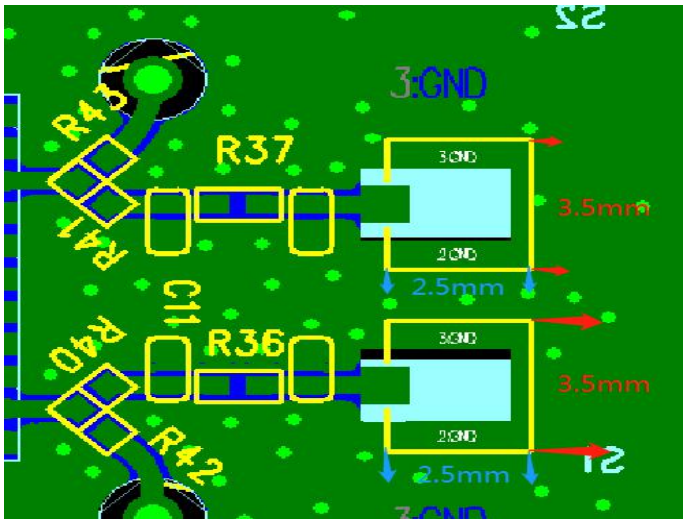
FPC antenna specificati

You can see antenna size is 32mm*11.3mm* From below

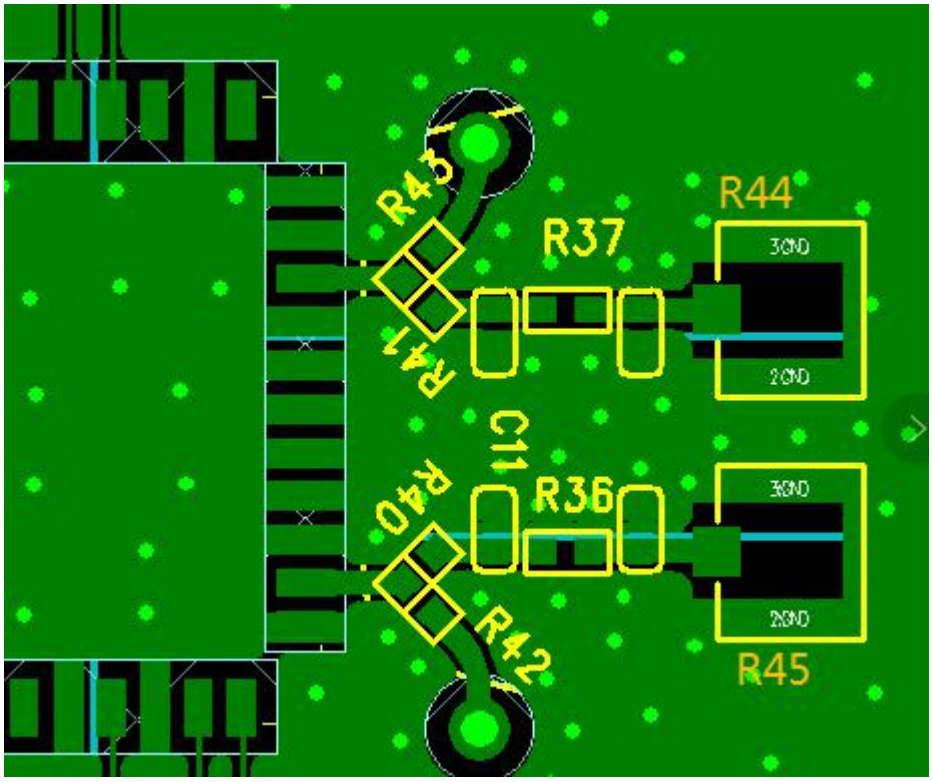
Specification.



And PCB Pad size for IPEX terminal just follow the below chart.



The FPC antenna is connected to the PCB at the position of R43.R44，the RF line（the Line between the FPC antenna and Wifi Module）must be 50ohm。



R36	0 ohm
R37	0 ohm
R40	0 ohm
R41	0 ohm
R44	IPEX 2
R45	IPEX 1

FCC Statement
FCC standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247,15.407

Antenna info:
External antenna
Manufacture:HUNAN FN-LINK TECHNOLOGY LIMITED
Model:6221B-UUC
Antenna gain 2.0dBi per antenna
Antenna number:2

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

We will retain control over the final installation of the modular such that compliance of the end product is assured. In such cases, an operating condition on the limit modular approval for the module must be only approved for use when installed in devices produced by a specific manufacturer. If any hardware modify or RF control software modify will be made by host manufacturer,C2PC or new certificate should be apply to get approval,if those change and modification made by host manufacturer not expressly approved by the party responsible for compliance ,then it is illegal.

FCC Radiation Exposure Statement
The modular can be installed or integrated in mobile or fix devices only. This modular cannot be installed in any portable device.
This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This modular must be installed and operated with a minimum distance of 20 cm between the radiator and user body.

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: “Contains Transmitter Module FCC ID: 2AATL-F12ASUM13 Or Contains FCC ID: 2AATL-F12ASUM13”
When the module is installed inside another device, the user manual of the host must contain below warning statements;
1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.
(2) This device must accept any interference received, including interference that may cause undesired operation.
Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.
However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.
Any company of the host device which install this modular with limit modular approval should perform the test of radiated & conducted emission and spurious emission,etc. according to FCC part 15C : 15.247 and 15.407 and 15.209 & 15.207 ,15B Class B requirement, Only if the test result comply with FCC part 15C : 15.247 and 15.407 and 15.209 & 15.207 ,15B Class B requirement， then the host can be sold legally.