**IEEE802.11a/b/g/n/ac/ax/2T/2R+Bluetooth/V2.1/4.2/5.2
USB2.0 Module
(MT7920TUN)**

User Manual

**Huizhou Speed Wireless Technology Co.,Ltd.**

1. General Description

This document is to specify the product requirements for 802.11a/b/g/n/ac/ax and BT combo module. This module based on MediaTek MT7920TUN chipset that complied with IEEE 802.11b, IEEE 802.11g, IEEE 802.11n ,IEEE 802.11ac,IEEE 802.11ax standard from 2.4~2.5GHz and IEEE 802.11a, IEEE 802.11ac , IEEE 802.11n,IEEE 802.11ac,IEEE 802.11ax standard from 5.15GHz ~ 5.85GHz. It is a complete dual-band(2.4GHz and 5GHz)WIFI 2 ×2 MIMO MAC/PHY/Radio System-on-a-Chip. This module provides a high level of integration with adual-stream IEEE 802.11ax MAC/ base band /radio.The WLAN operation supports 20MHz,40MHz and80MHz channels for data rates up to 1201Mbps

2. Features

Compatible with IEEE 802.11a standard to provide wireless 54Mbps data rate.

Compatible with IEEE 802.11b standard to provide wireless 11Mbps data rate.

Compatible with IEEE 802.11g standard to provide wireless 54Mbps data rate.

Compatible with IEEE 802.11n standard to provide wireless 300Mbps data rate.

Compatible with IEEE 802.11ac standard to provide wireless 866.7Mbps data rate.

Compatible with IEEE 802.11ax standard to provide wireless 1201Mbps data rate.

Support 20MHz, 40MHz bandwidth in 2.4GHz band

Support 20MHz, 40MHz, 80MHz bandwidth in 5GHz band

Support uplink MU-OFDMA TX and downlink MU-OFDMA RX

Support MU-MIMO RX

Data rate up to 800Mbps with USB3.0

Support STBC, LDPC, TX Beamformer and RX Beamformee

Greenfield, mixed mode, legacy modes support

IEEE 802.11 d/e/h/i/j/k/mc/r/v/w support

Security support for WFA WPA/WPA2/WPA3 personal, WPS2.0, WAPI

QoS support of WFA WMM, WMM PS

Bluetooth v5.2 with BLE(BT low energy)

High speed USB 2.0 interface

RoHS compliant

3.　Application Diagrams

3.1　Functional Block Diagram
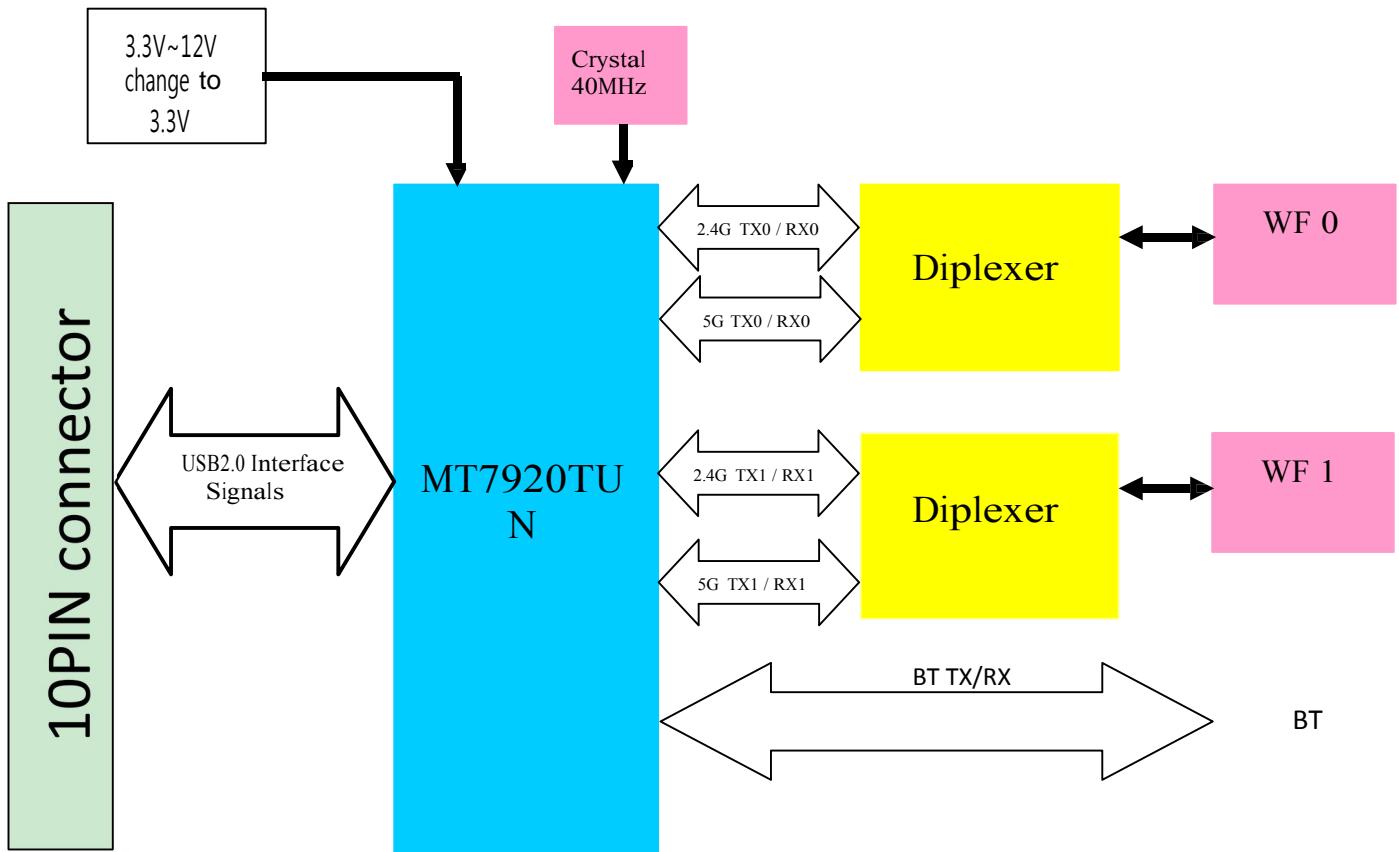
3.2 General Requirements

3.2.1 IEEE 802.11b Section

	Feature	Detailed Description
3.2.1.1	Standard	● IEEE 802.11b
3.2.1.2	Radio and Modulation Schemes	● DBPSK,DQPSK,CCK,DSSS
3.2.1.3	Operating Frequency	● 2400 ～ 2483.5MHz ISM band
3.2.1.4	Channel Numbers	● 13 channels for Worldwide
3.2.1.5	Data Rate	● 1,2,5.5,11Mbps
3.2.1.6	Media Access Protocol	● CSMA/CA with ACK
3.2.1.7	Transmitter Output Power at Antenna Connector	● Typical RF Output Power at each RF chain,and at room Temp. 25℃ ● 16±1.5 dBm at 11Mbps evm≤-5dB
3.2.1.8	Receiver Sensitivity at Antenna Connector	● Typical Sensitivity at each RF chain. @Frame (1000-byte PDUs) Error Rate<8% at room Temp 25℃ ● -83 dBm for 11Mbps
3.2.1.9	Freq Err Limit	● ±10ppm

3.2.2 IEEE 802.11g Section

	Feature	Detailed Description
3.2.2.1	Standard	● IEEE 802.11g
3.2.2.2	Radio and Modulation Type	● QPSK，BPSK，16QAM ,64QAM with OFDM
3.2.2.3	Operating Frequency	● 2400 ～ 2483.5MHz ISM band
3.2.2.4	Channel Numbers	● 13 channels for Worldwide
3.2.2.5	Data Rate	● 6,9,12,18,24,36,48,54Mbps
3.2.2.6	Media Access Protocol	● CSMA/CA with ACK
3.2.2.7	Transmitter Output Power at Antenna Connector	● Typical RF Output Power at each RF chain, at room Temp. 25℃ ● 14±1.5 dBm at 54Mbps evm≤-25dB
3.2.2.8	Receiver Sensitivity at Antenna Connector	● Typical Sensitivity at each RF chain. @Frame (1000-byte PDUs) Error Rate<10% at room Temp 25℃ ● -71 dBm for 54Mbps
3.2.2.9	Freq Err Limit	● ±10ppm

3.2.3　IEEE 802.11a Section

	Feature	Detailed Description
3.2.3.1	Standard	● IEEE 802.11a
3.2.3.2	Radio and Modulation Type	● QPSK，BPSK，16QAM ,64QAM with OFDM
3.2.3.3	Operating Frequency	● 5.15~5.25GHz ● 5.25~5.35GHz ● 5.47~5.725GHz ● 5.725~5.825GHz
3.2.3.4	Data Rate	● 6,9,12,18,24,36,48,54Mbps
3.2.3.5	Media Access Protocol	● CSMA/CA with ACK
3.2.3.6	Transmitter Output Power at Antenna Connector	● Typical RF Output Power at each RF chain, at room Temp. 25℃ ● 15±2 dBm at 54Mbps　evm≤-25dB
3.2.3.7	Receiver Sensitivity at Antenna Connector	● Typical Sensitivity at each RF chain. @Frame (1000-byte PDUs) Error Rate<10% at room Temp 25℃ ● -71 dBm for 54Mbps
3.2.3.7	Freq Err Limit	● ±10ppm

3.2.4　IEEE 802.11n Section

	Feature	Detailed Description	
3.2.4.1	Standard	● IEEE 802.11n	
3.2.4.2	Radio and Modulation Type	● BPSK，QPSK，16QAM ,64QAM with OFDM	
3.2.4.3	Operating Frequency	● 2.4GHz :2400 ～ 2483.5MHz for ISM band 　5GHz : 5.15~5.25GHz ; 5.25~5.35GHz ; 　　5.47~5.725GHz ; 5.725~5.825GHz ;	
3.2.4.4	Data Rate	● at most 300 Mbps	
3.2.4.5	Media Access Protocol	● CSMA/CA with ACK	
3.2.4.6	Transmitter Output Power at Antenna Connector	● Typical RF Output Power at each RF chain,and at roomTemp. 25℃	
		● 2.4GHz Band/HT20 13±1.5dBm at MCS7 evm≤-28dB	● 2.4GHz Band/HT40 13±1.5dBm at MCS7 evm≤-28dB
		● 5GHz Band/HT20 14±2dBm at MCS7 evm≤-28dB	● 5GHz Band/HT40 14±2dBm at MCS7 evm≤-28dB
3.2.4.7	Receiver Sensitivity at Antenna Connector	Typical Sensitivity at each RF chain. @Frame(1000-byte PDUs)Error Rate=10% and at room Temp. 25℃	
		2.4GHz Band/HT20 ●-68dBm at MCS7	2.4GHz Band/HT40 ● -66dBm at MCS7
		5GHz Band/HT20 ● -68dBmat MCS7	5GHz Band/HT40 ● -66dBm at MCS7
3.2.4.8	Freq Err Limit	● ±10ppm	

3.2.5 IEEE 802.11ac Section

	Feature	Detailed Description
3.2.5.1	Standard	● IEEE 802.11ac
3.2.5.2	Radio and Modulation Type	● QPSK，BPSK，16QAM ,64QAM,256QAM with OFDM
3.2.5.3	Operating Frequency	● 5GHz：5.15~5.25GHz； 5.25~5.35GHz； 5.47~5.725GHz；5.725~5.825GHz；
3.2.5.4	Data Rate	● at most 866.7 Mbps
3.2.5.5	Media Access Protocol	● CSMA/CA with ACK
3.2.5.6	Transmitter Output Power at Antenna Connector	● Typical RF Output Power at each RF chain, at room Temp. 25℃ ● 13±2dBm VHT80 MCS9 evm≤-32dB
3.2.5.7	Receiver Sensitivity at Antenna Connector	Typical Sensitivity at each RF chain. @Frame(1000-byte PDUs)Error Rate<10% at room Temp 25℃ 5GHz Band / VHT20 ● -64dBm at MCS8 ． 5GHz Band / VHT40 ● -58dBm at MCS9 5GHz Band / VHT80 ● -55dBm at MCS9
3.2.5.8	Freq Err Limit	● ±10ppm

3.2.6 IEEE 802.11ax Section

	Feature	Detailed Description
3.2.6.1	Standard	● IEEE 802.11ax
3.2.6.2	Radio and Modulation Type	● QPSK，BPSK，16QAM ,64QAM,256QAM, 1024QAM
3.2.6.3	Operating Frequency	● 2G: 2400 ~ 2483.5MHz ISM band ● 5GHz：5.15~5.25GHz； 5.25~5.35GHz； 5.47~5.725GHz；5.725~5.825GHz；
3.2.6.4	Data Rate	● 5G at most 1201 Mbps 2.4Gat most 573.5 Mbps
3.2.6.5	Media Access Protocol	● CSMA/CA with ACK
3.2.6.6	Transmitter Output Power at Antenna Connector	● Typical RF Output Power at each RF chain, at room Temp. 25℃ 13±2dBm HE-SU20/40/80 at MCS11 2.4G/5G evm≤-35dB
3.2.6.7	Receiver Sensitivity at Antenna Connector	Typical Sensitivity at each RF chain. @Frame(1000-byte PDUs)Error Rate<10% at room Temp 25℃ 2GHz Band / HE-SU20 ● -57dBm at MCS11 ． 2GHz Band / HE-SU40 ● -55dBm at MCS11 5GHz Band / HE-SU20 ● -57dBm at MCS11 ． 5GHz Band / HE-SU40 ● -55dBm at MCS11 5GHz Band / HE-SU80 ● -53dBm at MCS11
3.2.6.8	Freq Err Limit	● ±10ppm

3.2.7 Bluetooth Section

	Feature	Detailed Description		
3.2.8.1	Bluetooth standard	● Bluetooth V5.2		
3.2.8.2	Modulation	● GFSK, π/4-DQPSK and 8DPSK		
3.2.8.3	Operating Frequency	● 2402MHz-2480MHz		
3.2.8.4	Channel Numbers	● 79 channels for BDR+EDR ● 40 channels for BLE		
3.2.8.5	Symbol Rate	● 1,2and 3 Mbps		
		Min（dBm）	Typical（dBm）	Max（dBm）
3.2.8.6	BDR Output Power	5	8	11
	EDE Output Power	5	8	11
	BLE Output Power	5	8	11
3.2.8.7	Sensitive @BER=0.1% FOR GFSK(1Mbps)		-86	
	Sensitive @BER=0.01% FOR π/4-DQPSK(2Mbps)		-86	
	Sensitive @BER=0.01% FOR 8DPSK(3Mbps)		-80	
	Sensitive @PER=30.8% FOR BLE 1M		-90	
	Sensitive @PER=30.8% FOR BLE 2M		-90	
3.2.8.8	Maximum input level	● GFSK(1Mbps) -20dBm ● π/4-DQPSK(2Mbps) -20dBm ● 8DQPSK(3Mbps) -20dBm		

4. Electrical and Thermal Characteristics

4.1 Temperature Limit Ratings

Parameter	Minimum	Maximum	Units
Storage Temperature	-40	+80	C
Ambient Operating Temperature	0	70	C
Junction Temperature	0	125	C

4.2 General Section

	Feature	Detailed Description
4.2.1	Antenna Type	● WIFI&BT: PCB Antenna
4.2.2	Operating Voltage	● 3.3V~12V±10%
4.2.3	Current Consumption	● < 300mA@RX ● < 2000mA@TX
4.2.4	Form Factor and Interface	● High Speed USB2.0 Interface

5. Software

5.1 DRIVER Information

Driver	Windows, Linux, Android
Security	Support WFA WPA/WPA2/WPA3 personal,WPS2.0,WAPI

5.2 EEPROM Information
BT

Vendor ID	0E8D
Product ID	7961

WiFi

Reg Domain	Worldwide 2.4G/5G Read from registry；Control by driver ——
Vendor ID	0E8D
Product ID	7961

5.3 DC Characteristics

Symbol	Parameter	Conditions	MIN	TYP	MAX	Unit
DVDDIO	3.3V IO voltage	Input voltage	2.7	3.3	3.63	V
V_{IL}	Input low voltage	Input voltage	-0.3	-	DVDDIO*0.25	V
V_{IH}	Input High voltage	Input voltage	DVDDIO*0.625	-	DVDDIO+0.3	V
V_{OL}	Output low voltage	Input voltage |IOL|=1~64mA	-0.3	-	DVDDIO*0.125	V
V_{OH}	Output High voltage	Output voltage |IOH|=2~96mA	DVDDIO*0.75	-	DVDDIO+0.3	V

5.3 PMU characteristics

Parameter	Conditions	Performance			
		MIN	TYP	MAX	UNIT
BUCK-R (Switching regulator)					
Input voltage		2.97	3.3	3.63	V
Output voltage		1.14	1.2	1.32	V
Output current		-	-	1400	mA
Quiescent current		-	150	180	uA
Efficiency	10~200mA load current	84	87	-	%
Over-current Shutdown		1.68	-	2.8	A
PHYLDO					
Input voltage		2.97	3.3	3.63	V
Output voltage		1.62	1.8	1.98	V
Output current		-	-	150	mA
Quiescent current		-	10	20	uA
ALDO					
Input voltage		2.97	3.3	3.63	V
Output voltage		1.71	1.8	1.98	V
Output current		-	-	150	mA
Quiescent current		-	10	20	uA
HIFLDO					
Input voltage		1.14	1.2	1.26	V
Output voltage		0.81	0.9	0.99	V
Output current		-	-	60	mA
Quiescent current		-	10	20	uA

MLDO					
Input voltage		1.14	1.2	1.26	V
Output voltage		0.54	0.8	0.88	V
Output current		-	-	110	mA
Quiescent current		-	10	20	uA
CLDO					
Input voltage		1.14	1.2	1.26	V
Output voltage		0.59	0.7	0.77	V
Output current		-	-	1000	mA
Quiescent current		-	10	20	uA
General					
AVDD33 UVLO rising threshold		-	2.85	-	V
AVDD33 UVLO falling threshold		-	2.7	-	V
Thermal shutdown			150		℃
Thermal shutdown recovery			110		℃

5.4 WLAN Current Consumption

Sleep mode, radio off	1.81	mA
2.4GHz-Band RX Power saving, DTIM=1	2.79	mA
2.4GHz-Band RX Active, HT20, MCS15	123	mA
2.4GHz-Band TX CCK, 1Mbps, 1TX @ 21 dBm	464	mA
2.4GHz-Band TX HT20, MCS8 @ 19.5 dBm	725	mA
2.4GHz-Band TX HT20, MCS15 @ 18 dBm	617	mA
5GHz-Band RX Listen VHT80, 2RX	142	mA
5GHz-Band RX Active VHT80, MCS9，NSS2	186	mA
5GHz Band TX VHT80 MCS0 2SS @ 18.5 dBm	898	mA
5GHz-Band TX VH80, MCS9 2SS @ 15 dBm	619	mA

Note:

[1] All result is measured provided VDD33 is 3.3V. TX power is measured at antenna port. Temperature is 25ºC.

[2] MT7920TUN host interface is USB2.

[3] Duty cycle for TX/RX measurement is 100%.

[4] The chip variation is +/- 15%

5.5 Bluetooth Current Consumption

Sleep mode, radio off	1.81	mA
Bluetooth TX @ 15dBm	88	mA
Bluetooth RX	27	mA
Bluetooth SCO connection, HV3 packets + sniff mode + scan (Page scan internal = 1.28sec, inquiry scan interval = 2.56s, sniff interval = 500ms)	3.28	mA
Bluetooth page scan + inquiry scan (Page scan interval = 1.28s, inquiry scan interval = 2.56s)	2.22	mA
Bluetooth page scan (Page scan interval = 1.28s)	2	mA

Note:

[1] All result is measured provided VDD33 is 3.3V. TX power is measured at antenna port. Temperature is 25°C.

[2] MT7920TUN host interface is USB2.

 [3] Duty cycle for TX/RX measurement is 100%.

 [4] The chip variation is +/- 15%

6.   Mechanical Characteristics

6.1   Mechanical Requirements

#	Feature	Detailed Description
6.1.1	Length	● 76 mm
6.1.2	Width	● 32mm
6.1.3	Height	● 1.0 mm(PCB) ● MAX：5.0 mm

6.2   Mechanical Dimensions
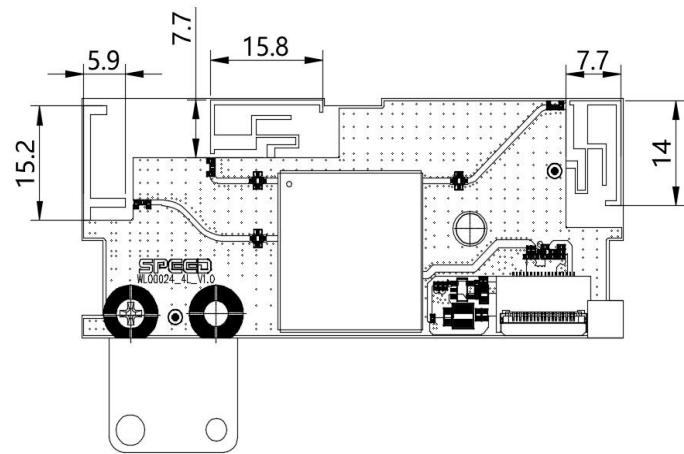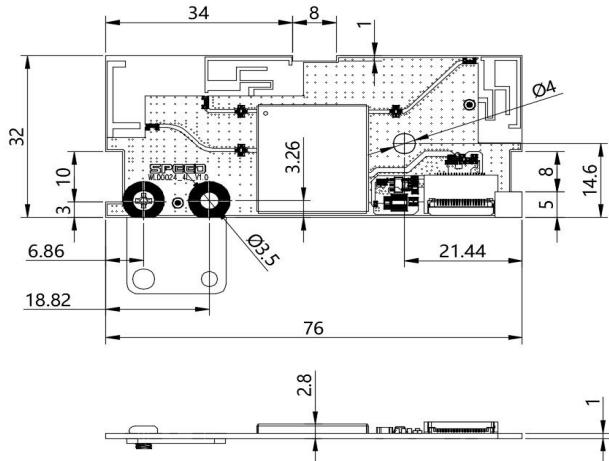
Size error range:

DIM (MM)	Tolerance (MM)
0-5	±0.15
5-10	±0.20
10-50	±0.30
>50	±0.40

6.3 Pin Description

Pin	Symbol	DESCRIPTION	I/O
1	GND	GND	-
2	USB- DP	USB Communication signal USB-DP	I/O
3	USB -DM	USB Communication signal USB-DM	I/O
4	3.3V~12V	3.3V~12V	I
5	3.3V~12V	3.3V~12V	I
6	3.3V~12V	3.3V~12V	I
7	WOWLAN	Wake on Wireless LAN （内有 10K 电阻到 3.3V 上拉），低电平有效	O
8	RESET	Reset controlled by main SOC（内有 10K 电阻到 3.3V 上拉），低电平有 效	I
9	BT-WAKE –HOST	BT wake up host（内有 10K 电阻到 3.3V 上拉），低电平有效	O
10	GND	GND	I/O

NO	Material Name	Brand
1	PCB	Xinghairong/Hankun/Tongchuangxin
2	10PIN socket	Xinfuer/ Changtong
3	Power chip	SILERGY/ Jiehuate
4	WIFI+BT IC	MTK
5	□iplexer	Walsin/ACX/ Jiaxinjiali
6	Crystal	Beidichagnrong/Lanjing
7	Resistance	Huaxinke/Guoju/Wangquan
8	Capacitance	Cuntian/Huaxinke/Guoju/Sanxing
9	Inductance	Cuntian/Fenghua/Shunluo

6.4 **Physical map**
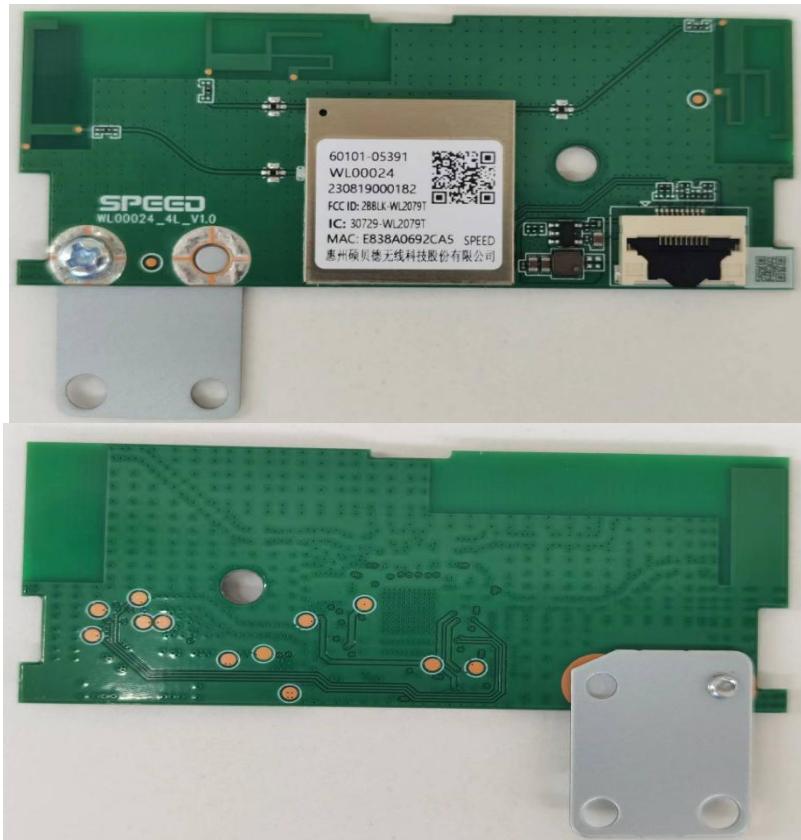
# 7.Power on sequence timing & Reset
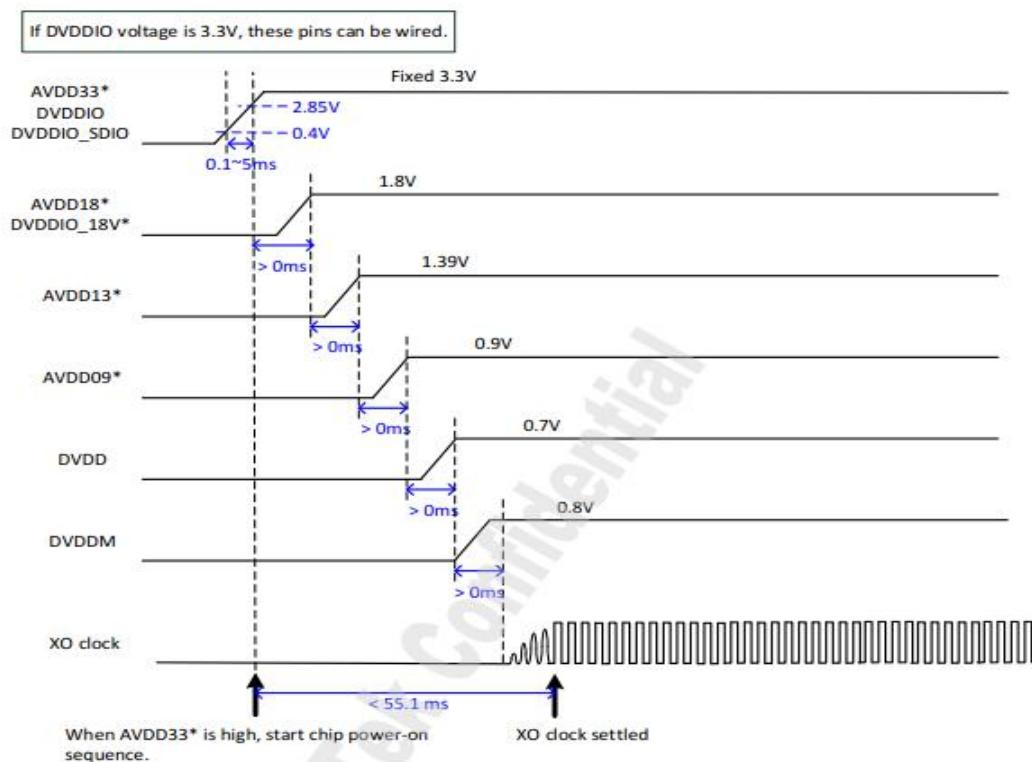
Figure 4 Chip power on sequence if DVDDIO is 3.3V
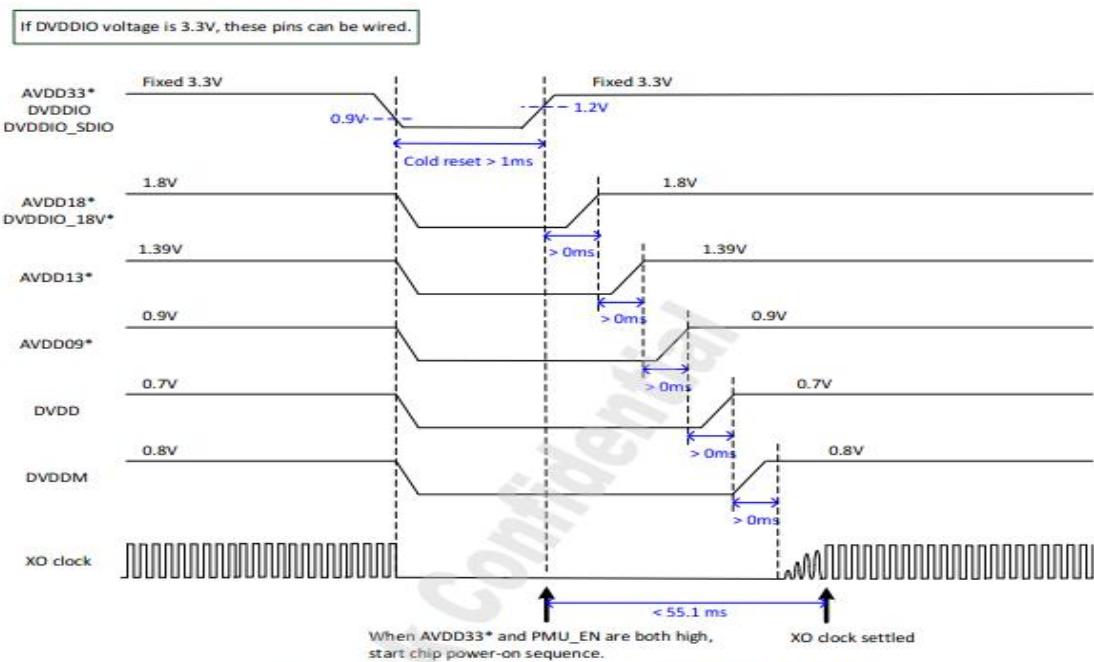

Figure 6 Cold reset sequence if DVDDIO is 3.3V

8.Environmental Requirements and Specifications TP Content

8.1 PCB Bending

The PCB bending spec shall be keep planeness under 0.1mm for both NATER and end assembly customer.

8.2 ESD

Symbol	Ratings	Max	Unit
(HBM)	Electrostatic discharge voltage (human body model)	2000	V
(CDM)	Electrostatic discharge voltage (charge device model)	500	

Please handle it under ESD protection environment.

8.3 Terminals

The product is mounted with motherboard through half hole. In order to prevent poor soldering, please do not touch the pad by hand.

8.4 Falling

It will cause damage on the mounted components when the product is falling or receiving drop shock. It may cause the product mal-function

8.5 Storage Condition

5.1 Moisture barrier bag must be stored under 30 degree C, humidity under 85% RH. The calculated shelf life for the dry packed product shall be a 12 months from the bag seal date.

5.2 Humidity indicator cards must be blue, <30%

8.6 Baking Condition

Products require baking before mounting if

a)humidity indicator cards reads >30%

b) temp <30 degree C, humidity < 70% RH, over 96 hours

Baking condition: 90 degree C, 12-24 hours

Baking times: 1 tim

## 9.1 10PIN Connector

10PIN horizontal ZIF connector
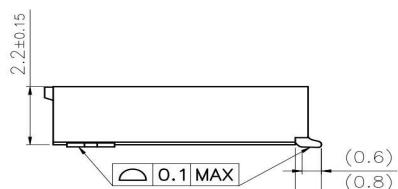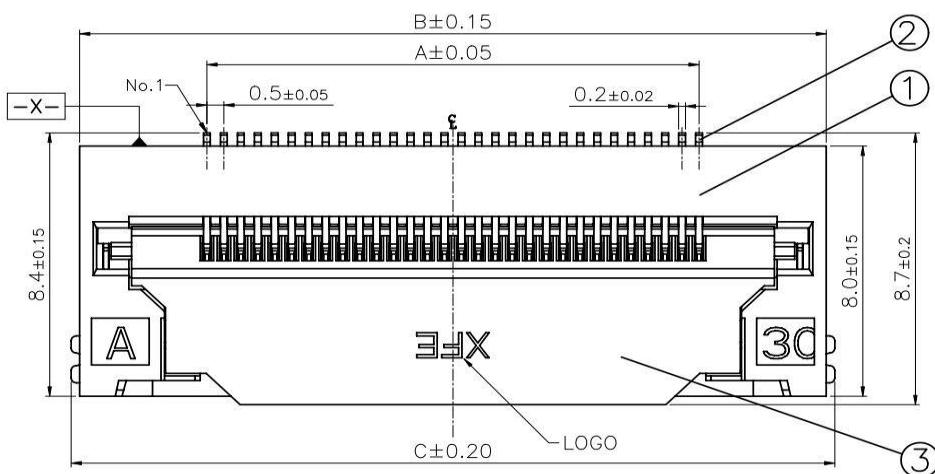
Latch locking status
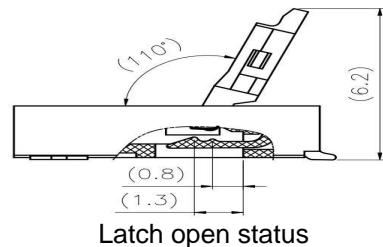
Latch open status
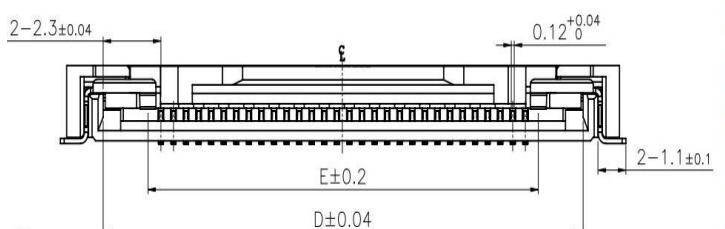
Pin位	Type	A	B	C	D	E
9	0.5-20-9PBX	4.00	11.50	12.00	8.60	5.00
10	0.5-20-10PBX	4.50	12.00	12.50	9.10	5.50
12	0.5-20-12PBX	5.50	13.00	13.50	10.10	6.50
14	0.5-20-14PBX	6.50	14.00	14.50	11.10	7.50
20	0.5-20-20PBX	9.50	17.00	17.50	14.10	10.50

Please pay attention to avoiding wiring when designing PCB in this area

Product Outline
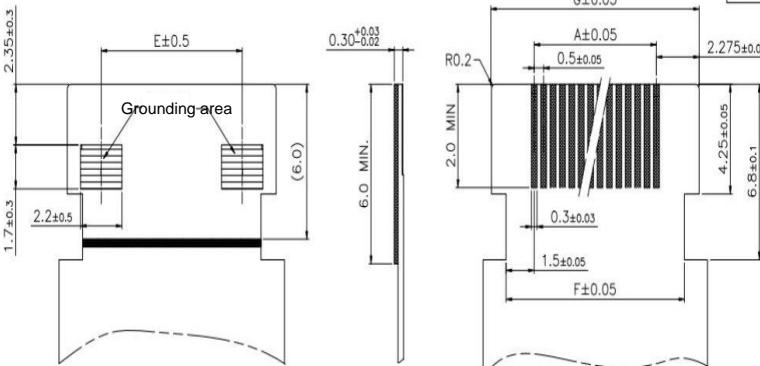
Applicable FPC size method
RECOMMENDED FPC DIMENSIONS
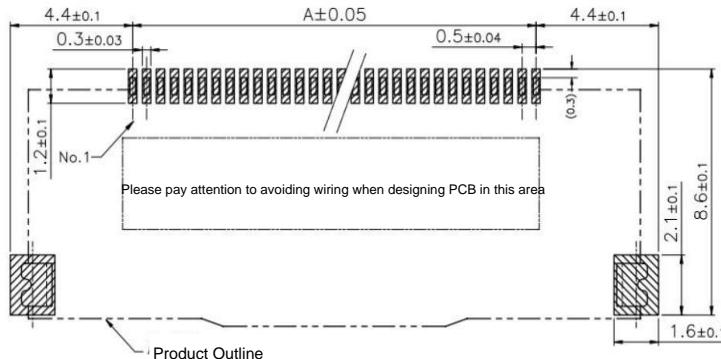
Applicable circuit board
RECOMMENDED PCB LAYOUT

Pin位	Type	A	E	F	G	
9	0.5-20-9PBX	4.00	5.00	7.00	8.55	
10	0.5-20-10PBX	4.50	5.50	7.50	9.05	
12	0.5-20-12PBX	5.50	6.50	8.50	10.05	
14	0.5-20-14PBX	6.50	7.50	9.50	11.05	
20	0.5-20-20PBX	9.50	10.50	12.50	14.05	

FCC Warning

OEM integration instructions:

This device is intended only for OEM integrators under the following conditions:

The transmitter module may not be co-located with any other transmitter or antenna. The module shall be only used with the external antenna(s) that has been originally tested and certified with this module.

As long as the conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

Validity of using the module certification:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization for this module in combination with the host equipment is no longer considered valid and the FCC ID of the module cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End product labeling:

The final end product must be labeled in a visible area with the following: "Contains Transmitter Module FCC ID: 2BBLK-WL2079T".

Information that must be placed in the end user manual:

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

Integration instructions for host product manufacturers according to KDB 996369 D03 OEM Manual v01

2.2 List of applicable FCCrules

FCC Part 15 Subpart C 15.247 & 15.207 & 15.209 & 15.407

2.3 Specific operational useconditions

The module WiFi Module is a module with WIFI 2.4G / BT/ WIFI 5G/WIFI 6 function.

Operation Frequency:

WIFI 2.4G:2412~2462MHz

BT:2402~2480MHz

WIFI 5G:5150 MHz ~5250MHz; 5250MHz~5350MHz; 5470MHz~5725MHz; 5725 MHz ~5850 MHz

The module can be used for mobile or applications with the maximum; The host manufacturer installing this module into their product must ensure that the final composit product complies with the FCC requirements by a technical assessment or evaluation to the FCC rules, including the transmitter operaition. The host manufacturer has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

2.4 Limited module procedures

Not applicable. The module is a Single module and complies with the requirement of FCC Part 15.212.

2.5 Trace antennadesigns

Not applicable. The module has its own antenna, and doesn't need a host's printed board microstrip trace antenna etc.

2.6 RF exposureconsiderations

The module must be installed in the host equipment such that at least 20cm is maintained betweenthe antenna and users' body; and if RF exposure statement or module layout is changed, then the host product manufacturer required to take responsibility of the module through a change in FCC ID or new application. The FCC ID of the module cannot be used on the final product. In these circumstances, the host manufacturer will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization

This device is intended only for host manufacturers under the following conditions: The transmitter module may not be co-located with any other transmitter or antenna;

The module shall be only used with the internal antenna(s) that has been originally tested and certified with this module. The antenna must be either permanently attached or employ a 'unique' antenna coupler.

As long as the conditions above are met, further transmitter test will not be required. However, the host manufacturer is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

2.8 Label and complianceinformation

Host product manufacturers need to provide a physical or e-label stating "Contains FCC ID: 2BBLK-WL2079T "with their finished product.

2.9 Information on test modes and additional testingrequirements

Data transfer module demo board can control the EUT work in RF test mode at specified test channel. Additional testing, Part 15 Subpart B disclaimer.

The module without unintentional-radiator digital circuit, so the module does not required an evaluation by FCC Part 15 Subpart B. The host should be evaluated by the FCC Subpart B.

2.10 Additional testing, Part 15 Subpart Bdisclaimer

The modular transmitter is only FCC authorized for FCC Part 15 Subpart C 15.247 & 15.207 & 15.209 & 15.407 and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. If the grantee markets their product as being Part 15 Subpart B compliant

(when it also contains unintentional-radiator digital circuity), then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

FCC STATEMENT :

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 generate, 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.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

ISED Caution:

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

This device may not cause interference.

This device must accept any interference, including interference that may cause undesired operation of the device.

This equipment should be installed and operated with minimum distance between 20cm the radiator your body

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

L'appareil ne doit pas produire de brouillage;

L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et votre corps

Operating Frequency Range band 5150-5250 MHz "for indoor use only."