飞宇信

FYX7663BU

IEEE802.1 1a/b/g/n/ac
2T/2RDual
Band USB Combo
Module Integrated
BluetoothV2.1 /3.0/4.2/5.1

ADD:Floor 1-4, Workshop No.76 Baotong South Road, Xikeng Community, Yuanshan Street, Longgang District, Shenzhen

1.General Description

This document is to specify the product requirements for 802.11a/b/g/n/ac and BT combo module.
This module based on Media Tek MT7663BUN chipset that complied with IEEE 802.11b, IEEE 802.11g, IEEE 802.11n standard from 2.4-2.5GHz and IEEE 802.11a, IEEE 802.11ac , IEEE 802.11n standard from 5.15GHz - 5.85GHz , and it can be used to provide up to 11Mbps for IEEE 802.11b, 54Mbps for IEEE 802.11g, 300Mbps for 802.11n, 866.7Mbps for 802.11ac to connect your wireless LAN.The Bluetooth part supports latest 5.1+HS operation.

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.
- Support 20MHz, 40MHz bandwidth in 2.4GHz band
- Support 20MHz, 40MHz, 80MHz bandwidth in 5GHz band
- Support MU-MIMO RX
- 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 personal, WPS2.0, WAPI
- QoS support of WFA WMM, WMM PS
- Operation at 2.4~2.5GHz and 5.15~5.825GHz frequency band to meet worldwide regulations
- Bluetooth specification 2.1+EDR
- Bluetooth 4.2 Low Energy (LE)
- Bluetooth 5.1
- High speed USB 2.0 interface
- HSF compliant

3. General Requirements

3.1 . *IEEE 802.11b Section*

Feature	Detailed Description
Standard	● IEEE 802.11b
Radio and Modulation Schemes	● DQPSK , DBPSK and CCK with DSSS
Operating Frequency	● 2400 ～ 2483.5MHz ISM band
ChannelNumbers	● 13 channels for Worldwide
Data Rate	● at most 11Mbps
Media Access Protocol	● CSMA/CA with ACK
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 IEEE 802.11g Section

Feature	Detailed Description
Standard	● IEEE 802.11b
Radio and Modulation Schemes	● DQPSK , DBPSK and CCK with DSSS
Operating Frequency	● 2400 ～ 2483.5MHz ISM band
Channel Numbers	● 13 channels for Worldwide
Data Rate	● at most 11Mbps

Media Access Protocol	● CSMA/CA with ACK
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

3.3 IEEE 802.11g Section

Feature	Detailed Description
Standard	● IEEE 802.11g
Radio and Modulation Schemes	● QPSK , BPSK , 16QAM ,64QAM with OFDM
Operating Frequency	● 2400 ～ 2483.5MHz ISM band
Channel Numbers	● 13 channels for Worldwide
Data Rate	● at most 54Mbps
Media Access Protocol	● CSMA/CA with ACK
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

3.4 IEEE 802.11a Section

Feature	Detailed Description
Standard	● IEEE 802.11a
Radio and Modulation Type	● QPSK , BPSK , 16QAM ,64QAM with OFDM
Operating Frequency	● 5.15~5.25GHz ● 5.25~5.35GHz

	● 5.725~5.825GHz
Data Rate	● at most 54Mbps
Media Access Protocol	● CSMA/CA with ACK
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

3.5 IEEE 802.11n Section

Feature	Detailed Description
Standard	● IEEE 802.11n
Radio and Modulation Type	● BPSK , QPSK , 16QAM ,64QAM with OFDM
Operating Frequency	● 2.4GHz :2400 ~ 2483.5MHz for ISM band 5GHz : 5.15~5.25GHz; 5.25~5.35GHz; 5.725~5.825GHz;
Data Rate	at most 300 Mbps
Media Access Protocol	● CSMA/CA with ACK
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

3.6 *IEEE 802.11ac Section*

Feature	Detailed Description
Standard	● IEEE 802.11ac
Radio and Modulation Type	● QPSK , BPSK , 16QAM ,64QAM,256QAM with OFDM
OperatingFrequency	● 5GHz : 5.15~5.25GHz; 5.25~5.35GHz; 5.725~5.825GHz;
Data Rate	● at most 866.7 Mbps
Media Access Protocol	● CSMA/CA with ACK
Receiver Sensitivity at Antenna Connector	Typical Sensitivity at each RF chain. @Frame(1000-byte PDUs)Error Rate<10% at room Temp 25℃ 5GHz Band / HT20 ● -64dBm at MCS8 5GHz Band / HT40 ● -58dBm at MCS9 5GHz Band / HT80 ● -55dBm at MCS9

3.7 Bluetooth Section

Feature	Detailed Description
Bluetooth standard	● Bluetooth V2.1,V3.0, V4.2 , V5.1
Modulation	● GFSK, π/4-DQPSK and 8DPSK
Operating Frequency	● 2402MHz-2480MHz
Channel Numbers	● 79 channels for BDR+EDR ● 40 channels for BLE
Symbol Rate	● 1,2and 3 Mbps

	Min（dBm）	Typical（dBm）	Max（dBm）

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		*-90*	
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	℃
Ambient Operating Temperature	0	70	℃
Junction	0	125	℃

Temperature			

4.2 General Section

Feature	Detailed Description
Antenna Type	● WIFI&BT: PCB Antenna
Operating Voltage	● 3.3V±10%
Current Consumption	● ＜300mA@RX ● ＜1000mA@TX
Form Factor andI nterface	● High Speed USB2.0 Interface

5. Software

5.1 DRIVER Information

Driver	Windows, Linux, Android
Security	64/128-bits WEP, WPA, WPA2

5.2 EEPROM Information

BT

Vendor ID	default
Product ID	default

WiFi

Reg Domain	Worldwide 2.4G/5G Read from registry; Control by driver
Vendor ID	default
Product ID	default

5.3 DC Characteristics

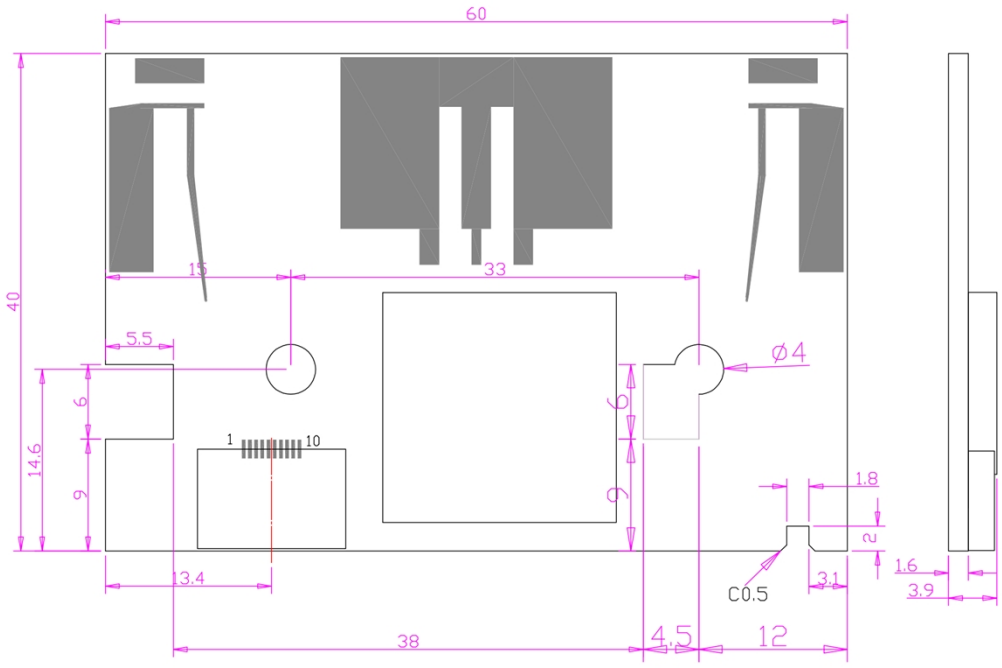
Symbo	Parameter	Min	TYPE	Max	Unit
VIL	Input Low Voltage	-0.3		0.82	V
VIH	Input High Voltage	2.03		3.6	V
VOL	Output Low Voltage	-0.3		0.4	V
VOH	Output High Voltage	2.9		3.6	V

6. Mechanical Characteristics

6.1 Mechanical Requirements

Feature	Detailed Description
Length	● 60 mm
Width	● 40mm
Height	● 1.6 mm(PCB) ● MAX: 3.9 mm
Weight	● 10.5±0.2g

6.2 Mechanical Dimensions



Dimensional error range value

DIM (MM)	Tolerance (MM)

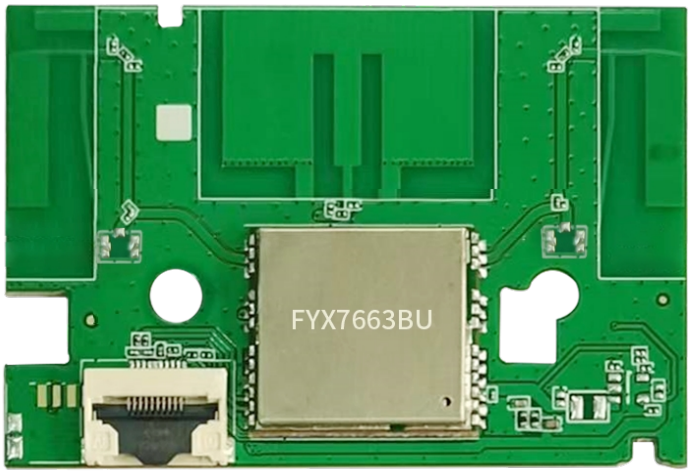
0-5	±0.15
5-10	±0.20
10-50	±0.30
＞50	±0.40

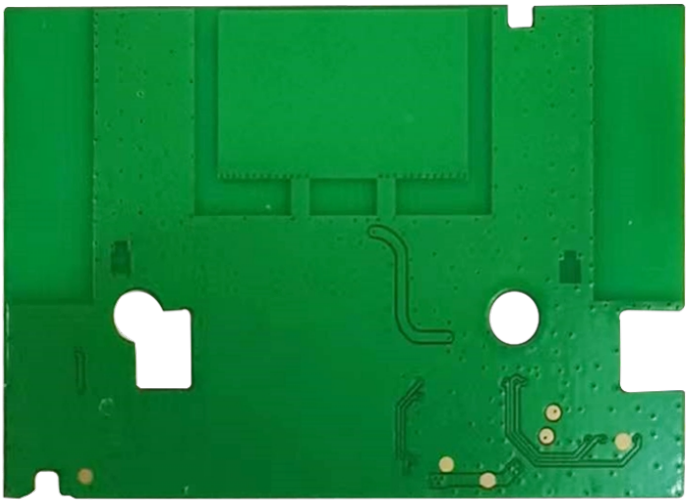
6.3 Pin Description

PIN	Symbol	DESCRIPTION	I/O
1	GND	GND	-
2	D+	USB Communication signal USB-DP）	I/O
3	D-	USB Communication signal USB-DM	I/O
4	3.3V	Power supply	P
5	3.3V	Power supply	P
6	3.3V	Power supply	P
7	WOWLAN	Wake on Wireless LAN	O
8	RESET	Reset controlled by main SOC	I

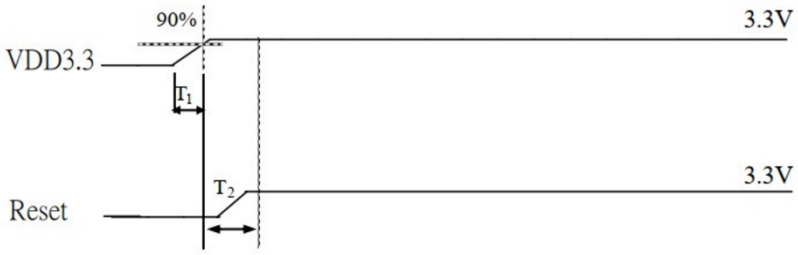
9	BT_HOSTWAKE	BT wake up host	O
10	GND	GND	-

7.Product Picture





8.Power on sequence timing & Reset



The typical timing range

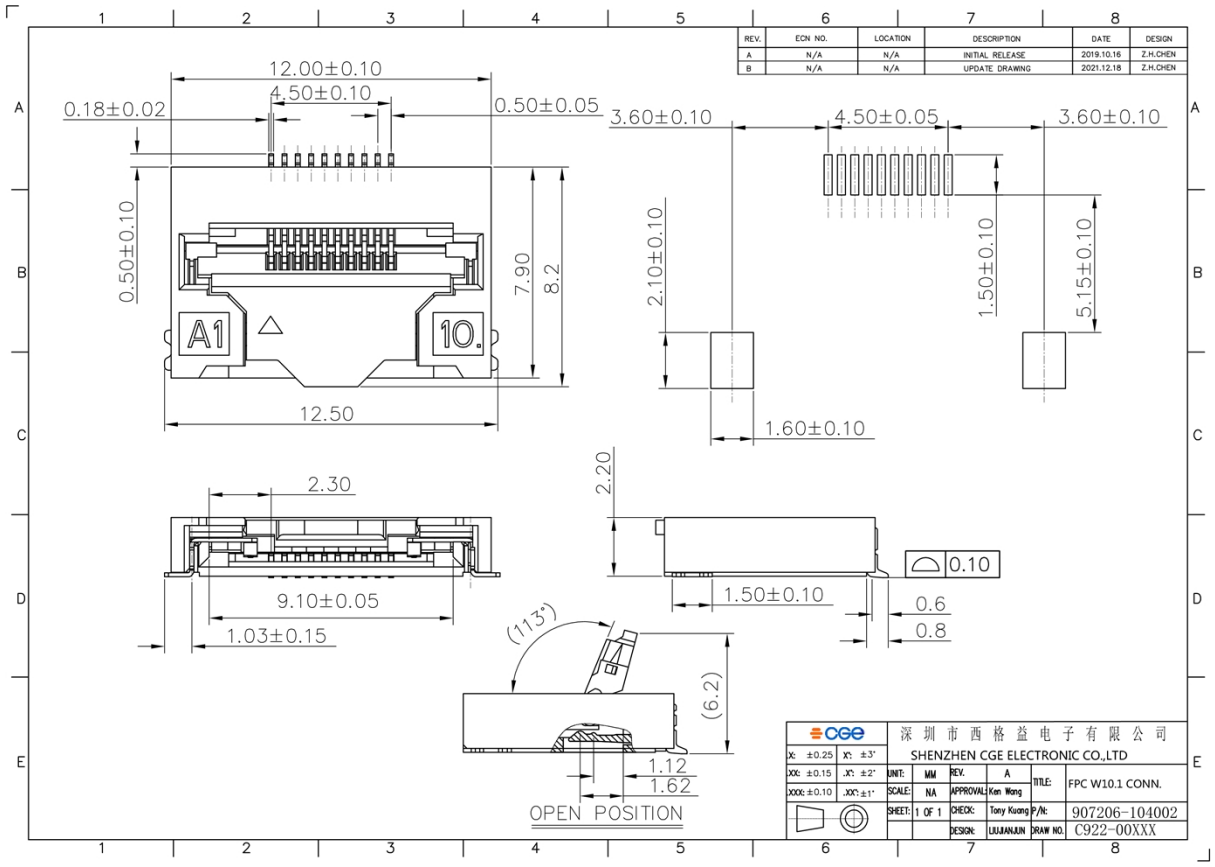
	Unit	Min	Typical	Max
T1	ms	0.15	2	5
T2	ms	1	--	--

Note:T2 must be asserted a fter VDD 3.3 ready

9. BOM(Part List)

Material name	Brand
IC	MTK
Capacitance	Murata/YAGEO
Inductance	Murata/IN MICRO
Crystal oscillator	CHANG JING/Sunlordinc
Resistance	YAGEO/Walsin/UNIOHM
Duplexer	Duplexer Walsin
Connector	Cgeconn/Changtong/Xinfuer
PCB	Kexiang/Ruijiexing

10. Appendix 1: SMTconnector


REV. | ECN NO. | LOCATION | DESCRIPTION | DATE | DESIGN
A | N/A | N/A | INITIAL RELEASE | 2019.10.16 | Z.H.CHEN
B | N/A | N/A | UPDATE DRAWING | 2021.12.18 | Z.H.CHEN
12.00±0.10
4.50±0.10
0.18±0.02
0.50±0.05
3.60±0.10
4.50±0.05
3.60±0.10
0.50±0.10
7.90
8.2
2.10±0.10
1.50±0.10
5.15±0.10
A1
10.
12.50
1.60±0.10
2.30
2.20
0.10
9.10±0.05
1.50±0.10
0.6
0.8
1.03±0.15
(113°)
(6.2)
1.12
1.62
OPEN POSITION
CGE
深 圳 市 西 格 益 电 子 有 限 公 司
SHENZHEN CGE ELECTRONIC CO.,LTD
X: ±0.25 X°: ±3°
.XX: ±0.15 .X°: ±2°
.XXX: ±0.10 .XX°: ±1°
UNIT: MM
SCALE: NA
SHEET: 1 OF 1
REV. A
APPROVAL: Ken Wang
CHECK: Tony Kuang
DESIGN: LIUJIANJUN
TITLE: FPC W10.1 CONN.
P/N: 907206-104002
DRAW NO. C922-00XXX