

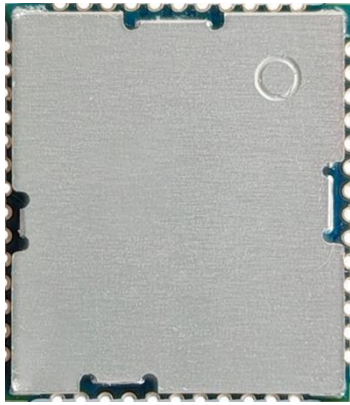


BL-M8852BP2

802.11ax 1200Mbps WLAN + BT v5.2
PCI-E Module Specification

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(Top View)



(Bottom View)

Module Name: BL-M8852BP2	
Module Type: 802.11a/b/g/n/ac/ax 1200Mbps WLAN + Bluetooth v5.2 Combo PCI-E Module	
Revision: V1.1.1	
Customer Approval:	
Company:	
Title:	
Signature:	Date:
Approval:	
Title:	
Signature:	Date:

Revision History

Revision	Summary	Release Date	Revised By
1.1.0	Initial release	2026-01-21	Zjh
1.1.1	Official version	2026-02-26	Zjh



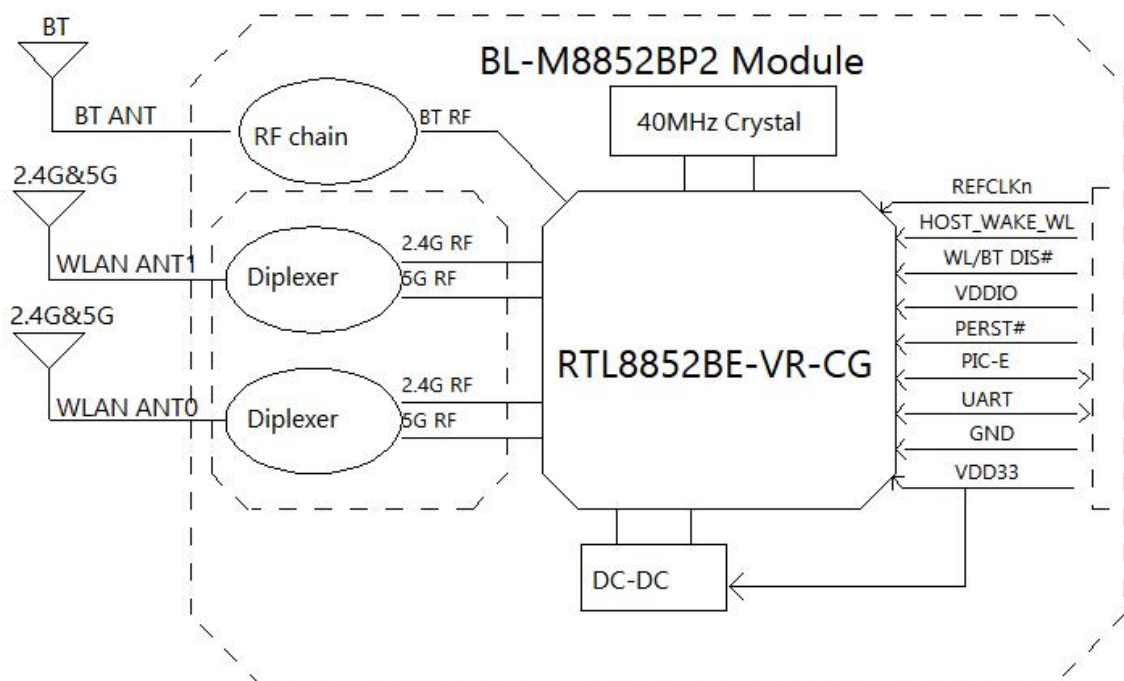
1. Introduction

BL-M8852BP2 is a highly integrated Dual-band WLAN+Bluetooth Combo module. It combines a 2T2R Dual-band WLAN subsystem with PCI Express interface controllers and a Bluetooth v5.2 subsystem with UART interface controller. The module compatible IEEE 802.11a/b/g/n/ac/ax standard and provides the maximum PHY rate up to 1201Mbps, it supports Bluetooth dual mode with v5.2/v4.2/v2.1 compliant. The module provides a complete solution for high-performance integrated WALN and Bluetooth devices such as OTT Boxes, Set-top Boxes, HD Cameras, etc.

1.1 Features

- Operating Frequencies: 2.4~2.4835GHz or 5.15~5.85GHz
- Support Dual-band 2T2R mode with 20/40/80Mhz bandwidth
- Support 802.11ax with OFDMA and MU-MIMO
- Dual Mode Bluetooth support : Simultaneous LE and BR / EDR

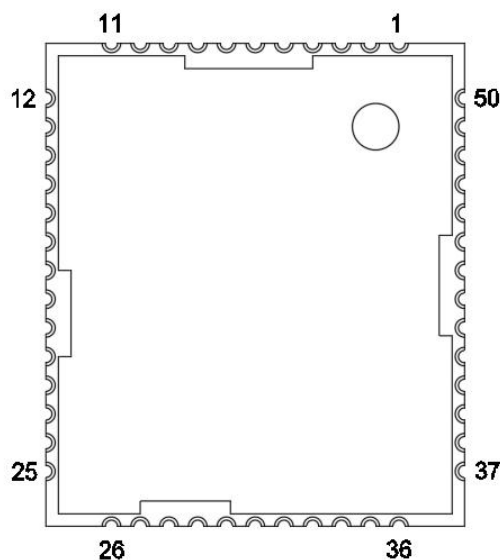
1.2 Block Diagram



1.3 General Specifications

Module Name	BL-M8852BP2
Chipset	RTL8852BE-VR-CG
WLAN Standards	IEEE802.11a/b/g/n/ac/ax
BT Specification	Bluetooth Core Specification v5.2/4.2/2.1
Host Interface	PCI Express 2.1 for WLAN & UART for Bluetooth
Antenna	Connect to the external antennas through half hole pad
Dimension	15.1*13.1*2.2mm (L*W*H)
Power Supply	VDD33=3.3V±0.2V@1200 mA (Max) VDDIO=3.3V±0.2V / 1.8V±0.1V
Operation Temperature	-20°C to +70°C
Operation Humidity	10% to 95% RH (Non-Condensing)

2. Pin Assignments



(Top View)

2.1 Pin Definition

No	Pin Name	Type	I/O Level	Module Pin Description
1	GND	RF		RF Ground
2	WLAN ANT1	RF		RF Pad for 2.4G / 5G RF to WLAN_ANT1

3	GND	RF		RF Ground
4	GND	RF		RF Ground
5	GND	RF		RF Ground
6	GND	RF		RF Ground
7	GND	RF		RF Ground
8	GND	RF		RF Ground
9	WLAN ANT0	RF		RF Pad for 2.4G / 5G RF to WLAN_ANT0
10	GND	RF		RF Ground
11	GND	RF		RF Ground
12	PERST#	I	VDD33	PCI Express Reset active low input. When the PERST# is asserted at power-on state, the module returns to a pre-defined reset state and is ready for initialization and configuration after the de-assertion of the PERST#
13	NC	-		NC
14	NC	-		NC
15	WL_DIS#	I	VDDIO	WL_DIS# can be defined as the WLAN Radio-off function with host interface remaining connected. When this pin is pulled low, WLAN function will be Radio-off. Shared with GPIO9. Internal pull High by 100K resistor
16	WAKE#	O/D	VDD33	Power Management Event active low open drain output. Used to reactivate the PCI Express bus main power rails and reference clock. This WAKE# can be shared with BT wake up host function via side band signals
17	NC	-		NC
18	HOST_WAKE_WL	I	VDDIO	The Host wakes up WLAN controller in remote Wake up Mode. Suggest configuring the control pin in platform side as open-drain output. Shared with GPIO12
19	PCM_OUT	O	VDDIO	PCM data output. Shared with GPIO1
20	PCM_IN	I	VDDIO	PCM data input. Shared with GPIO0
21	PCM_SYNC	I/O	VDDIO	PCM Frame Sync signal. Shared with GPIO2
22	PCM_CLK	I/O	VDDIO	PCM Clock signal. Shared with GPIO3
23	GND	P		Ground
24	NC	-		NC
25	NC	-		NC
26	NC	-		NC

27	GND	P		Ground
28	NC	-		NC
29	NC	-		NC
30	GND	P		Ground
31	NC	-		NC
32	GND	P		Ground
33	REFCLKn	AI		PCI Express 100MHz differential reference clock input
34	VDDIO	P		Power supply for some digital IO, 3.3V or 1.8V
35	REFCLKp	AI		PCI Express 100MHz differential reference clock input
36	VDD33	P		DC 3.3V power supply
37	CLKREQ#	O/D	VDD33	Reference Clock Request open drain output, it used to request for the the reference clock. It also used by L1 PM substates
38	BT_DIS#	I	VDDIO	BT_DIS# can externally shut down the module BT function when its pulled Low, and UART interface will be also disabled. Shared with GPIO11. Internal pull High by 100K resistor
39	GND	P		Ground
40	UART_TX	O	VDDIO	High-speed UART data output
41	UART_RX	I	VDDIO	High-speed UART data input
42	UART_RTS	O	VDDIO	High-speed UART RTS output
43	UART_CTS	I	VDDIO	High-speed UART CTS input
44	PERn	AI		PCI Express device receive differential pair for WLAN
45	PERp	AI		PCI Express device receive differential pair for WLAN
46	PETn	AO		PCI Express device transmit differential pair for WLAN (AC coupling capacitors are integrated on module)
47	PETp	AO		PCI Express device transmit differential pair for WLAN (AC coupling capacitors are integrated on module)
48	BT_ANT	RF		RF Pad for BT RF to BT_ANT
49	HOST_WAKE_BT	I	VDDIO	The Host wakes up BT controller. Shared with GPIO7
50	BT_WAKE_HOST	O	VDDIO	BT to wake up the Host. Shared with GPIO14

P: Power or Ground; I/O: digital In/Output; O/D:Open Drain digital Output;

AI/O: Analog In/Output; RF: Analog RF Port or RF Ground;

3. Electrical and Thermal Specifications

3.1 Recommended Operating Conditions

Parameters		Min	Typ	Max	Units
Ambient Operating Temperature		-20	25	70	°C
External Antenna VSWR			1.7	2.1	
Supply Voltage	VDD33	3.1	3.3	3.5	V
	VDDIO/3.3V	3.1	3.3	3.5	V
	VDDIO/1.8V	1.7	1.8	1.9	V

3.2 Digital 3.3V IO DC Specifications

Symbol	Parameter	Min	Typ	Max	Units
VIH	Input High Voltage	2.0	3.3	3.6	V
VIL	Input Low Voltage	--	0	0.9	V
VOH	Output High Voltage	2.97	--	3.3	V
VOL	Output Low Voltage	0	--	0.33	V

3.3 Digital 1.8V IO DC Specifications

Symbol	Parameter	Min	Typ	Max	Units
VIH	Input High Voltage	1.7	1.8	3.6	V
VIL	Input Low Voltage	--	0	0.8	V
VOH	Output High Voltage	1.62	--	1.8	V
VOL	Output Low Voltage	0	--	0.18	V

3.4 Current Consumption

Conditions : VDD33=3.3V ; Ta:25°C			
Use Case	VDD33 Current		
	Typ(I _{RMS})	Max(I _{Peak})	Units
2.4G WLAN TCP throughput TX 352Mbps(Linux Drive, BT disable)	542	873	mA
2.4G WLAN TCP throughput RX 343Mbps(Linux Drive, BT disable)	331	868	mA

5G WLAN TCP throughput TX 786Mbps(Linux Drive, BT disable)	568	945	mA
5G WLAN TCP throughput RX 712Mbps(Linux Drive, BT disable)	352	943	mA
2.4G 11b 11Mbps TX@18dBm(1TX RF test)	451	505	mA
2.4G 11g 6Mbps TX@18dBm(1TX RF test)	185	214	mA
2.4G 11n HT20_MCS15 TX@17dBm(2TX RF test)	348	812	mA
2.4G11ax HE_SU 40M_MCS11 TX@15dBm(2TX RF test)	557	925	mA
2.4G 11ax HE_SU 40M_MCS11 RX(2RX RF test)	204	253	mA
5G 11a 6Mbps TX@18dBm(1TX RF test)	471	613	mA
5G 11n HT20_MCS7 TX@16dBm(1TX RF test)	286	551	mA
5G 11ac VHT80_MCS0 TX@17dBm(2TX RF test)	524	1065	mA
5G 11ac VHT80_MCS9 TX@16dBm(2TX RF test)	346	974	mA
5G 11ax HE_SU 80M_MCS0 TX@16dBm(2TX RF test)	492	982	mA
5G 11ax HE_SU 80M_MCS11 TX@15dBm(2TX RF test)	368	958	mA
5G 11ax HE_SU 80M_MCS11 RX (2RX RF test)	205	273	mA
BT BR_1M TX@5dBm (BT RF test, WLAN disable)	261	322	mA
BT BR_1M RX Active (BT RF test, WLAN disable)	225	295	mA
BT EDR_3M TX@5dBm (BT RF test, WLAN disable)	276	322	mA
BT EDR_3M RX Active (BT RF test, WLAN disable)	235	295	mA
BT LE_1M TX@5dBm (BT RF test, WLAN disable)	252	322	mA

4. WALN & Bluetooth RF Specifications

4.1 2.4G WLAN RF Specification

Conditions : VDD33=3.3V ; Ta:25°C	
Features	Description
WLAN Standard	IEEE 802.11b/g/n/ax
Frequency Range	2.4~2.4835GHz (2.4GHz ISM Band)
Channels	Ch1~Ch13 (For 20MHz Channels)
Modulation	802.11b (DSSS): CCK, DQPSK, DBPSK;

	802.11g (OFDM): BPSK, QPSK, QAM16, QAM64; 802.11n (OFDM): BPSK, QPSK, QAM16, QAM64; 802.11ax (OFDMA): BPSK, BPSK_DCM, QPSK, QPSK_DCM, QAM16, QAM16_DCM, QAM64, QAM256, QAM1024;
Data Rate	802.11b: 1, 2, 5.5, 11Mbps; 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps; 802.11n (HT20): MCS0~MCS7(1T1R_SISO) 6.5~72.2Mbps; 802.11n (HT20): MCS8~MCS15(2T2R_MIMO) 13~144.4Mbps; 802.11n (HT40): MCS0~MCS7(1T1R) 13.5~150Mbps; 802.11n (HT40): MCS8~MCS15(2T2R) 27~300Mbps; 802.11ax (HE_MU,26~242RU): MCS0~MCS11(1T1R) 0.4~143.4Mbps; 802.11ax (HE_MU,26~242RU): MCS0~MCS11(2T2R) 0.8~286.8Mbps; 802.11ax (HE_SU, non-OFDMA 20MHz): MCS0~MCS11(1T1R) 3.6~143.4Mbps; 802.11ax (HE_SU, non-OFDMA 20MHz): MCS0~MCS11(2T2R) 7.3~286.8Mbps; 802.11ax (HE_SU, non-OFDMA 40MHz): MCS0~MCS11(1T1R) 7.3~286.8Mbps; 802.11ax (HE_SU,non-OFDMA 40MHz): MCS0~MCS11(2T2R) 14.6~573.5Mbps;
Frequency Tolerance	$\leq \pm 20\text{ppm}$

2.4G Transmitter Specifications (ANT0 & ANT1. TX power tolerance calibrated, customers can define the target TX power by modifying configuration file of the driver software. Customers must define the TX power same or lower than recommended Target TX Power as below)

TX Rate	Recommended Target TX Power (dBm)	TX Power Tolerance (dBm)	EVM (dB)
802.11b@1~11Mbps	18	± 2	≤ -15
802.11g@6Mbps	18	± 2	≤ -15
802.11g@54Mbps	17	± 2	≤ -25
802.11n@HT20_MCS0	18	± 2	≤ -10
802.11n@HT20_MCS7	17	± 2	≤ -28
802.11n@HT40_MCS0	17	± 2	≤ -10
802.11n@HT40_MCS7	16	± 2	≤ -28
802.11ax@HE_SU 20M_MCS0	16	± 2	≤ -15
802.11ax@HE_SU 20M_MCS11	15	± 2	≤ -35
802.11ax@HE_SU 40M_MCS0	16	± 2	≤ -15
802.11ax@HE_SU 40M_MCS11	15	± 2	≤ -35

2.4G Receiver Specifications (ANT0&ANT1)

RX Rate	Min Input Level (Typ.dBm)	Max Input Level (Typ.dBm)	PER
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802.11b@1Mbps	-94	-5	< 8%
802.11b@11Mbps	-90	-5	< 8%
802.11g@6Mbps	-93	-5	< 10%
802.11g@54Mbps	-75	-5	< 10%
802.11n@HT20_MCS0	-92	-5	< 10%
802.11n@HT20_MCS7	-73	-5	< 10%
802.11n@HT40_MCS0	-91	-5	< 10%
802.11n@HT40_MCS7	-70	-5	< 10%
802.11ax@HE_SU 20M_MCS0	-90	-5	< 10%
802.11ax@HE_SU 20M_MCS11	-62	-5	< 10%
802.11ax@HE_SU 40M_MCS0	-89	-5	< 10%
802.11ax@HE_SU 40M_MCS11	-60	-5	< 10%

4.2 5G WLAN RF Specification

Conditions: VDD33 = 3.3V; Ta:25°C	
Features	Description
WLAN Standard	IEEE 802.11a/n/ac/ax
Frequency Range	5.15~5.25GHz; 5.25~5.35GHz; 5.47~5.725GHz; 5.725~5.850GHz (5GHz ISM Band)
Channels	Ch36, Ch40, Ch44, Ch48; Ch52~Ch64; Ch100~Ch140; Ch149~Ch165 (For 20MHz Channels)
Modulation	802.11a (OFDM): BPSK, QPSK, QAM16, QAM64; 802.11n (OFDM): BPSK, QPSK, QAM16, QAM64; 802.11ac (OFDM): BPSK, QPSK, QAM16, QAM64, QAM256; 802.11ax (OFDMA): BPSK, BPSK_DCM, QPSK, QPSK_DCM, QAM16, QAM16_DCM, QAM64, QAM256, QAM1024;
Data Rate	802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps; 802.11n (HT20): MCS0~MCS7(1T1R_SISO) 6.5~72.2Mbps; 802.11n (HT20): MCS8~MCS15(2T2R_MIMO) 13~144.4Mbps; 802.11n (HT40): MCS0~MCS7(1T1R) 13.5~150Mbps; 802.11n (HT40): MCS8~MCS15(2T2R) 27~300Mbps; 802.11ac (VHT20): MCS0~MCS8(1T1R) 6.5~86.7Mbps;

	802.11ac (VHT20): MCS0~MCS8(2T2R) 13~173.3Mbps; 802.11ac (VHT40): MCS0~MCS9(1T1R)13.5~200Mbps; 802.11ac (VHT40): MCS0~MCS9(2T2R)27~400Mbps; 802.11ac (VHT80): MCS0~MCS9(1T1R)29.3~433.3Mbps; 802.11ac (VHT80): MCS0~MCS9(2T2R)58.5~866.7Mbps; 802.11ax (HE_MU,26~484RU): MCS0~MCS11(1T1R) 0.4~286.8Mbps; 802.11ax (HE_MU,26~484RU): MCS0~MCS11(2T2R) 0.8~573.5Mbps; 802.11ax (HE_SU, non-OFDMA 20MHz): MCS0~MCS11(1T1R) 3.6~143.4Mbps; 802.11ax (HE_SU, non-OFDMA 20MHz): MCS0~MCS11(2T2R) 7.3~286.8Mbps; 802.11ax (HE_SU, non-OFDMA 40MHz): MCS0~MCS11(1T1R) 7.3~286.8Mbps; 802.11ax (HE_SU,non-OFDMA 40MHz): MCS0~MCS11(2T2R) 14.6~573.5Mbps; 802.11ax (HE_SU,non-OFDMA 80MHz): MCS0~MCS11(1T1R) 15.3~600.4Mbps; 802.11ax (HE_SU, non-OFDMA 80MHz): MCS0~MCS11(2T2R) 30.6~1201Mbps;
Frequency Tolerance	$\leq \pm 20\text{ppm}$

5G Transmitter Specifications (ANT0 & ANT1. TX power tolerance calibrated, customers can define the target TX power by modifying configuration file of the driver software. Customers must define the TX power same or lower than recommended Target TX Power as below)

TX Rate	Recommended Target TX Power (dBm)	TX Power Tolerance (dBm)	EVM (dB)
802.11a@6Mbps	18	± 2	≤ -10
802.11a@54Mbps	17	± 2	≤ -25
802.11n@HT20_MCS0	17	± 2	≤ -13
802.11n@HT20_MCS7	16	± 2	≤ -28
802.11n@HT40_MCS0	17	± 2	≤ -13
802.11n@HT40_MCS7	16	± 2	≤ -28
802.11ac@VHT20_MCS0	17	± 2	≤ -13
802.11ac@VHT20_MCS8	16	± 2	≤ -30
802.11ac@VHT80_MCS0	17	± 2	≤ -13
802.11ac@VHT80_MCS9	16	± 2	≤ -32
802.11ax@HE_SU80_MCS0	16	± 2	≤ -13
802.11ax@HE_SU80_MCS11	15	± 2	≤ -35

5G Receiver Specifications (ANT0&ANT1)

RX Rate	Min Input Level (Typ.dBm)	Max Input Level (Typ.dBm)	PER
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802.11a@6Mbps	-91	-5	< 10%
802.11a@54Mbps	-74	-5	< 10%
802.11n@HT20_MCS0	-92	-5	< 10%
802.11n@HT20_MCS7	-72	-5	< 10%
802.11n@HT40_MCS0	-89	-5	< 10%
802.11n@HT40_MCS7	-69	-5	< 10%
802.11ac@VHT80_MCS0	-85	-5	< 10%
802.11ac@VHT80_MCS9	-60	-5	< 10%
802.11ax@HE_SU80_MCS0	-86	-5	< 10%
802.11ax@HE_SU80_MCS11	-58	-5	< 10%

4.3 Bluetooth RF Specification

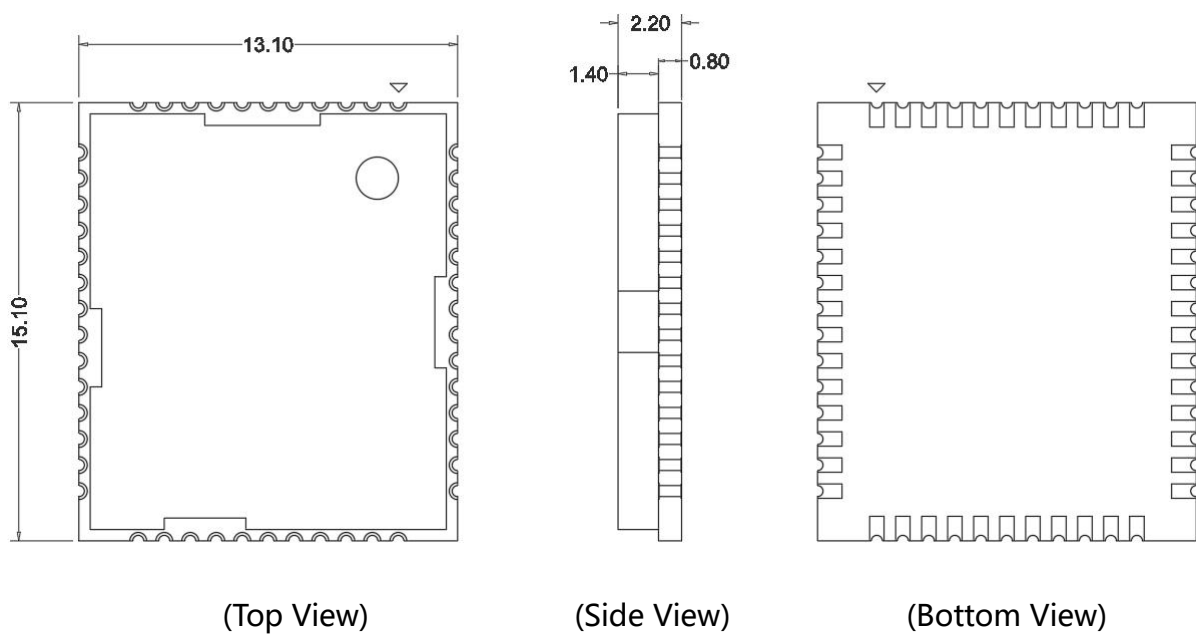
Conditions: VDD33=3.3V; Ta:25°C			
Features	Description		
Bluetooth Specification	Bluetooth Core Specification v5.2/4.2/2.1		
Frequency Range	2.4~2.4835GHz (2.4GHz ISM Band)		
Channels	Bluetooth Classic: Ch0~Ch78 (For 1MHz Channels); Bluetooth Low Energy: Ch0~Ch39 (For 2MHz Channels);		
Power Classes	Bluetooth Classic: Class1; Bluetooth Low Energy: Class1.5;		
Data Rate & Modulation	BR_1Mbps: GFSK; EDR_2Mbps: $\pi/4$ -DQPSK; EDR_3Mbps: 8DPSK; LE_125Kbps: GFSK (Coded_S=8); LE_500Kbps: GFSK (Coded_S=2); LE_1Mbps: GFSK (Uncoded); LE_2Mbps: GFSK (Uncoded);		
Bluetooth Transmitter Specifications (BT ANT)			
Items	Min (dBm)	Typ (dBm)	Max (dBm)
TX Power			
BR_1M	0	5	10
EDR_2/3M	0	5	10

LE_125K/500K/1M/2M	0	5	10	
Items	Min	Typ	Max	
BR_1M (DH1) Modulation Characteristics				
Δf1avg	140KHz	162.48KHz	175KHz	
Δf2avg	115KHz	152.11KHz	175KHz	
Δf2max	115KHz	160.83KHz	/	
Δf2avg/Δf1avg	0.8	0.93	/	
Items	Min	Typ	Max	
EDR_3M(3DH5) EDR Carrier Frequency Stability and Modulation Accuracy				
ωi	-75KHz	-16.57KHz	+75KHz	
ωi+ωo	-75KHz	-16.62KHz	+75KHz	
ωo	-10KHz	-0.07KHz	+10KHz	
8DPSK RMS DEVM	/	0.037	0.13	
8DPSK DEVM	/	0.082	0.25	
Items	Min	Typ	Max	
LE_1M Modulation Characteristics				
Δf1avg	225KHz	252.15KHz	275KHz	
Δf2avg	185KHz	230.44KHz	275KHz	
Δf2max	185KHz	223.41KHz	/	
Δf2avg/Δf1avg	0.8	0.91	/	
Items	Min	Typ	Max	
LE_2M Modulation Characteristics				
Δf1avg	450KHz	499.54KHz	550KHz	
Δf2avg	370KHz	495.81KHz	550KHz	
Δf2max	370KHz	478.32KHz	/	
Δf2avg/Δf1avg	0.8	0.99	/	
Bluetooth Receiver Specifications (BT ANT)				
Items	Sensitivity		Maximum Input Level	
	Input Level(dBm)	BER	Input Level(dBm)	BER

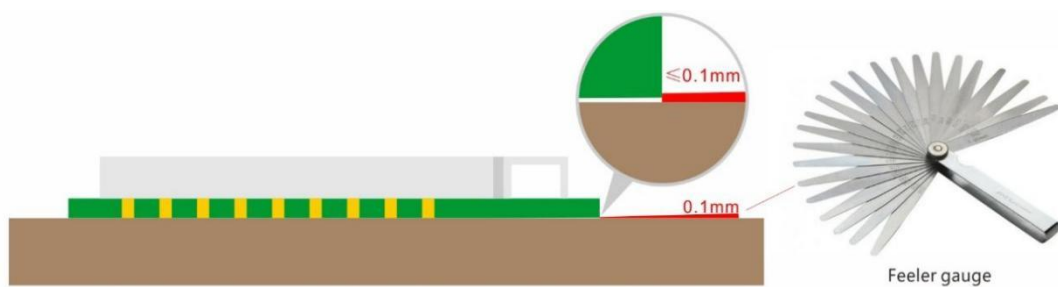
BR_1M (DH1)	-70	$\leq 0.1\%$	-5	$\leq 0.1\%$
EDR_2M(DH1)	-70	$\leq 0.01\%$	-10	$\leq 0.1\%$
EDR_3M (3DH5)	-65	$\leq 0.01\%$	-5	$\leq 0.1\%$
	Input Level (dBm)	PER	Input Level (dBm)	PER
LE_125/500K	-70	$\leq 5\%$	-5	$\leq 5\%$
LE_1M	-70	$\leq 5\%$	-5	$\leq 5\%$
LE_2M	-65	$\leq 5\%$	-5	$\leq 5\%$

5. Mechanical Specifications

5.1 Module Outline Drawing

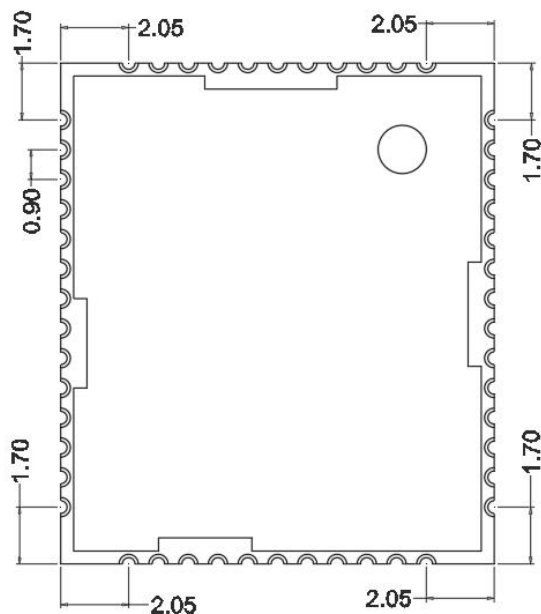


Module dimension: 15.1*13.1*2.2mm(L*W*H; Tolerance: $\pm 0.3\text{mm}_L/W$, $\pm 0.2\text{mm}_H$)

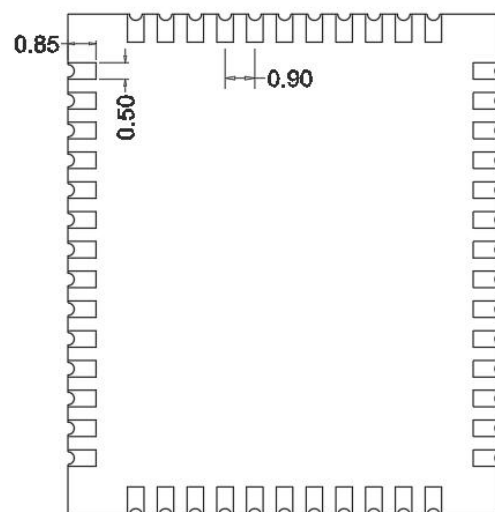


Module Bow and Twist: $\leq 0.1\text{mm}$

5.2 Mechanical Dimensions



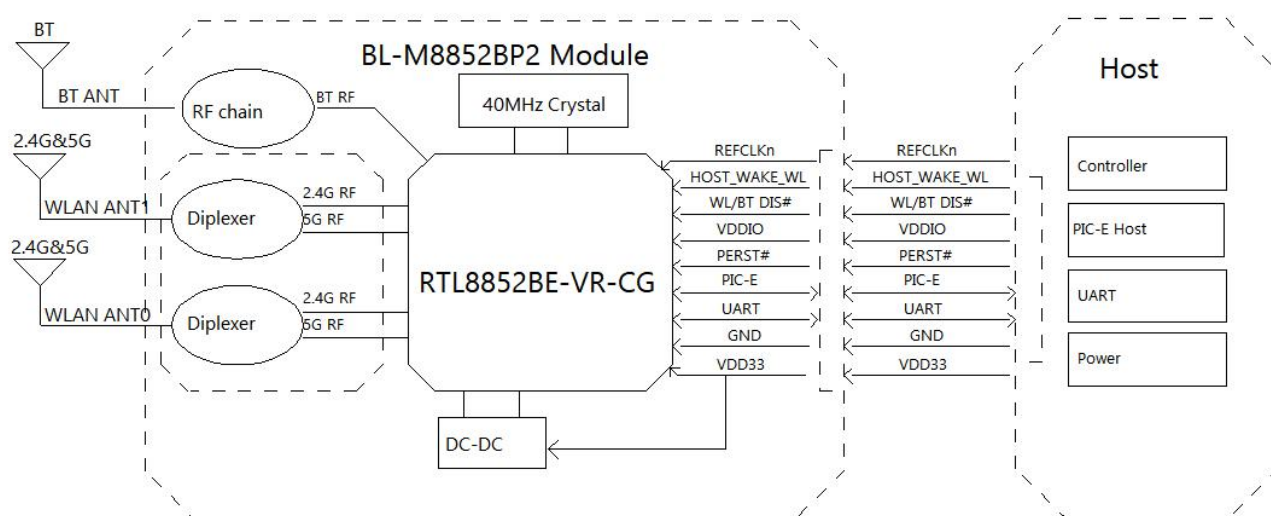
(Top View)



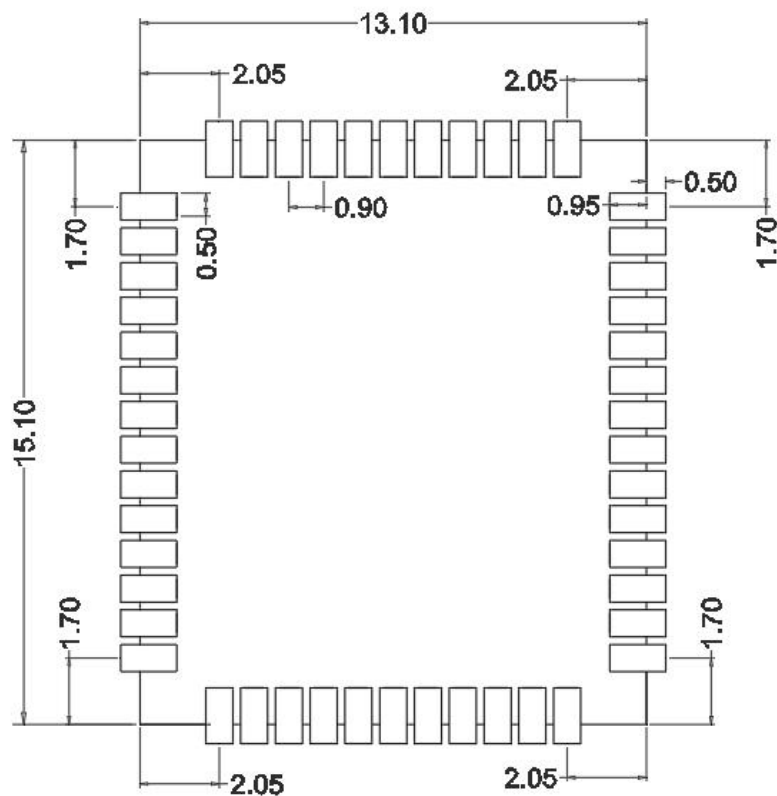
(Bottom View)

6. Application Information

6.1 Typical Application Circuit

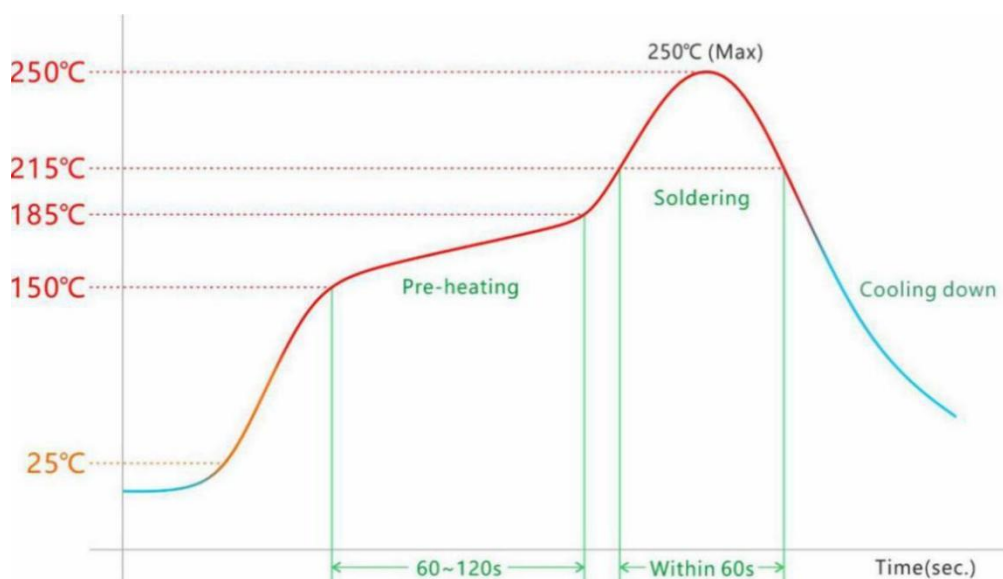


6.2 Recommend PCB Layout Footprint



(Design Unit: mm)

6.3 Reflow Soldering Standard Conditions



Please use the reflow within 2 times.
Set up the highest temperature within 250°C.

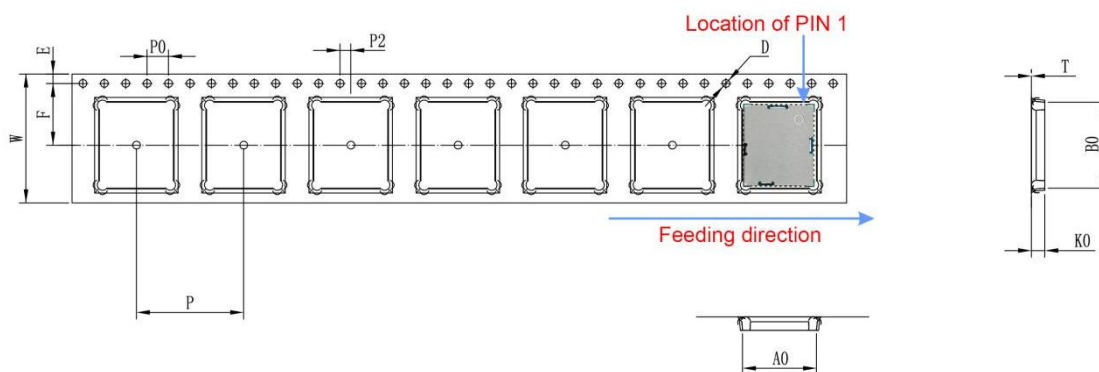
7. Key Components Of Module

No.	Parts	Specification	Manufacturer	Note
1	Chipset	RTL8852BE-VR-CG	Realtek Semiconductor Corp.	
2	PCB	BL-M8852BP2	ShenZhen Tie Fa Technology Limited	
			Huizhou Dayawan Kexiang Technology Circuit Board Co., Ltd	
			Quzhou Sunlord Electronics Co.,Ltd	
			SHEN ZHEN QILI ELECTRON CO., LTD	
3	Crystal	40MHz-2016	JinHua East Crystal Electronic CO.,LTD	
			Chengde Oscillator Electronic Technology Co., Ltd.	
4	Diplexer	1608	JIA XING GLEAD ELECTRONICS CO.,LTD	
			Dongguan Hekang Electronics Co.,LTD	
5	Power inductor	2.2uH	Shenzhen Jialan Microelectronics Co., Ltd	

Note: To ensure supply chain stability, certified alternative components with potential cosmetic variations have been utilized. The physical appearance of the module shall be governed by the final delivered unit.

8. Package and Storage Information

8.1 Package Dimensions



ITEM	W	A0	B0	K0	E	F	P	P0	P2	D	T
DIM	24.00±0.3	13.40±0.1	15.60±0.1	2.70±0.1	1.75±0.1	11.5±0.1	20.00±0.1	4.00±0.1	2.00±0.1	Ø1.5±0.1	0.30±0.05



Package specification:

1. 1,000 modules per roll and 5,000 modules per box.
2. Outer box size: 37.5*36*29cm.
3. The diameter of the blue environment-friendly rubber plate is 13 inches, with a total thickness of 28mm (with a width of 24mm carrying belt).
4. Put 1 package of dry agent (20g) and humidity card in each anti-static vacuum bag.
5. Each carton is packed with 5 boxes.

8.2 Storage Conditions

Absolute Maximum Ratings:

Storage temperature: -40°C to +85°C,
Storage humidity: 10% to 95 (Non-Condensing)

Recommended Storage Conditions:

Storage temperature: 5°C to +40°C,
Storage humidity: 20% to 90% RH

Please use this Module within 12month after vacuum-packaged.

The Module shall be stored without opening the packing.

After the packing opened, the Module shall be used within 72hours.

When the color of the humidity indicator in the packing changed,
The Module shall be baked before soldering.

Baking condition: 60°C, 24hours, 1time.

ESD Sensitivity:

ESD Protection: 2KV (HBM, Maximum rating)

The Module is a static-sensitive electronic device.

Do not operate or store near strong electrostatic fields.

Take proper ESD precautions!



ESD CAUTION

The Module is designed to comply with the FCC statement. FCC ID is 2AL6K-BLM8852BP2. The host system using Module, should have label indicated it contain modular's FCC ID: 2AL6K-BLM8852BP2. This radio module must not installed to collocate and operating simultaneously with other radios in host system additional testing and equipment authorization may be required to operating simultaneously with other radio.

The Module and its antenna must not be co-located or operating in conjunction with any other transmitter or antenna within a host device.

The modular must be installed in the host that assign by Company name: Shenzhen Bilian Electronic Co.,Ltd., Model no.: BL-M8852BP2 if other host types used would need further evaluation and possible C2PC if they are not significantly similar to the one tested The WIFI Module is designed for a compact PCB design. It should be installed and operated with host or other minimum distance of 20 centimeters between the radiator and your body." To comply with FCC regulations limiting both maximum RF output power and human exposure to RF radiation, the maximum antenna gain including cable loss in a mobile-only exposure condition must not exceed 2 dBi in BT, 3 dBi in 2.4G WIFI, 3 dBi in the 5G WIFI. The module uses FPC antenna and Copper tube antenna, these antennas are sold with the module.

Notice to OEM integrator

The end user manual shall include all required regulatory information/warning as show in this manual. The OEM integrator is responsible for testing their end-product for any additional compliance requirements required with this module installed. If the final product contains circuits of other FCC PART 15 Subparts, the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed The intended use is generally not for the general public. It is generally for industry/commercial use. The connector is within the transmitter enclosure and can only be accessed by disassembly of the transmitter that is not normally required, the user has no access to the connector. Installation must be controlled. Installation requires special training.

This device complies with Part 15 of the FCC Rules.

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

2.2

This module has been assessed against the following FCC rule parts: CFR 47 FCC Part 15 C (15.247. DTS) and CFR 47 FCC Part 15 E (NII). It is applicable to the modular transmitter

2.3

This radio transmitter Module has been approved by Federal Communications Commission to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

The concrete contents to check are the following three points.

- 1) Maximum antenna gains are shown in item 2.7 below.
 - 2) Should be installed so that the end user cannot modify the antenna
 - 3) Feed line should be designed in 50ohm
- Fine-tuning of return loss etc. can be performed using a matching network.
The antenna shall not be accessible for modification or change by the end user.

2.4

The module complies with FCC Part 15.247 / Part 15.407 and apply for Single module approval.

2.5

Trace antenna designs: applicable.

Any deviation(s) from the defined parameters of the antenna trace, as described by the instructions, require that the host product manufacturer must notify the module grantee that they wish to change the antenna trace design. in this case, a Class II permissive change application is required to be filed by the grantee, or the host manufacturer can take responsibility through the change in FCC ID (new application) procedure followed by a Class II permissive change application.

The device must be professionally installed.

The intended use is generally not for the general public.

It is generally for industry/commercial use.

The connector is within the transmitter enclosure and can only be accessed by disassembly of the transmitter that is not normally required.

The user has no access to the connector.

Installation must be controlled.

Installation requires special training.

2.6

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

2.7

The following antennas have been certified for use with this module.

Only antennas of the same type with equal or lower gain may also be used with this module.

Other types of antennas and/or higher gain antennas may require the additional authorization for operation. The installer should use unique antenna connector and Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device. The manufacturer of module will inform installer to meet with the FCC part 15.203 in the warning part.

Antenna Specification list below:

BT:

Antenna type: FPC Antenna

The max antenna gain (in dBi):

BR+EDR: 2 dBi

BLE: 2 dBi

2.4G WIFI:

Antenna type: Copper tube antenna

The max antenna gain (in dBi):

3 dBi for antenna 1

3 dBi for antenna 2

5G WIFI:

Antenna type: Copper tube antenna

The max antenna gain (in dBi):

3 dBi for antenna 1

3 dBi for antenna 2

2.8

Please notice that 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 "Contains FCC ID: 2AL6K-BLM8852BP2 "; any similar wording that expresses the same meaning may be used.

2.9

Testing of the host product with all the transmitters installed - referred to as the composite investigation test- is recommended, to verify that the host product meets all the applicable FCC rules. The radio spectrum is to be investigated with all the transmitters in the final host product functioning to determine that no emissions exceed the highest limit permitted for any one individual transmitter as required by Section 2.947(f). The host manufacturer is responsible to ensure that when their product operates as intended it does not have any emissions present that are out of compliance that were not present when the transmitters were tested individually.

If the modular transmitter has been fully tested by the module grantee on the required number of channels, modulation types, and modes, it should not be necessary for the host installer to re-test all the available transmitter modes or settings. It is recommended that the host product manufacturer, installing the modular transmitter, perform some investigative measurements to confirm that the resulting composite system does not exceed the spurious emissions limits or band edge limits (e.g., where a different antenna may be causing additional emissions). The testing should check for emissions that may occur due to the intermixing of emissions with the other transmitters, digital circuitry, or due to physical properties of the host product (enclosure). This investigation is especially important when integrating multiple modular transmitters where the certification is based on testing each of them in a stand-alone configuration.

2.10

Any company of the host device which install this modular should perform the test of radiated & conducted emission and spurious emission etc. according to FCC Part 15C: 15.247 and 15.209 & 15.207, part 15E: 15.407, part 15B: class B requirement, only if the test result comply with FCC part 15C: 15.247 and 15.209 & 15.207 part 15 E 15.407, 15B class B requirement. Then the host can be sold legally.

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 circuitry), 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

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.

2. 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.

The device has been evaluated to meet general RF exposure requirement. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

ISED Statement

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:

1. This device may not cause interference.

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

The device has been evaluated to meet general RF exposure requirement. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and 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 :

- 1) L'appareil ne doit pas produire de brouillage;
- 2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Le dispositif a été évalué pour répondre aux exigences générales d'exposition aux ondes radiofréquence

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

Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

Les opérations dans la bande 5.15-5.25GHz sont limitées à une utilisation à l'intérieur seulement.

The Module is designed to comply with the ISED statement. IC is 20944-BLM8852BP2. The host system using Module, should have label indicated it contain modular's IC: 20944-BLM8852BP2. This radio module must not installed to collocate and operating simultaneously with other radios in host system additional testing and equipment authorization may be required to operating simultaneously with other radio.

The Module and its antenna must not be co-located or operating in conjunction with any other transmitter or antenna within a host device.

This radio transmitter [IC: 20944-BLM8852BP2] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

The modular must be installed in the host that assign by Company name: Shenzhen Bilian Electronic Co.,Ltd., Model no.: BL-M8852BP2. If other host types used would need further evaluation and possible C2PC if they are not significantly similar to the one tested The WIFI Module is designed for a compact PCB design. It should be installed and operated with host or other minimum distance of 20 centimeters between the radiator and your body. To comply with ISED regulations limiting both maximum RF output power and human exposure to RF radiation, the maximum antenna gain including cable loss in a mobile-only exposure condition must not exceed 2 dBi in BT, 3 dBi in 2.4G WIFI, 3 dBi in the 5G WIFI. The module uses FPC antenna and Copper tube antenna, these antennas are sold with the module.