



Happiness • Sharing • Technology

BL-R8188EU1.2

Product Specification

WLAN 11b/g/n USB MODULE

Approval Sheet

Ver:2.7

Content

Content	0
0. Revision History	2
1. General Description	2
2. The range of applying	2
3. Product Specification	2
3.1 Function Block diagram.....	2
3.2 Electrical and Performance Specification.....	3
3.3 DC Characteristic.....	4
3.4 RF Characteristic.....	5
3.5 Product Photo.....	5
3.6 Mechanical Specification.....	7
3.7 Product Pin Definition.....	7
4. Supported platform	8
5. Peripheral Schematic Reference Design	8
5.1 WiFi RF Circuit reference pictures.....	9
6. Package Information	9
7. Typical Solder Reflow Profile	9

0. Revision History

Date	Document revision	Product revision	Change Description
2014/06/18	1.0	V2.7	Update format ,change product size tolerance.

1. General Description

BL-8188EU1 product is designed base on Realtek RTL8188ETV chipset .It combines CMOS MAC, Baseband PHY and RF in a single chip for IEEE 802.11a/b/g/n compatible. It supports IEEE802.11i safety protocol, along with IEEE 802.11e standard service quality. It supports the new data encryption on 64/128 bit WEP and safety mechanism on WPA-PSK/WPA2-PSK, WPA/WPA2. It can implement the wireless network function on the laptop/desktop/MID and other wireless devices easily . This module has implemented some efficient mechanisms in its software and hardware to maximize the performance.

2. The range of applying

MID, networking camera, STB GPS, E-book, Hard disk player, Network Radios, PSP and other device which need be supported by wireless networking.

3. Product Specification

3.1 Function Block diagram

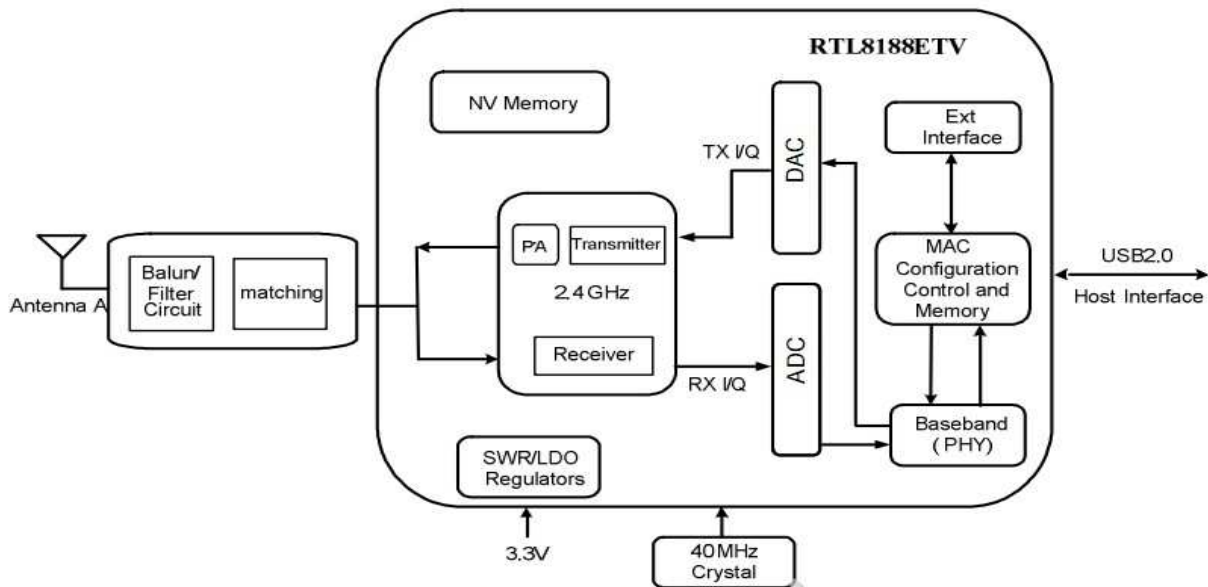


Figure 1. Single-Band 11n (1x1) Solution

3.2 Electrical and Performance Specification

Item	Description
Product Name	BL-R8188EU1
Major Chipset	RTL8188ETV
Host Interface	USB2.0
Standard	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n,
Frequency Range	2.4GHz~2.4835GHz
Modulation Type	802.11b: CCK, DQPSK, DBPSK 802.11g: 64-QAM, 16-QAM, QPSK, BPSK 802.11n: 64-QAM, 16-QAM, QPSK, BPSK
Working Mode	Infrastructure, Ad-Hoc
Data Transfer Rate	1, 2, 5.5, 6, 11, 12, 18, 22, 24, 30, 36, 48, 54, 60, 90, 120 and maximum of 150Mbps
Spread Spectrum	IEEE 802.11b: DSSS (Direct Sequence Spread Spectrum) IEEE 802.11g/n: OFDM (Orthogonal Frequency Division Multiplexing)
Sensitivity @PER	1M: <u>-90dBm@8%PER</u> 6M: <u>-88dBm@10%PER</u> 11M: <u>-86dBm@8%PER</u> 54M: <u>-73dBm@10%PER</u>
Antenna Gain	External 2dbi antenna, damping 50dbm in shielding box

RF Power	>16dBm@11b, >14dBm@11g, >13dBm@11n,
Antenna type	Connect to the external antenna through the half hole
The transmit distance	Indoor 100M, Outdoor 300M, according the local environment
Dimension(L*W*H)	13.0 x 12.3 x 1.55mm (LxWxH) ;Tolerance: +-0.2mm
Power supply	3.3V +/-0.2V
Power Consumption	standby mode 140mA@3.3V , TX mode 280mA@3.3V
Clock source	40MHz
Working Temperature	0°C to +70°C
Storage temperature	-40°C ~ +85°C

3.3 DC Characteristic

Terms	Contents			
Specification : IEEE802.11b				
Mode	DSSS / CCK			
Frequency	2412 – 2484MHz			
Data rate	1, 2, 5.5, 11Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	300	310	320	mA
Rx mode	148	150	155	mA
Sleep mode	140	145	146	mA
Specification : IEEE802.11g				
Mode	OFDM			
Frequency	2412 - 2484MHz			
Data rate	6, 9, 12, 18, 24, 36, 48, 54Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	280	285	288	mA
Rx mode	140	145	150	mA
Sleep mode	143	145	146	mA
Specification : IEEE802.11n				
Mode	OFDM			
Frequency	2412 - 2484MHz			
Data rate	6.5, 13, 19.5, 26, 39, 52, 58.5, 65Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	280	286	230	mA
Rx mode	148	150	150	mA
Sleep mode	144	145	146	mA

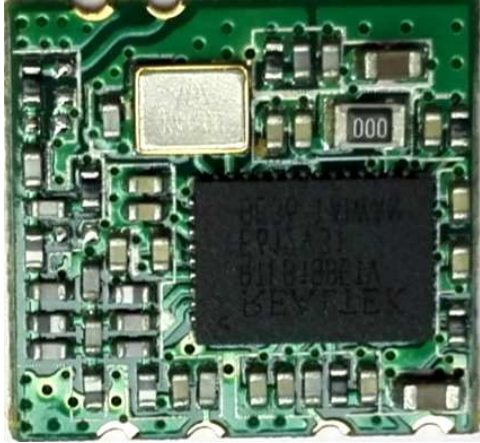
3.4 RF Characteristic

Mode	Rate(Mbps)	Power(dBm)			EVM(dB)			Sensitivity(dBm)		
		CH1	CH7	CH13	CH1	CH7	CH13	CH1	CH7	CH13
11b	1	17.52	17.45	17.39	-28.36	-28.00	-27.95	-95	-95	-95
	2	17.35	17.36	17.52	-24.38	-25.30	-25.20	-92	-92	-92
	5.5	17.98	17.78	17.85	-24.21	-24.18	-24.01	-88	-88	-88
	11	18.00	17.86	17.77	-23.51	-24.11	-24.30	-86	-86	-86
11g	6	15.20	15.31	15.42	-32.01	-31.52	-31.06	-90	-90	-90
	9	15.10	15.11	15.42	-32.05	-31.75	-32.99	-88	-88	-88
	12	14.86	14.98	14.79	-31.50	-31.78	-31.89	-86	-86	-86
	18	14.58	14.68	14.96	-32.06	-31.45	-31.66	-85	-85	-85
	24	14.94	14.86	14.88	-32.04	-31.90	-31.78	-83	-83	-83
	36	14.69	14.86	14.60	-31.44	-31.70	-32.00	-80	-80	-80
	48	14.90	14.800	14.77	-32.01	-32.01	-31.88	-75	-75	-75
	54	14.88	14.90	15.00	-33.12	-32.72	-32.20	-73	-73	-73
11n HT20	MCS0	15.11	15.21	15.42	-32.25	-31.75	-32.99	-90	-90	-90
	MCS1	14.87	14.88	14.78	-31.52	-31.28	-31.29	-87	-87	-87
	MCS2	14.68	14.78	14.66	-32.26	-31.45	-31.66	-85	-85	-85
	MCS3	14.84	14.76	14.38	-32.24	-31.92	-31.28	-82	-82	-82
	MCS4	15.12	15.21	15.44	-32.05	-31.25	-32.29	-79	-79	-79
	MCS5	14.76	14.88	14.43	-31.50	-31.28	-31.29	-74	-74	-74
	MCS6	14.68	14.78	14.34	-32.06	-31.42	-31.26	-71	-71	-71
	MCS7	14.84	14.76	14.80	-32.04	-31.92	-31.28	-70	-70	-70

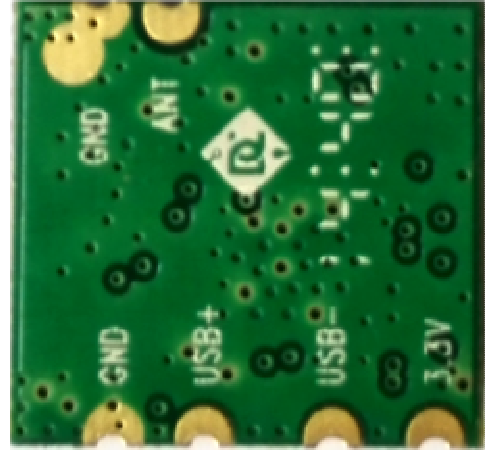
Mode	Rate(Mbps)	Power(dBm)			EVM(dB)			Sensitivity(dBm)		
		CH3	CH7	CH11	CH3	CH7	CH11	CH3	CH7	CH11
11n HT40	MCS0	15.41	15.44	15.42	-32.45	-31.74	-32.94	-88	-88	-88
	MCS1	14.47	14.48	14.70	-31.42	-31.58	-31.24	-84	-84	-84
	MCS2	14.64	14.74	14.65	-31.27	-31.48	-31.06	-82	-82	-82
	MCS3	14.54	14.56	14.58	-31.24	-31.32	-32.08	-78	-78	-78
	MCS4	15.12	15.21	15.44	-32.05	-31.25	-32.29	-74	-74	-74
	MCS5	14.77	14.89	14.44	-31.51	-31.29	-31.30	-71	-71	-71
	MCS6	14.69	14.76	14.75	-32.17	-31.43	-31.27	-70	-70	-70
	MCS7	14.74	14.70	14.82	-32.15	-31.93	-31.29	-68	-68	-68

3.5 Product Photo

TOP

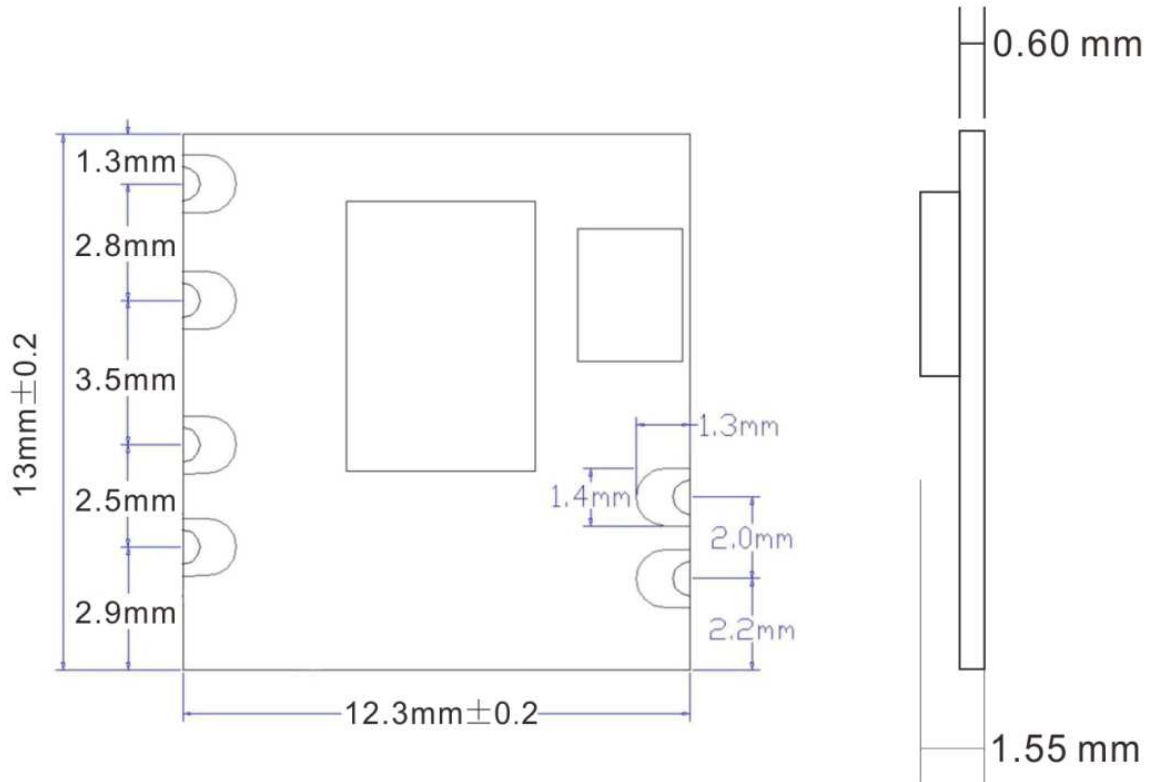


Bottom

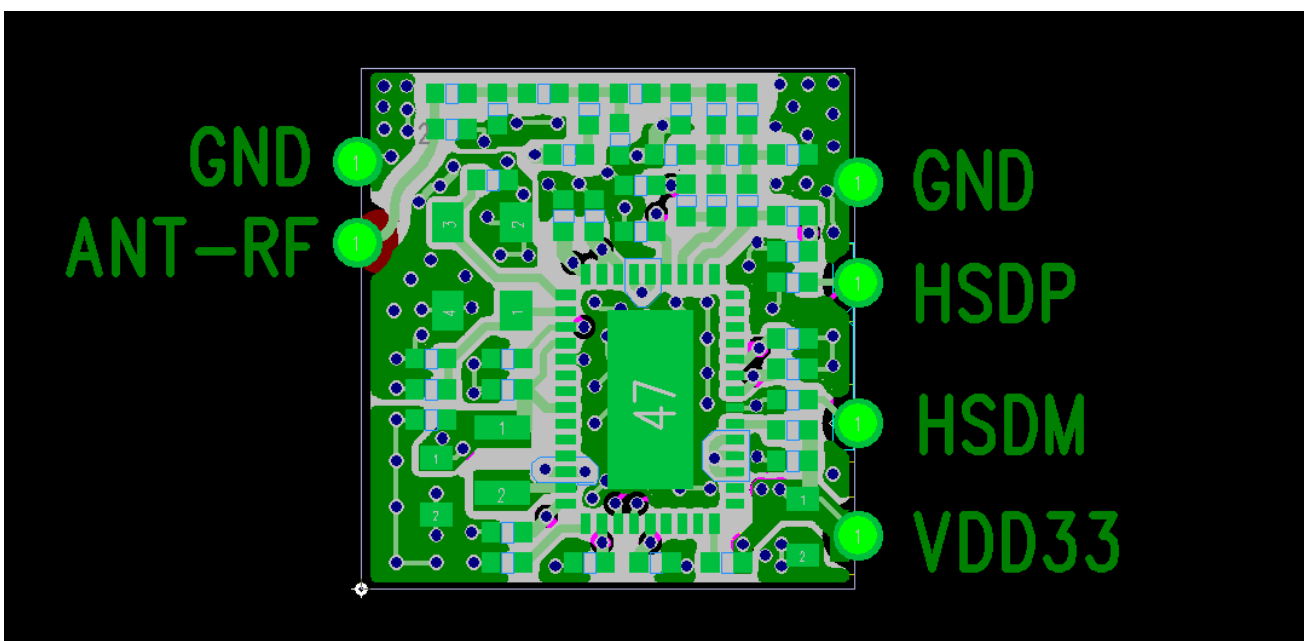


3.6 Mechanical Specification

Module dimension: Typical (L x W x H): 13mmx12.3mmx1.55mm Tolerance : +/-0.2mm



3.7 Product Pin Definition



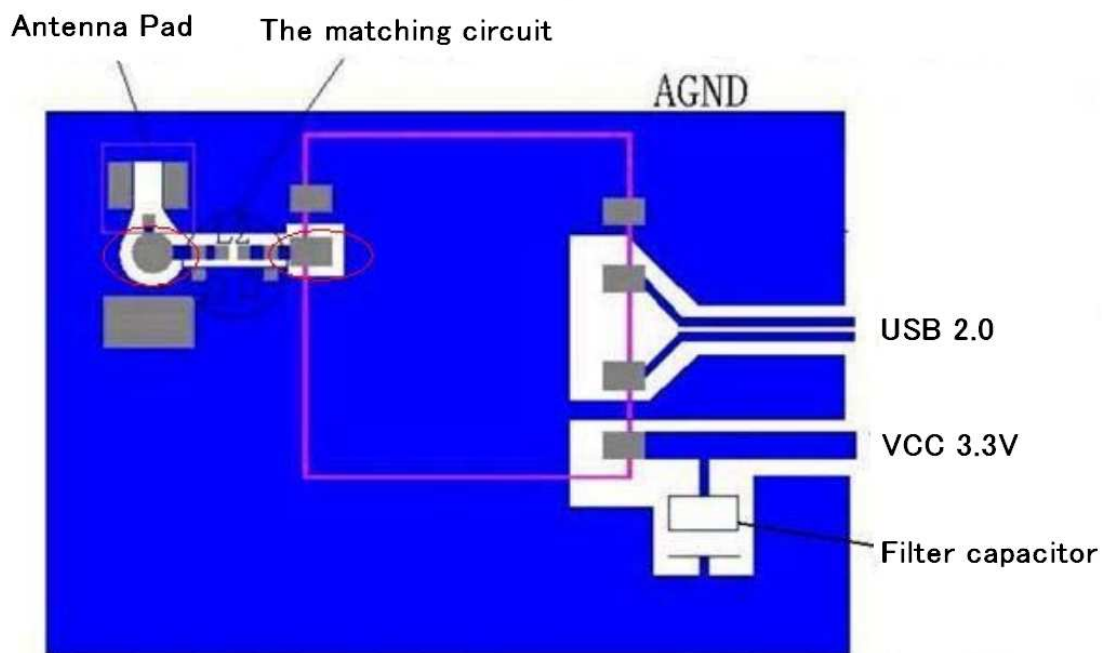
4. Supported platform

Operating System	CPU Framework	Driver
WIN2000/XP/VISTA/WIN7	X86 Platform	Enable
LINUX2.4/2.6	ARM, MIPSII	Enable
WINCE5.0/6.0	ARM ,MIPSII	Enable

5. Peripheral Schematic Reference Design

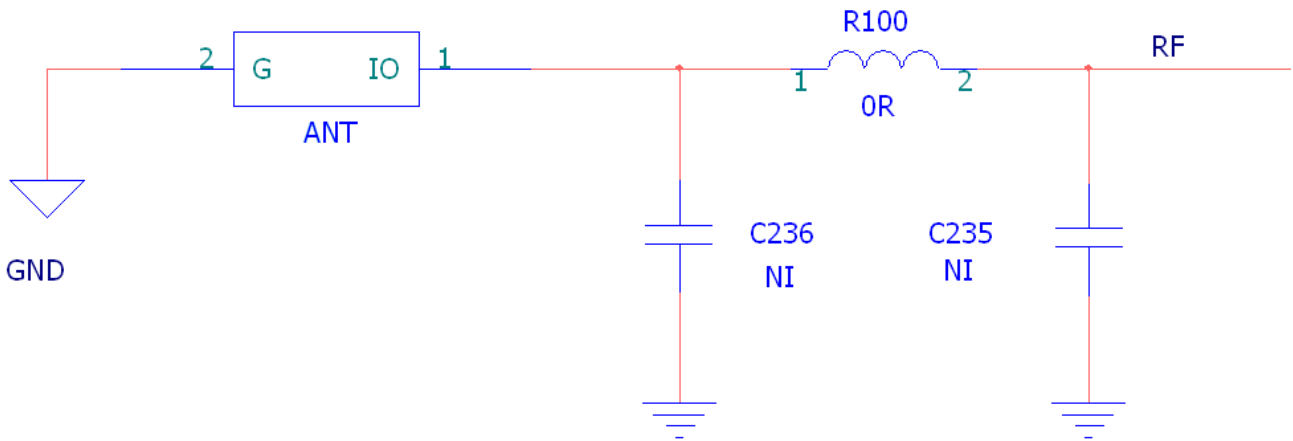
(Layout suggestion)

Reference resources



Note: the RF line to ensure an impedance of 50 ohms

5.1 WiFi RF Circuit reference pictures



6. Package Information



7. Typical Solder Reflow Profile

精活 描述 最佳化

星期六 十二月 01 2012 12:40:08



TCs	最高上升斜率	恒温时间150至200C		回流时间 Z1/TC		最高温度	
2.13	-29%	71.38	-67%	86.16	-56%	244.67	-23%
2.05	-32%	72.66	-65%	85.23	-58%	243.56	-32%
2.11	-30%	67.00	-74%	87.15	-55%	244.78	-22%
2.13	-29%	67.67	-73%	87.68	-54%	244.01	-28%
2.18	-27%	73.46	-64%	88.56	-52%	244.84	-21%
温差	0.14	6.46	3.33			1.28	
P. 2.13	-29%	71.38	-67%	86.16	-56%	244.67	-23%
P. 2.05	-32%	72.66	-65%	85.23	-58%	243.56	-32%
P. 2.11	-30%	67.00	-74%	87.15	-55%	244.78	-22%
P. 2.13	-29%	67.67	-73%	87.68	-54%	244.01	-28%
P. 2.18	-27%	73.46	-64%	88.56	-52%	244.84	-21%
温差	0.14	6.46	3.33			1.28	

	P.W.I.	公分分	温区 1	温区 2	温区 3	温区 4	温区 5	温区 6	温区 7	温区 8
原本上温区			130.0	150.0	170.0	180.0	190.0	260.0	265.0	260.0
原本下温区	74%	70.00	130.0	150.0	170.0	180.0	190.0	260.0	265.0	260.0
预测上温区	74%	70.00	130.0	150.0	170.0	180.0	190.0	260.0	265.0	260.0
预测下温区			130.0	150.0	170.0	180.0	190.0	260.0	265.0	260.0

上与下温区温度设定一至

此温度曲线的PWI (制程界限指数) 是=

74%



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 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 150Mbps Wireless N SDIO

Module is designed to comply with the FCC statement. FCC ID is S8J-R8188EUG. The host system using 150 Mbps Wireless N SDIO Module, should have label indicated it contain modular's

FCC ID: S8J-R8188EUG.

This radio module must not installed to colocate and operating simultaneously with other radios in host system additional testing and equipment authorization may be required to operating simultaneously with other radio.

RF warning for Mobile device:

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.