

WiFi Module – Installation Manual

FCC ID of this product is as follows:

FCC ID: QGH-LB1GC

IC ID of this product is as follows:

IC: 2473A-LB1GC

For OEM integration only – device cannot be sold to general public.

Therefore we will include the following statements required by FCC and Industry Canada (IC) on the product and in the Installation Manual Notice.

Contents:

1. Supply Voltage
2. Theory of operation
3. Module Dimensions
4. Module Footprint
5. Antenna
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1. Supply Voltage

	Min.	Typ.	Max.	Unit
Operating Temperature Range	-40	+25	+85	Deg. C
Operating Voltage	2.7	3.3	3.5	V

2. Theory of Operation – WiFi Channels

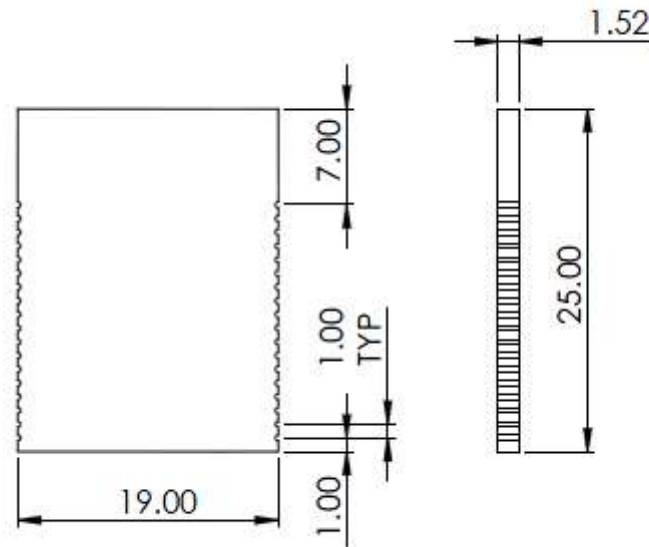
Channel #		Frequency			TX Power - MAX dB/ channel (Dec)
Dec	Hex	Lower MHz	Center MHz	Upper MHz	
1	1	2401	2412	2423	17
2	2	2406	2417	2428	17
3	3	2411	2422	2433	17
4	4	2416	2427	2438	17
5	5	2421	2432	2443	17
6	6	2426	2437	2448	17
7	7	2431	2442	2453	17
8	8	2436	2447	2458	17
9	9	2441	2452	2463	17
10	A	2446	2457	2468	17
11	B	2451	2462	2473	14

Compliance with FCC requirement 15.407(c)

Data transmission is always initiated by software, which is then passed down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets are initiated by the MAC. These are the only ways the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets is being transmitted. In other words, this device automatically discontinues transmission in case of either absence of information to transmit or operational failure.

Frequency Tolerance: $\pm 20\text{ppm}$

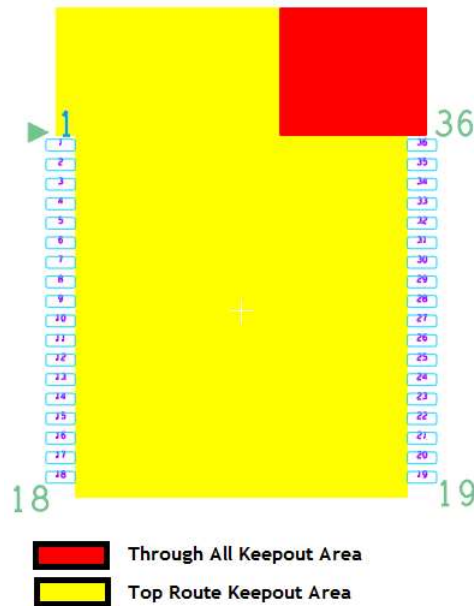
3. Module Dimensions



- Place the module along the PCB edge.

4. Module Footprint

- Recommended Module land Pattern



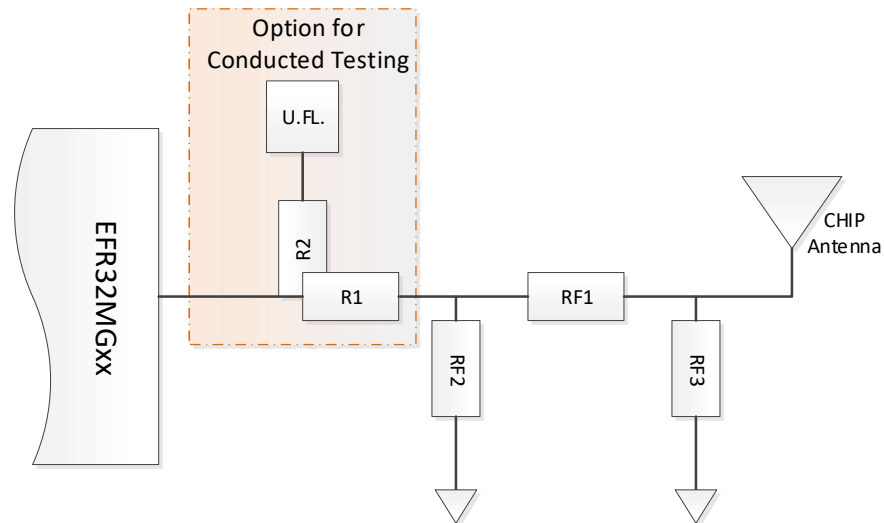
- Place the module along the PCB edge.

5. Antenna

- Please refer to KDB 996369
- Please perform the antenna design that followed the specifications of the antenna.
- About the signal line between an antenna and a module
 - It is a 50-ohm line design.
 - Fine tuning of return loss etc. can be performed using a matching network. However, it is required to check "Class1 change" and "Class2 change" which the authorities define then.
- The concrete contents of a check are the following three points.
 1. It is the same type as the antenna type of antenna specifications.
 2. An antenna gain is lower than a gain given in antenna specifications.
 3. The emission level is not getting worse.

5. Antenna

- Conducted emissions testing:



6. Notice

- For OEM integration only – device cannot be sold to general public.
- Therefore we will include the following statements required by FCC/IC on the product and in the Installation Manual Notice.
- Please describe the following warning on the final product which contains this module.

Contains Transmitter Module: FCC ID:QGH-LB1GC
IC: 2473A-LB1GC

OR

Contains: FCC ID: QGH-LB1GC
IC: 2473A-LB1GC

- Please describe the following warning to the manual.

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.

FCC CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

6. Notice

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

- 1)The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2)The transmitter module may not be co-located with any other transmitter or antenna.
- 3)The use of an antenna with gain less than 1.2 dBi (2.4GHz).

As long as the 3 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.

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not 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 This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following:

“Contains FCC ID:QGH-LB1GC”.

“Contains IC: 2473A-LB1GC”.

The grantee's FCC ID can be used only when all FCC compliance requirements are met.

Manual Information To the End User 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.