LEVITON MSC-B9604 Module Instruction Manual

MSC-B9604 Module
Instruction Manual

MSC-B9604 Module Installation Manual
FCC ID of this product is as follows: FCC ID: 2ASLN-ZL07S
IC ID of this product is as follows: IC: 25037-ZL07S
This module can be used for Bluetooth & ZigBee protocol. The module is tested in compliance with FCC part 15.247. It operates only in the 2.4 GHz band [2400-2483.5 MHz]. For integration on Leviton's end-product only - module cannot be sold to the general public. Therefore we will ask for end-product documentation to include the following statements required by FCC and Industry Canada (IC) on the product and in the Installation Manual Notice.

Contents

Supply Voltage

- The power is provided from the 5-pin connector to the module.
- Rest pins on the connectors are for control signals.

	Min.	Typ.	Max.	Unit
Operating Temperature Range	-40	+25	+85	Deg. C
Operating Voltage	4.3	5	5.25	VDC
LED voltage supply	4.3	5	5.25	VDC

Theory of Operation – BLE Channels

BLUETOOTH

Channel #	(MHz)	BLUE TX Power target=MAX dBm (Dec/10) [Avg Power FW Setting]	Channel #	Frequency (MHz)	TX Power Target MAX dBm (Dec/10) [Avg Power FW Setting]
37	2402	8	18	2442	8
0	2404	8	19	2444	8
1	2406	8	20	2446	8
2	2408	8	21	2448	8
3	2410	8	22	2450	8
4	2412	8	23	2452	8
5	2414	8	24	2454	8
6	2416	8	25	2456	8
7	2418	8	26	2458	8
8	2420	8	27	2460	8
9	2422	8	28	2462	8
10	2424	8	29	2464	8
38	2426	8	30	2466	8
11	2428	8	31	2468	8
12	2430	8	32	2470	8
13	2432	8	33	2472	8
14	2434	8	34	2474	8
15	2436	8	35	2476	8
16	2438	8	36	2478	8
17	2440	8	39	2480	8

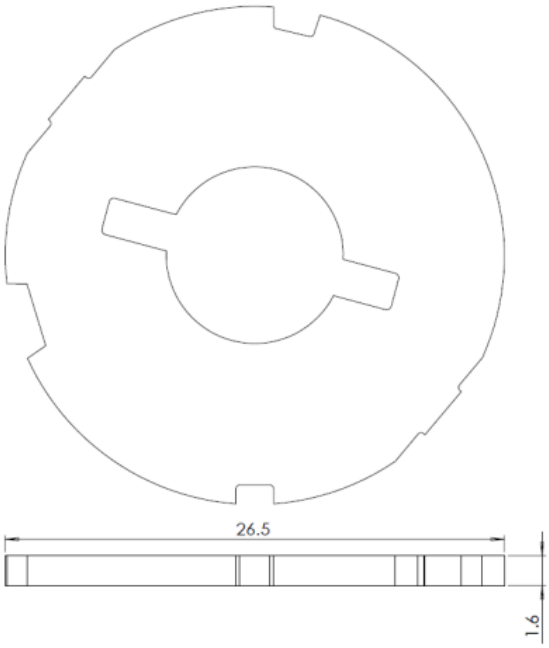
Frequency Tolerance: ± 20ppm

Theory of Operation – ZigBee Channels

Channel #	Frequency (MHz)	TX Power Target MAX dBm (Dec/10) [Avg Power FW Setting]
11	2405	8
12	2410	8
13	2415	8
14	2420	8
15	2425	8
16	2430	8
17	2435	8
18	2440	8
19	2445	8
20	2450	8
21	2455	8
22	2460	8
23	2465	8
24	2470	8
25	2475	8
26	2480	8

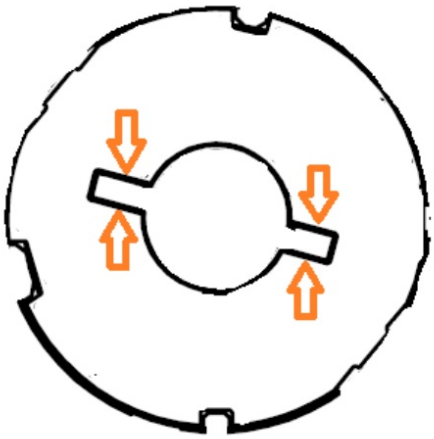
Module Dimensions

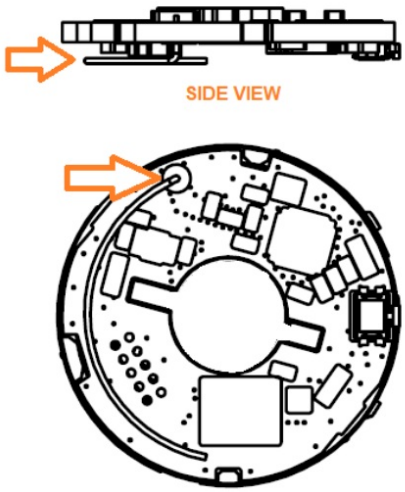
- The module is of fixed dimensions and no outside changes are permitted.
- Refer to ‘B9604module.dxf’ for footprint.



Module Connections

- The module can only be used with other PCBs connected using the 8-pin connector.
- Keep the area under the antenna clear of any copper or electrolytic components.





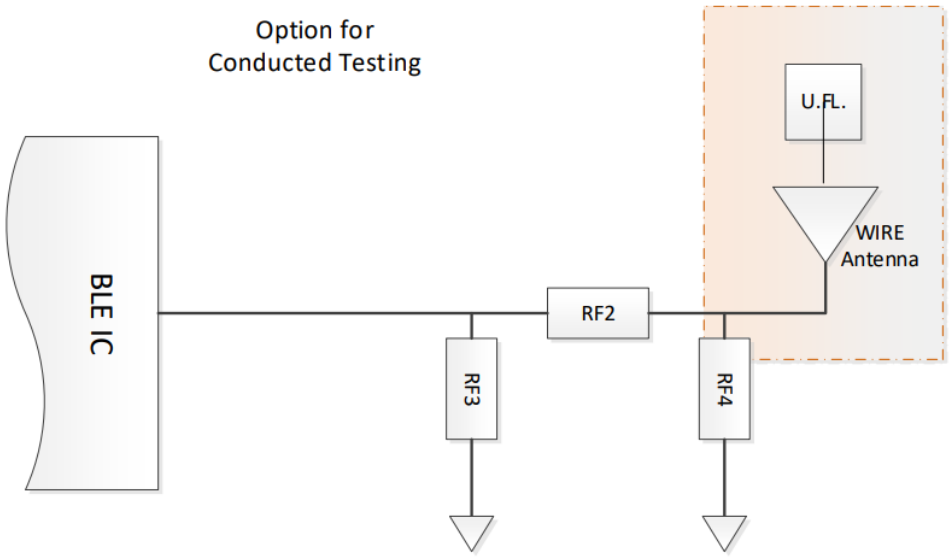
Antenna

- The module comes with a wire antenna design that followed the specifications of the antenna.
- About the signal line between the PCB antenna on the 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 two points.

1. An antenna gain is lower than again given in antenna specifications.

2. The emission level is not getting worse.

- Please refer to KDB 996369 D04 Module Integration Guide for guidance, installation instructions, and testing requirements.
- Conducted emissions testing:



Notice

- For Leviton's end-product integration only – the device cannot be sold to the general public.
- This module can be used either for Bluetooth & or ZigBee protocol. The module is tested in compliance with FCC part 15.247. It operates only in 2.4 GHz band [2400- 2483.5 MHz].
- 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: 2ASLN-ZL07S IC: 2503 7-ZL07S	OR	Contains: FCC ID: 2ASLN-ZL07S IC: 2 5037-ZL07S
Contient un module transmetteur: FCC ID: 2ASLN-ZL07S IC: 25037-ZL07S	OR	Contient: FCC ID: 2ASLN-ZL07S IC: 2 5037-ZL07S

To comply with FCC and Industry Canada RF exposure limits for general population / uncontrolled exposure, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and operating in conjunction with any other antenna or transmitter, except in accordance with FCC multi-transmitter product procedures.

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.

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science, and Economic Development Canada's license-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.

FCC/ ISED 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.
This device is intended only for Leviton end-product 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 a gain of less than 1.5 dBi (2.4GHz).

As long as these 3 conditions above are met, further transmitter test will not be required. However, the integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

IMPORTANT NOTE: In the event, these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC/ ISED authorization is no longer considered valid and the FCC/ ISED 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/ ISED 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:2ASLN-ZL07S".
"Contains IC: 25037-ZL07S".
The grantee's FCC ID can be used only when all FCC compliance requirements are met.
Manual Information To the End User: Leviton's end-product 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 shown in this manual.
Declaration of Conformity statement must be declared in the end-product user manual.

FCC SUPPLIER'S DECLARATION OF CONFORMITY
Smart Sensors manufactured by Leviton Manufacturing, Inc., 201 N Service Road, Melville, NY, http://www.Leviton.com. 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.

End-product testing

During the design process,

- The designer of the host board should place the module at a recommended location on the host board.
- The designer should also perform the radiated regulatory FCC testing using the manufacturer's low-level radio test firmware to ensure compliance as per KDB 996369 D04.
- The designer should also test for the applicable unintentional radiator functions (Part 15 Subpart B) of the end-product to ensure compliance as per KDB 996369 D04.

During production,

- Host products should be tested to ensure compliance.
- When the host board is manufactured, the requirement of “Electrical Testing” should be specified with the PCB order to guarantee that no short is present anywhere on the host board (which includes the traces to module RF castellation pads). This simplifies the production test requirements down to verifying that a solder short did not occur during the component placement and reflow of the host board assembly.
- Verifying that no solder short has occurred can be done by measuring an open circuit between pins using a DC multimeter.

Documents / Resources

	LEVITON MSC-B9604 Module [pdf] Instruction Manual ZL07S, 2ASLN-ZL07S, 2ASLNZL07S, MSC-B9604 Module, MSC-B9604, Module, BLE-B8200 Module

References

- Leviton | Switches, Dimmers, Outlets & Lighting Controls