Phononic IoT Board V1 Radio Transmitter Installation Guide

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Phononic IoT Board V1 Radio Transmitter

Product Information

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An external power supply used with the IoT Board must comply with the relevant regulations and standards applicable in the country of intended use. Altering any part of the board will invalidate existing compliance work. It is essential to consult professional compliance experts when integrating this board into a product to ensure that all certifications are retained.

Antenna Information
The board has been certified with a 2.4GHz Inventek Systems W24P-U u.FL external antenna. The antenna is a dipole, printed circuit board antenna. It has a center frequency of 2442 MHz, a 50 Ohm impedance, and WiFi peak gain of 3.55dBi; a BLE peak gain of 3.58dbi. To ensure optimal operation, it is important to place the PCB portion of the antenna in a suitable place inside the product. Avoid placing it close to a metal casing or directly on metal brackets.

FCC Compliance Statement
This device complies with Part 15 of 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 to the equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To mitigate interference issues, follow these recommendations:

- Re-orient or relocate the receiving antenna

- Increase the separation between the equipment and receiver
- Connect the equipment to an outlet on a different circuit from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

For products available on the USA/Canada market, only channels 1 to 11 are available for 2.4GHz WLAN. This device and its antenna(s) must not be operated in conjunction with any other antenna or transmitter except in accordance with FCC's multi-transmitter procedures.

IMPORTANT NOTE:
FCC Radiation Exposure Statement; Co-location of this module with another transmitter that operates simultaneously is required to be evaluated using the FCC multi-transmitter procedures.

This device complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. The device contains an integral antenna; hence, it must be installed so that there is a separation distance of at least 20cm from all persons.

Product Usage Instructions

1. Ensure that an external power supply used with the IoT Board complies with relevant regulations and standards applicable in your country.
2. Do not alter any part of the board as it may invalidate existing compliance work.
3. Consult professional compliance experts when integrating this board into a product to retain all certifications.
4. Place the PCB portion of the antenna in a suitable location inside the product, avoiding proximity to metal casings or directly on metal brackets.
5. To avoid interference issues, re-orient or relocate the receiving antenna, increase separation between the equipment and receiver, connect the equipment into an outlet on a different circuit from that of the receiver, or seek assistance from a dealer or experienced radio/TV technician.
6. For products available in the USA/Canada market, only channels 1 to 11 are available for 2.4GHz WLAN.
7. Do not operate this device and its antenna(s) in conjunction with any other antenna or transmitter, except in accordance with FCC's multi-transmitter procedures.
8. Ensure compliance with FCC RF radiation exposure limits by installing the device with a separation distance of at least 20cm from all persons.

Purpose

- The purpose of this document is to provide information on how to use a Phononic IoT Boardv1 as a radio transmitter when integrating into an end product.
- Incorrect integration or use may infringe compliance rules meaning recertification may be required.

Device Description

The Phononic IoT Boardv1 contains an IEEE 802.11 b/g/n WLAN and Bluetooth 5 (LE) module. The module contains the Espressif ESP32-S3 microcontroller. The board is designed to be mounted, with appropriate screws, into an end product. The device must be placed in a suitable location to ensure WLAN performance is not compromised. The device requires an external 2.4GHz antenna.

Integration into Products

Board& Antenna Placement

- A separation distance greater than 20cm will always be maintained between the antennas and any other radio transmitter if installed in the same product.
- The device is physically attached and held in place by screws.
- In order to connect the device to another system a 20 pos FPC cable is connected to J1 on the board. The supply can be +3.4VDC or greater with a minimum of 6 Watts. Power can also be supplied on the 6-pin debug header (J2). Pin 1 is connected to +5VDC and pin 6 is connected to GND.

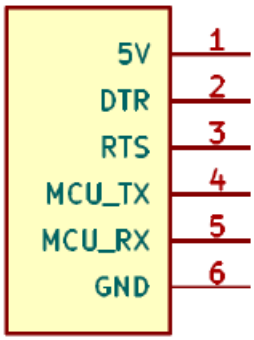

Figure 1: 6-Pin Debug Header (J2)

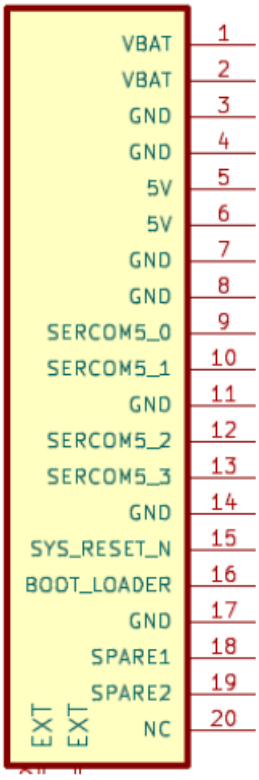

Figure 2: 20 pos FPC Cable (J1)

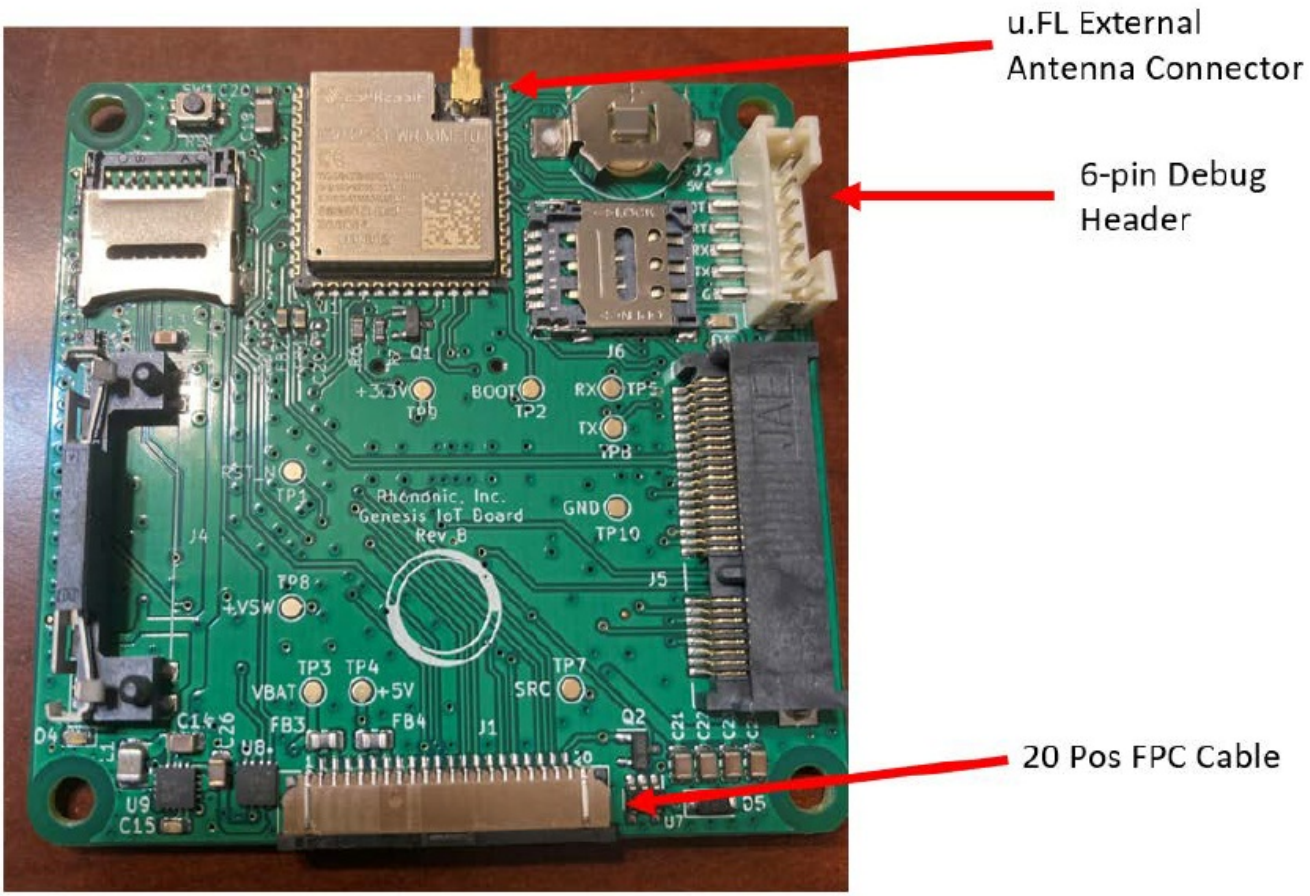

Figure 3: IoT Boardv1

- An external power supply used with the IoT Board shall comply with relevant regulations and standards applicable in the country of intended use.
- At no point should any part of the board be altered as this will invalidate any existing compliance work. Always consult professional compliance experts about integrating this board into a product to ensure that all certifications are retained.

Antenna Information

The board was certified with a 2.4GHz Inventek Systems W24P-U u.FL external antenna. The antenna is a dipole, printed circuit board antenna. It has a center frequency of 2442 MHz, a 50 Ohm impedance, and a WiFi peak gain of 3.55dBi; a BLE peak gain of 3.58dbi. It is important that the PCB portion of the antenna is placed in a suitable place inside the product to ensure optimal operation. Do not place it close to a metal casing or directly on metal brackets.

FCC Compliance Statement

This device complies with Part 15 of 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.

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

This equipment has been tested and found to comply within 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:

- Re-orient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a different circuit from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

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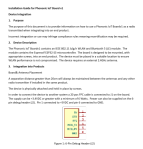
Documents / Resources

	Phononic IoT Board V1 Radio Transmitter [pdf] Installation Guide 2BBPK-IOTMOD1, 2BBPKIOTMOD1, iotmod1, IoT Board V1 Radio Transmitter, V1 Radio Transmitter, Radio Transmitter