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Eureka Wireless Module Integration User Manual

2023-11-06

HVIN: MT-EUREKA

1 Features

- IEEE 802.11b/g/n WLAN radio
- Bluetooth 5.2 radio
- 2 x ARM Cortex-M microcontroller for user application
- USB-C port for data transfer, power supply and debugging
- 8 MB NOR Flash
- Fully integrated power regulation with wide unregulated operating range
- Air quality sensor (temperature/humidity/pressure/VOC) (optional)
- Accelerometer (optional)
- Mono Class D amplifier for driving an external speaker (optional)

2 Pin description

Connector J1

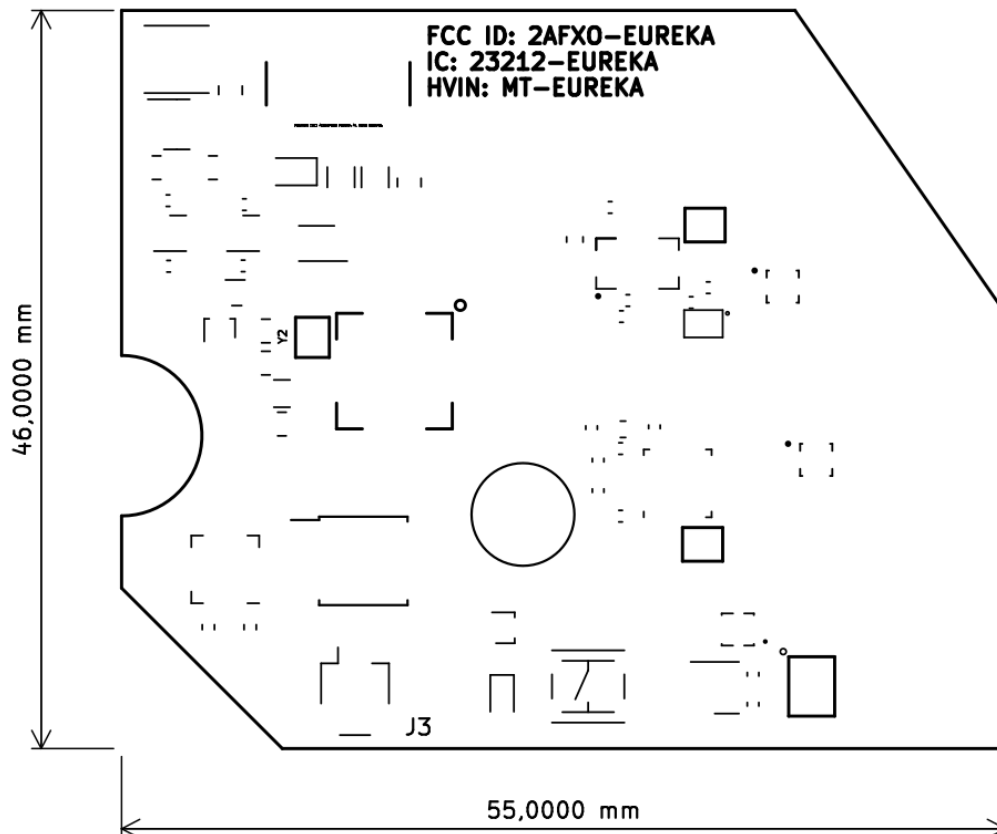
Pin number	Name	Description
1	GND	Module Ground
2	VBAT	Module Power Input
3	TX	Module Transmit Data (Application specific)
4	RX	Module Receive Data (Application specific)

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3 Specifications

Parameter	Value	Unit
Storage Temperature	-20 ... +70	Celsius
Operating Temperature	-10 ... +50	Celsius
Supply voltage (VBAT)	2.0 ... 5.0	Volt
WLAN Frequency range	2400 ... 2500 ¹	MHz
WLAN Transmit power (conducted)	≤ 20	dBm
BLE Frequency range	2400 ... 2483.5	MHz
BLE Transmit power (conducted)	≤ 6	dBm



¹ This is the full tunable range as specified in the WLAN radio datasheet. It is further restricted based on country settings, such that the actual range in the US and Canada is 2401-2473 MHz (channels 1-11).



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4 Module User Requirements

4.1 USA - FCC

This device complies with Part 15 of the FCC Rules when operating with the embedded antenna.

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 undesirable operation.

Any changes or modifications not expressly approved by Minut, Inc. could void the user's authority to operate the equipment.

List of applicable FCC Rules

- 47 CFR Part 15, Subpart C 15.203
- 47 CFR Part 15, Subpart C 15.205
- 47 CFR Part 15, Subpart C 15.207
- 47 CFR Part 15, Subpart C 15.209
- 47 CFR Part 15, Subpart C 15.247
- 47 CFR Part 2.1091

Approved operational use conditions

The module is to be used in IOT devices. The input voltage to the module is nominally 2-5V.

Limited module procedures

The module is not a limited module.

Trace antenna designs

The antenna is not a trace antenna.

FCC RF Radiation Exposure Statement

This Module 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 and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Antenna change notice

If you desire to increase antenna gain and either change antenna type or use same antenna type certified, a Class II permissive change application is required to be filed by us, or you (host manufacturer) can take responsibility through the change in FCC ID (new application) procedure followed by a Class II permissive change application.

OEM Responsibilities to comply with FCC Regulations

This module has been tested for compliance to FCC Part 15. It has been tested as a subsystem, and its certification does not cover the FCC Part 15 Subpart B (unintentional radiator) rule requirement.

OEM integrators are responsible for testing their end-product for any additional compliance requirements needed with this module installed (e.g radiated emissions).

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End Product Labeling

§ 15.19 Labelling requirements shall be complied on the end user device.

Labelling rules for special devices, please refer to §2.925, § 15.19 (a)(5) and relevant KDB publications.

For E-label, please refer to §2.935.

Information on test modes and additional testing requirements

The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install the module. The module is limited to installation in mobile applications, a separate approval is required for all other operating configurations, including portable configurations with respect to §2.1093 and different antenna configurations.

Test software to access different test modes: **p2radio**

Testing item, frequencies, transmit power, modulation type can be selected following the test script instructions.

The module is labeled with its own FCC ID. If the FCC ID 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. In that case, the final end product must be labeled in a visible area with the following:

- "Contains FCC ID: 2AFXO-EUREKA"
- "Contains Transmitter Module FCC ID: 2AFXO-EUREKA"

The OEM integrator is responsible for ensuring that no information is provided to the end user regarding how to install or remove the module or how to change RF related parameters.

Class B Device Notice - Part 15B Compliance Requirements for Host product manufacturer

This modular transmitter is only FCC authorized for the specific rule parts listed on our grant, 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.

Host manufacturer in any case shall ensure the host product, in which the module is installed and operating, is compliant with Part 15B requirements.

Please note that for a Class B or Class A digital device or peripheral, the instructions furnished the user manual of the end-user product shall include the statement set out in *§15.105 Information to the user* or such similar statement and place it in a prominent location in the text of the host product manual. Original texts as following:

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.



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- 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.

4.2 Canada - ISED

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This radio transmitter (IC: 23212-EUREKA) has been approved by *Innovation, Science and Economic Development Canada* to operate with the antenna types listed below, with the maximum 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.

Integrated PCB Antenna

For WiFi 2.4GHz: -0.93dBi; For BLE: -0.25dBi;

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

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.

Radiation Exposure Statement

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance 20 cm between the radiator and your body.

Cet équipement est conforme aux limites d'exposition aux radiations IC CNR-102 établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et votre corps. Cet émetteur ne doit pas être colocalisé ou fonctionner en conjonction avec une autre antenne ou un autre émetteur.

OEM Responsibilities to comply with IC Regulations

End Product Labeling

The module is labeled with its own IC ID. If the IC ID 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. In that case, the final end product must be labeled in a visible area with the following: "Contains IC: 23212-EUREKA"

L'étiquette d'homologation d'un module d'Innovation, Sciences et Développement économique Canada devra être posée sur le produit hôte à un endroit bien en vue, en tout temps. En l'absence d'étiquette, le produit hôte doit porter une étiquette sur laquelle figure le numéro d'homologation

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du module d'Innovation, Sciences et Développement économique Canada, précédé du mot « contient », ou d'une formulation similaire allant dans le même sens et qui va comme suit :
"Contient IC : 23212-EUREKA"

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