



asset management ecosystem

VLVBM1 Certification User Manual

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Version

1.0

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Introduction

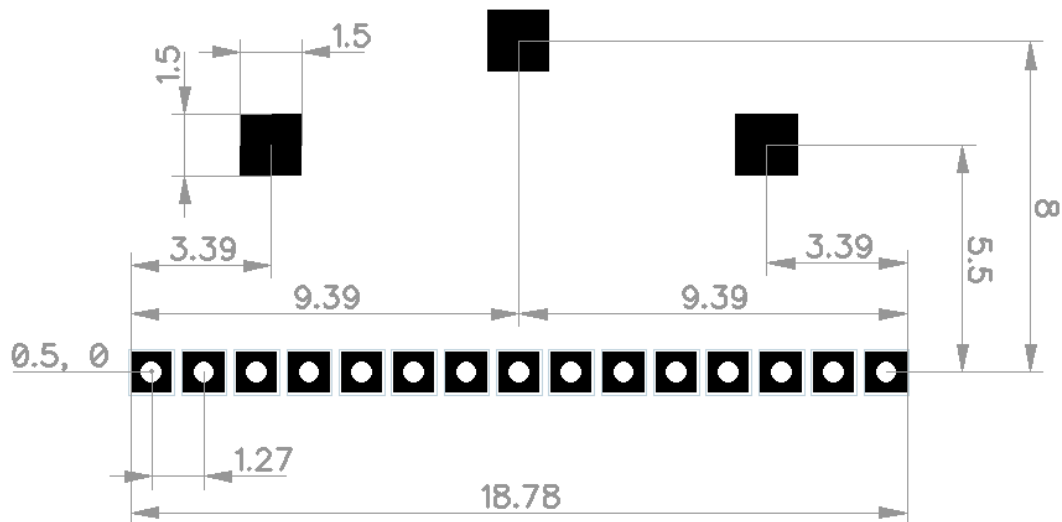
The Velavu VLVBM1 is a radio module based on the Nordic Semiconductor nRF52833 Bluetooth multiprotocol system on chip (SoC). The module is designed to be integrated into a host PCB to add wireless capabilities for devices within the Velavu ecosystem.

Applications

- Asset Tracking
- Smart Home
- IoT Environment Sensors
- Smart Beacon

Application Information

Land Pattern



Layout Guidelines

- The module should be placed on the edge of the host circuit board.
- Around the antenna area, all layers should be free of any metal objects including copper pours.
- Host PCB should be longer than 40mm to get optimal antenna performance.
- All ground pins and ground pads should be connected to the host PCB ground with a copper pour to minimize current loops.

Operating Instructions

The most up-to-date operating instructions can be found online at <https://support.velavu.com/hc/en-us>

Identifications

Model Number / HVIN	VLVBM1
Product Marketing Name	Velavu Bluetooth Module One
IC Registration Number	27544-VLVBM1
FCC ID	2A2OWVLVBM1

Specifications

Operational Frequency	2402 MHz - 2480 MHz
Modulation	GFSK
Maximum Output Power	+8 dBm
Operating Voltage	2.0 VDC - 3.3 VDC
Maximum Current (Transmit +8 dBm)	15.5 mA
Shutdown Current	1.4 uA

Regulatory Information

Canada

ISED non-interference disclaimer

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.
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.

RSS-Gen Transmit antenna statement

This radio transmitter [27544-VLVBMI] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible 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.

Le présent émetteur radio [27544-VLVBMI] a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué pour tout type figurant sur la liste, sont strictement interdits pour l'exploitation de l'émetteur.

Under Innovation, Science and Economic Development regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by ISED. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Approved antenna types:

- Integrated IFA Trace antenna
 - Max gain: 1.9 dB
 - Impedance: 50 ohm

RF Exposure statement

This equipment complies with ISED RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm (7.6 inches) between the radiator and any part of your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Pour se conformer aux exigences de conformité ISED RSS-102 RF exposition, une distance de séparation d'au moins 20 cm doit être maintenue entre l'antenne de cet appareil et toutes les personnes. Lanceurs ou ne peuvent pas coexister cette antenne ou capteurs avec d'autres.

United States (FCC)

FCC Compliance Statement

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.

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

RF Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, this equipment should be installed and operated with minimum distance 20 cm (7.8 inches) between the antenna and your body during normal operation. Users must follow the specific operating instructions for satisfying RF exposure compliance.