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Coordinator Radio (CoRa)
Installation Instructions

Product Part number: 400.047
Product revision: D

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1 PRODUCT DESCRIPTION

The Coordinator Radio (CoRa) is a limited modular IEEE 802.15.4 radio based on the Texas Instrument CC2538 chipset. It contains an omnidirectional chip antenna and a USB 2.0 port for communication and power with a host device. The product is available with the USB interface on a pogo pin connector or an optional mini-USB connector.

This limited modular IEEE 802.15.4 radio contains a firmware developed by Zimmer CAS and is intended to be integrated into finished product. The module cannot be used as a standalone device.

2 PRODUCT PICTURE

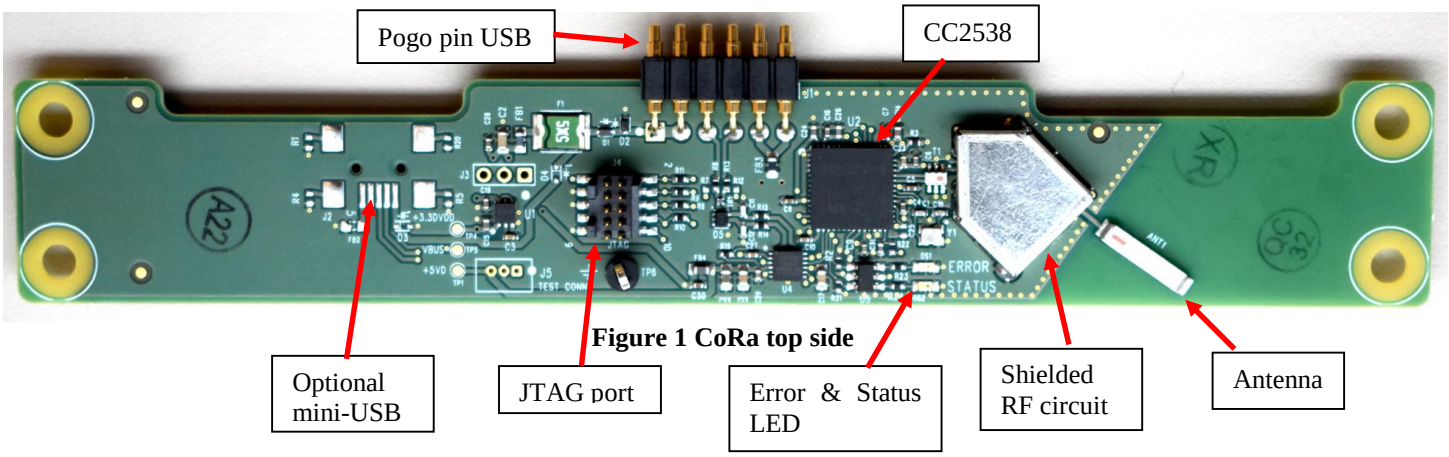

Figure 1 CoRa top side

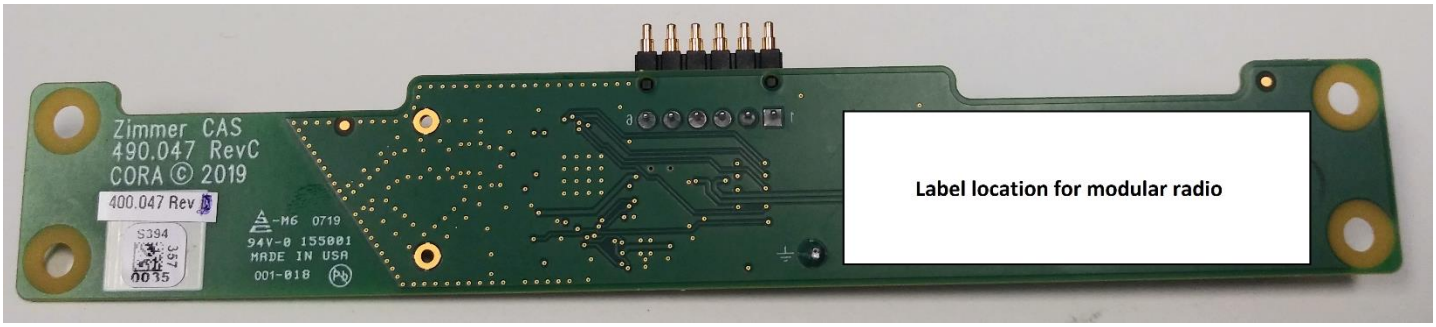

Figure 2 CoRa bottom side

3 DRIVERS INFORMATION

The CoRa module contains a FT234XD integrated circuit from FTDI to handle communication via a USB port. FTDI Linux drivers are now supported starting from Ubuntu 11.10, kernel 3.0.0-19. Driver for Windows can be found from the Web page below:
https://www.ftdichip.com/Drivers/VCP.htm

4 FIRMWARE INFORMATION

The CoRa module contains firmware version 2.0.1.2 that is developed by Zimmer CAS. Integration with the host device is done by using the ***Serial Communication Specifications*** document that is available upon request, following a non-disclosure agreement between Zimmer CAS and the integrating party.

It is possible to install new CoRa firmware by using the JTAG port and the Segger programmer for ARM (Digi-Key P/N: 899-1002-ND) along with a 20-to-10 pin adapter (Digi-Key P/N: 1188-1016-ND). Only firmware supplied by Zimmer CAS must be installed. The Zimmer CAS firmware provided with the CoRa module must not be tempered with.

5 APPLICATION INTEGRATION AND SPECIFIC CONDITIONS FOR USE

Because the CoRa is registered as a limited modular radio, Zimmer CAS must review detail test data or host designs prior to giving the host manufacturer approval for integration of the module. As stated in section 4 and 6, the party integrating the CoRa module in their host device must not modify the Zimmer CAS firmware nor modify/chage the antenna. Also, modification of the RF circuit and/or removal of the shield is strictly prohibited.

5.1 RF EXPOSURE CONSIDERATION

The CoRa module is intended to be use in fixed equipment. The CoRa module max EIRP is below 20mW, which means that it complies with EMF basic restriction of standard EN 62479. The party integrating the CoRa module must evaluate the RF exposure to show compliance in their host device.

5.2 HOST DEVICE LABELLING AND COMPLIANCE GUIDELINES

The host product manufacturers shall provide a physical or e-label on the finished product stating “Contains FCC ID: CVOCORA” and “Contains IC: 10254A-400047”

5.3 MODULAR RADIO TEST MODE

Host product manufacturer can use test command from the ***Serial Communication Specifications*** document to configure the CoRa module for transmission test. These commands can be used to set the IEEE 802.15.4 channel, set the module for continuous transmission or continuous reception.

5.4 FCC PART 15 SUBPART B DISCLAIMER

Note that the CoRa module is only compliant with **FCC Part 15 Subpart B** and that it is the host device manufacturer’s responsibility to demonstrate compliance with any other FCC rules that apply to their host device. It is also the host device manufacturer’s responsibility to demonstrate compliance of the host device with FCC Part 15 Subpart B with the modular CoRa installed.

6 ANTENNA

The module uses a chip type monopole 2450AT45A100 antenna from Johanson Technology. The antenna act as a dipole with the module printed circuit board ground plane. It is forbidden to use another antenna with the CoRa module.

7 CERTIFICATION INFORMATION AND LABELLING

The CoRa module is certified for use in the following countries:

- United State of America, FCC ID: CVOCORA
    - Comply with FCC 47 CFR Part 15 Subpart C, §15.247

Note: 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.

- Canada, IC: 10254A-400047
    - Comply with RSS-247, Issue 2, Feb 2017, Section 5

This device complies with Industry Canada licence-exempt RSS standard(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.

Le présent appareil est conforme aux CNR d'Industrie 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, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

- Japan, MIC certification number: 209-J00364
    - Comply with Japan Radio Law Article 2, Paragraph 1, Item 19

- European Union,
    - Comply with Radio Equipment Directive 2014/53/EU through ETSI EN 300 328 V2.1.1

The CoRa label is shown below.

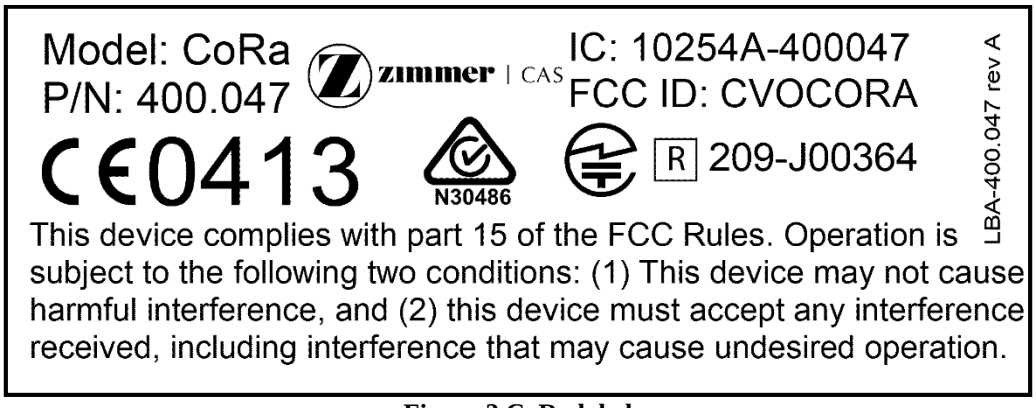

Figure 3 CoRa label

8 SPECIFICATIONS

Power Requirements	
Input voltage	4.5-5.5VDC
Input current	0.5A max
IEEE 802.15.4 Transceiver	
Operating band	2400-2483.5 MHz
Modulation type	OQPSK
Bandwidth	250 kbps max
Antenna peak gain	2.2 dBi max
EIRP	2.83 dBm (1.9mW)

9 DRAWING AND DIMENSIONS

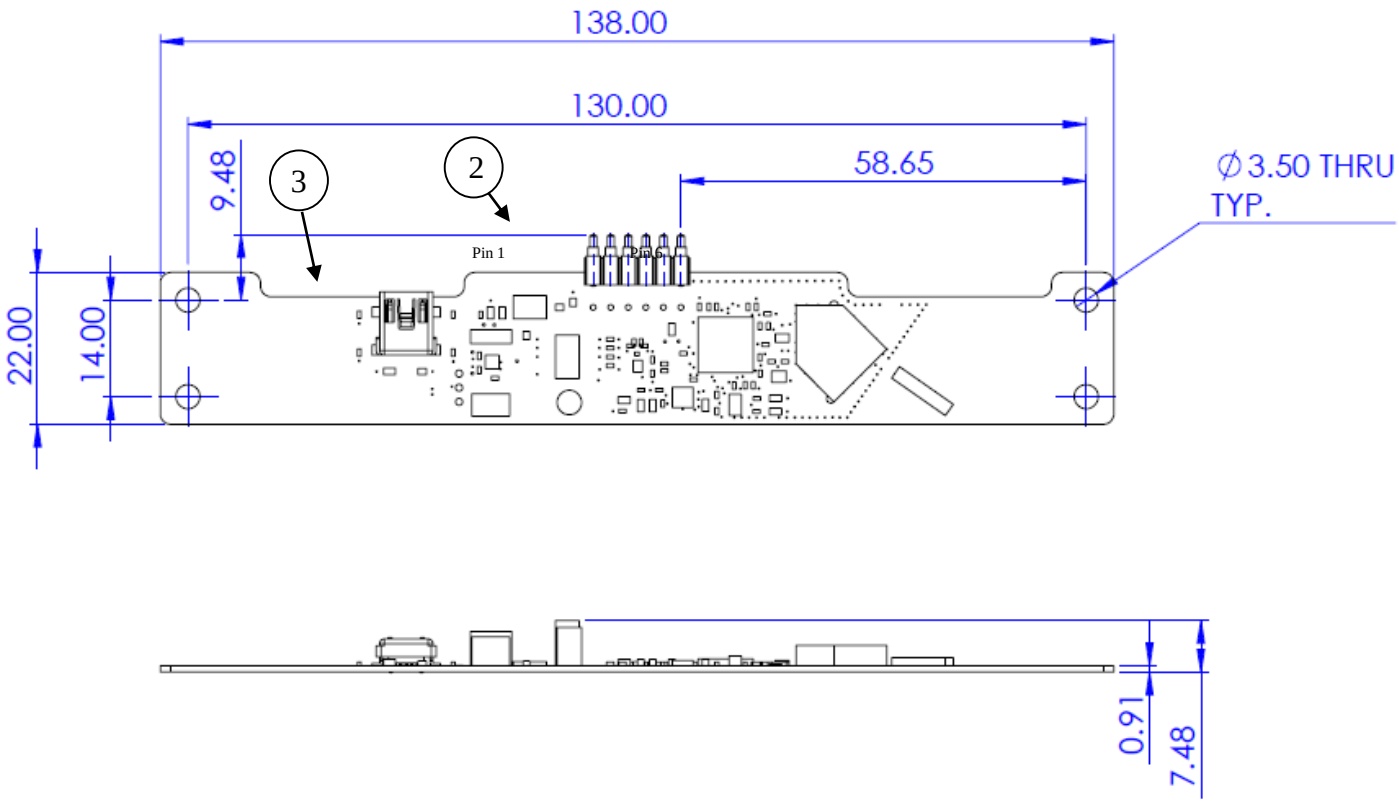

Figure 4 CoRa dimensions

Note 1: All dimensions are in mm.
Note 2: Pogo pin pitch is 2.54mm.

Pinout

Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
5VDC	5VDC	Data -	Data +	GND	GND

Note 3: Mini-USB connector is optional and is not mounted by default