

LR62X1E, LR62X2E LoRa with Power Amplifier Modules

2025

LoRa Modules

LR62X1E series LoRa transceiver modules use a Semtech SX1262 sub-GHz radio transceiver and a Skyworks SE2435 power amplifier. LR62X2E series operate in the 869.40 MHz to 869.65 MHz frequencies allowing up to +27 dBm TX power for maximum ranges.



Fanstel provides source codes for Nordic nRF52840 module to route LoRa data to cloud servers through WiFi, PoE Ethernet, and LTE interfaces.

The FCC Versions, LR62X1E

The FCC versions operate in the 902 to 928 MHz frequency range. There are 3 antenna connection options: an u.FL connector, pads for an antenna on the host board, and an integrated chip antenna.

The CE Versions , LR62X2E

The CE versions operate in the 869.40 to 869.65 MHz frequency range. Up to +27 dBm or 500 mW TX power is allowed. There are 3 antenna connection options: an u.FL connector, pads for an antenna on the host board, and an integrated chip antenna.

- M262X1E840XE with BT840XE BLE module.

- Nordic nRF52 with ARM Cortex M4F at 64 MHz.
- Over-the-Air (OTA) firmware update
- Flash/RAM: 1024KB/256KB
- 34 GPIOs
- 12 bit/200KSPS ADC, 8 configurable channels with programmable gain.
- 3X SPI Master/Slave (8Mbps)
- 3X 4-channel pulse width modulator (PWM)
- 2X 2-wire Master/Slave (I²C compatible)
- UART (with CTS/RTS and DMA)
- 128-bit AES HW encryption
- 5 x 32 bits, 3 x 24 bits Real Time Counters (RTC)
- Available NFC-A tag interface for OOB pairing
- Size: 30x42 mm for M.2 connector, B-key
- Operation temperature: -40 °C to +85 °C

Module Summaries

module	LR62X1E	LR62X1P	LR62X1C	LR62X2E	LR62X2P	LR62X2C
Antenna conn.	u.FL	Pads	Integrated	u.FL	Pads	Integrated
Size,mm	10.0(14.0)x22.3	10.0(14.0)x22.3	10.0(14.0)x29.0	10.0(14.0)x22.3	10.0(14.0)x22.3	10.0(14.0)x29.0
TX,conducted	+29.93 dBm	+29.93 dBm	+29.93 dBm	+26.07 dBm	+26.07 dBm	+25.70 dBm
Antenna	ANT088	ANT088	Chip	ANT025	ANT025	Chip
MaxTX, radiated	+35.75 dBm	+35.75 dBm	+31.25 dBm	+26.92 dBm	+26.92 dBm	+26.97 dBm
Certifications	FCC, ISED	FCC, ISED	FCC, ISED	CE	CE	CE
Availability	Production	Production	Production	Production	Production	Production

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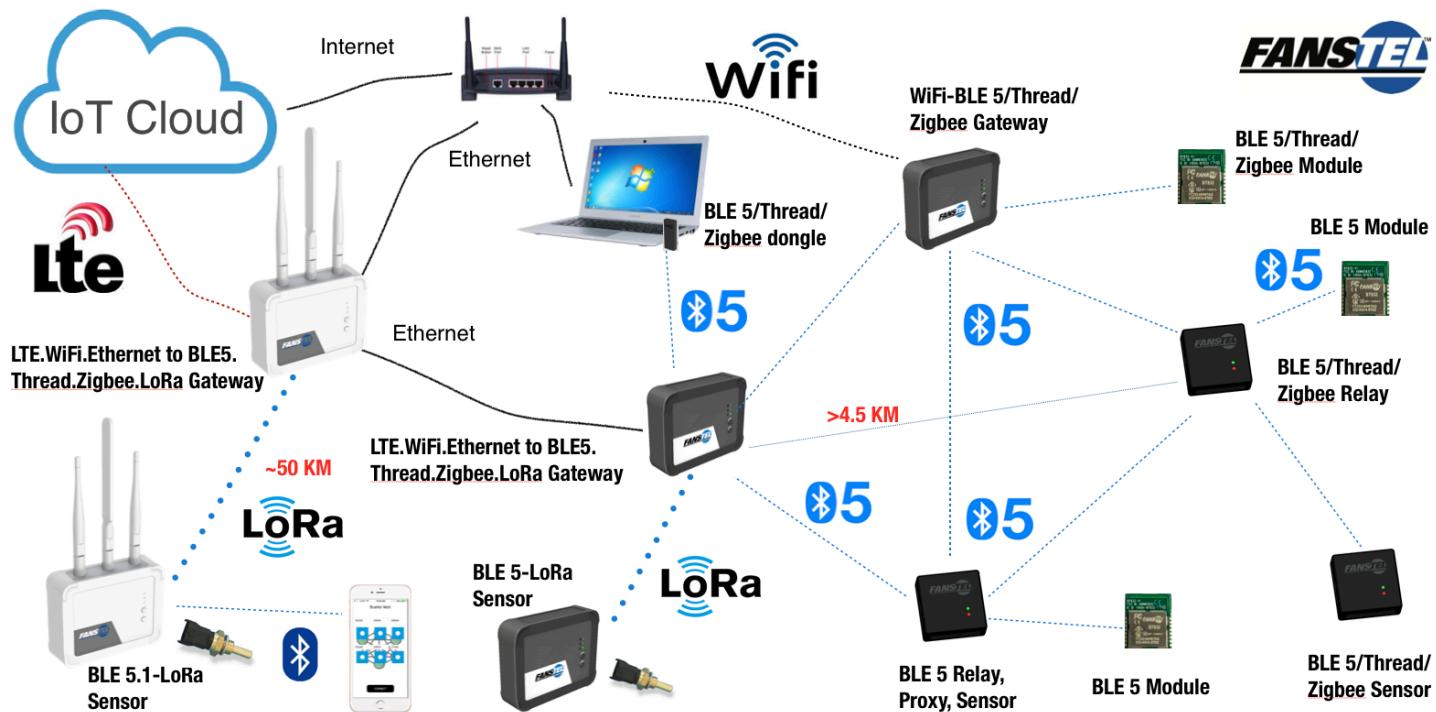
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1. Introduction

LR62X1E LoRa module with Semtech SX1262 transceiver are ideal for long range wireless applications. It can be paired with BT840F BLE module in LoRa sensor or beacon design. A smart phone can set up sensor or beacon easily through Bluetooth interface.

BT840F is powerful, highly flexible, ultra low power Bluetooth Low Energy (BLE) modules using Nordic nRF52840 SoCs. With an ARM Cortex™ M4F MCU, 1024KB flash, 256KB RAM, embedded 2.4GHz multi-



protocol transceiver, and an integrated antenna, it allows faster time to market with reduced development cost.

The second application example is in a gateway for connecting to cloud server. A LoRa sensor or beacon can be connected to a cloud server through Ethernet, WiFi, or LTE network.

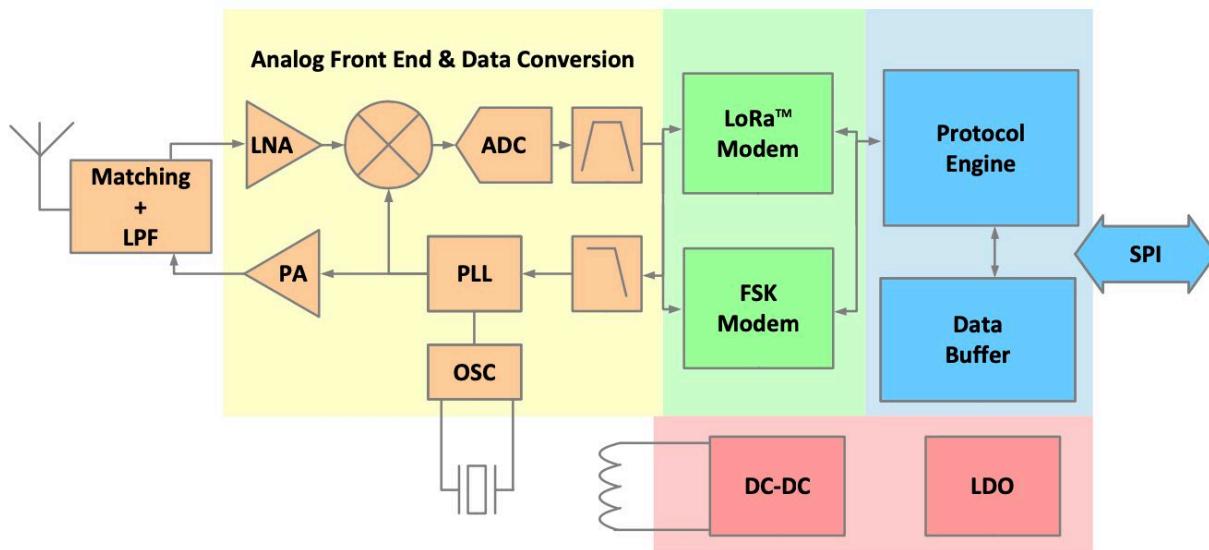
It is possible to port LoRaWAN™ stacks to Nordic nRF52 BLE SoCs. LoRaWAN™ stacks are not available from Fanstel.

2. Product Overview

Semtech SX1262

Semtech SX1262 data sheets can be downloaded from this webpage.

<https://www.fanstel.com/wirelessdocument>



A block diagram is below.

LR62X1E, LR62X2E LoRa with Power Amplifier Modules

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Module Descriptions

LR62X1E and LR62X2E

- Semtech SX1262 LoRa module with a power amplifier.
- Size: 10.0 (14.0 antenna area) x 22.3 mm.
- An u.FL connector for an external antenna.
- LR62X1E operates in the 902 to 928 MHz frequency bands.
- LR62X2E operates in the 869.40 to 869.65 MHz frequency bands.

LR62X1P and LR62X2P

- Semtech SX1262 LoRa module with a power amplifier.
- Size: 10.0 (14.0 antenna area) x 22.3 mm.
- Pads for antenna connection on the host board.
- LR62X1P operates in the 902 to 928 MHz frequency bands.
- LR62X2P operates in the 869.40 to 869.65 MHz frequency bands.

LR62X1C and LR62X2C

- Semtech SX1262 LoRa module with a power amplifier.
- Size: 10.0 (14.0 antenna area) x 29.0 mm.
- An integrated chip antenna.
- LR62X1C operates in the 902 to 928 MHz frequency bands.
- LR62X2C operates in the 869.40 to 869.65 MHz frequency bands.

Antennas Certified with LoRa Modules

- ANT025 and ANT025P: 0.85 dBi gain at 870 MHz; 0.99 dBi gain at 910 MHz. ANT025P is waterproof with IP67 rating.
- ANT042: certified for FCC version only; 4.2 dBi gain at 915 MHz
- ANT088: +8.75 dBic circular polarization gain and +5.75 dBi linear polarization gain at 915 MHz; +8.62 dBic circular polarization gain and +5.62 dBi linear polarization gain at 870 MHz.

LR62X1E, LR62X2E LoRa with Power Amplifier Modules

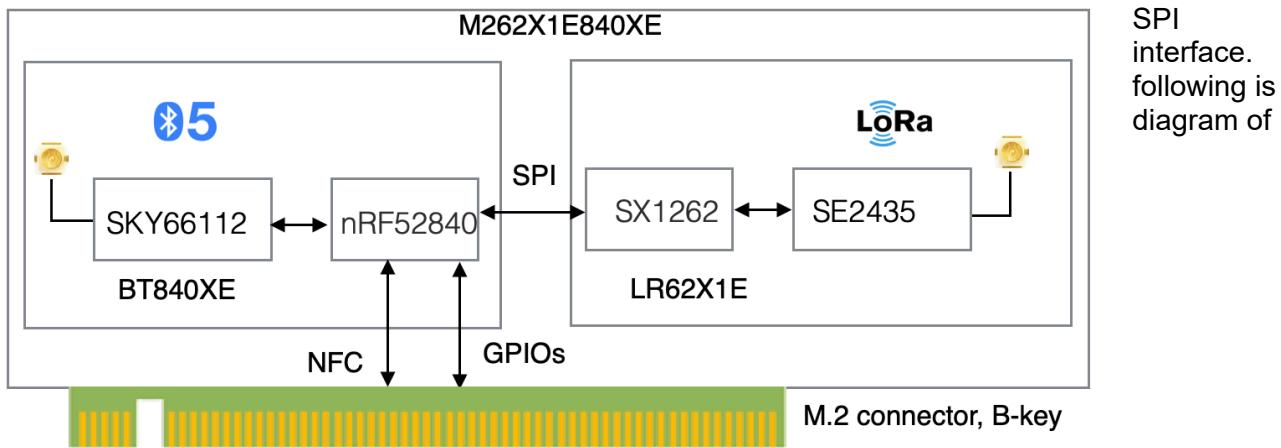
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Module for M.2 Connector

LR62X1E module has an u.FL connector for external antenna. A BT840F/XE BLE module with Cortex M4F MCU

through

The
a block



M262X1E840XE.

LR62X1E, LR62X2E LoRa with Power Amplifier Modules

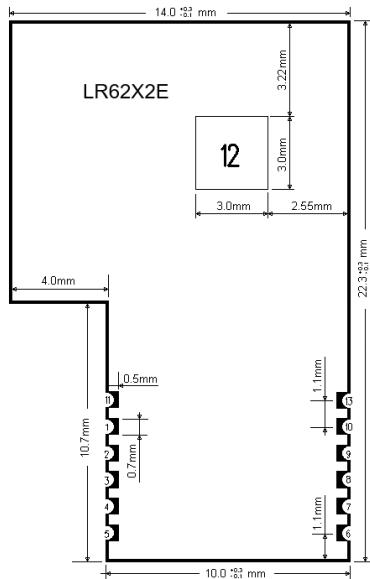
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Mechanical Drawings

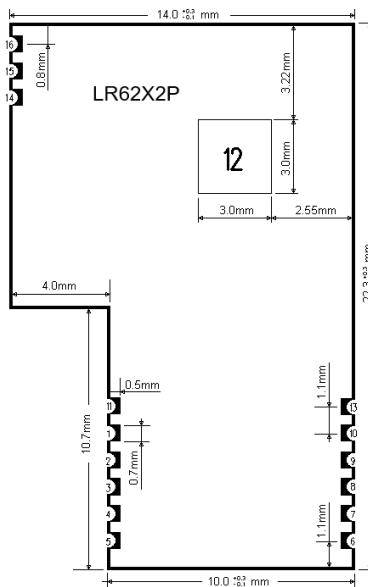
The followings are mechanical drawings of

view.

LR62X2E



LR62X2P

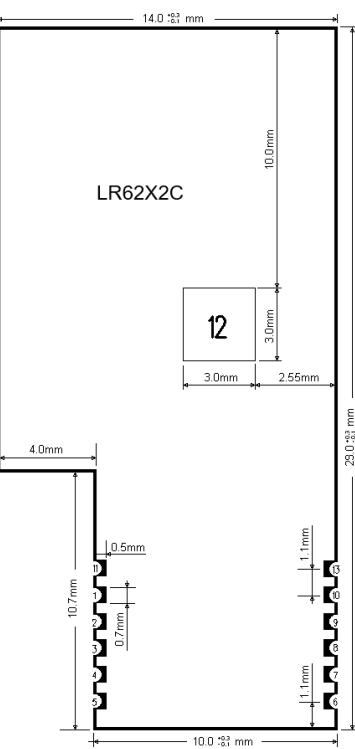


LR62X2E/LR62X1E and
LR62X1P/LR62X2P, top

Mechanical drawings of

LR62X1C and LR62X2C, top view.

LR62X2C



LR62X1E, LR62X2E LoRa with Power Amplifier Modules

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Library components for PADS and EAGLE can be downloaded from

<http://www.fanstel.com/download-document/>

For other PCB layout tools, please download evaluation Gerber files and extract library component.

LR62X1E Pin Functions

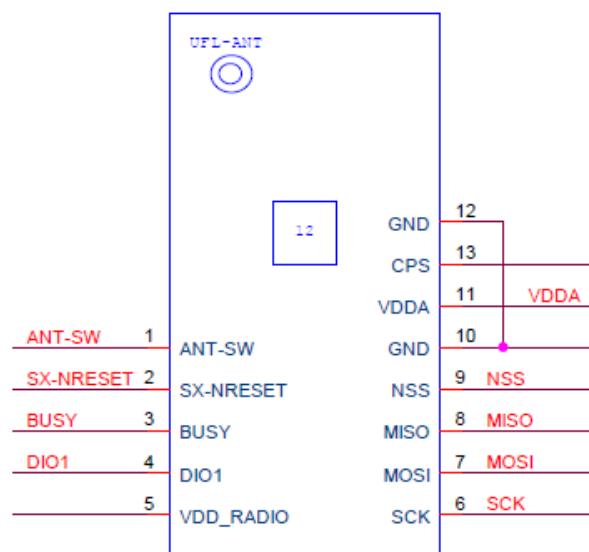
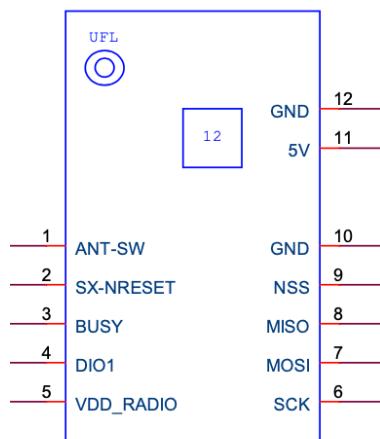
The followings are LR62X1E pin assignment. Pin functions are in a table below. Please refer to Semtech SX1262 Product Specifications for detailed descriptions and features supported. It can be downloaded from:

<https://www.fanstel.com/wirelessdocument>

LR62X1E, LR62X2E LoRa with Power Amplifier Modules

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LR62XE Pin Functions



LR62X1E and LR62X2E Pin Functions

LR62X1E, LR62X2E LoRa with Power Amplifier Modules

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An LR62X1E or an LR62X2E module is not footprint compatible with LR62XE. It will perform similar to that of LR62XE, no power saving mode. Pin 13, CPS (Control Power Saving) must be added to power down the SE2435 power amplifier when not transmitting.

LR62X1 E			SX1262	SE2435	
X1E	XE	pin name	pin#	pin#	Descriptions
1	1	ANT-SW			RF switch control, 0 to receive, 1 to transmit.
2	2	SX-NRESET	15		Reset signal, active low
3	3	BUSY	14		Busy indicator
4	4	DIO1	4		Transmit Enable Control Input, 0 to sleep, 1 to transmit
5	5	VDD	1		DC input voltage, 1.8V to 3.7V
6	6	SCK	18		SPI clock
7	7	MOSI	17		SPI Slave input
8	8	MISO	16		SPI Slave Output
9	9	NSS	19		SPI Slave Select
10	10	GND	20		Ground
11	11	VDDA			Power amplifier regulated DC power input, 4.4 to 5V for LR62XE; 4.8V for LR62X1E.
12	12	GND			Power amplifier ground
13	NC	CPS	NC	3	Control Power Saving for X1E, 0 to sleep, 1 to active.
NC	NC	ANT-SEL	NC	7	Connect to ground internally to select ANT1 port.

M262X1E840F Pin Functions

M.2	nRF52840	BT840F	M262X1E840F	
pin#	pin#	pin#	Name	Descriptions
1				DC input for 3.3V regulator; 3.2V to 15V. 4.35V minimum if connected to USB-VBUS externally.
2	Y2	F4	BLE-VDDH	High voltage input for nRF52840/nRF5340, 2.5V to 5.5V
3				DC input for 3.3V regulator; 3.2V to 15V. 4.35V minimum if connected to USB-VBUS externally.
4	B1	9	VDD-3V3	Regulated 3.3V DC input, 800 mA minimum
5	AD2	F6	USB-VBUS	USB power supply, 4.35V to 5.5V.
6	B1	9	VDD-3V3	Regulated 3.3V DC input, 800 mA minimum
7	AD6	E4	USB DP	USB data pin
8		15	BLE-SWDCLK	Serial Wire Debug clock input for BLE
9	AD4	E5	USB DN	USB data pin
10	AC24	16	BLE-SWDIO	Serial Wire Debug data for BLE
11	B6	10	GND	Ground
12				
13				
14				
15				
16				
17				
18				
19				
20			GND	Ground
21	T2	11	P011	BLE GPIO
22			GND	Ground
23	AD22	12	P100	BLE GPIO
24	AD8	13	P013	BLE GPIO
25	U1	E6	P012	BLE GPIO
26	Y23	D5	P101	BLE_UART RXD
27	R1	E3	P109	BLE GPIO
28	AC13	14	P018/RESET	Reset for BT40F, Reset or P018 for BT840F
29	AC17	E2	P021	BLE GPIO
30	AC9	D4	P014	BLE GPIO
31	AC19	D1	P023	BLE GPIO
32	AC11	D3	P016	BLE-OTA
33	AD20	C1	P024	BLE GPIO
34	AC15	D2	P019	BLE GPIO
35	W24	C5	P102	BLE_UART-TXD

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36	AD10	C4	P015	BLE GPIO
37	AD18	C2	P022	BLE GPIO
38	AD12	C3	P017	BLE GPIO
39	N1	B5	P008	BLE GPIO
40	AD16	E1	P020	BLE GPIO
41	L1	B4	P006	BLE GPIO
42	A8	B3	P031	BLE GPIO, analog input
43	P2	A6	P108	BLE GPIO
44	B9	B2	P030	BLE GPIO, analog input
45	M2	A5	P007	BLE GPIO
46	AC21	B1	P025	BLE GPIO
47	K2	A4	P005	BLE GPIO, analog input
48				No Connect
49	J1	A3	P004	BLE GPIO, analog input
50				No Connect
51	A10	A2	P029	BLE GPIO, analog input
52				No Connect
53	B11	A1	P028	BLE GPIO, analog input
54				No Connect
55	G1	1	P026	BLE_I2C, SDA
56				No Connect
57	H2	2	P027	BLE_I2C, SCL
58				No Connect
59	J24	8	P010	BLE_GPIO, NFC2
60				No Connect
61	L24	7	P009	BLE_GPIO, NFC1
62				No Connect
63	B13	6	P003	BLE_GPIO, AIN1
64				No Connect
65	A12	5	P002	BLE_GPIO, AIN 0
66				No Connect
67				No Connect
68				No Connect
69				No Connect
70				No Connect
71				No Connect
72				No Connect
73				No Connect

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74				No Connect
75				No Connect

3. Transmission Power Setting

Transmission Parameters for FCC and ISED Certifications

The DC voltage to the VDDA pin shall be regulated, 4.8V, at least 1 ampere. A 6V, 2 Amp AC adapter or equivalent is recommended as a power source. If the maximum conducted power can be below +27 dBm, 4.0 to 4.2 V DC power can be used. The power supply circuit can be the same for FCC and CE versions.

The SX1262 settings to pass FCC and ISED testing are:

- SF (Spreading Factor)=9
- BW (BandWidth)=125 kHz
- PL (Preamble Length) =8
- CR (Coding Rate)=4/5.
- Set SX1262 transmission power to +8 dBm. The maximum transmission power of module is +29.93 dBm, conducted.

module	LR62X1C	LR62X1E/P	LR62X1E/P	LR62X1E/P	LR62X1E/P
SX1262 TX power	+8 dBm				
Antenna	Chip	ANT025	ANT088	ANT042	Internal
MaxTX, conducted	+29.93 dBm				
MaxTX, radiated	+31.25 dBm	+30.92 dBm	+35.75 dBm	+34.13 dBm	+33.42 dBm

Transmission Parameters For CE Compliant Testing

The DC voltage to the VDDA pin shall be regulated, 4.0 to 4.2V, at least 1 ampere.

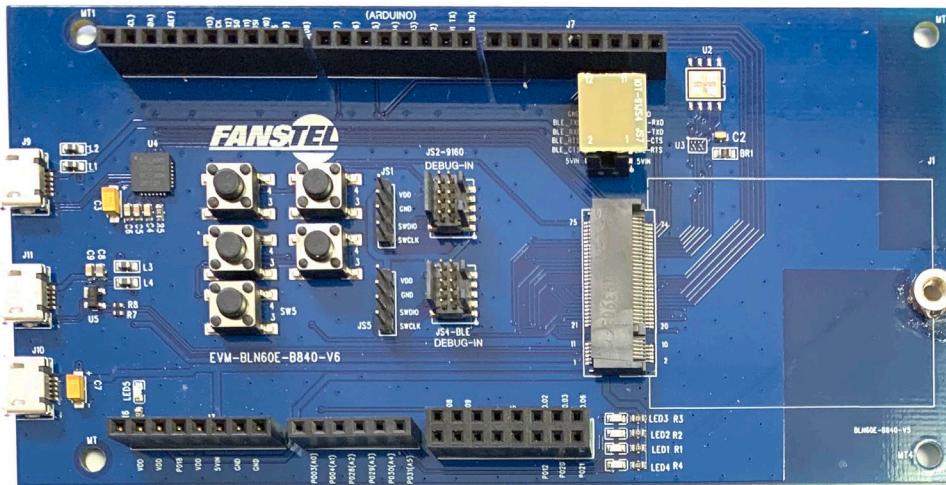
The SX1262 settings to pass CE testing are:

- SF (Spreading Factor)=5
- BW (BandWidth)=62 kHz
- PL (Preamble Length) =8
- CR (Coding Rate)=4/5.
- SX1262 transmission power settings are in the table below. Different setting is required for each antenna to limit the maximum TX power to below + 27 dBm, radiated.

module	LR62X2C	LR62X2E/P	LR62X2E/P	LR62X2E/P
SX1262 TX power	-4 dBm	-3 dBm	-9 dBm	-7 dBm
Antenna	Chip	ANT025	ANT088	Internal
MaxTX, conducted	+25.80 dBm	+26.07 dBm	+21.24 dBm	+21.76 dBm
MaxTX, radiated	+26.97 dBm	+26.92 dBm	+26.86 dBm	+26.23 dBm

4. Evaluation Board EV-LN60G

An evaluation board can be used to evaluate performance of module and to develop and test your firmware



before an application-specific host board is developed. An EV-LN60G include the followings:

- An EV board without an M.2 module.
- A 10-pins flat cable.
- An USB cable

Additional hardware required but not included in EV-LN60G.

- M262X1E840F module and an LTE antenna ANT025 or ANT025P (IP67). Or,
- M262X1E840XE module, and an LTE antenna ANT025 or ANT025P (IP67), a 0 dBi BLE antenna ANT000.

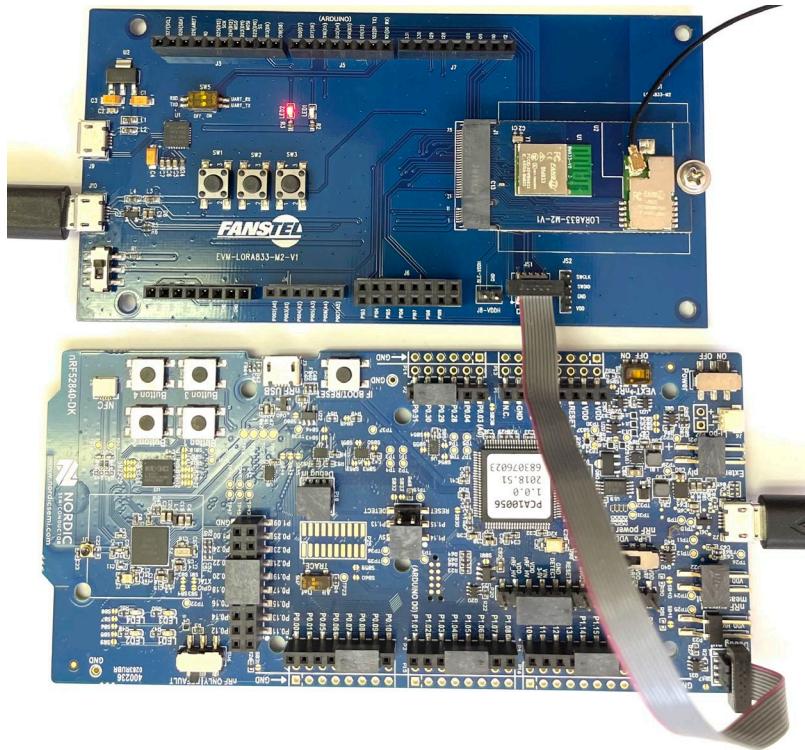
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Loading Firmware into Evaluation Board Through a Nordic DK

To program BT840F BLE module.

- Connect Nordic nRF52840DK **debug out** to Fanstel evaluation board **debug in** using the 10-pin flat cable as



shown below.

- Connect Nordic nRF52DK to PC.
- Connect a DC power source to micro or mini USB port of evaluation board.

Nordic Development Environment

Nordic Semiconductor provides a complete range of hardware and software development tools for the nRF52 Series devices. nRF52DK or nRF52840DK board is recommended for firmware development. Document and Software development tools can be downloaded by the following links.

Get started with Nordic chip and all online documents.

http://infocenter.nordicsemi.com/index.jsp?topic=/com.nordic.infocenter.nrf52/dita/nrf52/development/nrf52_dev_kit.html&cp=1_1

Nordic SDK with many example projects.

https://developer.nordicsemi.com/nRF_SDK/

Nordic development zone.

<https://devzone.nordicsemi.com/tutorials/b/getting-started/posts/development-with-gcc-and-eclipse>

Download and set up Basic Software tools for EV-LN60G

nRF command line tool 10.2.1 or newer.

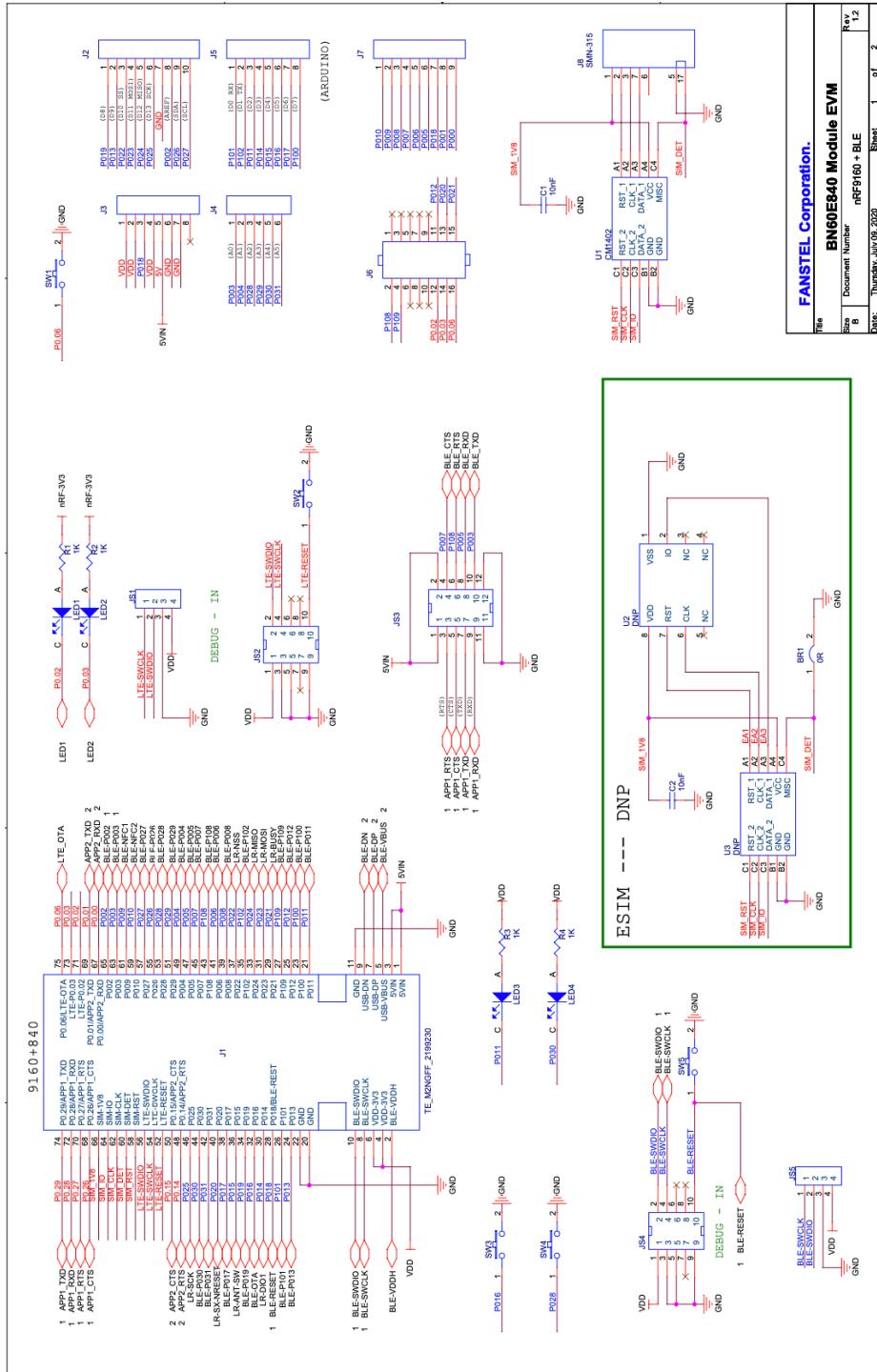
<https://www.nordicsemi.com/Software-and-Tools/Development-Tools/nRF-Command-Line-Tools/Download>

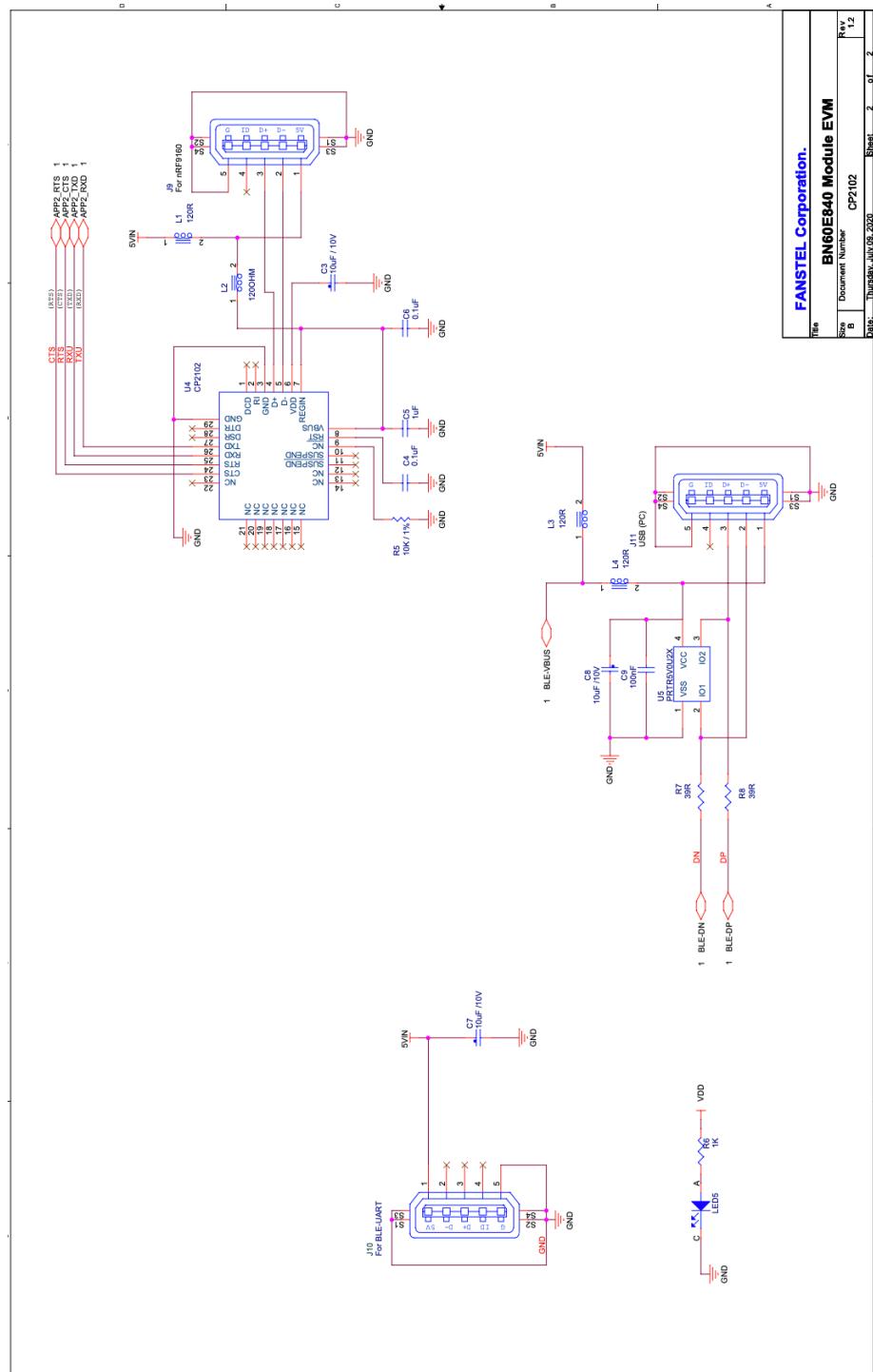
nRF Connect desktop 3.2.0 or newer.

<https://www.nordicsemi.com/Software-and-Tools/Development-Tools/nRF-Connect-for-desktop>

Evaluation LN60G

Board EV-Schematics





Battery Power Application

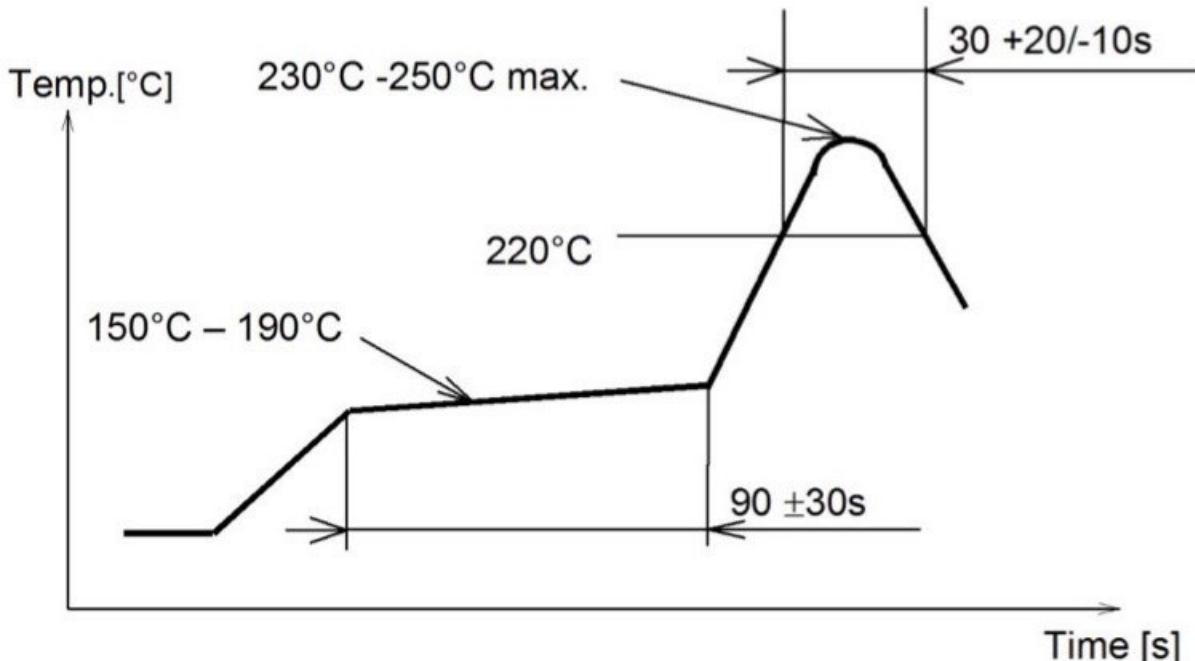
Two inductors required for DCDC converter are inside BT840F module. You can enable DCDC to lower power consumption.

The 32.768 kHz sleep crystal and load capacitors are on the M.2 module.

5. Miscellaneous

Soldering Temperature-Time Profile for Re-Flow Soldering

Maximum number of cycles for re-flow is 2. No opposite side re-flow is allowed due to module weight.



Cautions, Design Notes, and Installation Notes

Failure to follow the guidelines set forth in this document may result in degrading of the product's functions and damage to the product.

Design Notes

- (1) Follow the conditions written in this specification, especially the control signals of this module.
- (2) The supply voltage has to be free of AC ripple voltage (for example from a battery or a low noise regulator output). For noisy supply voltages, provide a decoupling circuit (for example a ferrite in series connection and a bypass capacitor to ground of at least 47uF directly at the module).
- (3) This product should not be mechanically stressed when installed.
- (4) Keep this product away from heat. Heat is the major cause of decreasing the life of these products.
- (5) Avoid assembly and use of the target equipment in conditions where the products' temperature may exceed the maximum tolerance.
- (6) The supply voltage should not be exceedingly high or reversed. It should not carry noise and/or spikes.

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(7) this product away from other high frequency circuits.

Notes on Antenna and PCB Layout

(1) Don't use a module with internal antenna inside a metal case.

(2) For PCB layout:

- Avoid running any signal line below module whenever possible,
- No ground plane below antenna,
- If possible, cut-off the portion of main board PCB below antenna.

Installation Notes

(1) Reflow soldering is possible twice based on the time-temperature profile in this data sheets. Set up the temperature at the soldering portion of this product according to this reflow profile.

(2) Carefully position the products so that their heat will not burn into printed circuit boards or affect the other components that are susceptible to heat.

(3) Carefully locate these products so that their temperatures will not increase due to the effects of heat generated by neighboring components.

(4) If a vinyl-covered wire comes into contact with the products, then the cover will melt and generate toxic gas, damaging the insulation. Never allow contact between the cover and these products to occur.

(5) This product should not be mechanically stressed or vibrated when reflowed.

(6) If you want to repair your board by hand soldering, please keep the conditions of this chapter.

(7) Do not wash this product.

(8) Refer to the recommended pattern when designing a board.

(9) Pressing on parts of the metal cover or fastening objects to the metal will cause damage to the unit.

(10) For more details on LGA (Land Grid Array) soldering processes refer to the application note.

Usage Condition Notes

(1) Take measures to protect the unit against static electricity. If pulses or other transient loads (a large load applied in a short time) are applied to the products, check and evaluate their operation before assembly on the final products.

(2) Do not use dropped products.

(3) Do not touch, damage or soil the pins.

(4) Follow the recommended condition ratings about the power supply applied to this product.

(5) Electrode peeling strength: Do not add pressure of more than 4.9N when soldered on PCB

(6) Pressing on parts of the metal cover or fastening objects to the metal cover will cause damage.

(7) These products are intended for general purpose and standard use in general electronic equipment, such as home appliances, office equipment, information and communication equipment.

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Storage Notes

- (1)The module should not be stressed mechanically during storage.
- (2)Do not store these products in the following conditions or the performance characteristics of the product, such as RF performance will be adversely affected:
 - Storage in salty air or in an environment with a high concentration of corrosive gas.
 - Storage in direct sunlight
 - Storage in an environment where the temperature may be outside the range specified.
 - Storage of the products for more than one year after the date of delivery storage period.
- (3) Keep this product away from water, poisonous gas and corrosive gas.
- (4) This product should not be stressed or shocked when transported.
- (5) Follow the specification when stacking packed crates (max. 10).

Safety Conditions

These specifications are intended to preserve the quality assurance of products and individual components. Before use, check and evaluate the operation when mounted on your products. Abide by these specifications, without deviation when using the products. These products may short-circuit. If electrical shocks, smoke, fire, and/or accidents involving human life are anticipated when a short circuit occurs, then provide the following failsafe functions, as a minimum.

- (1)Ensure the safety of the whole system by installing a protection circuit and a protection device.
- (2)Ensure the safety of the whole system by installing a redundant circuit or another system to prevent a dual fault causing an unsafe status.

Other Cautions

- (1)This specification sheet is copyrighted. Reproduction of this data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices.
- (2)Do not use the products for other purposes than those listed.
- (3)Be sure to provide an appropriate failsafe function on your product to prevent an additional damage that may be caused by the abnormal function or the failure of the product.
- (4)This product has been manufactured without any ozone chemical controlled under the Montreal Protocol.
- (5)These products are not intended for other uses, other than under the special conditions shown below. Before using these products under such special conditions, check their performance and reliability under the said special conditions carefully to determine whether or not they can be used in such a manner.
 - In liquid, such as water, salt water, oil, alkali, or organic solvent, or in places where liquid may splash.
 - In direct sunlight, outdoors, or in a dusty environment
 - In an environment where condensation occurs.
 - In an environment with a high concentration of harmful gas.

- (6) If an abnormal voltage is applied due to a problem occurring in other components or circuits, replace these products with new products because they may not be able to provide normal performance even if their electronic characteristics and appearances appear satisfactory.
- (7) When you have any question or uncertainty, contact Fanstel.

Packaging

Production modules are delivered in reel, 1000 modules in each reel.

FCC LABEL

The Original Equipment Manufacturer (OEM) must ensure that the OEM modular transmitter must be labeled with its own FCC ID number. This includes a clearly visible label on the outside of the final product enclosure that displays the contents shown below. If the FCC ID is not visible when the equipment is installed inside another device, then the outside of the device into which the equipment is installed must also display a label referring to the enclosed equipment

The end product with this module may subject to perform FCC part 15 unintentional emission test requirement and be properly authorized.

This device is intended for OEM integrator only.

■FCC RF RADIATION EXPOSURE STATEMENT:

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 30 centimeters between the radiator and your body.

6. Revision History

- July 2025, Ver. 0.90: The first draft release.
- July 2025, Ver. 0.99: draft revision

6 Contact Us

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LR62X1E, LR62X2E LoRa with Power Amplifier Modules

2025

Federal Communications Commission (FCC) Statement

15.21

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

15.105(b)

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 of the device.

FCC RF Radiation Exposure Statement

1) This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

2) This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 30 centimeters between the radiator and your body.

This equipment should be installed.

Note: The end product shall has the words "Contains Transmitter Module FCC ID: X8WLR62X1E"

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Canada, Industry Canada (IC)

This Class B digital apparatus complies with Canadian ICES-003

Cet appareil numérique de classe B est conforme à la norme NMB-003.

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

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 adioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Conformité des appareils de radiocommunication aux limites

d'exposition humaine aux radiofréquences (CNR-102)

L'ordinateur utilise des antennes intégrales à faible gain qui n'émettent pas un champ électromagnétique supérieur aux normes imposées par Santé Canada pour la population. Consultez le Code de sécurité 6 sur le site Internet de Santé Canada à l'adresse suivante : <http://www.hc-sc.gc.ca/>

L'énergie émise par les antennes reliées aux cartes sans fil respecte la limite d'exposition aux radiofréquences telle que définie par Industrie Canada dans la clause 4.1 du document CNR-102, version 4.

Caution: Exposure to Radio Frequency Radiation.

To comply with RSS 102 RF exposure compliance requirements, a separation distance of at least 30 cm must be maintained between the antenna of this device and all persons.

Pour se conformer aux exigences de conformité CNR 102 RF exposition, une distance de séparation d'au moins 30 cm doit être maintenue entre l'antenne de cet appareil et toutes les personnes.

(Modular approval) End Product Labeling:

The final end product must be labeled in a visible area with the following: "Contains IC: 4100A-LR62X1E".

Le produit final doit être étiqueté dans une zone visible avec ce qui suit "Contient IC : 4100A-LR62X1E "

LR62X1E, LR62X2E LoRa with Power Amplifier Modules

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OEM statement

The Original Equipment Manufacturer (OEM) must ensure that the OEM modular transmitter must be labeled with its own FCC ID number. This includes a clearly visible label on the outside of the final product enclosure that displays the contents shown below. If

the FCC ID is not visible when the equipment is installed inside another device, then the outside of the device into which the equipment is installed must also display a label referring to the enclosed equipment.

The end product with this module may subject to perform FCC part 15B unintentional emission test requirement and be properly authorized while installation to host(s), and platform, and integrator are obligated to have its manual or instruction with the related compliance warning to end users.

This device is intended for OEM integrator only

The end product with this module may be subject to re-evaluate RF exposure as per 47CFR §

2.1091, and §2.1093 if antenna or usage, including co-located usage of other transmitters, of the subsequent installation are changed.

This radio transmitter has been approved by FCC/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.

	Antenna Type	Brand	Model	Peak Gain(dBi)	Frequency Range (MHz)	Connector Type
1	Directional	Fanstel	ANT088	5.82	902-928	U.FHL
2	Dipole	Fanstel	ANT025	0.99	902-928	U.FHL
3	Chip	Fanstel	WAN031003F0391SM03	1.32	915	N/A
4	Internal	Mitek	515180030	3.49	902-928	U.FHL
5	Dipole	AFC	ANT042	4.2	915	U.FHL

Cet émetteur radio a été approuvé par FCC/Innovation, Science et Développement économique Canada pour fonctionner avec les types d'antennes répertoriés ci-dessous, avec le gain maximal autorisé indiqué. Les types d'antenne non inclus dans cette liste qui ont un gain supérieur au gain maximum indiqué pour tout type répertorié sont strictement interdits pour une utilisation avec cet appareil.

	Antenna Type	Brand	Model	Peak Gain(dBi)	Frequency Range (MHz)	Connector Type
1	Directional	Fanstel	ANT088	5.82	902-928	U.FHL
2	Dipole	Fanstel	ANT025	0.99	902-928	U.FHL
3	Chip	Fanstel	WAN031003F0391SM03	1.32	915	N/A
4	Internal	Mitek	515180030	3.49	902-928	U.FHL
5	Dipole	AFC	ANT042	4.2	915	U.FHL