

Manual for i-BLE module

1. Introduction

i-BLE is a BLE module compliant with Bluetooth Low Energy (BLE) 4.1 specification optimized for low-power applications. The core chipset is from Texas INSTRUMENTs, part number CC2640 and Antenna is PCB pattern Ant for 2.4GHz.

2. Hardware Architecture:

2.1 Main Module / Chipset Information

- **Core Chipset : CC2640, Texas INSTRUMENTs , 2.4GHz RF transceiver compatible with Bluetooth Low Energy (BLE) 4.1 specification.**
- **Antenna :PCB pattern Antenna for 2.4GHz Band.**

2.2 Circuit Block Diagram

The major internal and external block diagram of i-BLE Module is illustrated in Figure 1.

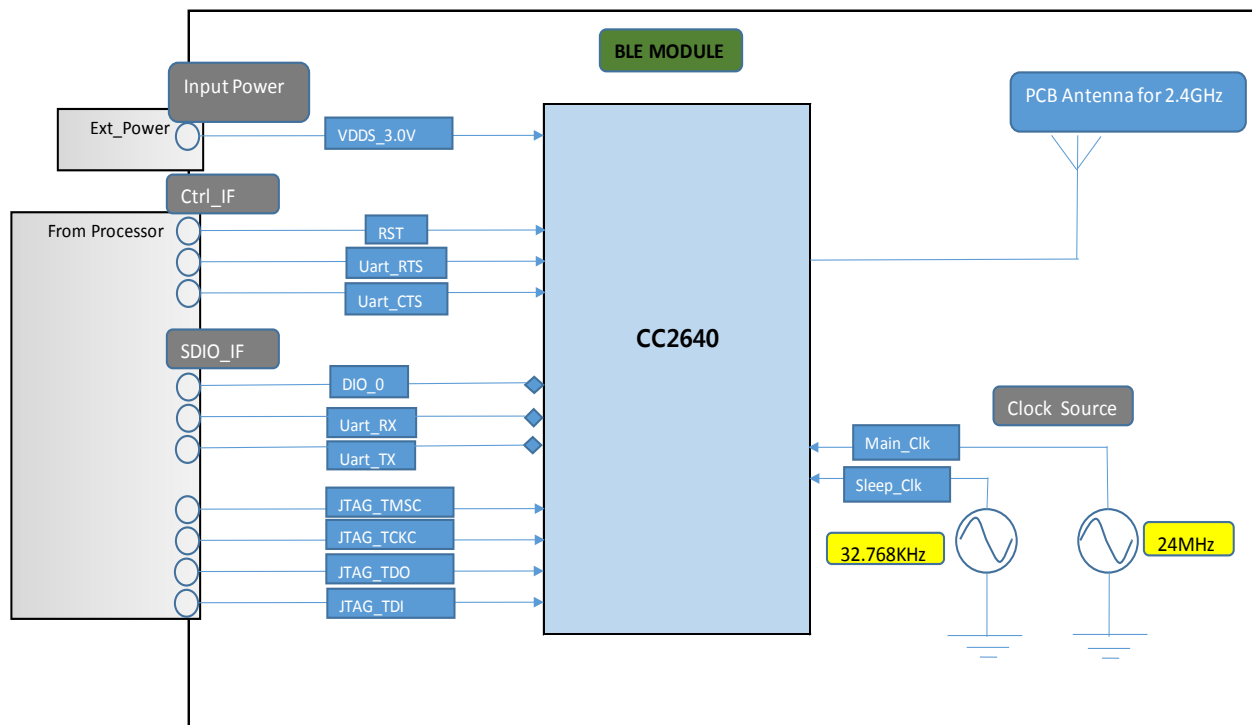


Figure 1. i-BLE Module block diagram and System Interface

3. Approval Statement

FCC Statement

To satisfy FCC exterior labeling requirements, the following text must be placed on the exterior of the end product.

Contains Transmitter module FCC ID: OELBM001

The final end product must be labeled in a visible area with the following " Contains TX
FCC ID: **OELBM001**"

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's 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 undesirable operation.

FCC Radiation Exposure Statement;

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with minimum distance 20cm between the radiator & body.

This module is intended for OEM integrator. The OEM integrator is still responsible for the FCC compliance

Requirement of the end product, which integrates this module.

20cm minimum distance has to be able to be maintained between the antenna and the users for the host

this module is integrated into. Under such configuration, the FCC radiation exposure limits set forth for an

population / uncontrolled environment can be satisfied.

Any change or modifications not expressly approved by the manufacturer could void the user's authority to

Operate this equipment.

In the users manual of the end of product, the end user has to be informed to keep at least 20cm

separation

with the antenna while this end product is installed and operated.

The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. If the size

Of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the user's manual; This device complies with Part 15 of FCC rules.

IC Information

This device complies with Industry Canada license-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.

Cet appareil est conforme avec Industrie Canada exempts de licence standard RSS (s). L'opération est soumise aux deux conditions suivantes:

- (1) cet appareil ne peut causer d'interférences, et*
- (2) cet appareil doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.*

The end product must be labeled to display the Industry Canada certification number of the module.

Contains transmitter module IC: 21003-BM001

Le dispositif d'accueil doivent être étiquetés pour afficher le numéro de certification d'Industrie Canada du module.

Contient module émetteur IC : 21003-BM001

IC 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 minimum distance 20cm between the radiator & your body.

This module is intended for OEM integrator. The OEM integrator is still responsible for the IC compliance requirement of the end product, which integrates this module. 20cm minimum distance has to be able to be maintained between the antenna and the users for the host this module is integrated into. Under such configuration, the IC RSS- 102 radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.

The final end product must be labeled in a visible area with the following " Contains TX IC : 21003-BM001"

User Information

This device complies with FCC & IC radiation exposure limits set forth for an uncontrolled environment. This device should be installed and must not be co-located or operating in conjunction with any other antenna or transmitter.

This device is intended only for OEM integrators under the following conditions:

1) The antenna must be installed such that 20cm is maintained between the antenna and users.

2) This module may not be co-located with any other transmitters or antennas.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements with this module installed. In the event that these conditions cannot be met, then the FCC & IC authorizations are no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product including this module and obtaining separate FCC & IC authorizations.

Cet appareil est conforme aux limites d'exposition rayonnement de la FCC et IC définies pour un environnement

non contrôlé . Cet appareil doit être installé et ne doit pas être co- localisées ou opérant en conjonction avec une autre antenne ou émetteur .

Cet appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes :

1) L' antenne doit être installée de telle sorte que 20 cm est maintenue entre l'antenne et les utilisateurs .

2) Ce module ne peut pas être co-localisé avec d'autres émetteurs ou des antennes .

Tant que deux conditions ci-dessus sont remplies , nouvel essai de l'émetteur ne sera pas tenu .

Cependant , l'intégrateur OEM est toujours responsable de tester leur produit final pour les exigences de conformité supplémentaires avec ce module installé .Dans le cas où ces conditions ne peuvent être remplies, les autorisations de la FCC et IC ne sont plus considérés comme valides et l'ID FCC ne peuvent pas être utilisés sur le produit final . Dans ces circonstances , l'intégrateur OEM sera chargé de réévaluer le produit final incluant ce module et l'obtention des autorisations de la FCC et IC distincts .

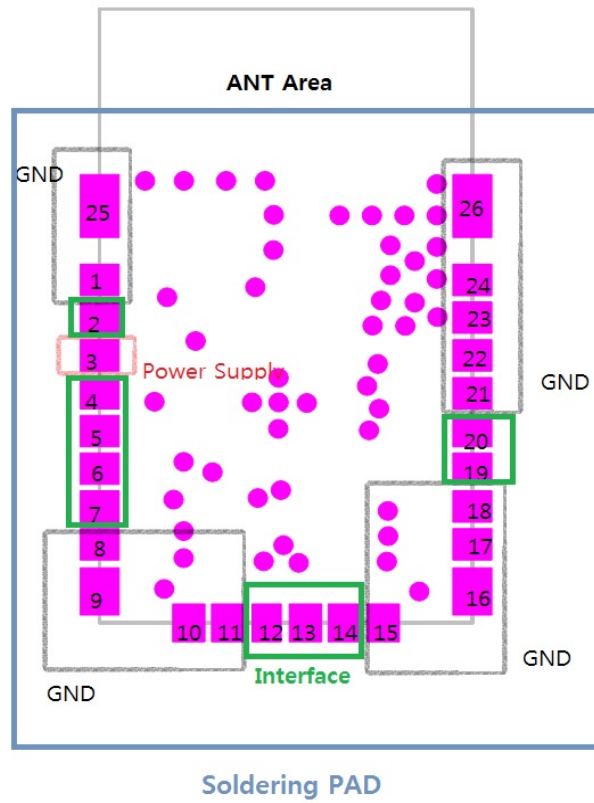
Any changed or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Toute changé ou modifications non expressément approuvés par la partie responsable de la conformité

pourraient annuler l'utilisateur `autorité de faire fonctionner cet équipement.

4. Installation

This i-BLE module must be installed in a device and not allow the user to replace nor modify it.



5.1 PIN Description

PIN No.	Symbol	Description
1	GND	GND
2	DIO_0	Data Bus for Host
3	VDDS	Supply 3.0V
4	JTAG_TMSC	data Bus for SW Download
5	JTAG_TCKC	data Bus for SW Download
6	JTAG_TDO	data Bus for SW Download
7	JTAG_TDI	data Bus for SW Download
8	GND	GND
9	GND	GND
10	GND	GND
11	GND	GND
12	RST	Reset for CC2640
13	Uart_RX	Data Bus for Host
14	Uart_TX	Data Bus for Host
15	GND	GND
16	GND	GND
17	GND	GND
18	GND	GND
19	Uart_RTS	Data Bus for Host
20	Uart_CTS	Data Bus for Host
21	GND	GND
22	GND	GND
23	GND	GND
24	GND	GND
25	GND	GND
26	GND	GND