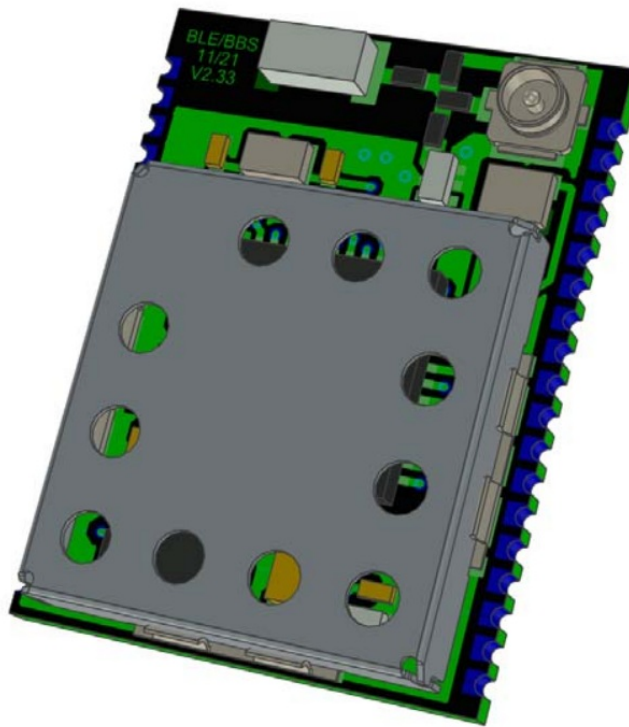# Biobedded Systems BLE0001 ProSmap Module User Guide

Integration Guide

ProSmap Module BLE0001 (-A / -B)
version: V1.0
date: 12.01.2022
manufacturer: Biobedded Systems GmbH

Version history

Version	Comment
1.0	Integration Guide BLE0001-A / BLE0001-B

Contents

Purpose

The purpose of this document is to provide information on how to use the ProSmap Module BLE0001-A (-B) as a radio module when integrating into a host product. Incorrect integration or use may infringe compliance rules meaning recertification may be required.

Module Description

The ProSmap Module BLE0001-A (-B) has a Bluetooth LE module based on the SoC CC2652R1 (o. CC2652RB)

from Texas Instruments. The Version (-A) can connected on
an external Antenna with a UF.L Connector. The module version (-B) contains a Chip antenna on the PCB.

RF-Characteristics

Rating	Min	Max	Unit
frequency band	2402	2483,5	MHz
Number of channels		40	
Channel Bandwidth	1	2	MHz

Modulation: GFSK

Integration into Host Products

The module will be reflow soldered into a host system.
The module is physically attached and held in place by solder Pins. All signals will be connected on solder pins.
BLE0001-A: connect an external Antenne via UF.L connector
BLE0001-B: The module with an internal antenna requires space for shielded components of the host system.

Antenna Information

BLE0001-A: The external Antenna (e.g. 2108792-1, TE-Connectivity) is placed in a suitable place inside the host product to ensure optimal operation.

Qualified Antenna Types
Manufacturer: TE-Connectivity
partner.: 2108792-1

Frequency Range (MHz)	2400-2500
VSWR	< 2.1:1
Average Efficiency	73%
Peak Gain	4.9dBi
Average Gain	-1.4dBi

for more details: see Datasheet 2108792-1

BLE0001-B: The antenna on board is a 2.4GHz Chip antenna with Peak Gain: of 2.7 dBi @2.4 GHz.
It is important that the module is placed in a suitable place inside the host product to ensure optimal operation. Do not place it close to the metal casing.
Specification Chip-antenna

5.0.1 ANTENNA PERFORMANCE	Requirements (For Configure 1)
P/N	
FREQUENCY RANGE	2.4-2.5GFiz
PEAK GAIN(MAX)	2.7dBi
AVERAGE TOTAL EFFICIENCY	>80%
RETURN LOSS	< -6 dB

for more details: see Datasheet PS-2119640001

End Product Labeling

A label is to be fitted to the exterior of all products containing the ProSmap module. The label must contain the words "Contains FCC ID: 2A3TB-BLE0001" (for FCC) and "Contains IC: 28044-BLE0001" (for ISED).

FCC / Host Product User Guide Text

This device complies with Part 15 of 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 causes undesired operation.
Caution: Any changes or modifications to the equipment not expressly approved by the party responsible for compliance could void the user s authority to operate the equipment.

This equipment has been tested and found to comply within 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:

- Re-orient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a different circuit from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

This device and its antenna(s) must not be co-located or operated in conjunction with any other antenna or transmitter except in accordance with FCC's multi-transmitter procedures.
IMPORTANT NOTE: FCC Radiation Exposure Statement; Co-location of this module with another transmitter that operates simultaneously are required to be evaluated using the FCC multi-transmitter procedures.
This device complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device complies with the safety requirements for RF exposure for portable use conditions in accordance with FCC rule part 2.1093'

ISED / Host Product User Guide Text
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.
This device and its antenna(s) must not be co-located with any other transmitters except in accordance with IC multi-transmitter product procedures.

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with ISED Canada RSS-102 radiation exposure limits set forth for the general population. This equipment complies with the safety requirements for RF exposure in accordance with RSS-102 Issue 5 for portable use conditions.

INTEGRATION INFORMATION FOR THE OEM

It is the responsibility of the OEM / Host product manufacturer to ensure continued compliance with FCC and ISED Canada certification requirements once the module is integrated into the Host product. Please refer to the Datasheet for additional information. The module is subject to the following FCC rule parts: 15.207, 15.209, 15.247

Host Product Labelling

The host product must be labeled with the following information:
„Contains FCC ID: 2A3TB-BLE0001" (for FCC) „Contains IC: 28044-BLE0001" (for ISED)

"This device complies with Part 15 of 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 causes undesired operation."
Important Notice to OEMs:
The FCC Part 15 text must go on the Host product unless the product is too small to support a label with the text on it. It is not acceptable just to place the text in the user guide.

E-Labeling

It is possible for the Host product to use E-labeling providing the Host product supports the requirements of FCC KDB 784748 D02 E-labeling and ISED Canada RSS-Gen, section 4.4.
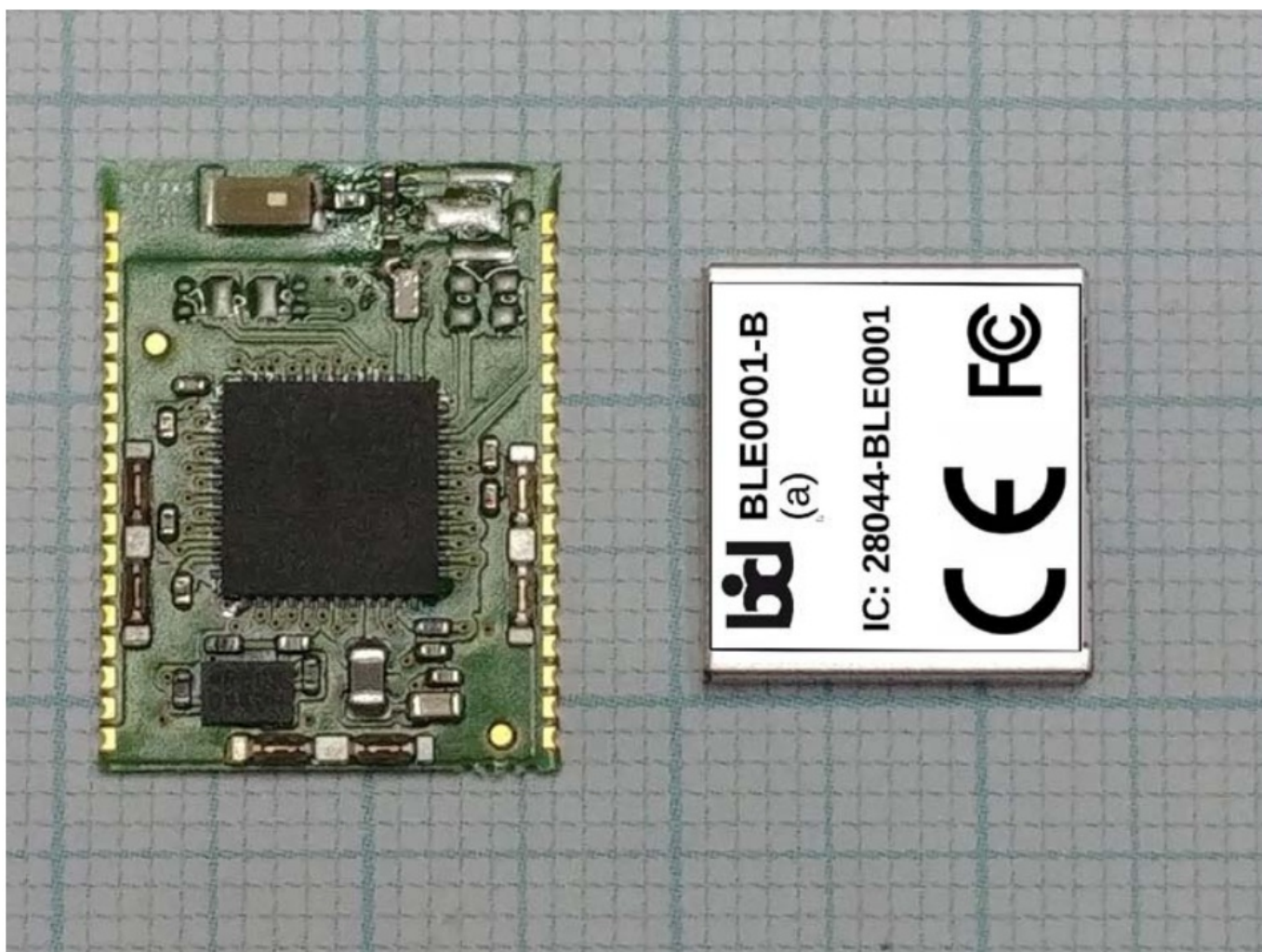E-labeling would be applicable for the FCC ID, ISED Canada certification number, and the FCC Part 15 text.

Changes in Usage Conditions of this Module
If the device is co-located with multiple antennas, the module could be subject to an FCC Class 2 Permissive Change and an ISED Canada Class 4 Permissive Change policy in accordance with FCC KDB 996396 D01 and ISED Canada RSP-100.
In accordance with FCC KDB 996369 D03, section 2.9, test mode configuration information is available from the Module manufacturer for the Host (OEM) product manufacturer.

Product Foto

Documents / Resources

Biobedded Systems BLE0001 ProSmap Module [pdf] User Guide
BLE0001, 2A3TP-BLE0001, 2A3TPBLE0001, BLE0001 ProSmap Module, ProSmap Module

References

- **✝ biobedded systems GmbH - Softwarelösungen für anspruchsvolle Aufgaben**