User Manual S&B Module

1 Content

2 Change control

Version	Datum	Chane description	Name
1	07.02.2018	First edition	Benjamin Schlegel
2	16.04.2018	Added Declaration of Conformity for USA and Canada	Benjamin Schlegel
3	18.04.2018	Added labelling information with FCC and IC ID	Benjamin Schlegel

Erstellt von:	Vorname Name
Dokumentenname:	User Manual S&B Module
Dateiname:	User Manual S&B Module
Version:	1
Klassifizierung:	Vertraulich - Weitergabe an Dritte nur mit schriftlicher Genehmigung der FSM AG.
Hinweis:	Versionen außerhalb des DMS sind Informationskopien und unterliegen nicht dem Änderungsdienst.

3   Scope

The scope of user manual is to give a manual for the application of the module. The design of the BLE Module is only allowed to be used by *FSM AG*. The manufacturing is only permitted with the production line of *FSM AG*.

Therefore the scope of the user manual is internal use of *FSM AG* only.

4   Power up

After supplying 1.8V to 3.6V to the voltage supply line of the module the internal LDO supplies the BLE Controller *NRF51822*. The POR reset time of the controller is shown in figure 1 and table 1.
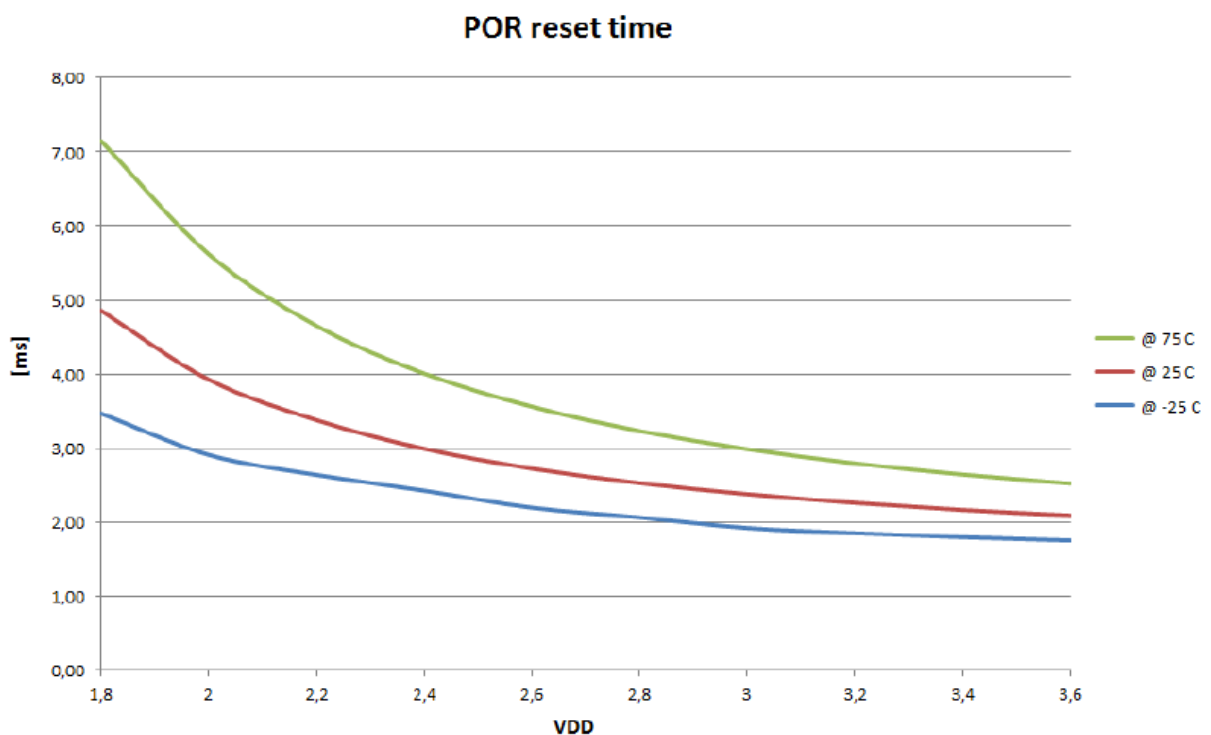

Figure 1: POR Reset time as provided by the manufacturer *Nordic Semiconductor*

Table 1: Rise time of internal supply voltage Vdd of the controller NRF51822

VDD	Rise Time from 10% to 90% of VDD
1.8	570 µs
3.0	605 µs
3.6	635 µs

After the necessary rise time the controller *NRF51822* starts to execute the code.

5 Control of the radio peripheral

The radio peripheral of the BLE Controller *NRF51822* is controlled by the BLE Stack *Softdevice S130 V2.0.1* which is provided by *Nordic Semiconductor*. The use of the module is only permitted if a BLE Stack from *Nordic Semiconductor* is used. The BLE Stack manages that the user application on the controller *NRF51822* can't control the radio peripheral of the controller *NRF51822* in a way that is going against regulatory standards.

With the use of a certified BLE Stack it is not possible to misuse the module and operate it against regulatory standards.

User application and BLE Stack is programmed in the embedded flash of the controller *NRF51822* in the production process by FSM AG. It is not allowed to change embedded flash of the controller *NRF51822* after it leaves the production line of FSM AG.

6 Usage of GPIO

The controller *NRF51822* has 28 freely configurable GPIO Pins. These Pins are all free to use and can be connected by matching the traces defined on the module. As descripted in chapter 5 there is no interaction between the programming of the peripherals of the controller *NRF51822* and the radio peripheral. So its save to execute any program in the controller *NRF51822* as long chapter 5 is satisfied.

7 Labeling

Using a permanently affixed label, the modular transmitter will be labeled with its own FCC identification number, and, if the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. The same applies to the IC (Industry Canada) identification number.

This exterior label can use wording such as the following:

For the USA:
"Contains Transmitter Module FCC ID: 2APJE-SB" or "Contains FCC ID: 2APJE-SB". Any similar wording that expresses the same meaning may be used.
For Canada:
"Contains Transmitter Module IC: 23679-SB" or "Contains IC: 23679-SB". Any similar wording that expresses the same meaning may be used."

8 DECLARATIONS OF CONFORMITY

USA:
DECLARATION OF CONFORMITY
according to FCC Part 15:
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.

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

Canada:

DECLARATION OF CONFORMITY

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