

---

## The BlueNRG-LP device limitations

### Silicon identification

This errata sheet applies to the following STMicroelectronics BlueNRG-LP devices:

Order code	Package	Identification information of the device <sup>(1)</sup>	Device cut
BlueNRG-345xy	QFN32, QFN48, WLCSP49	0x120	2.0
BlueNRG-355xy	QFN32, QFN48, WLCSP49	0x120	2.0

1. Value as read from register system controller (SYSCFG) - DIE\_ID register (0x40000000)

Note: For each device limitation the following information is provided:

- Description: limitation description
- Impact: limitation impact
- Workaround: possible workaround if any

## 1 Limitations

### 1.1 Host wake-up source does not wake the BlueNRG-LP from DEEPSTOP

**Description:**

The wake-up block of the radio manages a Host wake-up timer in parallel to the Bluetooth® wake-up timer. This timer can be used as an additional slow clock timer available in the SoC to exit the device from a DEEPSTOP without launching any Bluetooth sequence.

**Impact:** This timer does not raise any wake-up request to the power controller of the device.

**Workaround:**

1. Use the RTC block to wake up the system
2. A software workaround is provided in the ST BlueNRG-LP SDK (STSW-BNRGLP-DK)

### 1.2 Unsupported system and Bluetooth LE clock configuration combinations

**Description:**

The following system and Bluetooth Low Energy (LE) clock configuration combinations are not supported

1. System\_Clock=32 MHz and Ble\_Clock=32 MHz
2. System\_Clock=16 MHz and Ble\_Clock=16 MHz

**Impact:** A device crash could be observed when using Bluetooth Low Energy applications with host wake-up timer

**Workaround:** None

### 1.3 HSE phase noise

**Description**

HSE phase noise is observed when the high speed external IO current control register is set to value > 4 (max. 0.61 mA/V).

**Impact**

HSE phase noise is observed.

**Workaround**

High speed external IO current control register setting to a value < 5 is highly recommended (RCC\_RFSWHSECR register, bits GMC[2:0]).

### 1.4 RTC key lost

**Description**

RTC loses the keys inserted to unlock the calendar register access when the device goes to deepstop mode, due to PRESETn that should come from rcc\_v12o instead of rcc\_v12i.

**Impact**

RTC calendar update functionality is affected when system wakes up from DEEPSTOP mode.

**Workaround**

1. Rewrite the key in the write protect register (WPR) after a DEEPSTOP

### 1.5 ADC occasional mode does not work

**Description**

The occasional mode of the ADC allows catching one sample of the Vbat or the temperature sensor during an analog audio mode or full mode sequence. Since the setup time of the temperature sensor is too high and sampling only the first value provides a wrong value, the measure is good only from the second sample.

**Impact**

The temperature sensor occasional mode strategy (doing one measure among a continuous flow of measurements on another channel) does not work

**Workaround:**

Two possible options to insert a temperature measurement among other channel measurements are the following:

1. Sequence mode with a downsampling ratio =1
  - The sequence mode can be composed of up to 16 conversions
  - Use the ADC mode in continuous regular sequence mode, with a downsampling ratio =1
  - Program 14 times the channel that has to be continuously converted
  - Program 2 consecutive times, the thermal sensor
  - Read all data on the « DS\_DATAOUT\_REG » register
  - Discard the first measure of the thermal sensor
2. Sequence mode with a downsampling ratio different from 1
  - The sequence mode can be composed of up to 16 conversions
  - Use the ADC mode in continuous regular sequence mode, with a downsampling ratio from 4 to 128 (downsampling ratio =2 is not recommended)
  - Program 15 times the channel that has to be continuously converted
  - Program 1 time, the thermal sensor
  - Read all data on « DS\_DATAOUT\_REG »"

## Revision history

**Table 1. Document revision history**

Date	Version	Changes
24-Jul-2020	1	Initial release.

---

## Contents

<b>1</b>	<b>Limitations</b> .....	<b>2</b>
1.1	Host wake-up source does not wake the BlueNRG-LP from DEEPSTOP .....	2
1.2	Unsupported system and Bluetooth LE clock configuration combinations .....	2
1.3	HSE phase noise .....	2
1.4	RTC key lost .....	2
1.5	ADC occasional mode does not work .....	2
	<b>Revision history</b> .....	<b>4</b>

**IMPORTANT NOTICE – PLEASE READ CAREFULLY**

STMicroelectronics NV and its subsidiaries (“ST”) reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers’ products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. For additional information about ST trademarks, please refer to [www.st.com/trademarks](http://www.st.com/trademarks). All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2020 STMicroelectronics – All rights reserved