

FCC SAR Exclusion Report

Product name	BLE Radio Module
Applicant	National Instruments
FCC ID	2AGJ2-001
ISED ID	3523A-001

Test report No. : 181100648 FCC RF exposure Ver 1.00

Laboratory information

Documentation

The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 10 years at Telefication Netherland.

Testing Location

Test Site	Telefication BV
Test Site location	Edisonstraat 12a 6902 PK Zevenaar The Netherlands Tel. +31889983600 Fax. +31316583189

Revision History

Version	Date	Remarks	By
v1.00	22-02-2019	Release version	RvB

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1 General Description

1.1 Applicant

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1.2 Manufacturer

Manufacturer name: National Instruments
Address: 11500 N, Mopac Expressway, Austin, Texas, United States of America
Telephone: 512-683-9233
E-mail: Kristine.song@ni.com
Contact name: Ms. K. Song

1.3 Tested Equipment Under Test (EUT)

Product name: NI RM10
Brand name: National Instruments
Product type: BT 5.0 Module
FCC ID: 2AGJ2-001
ISED ID: 3523A-001
Software version: --
Hardware version: --

1.4 SAR Measurement Evaluation

1.4.1 Maximum Output Power

The maximum radiated power including tune-up tolerance is shown as below.

Mode	Output power (dBm)
Bluetooth LE	18.69*

* from Telefication report 181100648 001 v1.00

1.4.2 SAR Testing Exclusions, Portable use

According to KDB 447498 D01, the SAR test exclusion condition is based on source-based time-averaged maximum conducted output power, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions. The SAR exclusion threshold is determined by the following formula.

- For the test separation distance ≤ 50 mm

$$\frac{\text{Max. Tune up Power}_{(mW)}}{\text{Min. Test Separation Distance}_{(mm)}} \times \sqrt{f_{(GHz)}} \leq 3.0$$

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

- For the test separation distance > 50 mm, and the frequency at 100 MHz to 1500 MHz

$$\left[(\text{Threshold at 50 mm in Step 1}) + (\text{Test Separation Distance} - 50 \text{ mm}) \times \left(\frac{f_{(MHz)}}{150} \right) \right]_{(mW)}$$

- For the test separation distance > 50 mm, and the frequency at > 1500 MHz to 6 GHz

$$[(\text{Threshold at 50 mm in Step 1}) + (\text{Test Separation Distance} - 50 \text{ mm}) \times 10]_{(mW)}$$

Mode	Max. Tune-up Power (dBm)	Max. Tune-up Power (mW)	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?
Bluetooth 5.0	18.69	73.96	39	2.94	No

Note:

- When separation distance ≤ 50 mm and the calculated result shown in above table is ≤ 3.0 , the SAR testing exclusion is applied.
- When separation distance > 50 mm and the device output power is less than the calculated result (power threshold, mW) shown in above table, the SAR testing exclusion is applied.

1.5 Summary

Since the SAR testing for all device orientations apply SAR test exclusion per KDB 447498, SAR testing for this device is not required.