

FCC SAR Exclusion Report

Product name : OfficeSense
Applicant : Head Electronics B.V.
FCC ID : 2AXRUP191114

Test report No. : 200801065 005 Ver 2.0

Laboratory information

Accreditation

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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 Netherlands.

Testing Location

Test Site	Test Site location
Kiwa Telefication	Wilmersdorf 50 7327 AC Apeldoorn The Netherlands

Revision History

Version	Date	Remarks	By
v0.5	07/12/2020	Draft Version	K.K
V1.0	23-02-2021	Initial release version	PvW
V2.0	08-04-2021	Updated FCC ID	PvW

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1 General Description

1.1 Applicant

Client name:	Head Electronics B.V.
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Contact name:	Tom Klijn
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1.2 Manufacturer

Client name:	Head Electronics B.V.
Address:	Ambachtsweg 17 Katwijk NETHERLANDS
Contact name:	René Huiskens
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1.3 Tested Equipment Under Test (EUT)

Product name:	OfficeSense
Brand name:	Head Electronics B.V.
Product type:	Wireless battery powered room occupancy and climate sensor
FCC ID:	2AXRUP191114
Model(s):	OfficeSense
Software version:	V2.1
Hardware version:	V03
Date of receipt:	10-11-2020
Tests started:	01-12-2020
Testing ended:	04-12-2020

1.4 SAR Measurement Evaluation

1.4.1 Maximum Output Power

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

Mode	Max Power Level
LoRa	12,18 dBm

* from Telefication report 200801065 004.

1.4.2 SAR Testing Exclusions

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

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

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

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

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

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

Mode	Max. Tune-up Power (dBm)	Max. Tune-up Power (mW)	Ant. to Surface (mm)	Calculated Result (mW)	Require SAR Testing?
LoRa	12.18 dBm	16.5 mW	200	905	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.