



Evaluation Report: Sensative_1201000_MPE_0001_V1.0	
Evaluation report for:	Sensative 1201000
FCC ID:	2AHIR-002
Client Name:	Sensative AB
Client address	Mobilvägen 10 223 62 Lund, Sweden
According to:	FCC 47 CFR §2.1091
Report Issued By:	Niall Forrester / Technical Manager
Issue Date:	2017-04-26
On Behalf of:	CDTL Europe, Tech Mahindra Ltd.
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Review Date:	2017-04-26

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This test report includes no annexes. The total number of pages is 7

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1. GENERAL CONDITIONS

1. This report refers only to the item or items that have undergone the evaluation (see section 3. "Details of Device").
2. This document supersedes all previous versions of the report. For details, please refer to "Amendment History"
3. This report does not constitute or imply on its own an approval of the device by the Certification Bodies or competent Authorities.
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2. APPLICANT DETAILS

Table 1 Applicant Details	
Company Name	Sensative AB
Address:	Mobilvägen 10
	223 62 Lund
	Sweden
e-mail	info@sensative.com
Telephone:	-
Contact Name	Mats Pettersson
e-mail	Mats.pettersson@sensative.com
Telephone:	-

3. DETAILS OF DEVICE

Strips by Sensative is a sensor product family designed to monitor and protect homes. With ZigBee technology, Strips can be used with most ZigBee smart home systems. A Silabs manufactured EM357 chip-set is used as transceiver, a separate PCB chip antenna is used together with a matching network.

Table 3.1 Details of device

Description of device:	Magnetic sensor using ZigBee radio technology
Manufacturer:	Sensative AB
Model Name:	1201000
FCC ID	2AHIR-002
Hardware Version	R1B

Table 3.2 Wireless Technologies and Frequency Bands supported by the DUT

Technology	Band	Frequency Range (Tx)	Power Class	Modulations	Evaluation Performed
ZigBee	2.4 GHz	2405 MHz – 2480 MHz	N/A	OQPSK	YES

Table 3.3 DUT Transmitter Characteristics

Technology	Band	Max. Avg. Output Power*	Antenna Gain
ZigBee	2.4 GHz	6.7 dBm	3.5 dBi

*These figures represent the maximum average conducted output power attainable by the device type, including manufacturing tolerances. They are based on the manufacturer's own data.

4. EVALUATION

4.1 SUMMARY

At 20cm, the device is compliant with the “General Population / Uncontrolled” requirements set out in FCC 47 CFR §1.1310 Table 1 (B) for all wireless technologies supported by the device.

See chapter 5 for further details of the tests.

4.2 APPLICABLE STANDARDS

- FCC 47 CFR §2.1091
- FCC 47 CFR §1.1307
- FCC 47 CFR §1.1310
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- IEEE C95.1-2005

5. DETAILED MPE CALCULATIONS

The Power Density at 20cm separation distance has been calculated for the transmitter technology supported by the device according to a re-arrangement of the Friis formula, as below:

:

$$S = \frac{P * G}{4\pi * r^2}$$

Where:

“S” is power density in mW/cm²

“P” is maximum avg. conducted power (incl. tolerances) in mW according to data from the manufacturer

“G” is the peak antenna gain (numerical) according to data from the manufacturer

“r” is the separation distance (20 cm)

Since the device is not capable of simultaneous transmissions for any of these technologies, each technology has been evaluated individually.

MPE Calculations for Mobile Equipment								
General population/ Uncontrolled use								
Technology	Frequency Range (MHz)	[P] (dBm)	P (mW)	[G] (dBi)	G (Numerical)	r (cm)	S (mW/cm ²)	Limit* (mW/cm ²)
ZigBee	2405 – 2480	6.7	4.68	3.5	2.24	20	0.00209	1.00

*The limits listed are from FCC 47 CFR §1.1310 Table 1 (B): “Limits for General Population/Uncontrolled”

For uncontrolled exposure from 1500MHz to 100000MHz, the limit is 1 mW/cm²

6. AMENDMENT HISTORY

Version	Date	Author(s)/ Function	Reviewed by	Approved by	Nature of Changes
Draft	2017-04-25	Niall Forrester			First draft
1.0	2017-04-26	Niall Forrester	Kaushlendra Tripathi	Håkan Sjöberg	First Release