

<b>Prüfbericht-Nr.:</b> <i>Test report no.:</i>	<b>60448576-001</b>	<b>Auftrags-Nr.:</b> <i>Order no.:</i>	23870393 030	Seite 1 von 6 <i>Page 1 of 6</i>
<b>Kunden-Referenz-Nr.:</b> <i>Client reference no.:</i>	-	<b>Auftragsdatum:</b> <i>Order date:</i>	2020.06.24	
<b>Auftraggeber:</b> <i>Client:</i>	Sensative AB			
<b>Prüfgegenstand:</b> <i>Test item:</i>	Multi sensor strip			
<b>Bezeichnung / Typ-Nr.:</b> <i>Identification / Type no.:</i>	FCC ID: 2AHIR-004			
<b>Auftrags-Inhalt:</b> <i>Order content:</i>	RF Exposure Evaluation			
<b>Prüfgrundlage:</b> <i>Test specification:</i>	FCC 47 CFR 2.1091 IEEE Std. C95.1:2005			
<b>Wareneingangsdatum:</b> <i>Date of sample receipt:</i>	2020.06.24			
<b>Prüfmuster-Nr.:</b> <i>Test sample no.:</i>	N/A			
<b>Prüfzeitraum:</b> <i>Testing period:</i>	N/A – N/A			
<b>Ort der Prüfung:</b> <i>Place of testing:</i>	Lund, Sweden			
<b>Prüflaboratorium:</b> <i>Testing laboratory:</i>	TÜV Rheinland Sweden			
<b>Prüfergebnis*:</b> <i>Test result*:</i>	Pass			
<b>überprüft von:</b> <i>reviewed by:</i>		<b>genehmigt von:</b> <i>authorized by:</i>		
<b>Datum: 2021.09.29</b> <i>Date:</i>	Signed by: Sam Ebadeh	<b>Datum: 2021.09.29</b> <i>Date:</i>	Signed by: Per Isacson	
<b>Stellung / Position:</b>	Technical Expert	<b>Stellung / Position:</b>	Managing Director	
<b>Sonstiges / Other:</b>				
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend N/A = nicht anwendbar	4 = ausreichend N/T = nicht getestet
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory N/A = not applicable	4 = sufficient N/T = not tested
<p><b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b> <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts.</i></p>				

v05

## Revision History<sub>60448576-00160448576-001</sub>

Revision	Date	Remarks	Author
001	2021.08.27	First release	Sam Ebadeh
002	2021.09.29	Corrected FCC ID	Sam Ebadeh
Note: Latest revision report will replace all previous reports			
This report based on RF Exposure FCC 47CR 2-1091 IEEE C95 Template version 1.1			

## Statement of Compliance

Evaluation was performed based on FCC 47 CFR 2.1091 and IEEE C95.1:2005, together with the “General Population / Uncontrolled” requirements set out in FCC 47 CFR 1.1310 Table 1 (B)

The calculations below show that the FCC ID: 2AHIR-003 device is compliant with these requirements at a distance of 20cm for all supported wireless transmitter technologies.

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## 1. GENERAL INFORMATION

### 1.1 Test Site

Test Facility:	TÜV Rheinland Sweden AB
Address:	Mobilvägen 10
	223 62 Lund
	Sweden
Swedac Registration Number:	10325
FCC Test Firm Registration Number:	517458
ISED Test Site Registration Number:	24753

### 1.2 Client Information

Company Name:	Sensitive AB
Address:	Mobilvägen 10
	223 62 Lund
	Sweden
Contact Person:	Lars Jonsson
Contact e-Mail / Telephone	<a href="mailto:Lars.Jonsson@sensitive.com">Lars.Jonsson@sensitive.com</a> / +46 70 302 37 67

## 2. PRODUCT INFORMATION

### 2.1 General Description

<b>Model name:</b>	Multi sensor strip
<b>Manufacturer:</b>	Sensitive AB
<b>Model number / Marketing name:</b>	1300002, 1301002, 1302002, 1303002, 1304002, 1305002, 1306002
<b>FCC ID:</b>	FCC ID: 2AHIR-004
<b>Description:</b>	Multi sensors using LoRa radio technology
<b>Ancillary Equipment:</b>	N/A

### 2.2 Device Usage and Evaluation Distance

The multi sensor strip is used for several purposes such as detecting light, water leakage, vibration, presence, temperature, air humidity and if something is opened such as a window or door. The strip is used for indoor and outdoor usage. The strip is less than 3 mm thick and adhesive so it is easy to mount on multiple surfaces.

An evaluation distance of 20 cm has been selected.

### 2.3 Wireless Technologies and Bands Supported by the EUT

Technology	Band	Frequency Range (Tx)	Evaluation Performed
LoRa	900 MHz	902.3 MHz – 914.9 MHz	YES

### 2.4 Simultaneous Transmission Configurations

No simultaneous transmission capabilities.

### 2.5 Conducted Power and Antenna Gain

Technology	Band	Max. Conducted Output Power (dBm)	Max. Time-Averaged Output Power (dBm)*	Antenna Gain (dBi)
LoRa	900 MHz	15.1	15.1	+2.3 dBi

### 3. TEST METHODS

#### 3.1 Test Standards

Testing was performed according to the following standards / references

Standard	Version	Description
47 CFR 2.1091	-	Radiofrequency radiation exposure evaluation: mobile devices.

#### 3.2 Additional references

Standard	Version	Description
IEEE Std. C95.1	2005	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz

#### 3.3 Limits

Extract from 47 CFR § 1.1310 - Radiofrequency radiation exposure limits

Table 1B  
Limits for Maximum Permissible Exposure (MPE)  
(Limits for general Population / Uncontrolled Exposure)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minutes)
0.3 - 1.34	614	1.63	*100	30
1.34 - 30	824/f	2-19/f	*180/f <sup>2</sup>	30
30 - 300	27.5	0.073	0.2	30
300 - 1500	-	-	f/1500	30
1500 - 10000	-	-	1.0	30

Notes:

1.  $f$  = frequency in MHz
2. \* = Plane-wave equivalent power density

## 4. EVALUATION DETAILS

### 4.1 Power Density (S) at 20cm Distance for Each Band and Technology

The Power Density at 20cm separation distance has been calculated for each of the transmitter technologies 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/cm<sup>2</sup>
- “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)

Technology	Band	Freq* (MHz)	Power (dBm)	P (mW)	Gain (dBi)	G (Num.)	r (cm)	S (mW/cm <sup>2</sup> )	Limit ** (mW/cm <sup>2</sup> )
LoRa	900 MHz	902.30	15.10	32.36	2.30	1.70	20	0.010933	0.601533

\*The lowest frequency in each band has been chosen, to give the most conservative limit

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