Test report issued under the responsibility of:
EMITECH MONTPELLIER laboratory
MRA US-EU Designation Number: FR0006
Canadian CAB Identifier: FR0003

RF EXPOSURE TEST REPORT

KDB 447498 D01 V06
RSS-102 - Issue 5, March 2015

Company ..... :	**EDGE TECHNOLOGIES SAS**
Address..... :	735 RUE DU LIEUTENANT PARAYRE 13290 - AIX EN PROVENCE FRANCE

Test item description. ..... :	**Autonomous connected industrial temperature sensor**
Trade Mark. ..... :	EDGE TECHNOLOGIES
Manufacturer..... :	EDGE TECHNOLOGIES SAS
Model/Type reference..... :	(SENSA915A / SENSAIO) inside HMN: SENSA.TEMP
FCC ID..... :	2A2T5-SENSA915A
IC. ..... :	29177-SENSA915A
Ratings..... :	2.4 V_{DC} to 3.7 V_{DC}

Testing Laboratory ..... :	**EMITECH MONTPELLIER laboratory**
Address..... :	145 rue de Massacan 34740 VENDARGUES FRANCE

Report Reference No..... :	**RE-EVE-22P171-2A**
Test procedure. ..... :	FCC IC Certification
Diffusion..... :	Mr LEVEQUE
Applicant's name. ..... :	EDGE TECHNOLOGIES SAS
Date of issue..... :	June 2, 2023
Total number of pages..... :	9
Revision. ..... :	0
Compiled by..... :	Morgan PATEY
Approved by (+ signature). ..... :	Olivier HEYER (Laboratory Manager)

Duplication of this test report is only permitted for an integral photographic facsimile. It includes the number of pages referenced here above. This document is the result of testing a specimen or a sample of the product submitted. It does not imply an assessment of the conformity of the whole manufactured products of the tested sample.

REPORT INDEX:

REVISION HISTORY:

Revision	Date	Modified pages	Modifications
0	June 2, 2023	/	Creation

1. GENERAL INFORMATIONS

This document submits the results of RF exposure valuation on the equipment **Autonomous connected industrial temperature sensor SENSA.TEMP** (denominated hereafter E.U.T.: equipment under test) according to document(s) listed in §2 of this test report.

TESTING PROCEDURE AND TESTING LOCATION:	
Testing Location ..... :	EMITECH MONTPELLIER laboratory
Address. ..... :	145 rue de Massacan 34740 VENDARGUES FRANCE
Test procedure. ..... :	FCC IC Certification
Tested by ..... :	Morgan PATEY
Test supervisor ..... :	None
Date of receipt of test item ..... :	N/A
Date (s) of performance of tests ..... :	November 04th of 2022

APPLICANT'S GENERAL INFORMATIONS:	
Company name ..... :	EDGE TECHNOLOGIES SAS
Company address. ..... :	735 RUE DU LIEUTENANT PARAYRE 13290 - AIX EN PROVENCE FRANCE
Person(s) present during the tests. ..... :	Mr LEVEQUE
Responsible. ..... :	Mr LEVEQUE

GENERAL REMARKS:

The information in italics is declared by the manufacturer and is under his responsibility
The test results presented in this report relate only to the object tested.
The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.

"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.
Throughout this report the decimal separator is point.

POSSIBLE TEST CASE VERDICTS:	
Test case does not apply to the test object.:	N/A
Test case not performed..... :	N/P
Test object does meet the requirement..... :	P (Pass)
Test object does not meet the requirement. ..... :	F (Fail)

DEFINITIONS AND ABBREVIATIONS:

E.U.T.	Equipment Under Test	AE	Ancillary Equipment	Pk	Peak detector
RBW	Resolution BandWidth	VBW	Video BandWidth	QP	Quasi-peak detector
OATS	Open Area Test Site	FAR	Full Anechoic Room	Av	Average detector
VP	Vertical Polarization	HP	Horizontal Polarization	RMS	Root Mean Square
RF	Radio Frequency	N.T.R	Nothing To Report	N/C	Not Communicated

2. REFERENCE DOCUMENT(S)

NORMATIVE REFERENCES:
The following referenced documents are necessary for the application of the present test report. **FCC 47 CFR PART 15** Code of federal regulations – Title 47 telecommunication Part 15- Radio frequency devices **KDB 447498 D01 v06** RF exposure procedures and equipment authorization policies for mobile and portable devices. **RSS-102 - Issue 5, March 2018** Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) **RR-EVE-22P171-2A Ed.1 and RR-EVE-22P171-4A Ed.1** Radio Test Reports Emitech. Although the product standard uses obsolete technical standards, the latest versions of standards achievable by the laboratory will be used for testing.
INFORMATIVE REFERENCES:
The following referenced documents are not necessary for the application of the present test report but they assist the user with regard to a particular subject area.

3. EQUIPMENT TECHNICAL DESCRIPTION

3.1. Test Conditions

Test item description. ..... :	Autonomous connected industrial temperature sensor
Model/Type reference..... :	(SENSA915A / SENSAIO) inside HMN: SENSA.TEMP
Trade Mark. ..... :	EDGE TECHNOLOGIES
Serial number (S/N). ..... :	Not communicated
Part number (P/N). ..... :	N/A
Software version. ..... :	*N/A*
Firmware version. ..... :	*1.1.4*
Type of sample. ..... :	Pre-serial
Function(s)..... :	SensaIO is a range of autonomous connected industrial sensors. It is an assembly of two parts : a cartridge common to all sensors where BLE and LoRaWan communication are implemented, and a process connection which is dedicated to physical phenomenon sensing (temperature, pressure, vibration, acoustic, ...)
Manufacturer name. ..... :	EDGE TECHNOLOGIES SAS
Address. ..... :	735 RUE DU LIEUTENANT PARAYRE 13290 - AIX EN PROVENCE FRANCE

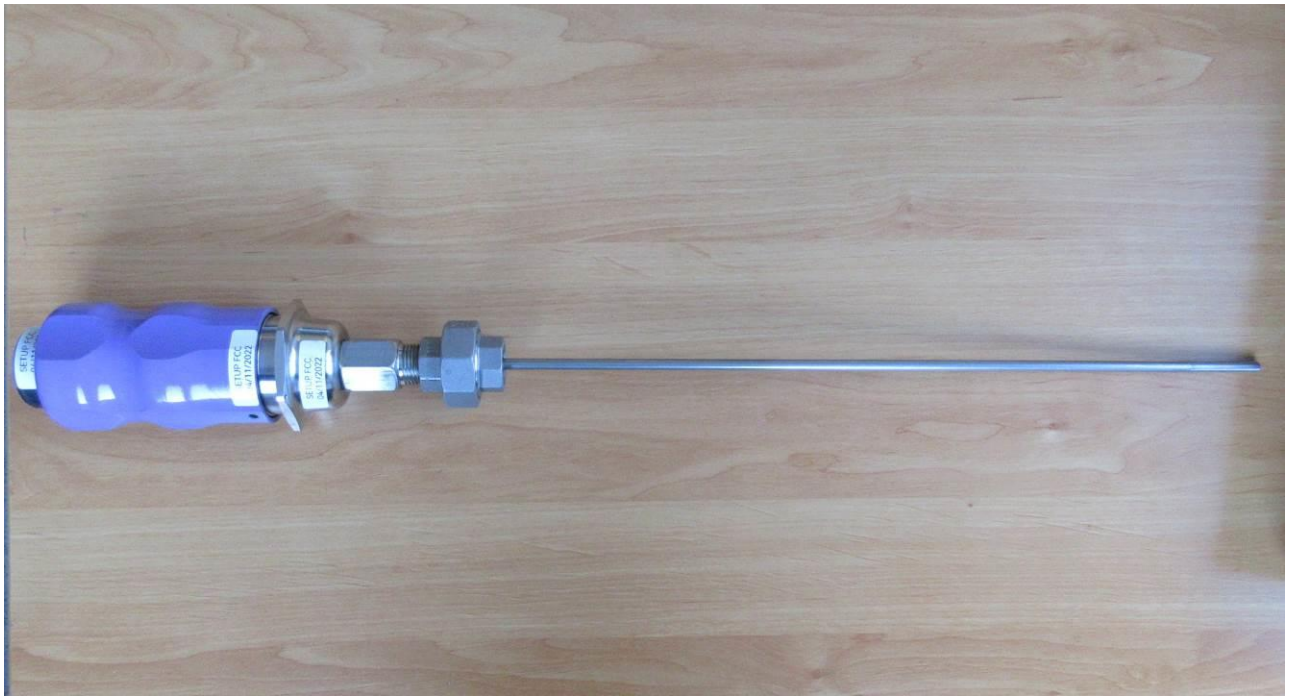
General product information:

N/A

3.2. EUT Marking plate

EUT did not have its marking plate during tests..

3.3. EUT General view

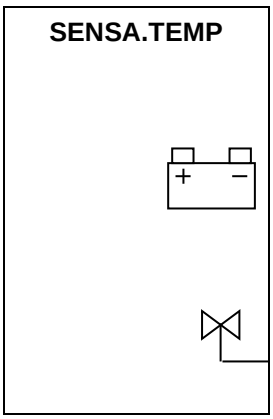


3.4. EUT Mechanical and Electrical Design

Power supply. ..... : *$3V_{DC}$*
Power supply range. ..... : *$2.4V_{DC}$ to $3.2V_{DC}$*
Power type. ..... : *Battery powered*
Power (W). ..... : *0.375*
Nominal current (A). ..... : *0.125*
Dimensions (L x W x H) (m). ..... : *0.45 x 0.06 (diameter)*
Weight (kg). ..... : *1*
Temperature range (°C). ..... : *-40 to +85*
Ground bounding strap. ..... : *No*

Comments:
N/A

3.5. EUT Input/Output ports



PORT	NAME	TYPE	LENGTH	CABLE TYPE	COMMENTS
0	Main frame	N/E	N/A	Metallic	N/A
1	Internal Battery	DC	N/A	N/A	$3V_{DC}$
2	RF antenna	RF	N/A	N/A	902MHz to 928MHz

AC/DC : AC/DC Converter port
AC ..... : Alternative current port
DC ..... : Discontinuous current port
I/O ..... : Input or Output port
TP ..... : Telecommunication port
RF ..... : Radio frequency port
N/E ..... : Non Electrical port

3.6. EUT Radio Specifications

3.6.1 BLE

a) GENERAL INFORMATIONS	
According to manufacturer's declarations :	
EUT type	*Transceiver*
Technology	*BLE*
Environmental profile	*Data transmissions*
Temperature range	*-40°C to +85°C*
Antenna type	*Integrated*
Antenna Gain	*-5 dBi*
Comments:	

b) TRANSMITTER PARAMETERS (TX)	
Frequency bands	*2400 MHz to 2483.5 MHz*
RF Power	*2.5 mW*
Number of channels / Separation	*40 / 2MHz*
Modulation type	*GFSK*
Duty cycle	*2.5 %*
Tested frequency	*2402 MHz : Low channel (ch.37)* *2426 MHz: Mid channel (ch.38)* *2480 MHz: High channel (ch.39)*

c) RECEIVER PARAMETERS (RX)	
Frequency bands	*2400 MHz to 2483.5 MHz*
Bandwidth	*Not communicated*

3.6.2 SRD (LoRa)

a) GENERAL INFORMATIONS

According to manufacturer's declarations :

EUT type	:	*Transceiver*
Technology	:	*SRD (LoRa)*
Environmental profile	:	*Data transmissions*
Temperature range	:	*-40°C to +85°C*
Antenna type	:	*Internal*
Antenna Gain	:	*-2 dBi*

Comments:

N/A

b) TRANSMITTER PARAMETERS (TX)

Frequency bands	:	*902 MHz to 928 MHz*
RF Power	:	*Not communicated*
Number of channels / Separation	:	*64 channels / 125 kHz*
Modulation type	:	*LoRa*
Duty cycle	:	*<1 %*
Tested frequency	:	*902.3 MHz (Low channel)* *908.25 MHz (Mid channel)* *914.9 MHz (High channel)*

c) RECEIVER PARAMETERS (RX)

Frequency bands	:	*902 MHz to 928 MHz*
Bandwidth	:	*Not communicated*

4. RF EXPOSURE

4.1. BLE

Maximum EIRP = -12.4 dBm (0.05 mW) at 2426 MHz (see Radio test report referenced in §2)

For USA
In accordance with KDB 447498 D01 General RF Exposure Guidance v06 and OET Bulletin 65:
PSD= EIRP/(4*π*R2)=0.05/(4*π*(20 cm)²)= 0.0001 mW/cm²
Limit= 1 mW/cm²

For Canada
In accordance with RSS-102, Issue 5, Section 2.5.1., as EIRP is lower than 4.25 mW at 2426 MHz, SAR exemption for ISED can be considered for a distance ≤ 5cm.

4.2. SRD (LoRa)

Maximum EIRP = 6.68 dBm (4.65 mW) at 902.3 MHz (see Radio test report referenced in §2)

For USA
In accordance with KDB 447498 D01 General RF Exposure Guidance v06 and OET Bulletin 65:
PSD= EIRP/(4*π*R2)=4.65/(4*π*(20 cm)²)= 0.001 mW/cm²
Limit= 0.601 mW/cm²

For Canada
In accordance with RSS-102, Issue 5, Section 2.5.1., as EIRP is lower than 16.37 mW at 902.3 MHz, SAR exemption for ISED can be considered for a distance ≤ 5cm.

End of test report