



# FCC RF EXPOSURE REPORT

Applicant : Measurement Specialties (China), Ltd.  
Address : No. 26 Langshan Road Shenzhen High-Tech Park  
(North) Nanshan District Shenzhen 518057 China  
Equipment : Wireless Vibration Sensor  
Model No. : 8911N-NX-A, 8911N-EX-A, 8931N-NX-A, 8931N-EX-A  
Trade Name : TE Connectivity  
FCC ID. : 2A85PA89X1N

## I HEREBY CERTIFY THAT :

The sample was received on Sept. 11, 2022 and the testing was completed on Nov. 08, 2022 at Cerpass Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of Cerpass Technology Corp., the test report shall not be reproduced except in full.

Approved by:

  
Leevin Li / Supervisor



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## History of this test report

■ Original.

□ Additional attachment as following record:

Attachment No.	Issue Date	Description
DEFJ2202046	Nov. 09, 2022	Original



## 1. Test Configuration of Equipment under Test

### 1.1 Feature of Equipment

Equipment	Lora Vibration Sensor
Model Name	8911N-NX-A, 8911N-EX-A, 8931N-NX-A, 8931N-EX-A
Model Discrepancy	All models are identical except for Detection Angle (1 represents uniaxial and 3 represents triaxial) and explosion-proof performance (EX represents ATEX and NX represents Non-ATEX). Model 8911N-EX-A and 8931N-EX-A were chosen for final test.
Operation Frequency Range	Bluetooth: 2400MHz-2483.5MHz LoRa: 902MHz~928MHz
Center Frequency Range	Bluetooth: 2402MHz-2480MHz LoRa: 125KHz:902.3MHz~914.9MHz 500KHz:903MHz~914.2MHz
Antenna Gain.	Bluetooth: 0.17dBi LoRa:0.3dBi
Antenna Type	monopole Antenna
Working Temperature	-40°C to +60°C
Operating Voltage	DC 3.6V from Battery

Note: For more details, please refer to the User's manual of the EUT.

**1.2 General Information of Test**

Test Site	<b>Cerpass Technology Corporation(Cerpass Laboratory)</b> Address: Room 102, No. 5, Xing'an Road, Chang'an Town, Dongguan City, Guangdong Province Tel: +86-769-8547-1212 Fax: +86-769-8547-1912
FCC Designation No.:	CN1288



## 2. Radio Frequency Exposure

<b>Device category</b>	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation)
<b>Exposure classification</b>	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> ) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )
<b>Antenna diversity</b>	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
<b>Evaluation applied</b>	<input checked="" type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input type="checkbox"/> N/A

### TEST RESULTS

No non-compliance noted.

### Calculation

Given  $E = \frac{\sqrt{30 \times P \times G}}{d}$  &  $S = \frac{E^2}{3770}$

Where  $E$  = Field strength in Volts / meter  
 $P$  = Power in Watts  
 $G$  = Numeric antenna gain  
 $d$  = Distance in meters  
 $S$  = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770d^2}$$

Changing to units of mW and cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \text{Equation 1}$$

Where  $d$  = Distance in cm  
 $P$  = Power in mW  
 $G$  = Numeric antenna gain  
 $S$  = Power density in mW / cm<sup>2</sup>

**Maximum Permissible Exposure**

Mode	Channel Frequency (MHz)	Max. Conducted output power (dBm)	Max. Tune up power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )
Bluetooth LE	2402-2480	0.90	1.90	0.17	20	0.0003
LoRa(125KHz)	902.3-914.9	7.022	8.022	0.3	20	0.0014
LoRa(500KHz)	903.0-914.2	7.259	8.259	0.3	20	0.0014

**Conclusion**

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

-----**End of the report** -----