



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
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	Cerpass Technology Corporation(Cerpass Laboratory) 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

Device category	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation)
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure ($S = 5\text{mW/cm}^2$) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure ($S=1\text{mW/cm}^2$)
Antenna diversity	<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
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input type="checkbox"/> N/A

TEST RESULTS

No non-compliance noted.

Calculation

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

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 / cm²

**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 ²)
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 -----