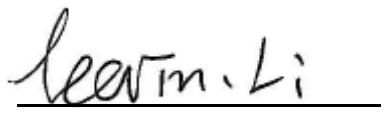
FCC RF EXPOSURE REPORT

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 Mar. 24, 2023 and the testing was completed on Apr. 21, 2023 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

Contents

History of this test report

Version No.	Report No.	Issue Date	Description
Rev. 01	DEFJ2202046	Nov. 09, 2022	Initial Issue
Rev. 02	DEFJ2212104	Apr. 24, 2023	1.Antenna pattern change 2.Contact spring changed from copper to stainless steel 3.PCB layout change for contact spring change 4.Lora matching circuit change 5.Antenna gain change

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:-1.61dBi LoRa:-1.22dBi
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	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation)
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm²) ☒ General Population/Uncontrolled exposure (S=1mW/cm²)
Antenna diversity	☒ Single antenna ☐ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ 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:

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

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and
d (cm) = d(m) /100

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ ***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/cm2)
Bluetooth LE	2402-2480	0.9	1.90	-1.61	20	0.0002
LoRa(125KHz)	902.3-914.9	5.023	6.023	-1.22	20	0.0006
LoRa(500KHz)	903.0-914.2	4.952	5.952	-1.22	20	0.0006

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 ----------