

# Radio Exposure Evaluation Report

FCC ID : XNI-ID211008  
Contain FCC ID : XMR2020BG95M1  
Equipment : Cellular Router Gen2 Telematics Only  
Brand Name : LCI  
Model Name : 2021015319  
Applicant : Lippert Components  
6801 15 Mile Road Sterling Heights Michigan  
United States 48312  
Manufacturer : Lippert Components  
6801 15 Mile Road Sterling Heights Michigan  
United States 48312  
Standard : 47 CFR FCC Part 2 Subpart J, section 2.1091

The product was received on Apr. 27, 2021, and testing was started from May 05, 2021 and completed on May 06, 2021. We, SPORTON INTERNATIONAL INC. Hsinhua Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR FCC Part 2 Subpart J, section 2.1091 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Hsinhua Laboratory, the test report shall not be reproduced except in full.



Approved by: Allen Lin

**SPORTON INTERNATIONAL INC. Hsinhua Laboratory**  
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## Summary of Test Result

| Report Clause | Ref Std. Clause | Test Items          | Result (PASS/FAIL) | Remark |
|---------------|-----------------|---------------------|--------------------|--------|
| 2             | -               | Exposure evaluation | PASS               | -      |

**Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

**Comments and Explanations:**

None

**Reviewed by: Sam Tsai**

**Report Producer: Ann Hou**

# 1 General Description

## 1.1 Information

### 1.1.1 EUT General Information

| RF General Information |                       |                           |                 |
|------------------------|-----------------------|---------------------------|-----------------|
| Evaluation Mode        | Frequency Range (MHz) | Operating Frequency (MHz) | Modulation Type |
| Bluetooth              | 2400-2483.5           | 2402-2480                 | LE: DSSS (GFSK) |
| LTE Band 2             | 1850-1910             | 1850.7-1909.3             | QPSK, 16QAM     |
| LTE Band 4             | 1710-1755             | 1710.7-1754.3             | QPSK, 16QAM     |
| LTE Band 5             | 824-849               | 824.7-848.3               | QPSK, 16QAM     |
| LTE Band 12            | 699-716               | 699.7-715.3               | QPSK, 16QAM     |
| LTE Band 13            | 777-787               | 779.5-784.5               | QPSK, 16QAM     |
| LTE Band 14            | 788-798               | 790.5-795.5               | QPSK, 16QAM     |
| LTE Band 25            | 1850-1915             | 1850.7-1914.3             | QPSK, 16QAM     |
| LTE Band 26            | 814-849               | 814.7-848.3               | QPSK, 16QAM     |
| LTE Band 66            | 1710-1780             | 1710.7-1779.3             | QPSK, 16QAM     |
| LTE Band 85            | 698-716               | 699.7-715.3               | QPSK, 16QAM     |

### 1.1.2 Antenna Information

| Ant. | Brand | Model Name | Antenna Type         | Connector | Gain (dBi) |
|------|-------|------------|----------------------|-----------|------------|
| 1    | -     | -          | PCB monopole antenna | N/A       | 1.85       |

**For BT function:**

For IEEE 802.15.1 Bluetooth mode (1TX/1RX)

Ant. 1 (port 1) could transmit/receive.

## 1.2 Testing Location

| Test Lab. : Sporton International Inc. Hsinhua Laboratory |                        |                                                                                |                     |
|-----------------------------------------------------------|------------------------|--------------------------------------------------------------------------------|---------------------|
| <input checked="" type="checkbox"/>                       | Hsinhua<br>(TAF: 3785) | ADD: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.) |                     |
|                                                           |                        | TEL: 886-3-327-3456                                                            | FAX: 886-3-327-0973 |
| Test site Designation No. TW3785 with FCC.                |                        |                                                                                |                     |

## 2 Maximum Permissible Exposure

### 2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|------------------------------------------|------------------------------------------------------------------|
| 0.3-3.0               | 614                               | 1.63                              | (100)*                                   | 6                                                                |
| 3.0-30                | 1842 / f                          | 4.89 / f                          | (900 / f <sup>2</sup> )*                 | 6                                                                |
| 30-300                | 61.4                              | 0.163                             | 1.0                                      | 6                                                                |
| 300-1500              | -                                 | -                                 | F/300                                    | 6                                                                |
| 1500-100,000          | -                                 | -                                 | 5                                        | 6                                                                |

(B) Limits for General Population / Uncontrolled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (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                                                               |
| 1500-100,000          | -                                 | -                                 | 1.0                                      | 30                                                               |

Note: f = frequency in MHz ; \*Plane-wave equivalent power density

#### Multiple Transmitters Condition

Co-location as simultaneously transmitting (co-transmitting) and the evaluation shall be consider that simultaneous transmissions from co-located devices the individual transmitters are evaluated separately. After sum of the individual value (basic restriction / reference level) are measured/calculated also have to under basic restriction / reference level.

Co-transmitting mode: LTE + Bluetooth

### 2.2 MPE Calculation Method

The MPE was calculated at 20 cm to show compliance with the power density limit. The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

**E** = Electric field (V/m)

**P** = RF output power (W)

**G** = EUT Antenna numeric gain (numeric)

**d** = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$



## 2.3 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

### Colocation

| Mode        | DG (dBi) | Power (dBm) | EIRP (dBm) | Tolerance (dB) | Tune-up EIRP (dBm) | Tune-up EIRP (W) | Distance (cm) | S (mW/cm <sup>2</sup> ) | S Limit (mW/cm <sup>2</sup> ) | Ratio (S/Limit) |
|-------------|----------|-------------|------------|----------------|--------------------|------------------|---------------|-------------------------|-------------------------------|-----------------|
| 2.4G;BT-LE  | 1.85     | -1.83       | 0.02       | 0.00           | 0.02               | 0.00100          | 20            | 0.00020                 | 1.00000                       | 0.00020         |
| LTE;B85;W7D | 4.00     | 21.26       | 25.26      | 0.00           | 25.26              | 0.33574          | 20            | 0.06679                 | 0.47400                       | 0.14091         |
|             |          |             |            |                |                    |                  |               |                         | Sum Ratio                     | 0.14111         |
|             |          |             |            |                |                    |                  |               |                         | Ratio Limit                   | 1               |

————THE END————