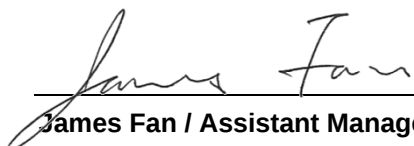


# CE RF Exposure Report

**Equipment** : Bluetooth 4.2 Dual Mode USB HCI Module  
**Model No.** : BT850-SA  
(Refer to item 1.1.1 for more details)  
**Brand Name** : Laird Connectivity  
**Applicant** : Laird Connectivity LLC  
**Address** : W66N220 Commerce Court, Cedarburg,  
Wisconsin 53012, USA  
**Standard** : EN IEC 62311:2020  
EN 50385:2017  
EN 50665:2017  
BS EN IEC 62311:2020  
BS EN 50385:2017  
BS EN 50665:2017  
**Received Date** : Sep. 28, 2017  
**Tested Date** : Sep. 27 ~ Sep. 29, 2017 (for original test)

We, International Certification Corporation, would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by:

  
James Fan / Assistant Manager

Approved by:

  
Gary Chang / Manager

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## Release Record

| Report No.  | Version | Description   | Issued Date   |
|-------------|---------|---------------|---------------|
| EA791801-13 | Rev. 01 | Initial issue | Oct. 20, 2022 |

# 1 General Description

## 1.1 Information

This report is issued as a duplicate report to original ICC report no. EA791801-08. The difference is concerned with following items:

- ✧ Updating version of standard and adding BS standard.
- ✧ Changing applicant name.

Above changes have no impact on test, thus test results are consistent with previous report.

### 1.1.1 Product Details

| Brand Name | Model Name | Product Name                            | Description               |
|------------|------------|-----------------------------------------|---------------------------|
| Laird      | BT850-SA   | Bluetooth 4.2 Dual Mode USB HCI Module  | chip antenna              |
|            | BT850-ST   |                                         | trace to external antenna |
|            | BT860-SA   | Bluetooth 4.2 Dual Mode UART HCI Module | chip antenna              |
|            | BT860-ST   |                                         | trace to external antenna |

### 1.1.1 Specification of the Equipment under Test (EUT)

|                     |                                                                                                                           |
|---------------------|---------------------------------------------------------------------------------------------------------------------------|
| Operating Frequency | 2402 MHz ~ 2480 MHz                                                                                                       |
| Modulation Type     | Bluetooth LE: GFSK<br>Bluetooth BR(1Mbps): GFSK<br>Bluetooth EDR (2Mbps): $\pi/4$ -DQPSK<br>Bluetooth EDR (3Mbps): 8-DPSK |

### 1.1.2 Antenna Details

| Ant. No. | Band/ Model          | Type       | Connector | Antenna Gain (dBi) |
|----------|----------------------|------------|-----------|--------------------|
| 1        | ACX / AT3216-B2R7HAA | Chip       | NA        | 0.5                |
| 2        | Laird / 0600-00040   | Dipole     | UFL       | 2                  |
| 3        | Laird / NANOBLUE     | PCB Dipole | UFL       | 2                  |
| 4        | Laird / 001-0014     | PIFA       | UFL       | 2                  |
| 5        | Laird / 001-0030     | PIFA       | UFL       | 2                  |

### 1.1.3 EUT Operational Condition

|                   |                  |
|-------------------|------------------|
| Power Supply Type | 3.3Vdc from host |
|-------------------|------------------|

## 2 RF exposure evaluation

### 2.1 Limits

The device shall comply with the relevant limits for general public exposure specified as basic restrictions or reference levels in the Council Recommendation 1999/519/EC as below table.

Reference levels for electric, magnetic and electromagnetic fields  
(0 Hz to 300 GHz, unperturbed rms values)

| Frequency range | E-field strength (V/m) | H-field strength (A/m) | B-field (μT)        | Equivalent plane wave power density $S_{eq}$ (W/m <sup>2</sup> ) |
|-----------------|------------------------|------------------------|---------------------|------------------------------------------------------------------|
| 0-1 Hz          | —                      | $3,2 \times 10^4$      | $4 \times 10^4$     | —                                                                |
| 1-8 Hz          | 10 000                 | $3,2 \times 10^4/f^2$  | $4 \times 10^4/f^2$ | —                                                                |
| 8-25 Hz         | 10 000                 | $4\,000/f$             | $5\,000/f$          | —                                                                |
| 0,025-0,8 kHz   | $250/f$                | $4/f$                  | $5/f$               | —                                                                |
| 0,8-3 kHz       | $250/f$                | 5                      | 6,25                | —                                                                |
| 3-150 kHz       | 87                     | 5                      | 6,25                | —                                                                |
| 0,15-1 MHz      | 87                     | $0,73/f$               | $0,92/f$            | —                                                                |
| 1-10 MHz        | $87/f^{1/2}$           | $0,73/f$               | $0,92/f$            | —                                                                |
| 10-400 MHz      | 28                     | 0,073                  | 0,092               | 2                                                                |
| 400-2 000 MHz   | $1,375\ f^{1/2}$       | $0,0037\ f^{1/2}$      | $0,0046\ f^{1/2}$   | $f/200$                                                          |
| 2-300 GHz       | 61                     | 0,16                   | 0,20                | 10                                                               |

**Notes:**

1.  $f$  as indicated in the frequency range column.
2. For frequencies between 100 kHz and 10 GHz,  $S_{eq}$ ,  $E^2$ ,  $H^2$ , and  $B^2$  are to be averaged over any six-minute period.
3. For frequencies exceeding 10 GHz,  $S_{eq}$ ,  $E^2$ ,  $H^2$ , and  $B^2$  are to be averaged over any  $68/f^{1.05}$  -minute period ( $f$  in GHz).
4. No E-field value is provided for frequencies < 1 Hz, which are effectively static electric fields. For most people the annoying perception of surface electric charges will not occur at field strengths less than 25 kV/m. Spark discharges causing stress or annoyance should be avoided.

## 2.2 Evaluation Formula for Far-Field

Follow below formula to evaluate E-field strength.

$$E = \frac{\sqrt{30 * P * G}}{R}$$

Where

P(W) is the input power of antenna

G is the gain of antenna

R(m) Is the distance between the human body and the antenna

## 2.3 Deviation from Test Standard and Measurement Procedure

None

## 2.4 Measurement Uncertainty

The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

| Parameters      | Uncertainty |
|-----------------|-------------|
| Conducted power | ±0.808 dB   |

| 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:                                                                                                                                                                             |
| The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification. |

## 2.5 Evaluation Results

| Mode   | Frequency Range (MHz) | Maximum E.I.R.P. (dBm) | Distance (m) | Evaluation E-Field Strength (V/m) | Limit (V/m) | PASS / FAIL |
|--------|-----------------------|------------------------|--------------|-----------------------------------|-------------|-------------|
| BT EDR | 2402-2480             | 9.96                   | 0.2          | 2.73                              | 61          | Pass        |
| BT LE  | 2402-2480             | 9.88                   | 0.2          | 2.70                              | 61          | Pass        |

### 3 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corporation (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

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33381, Taiwan (R.O.C.)  
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==END==