

# RF Exposure Evaluation

FCC ID: 2BGDJ-LS01

## Applicable Standard

According to FCC part 2.1093 and part 1.1307(b)(3), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline

KDB447498 D04 Interim General RF Exposure Guidance v01, clause 2.1.3 SAR-Based Exemption:

A more comprehensive exemption, considering a variable power threshold that depends on both the separation distance and power, is provided in 1.1307(b)(3) (i)(B). This exemption is applicable to the frequency range between 300 MHz and 6 GHz, with test separation distances between 0.5 cm and 40 cm, and for all RF sources in fixed, mobile, and portable device exposure conditions

Accordingly, a RF source is considered an RF exempt device if its available maximum time averaged (matched conducted )power or its effective radiated power(ERP), whichever is greater, are below a specified threshold.

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left( \frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

Note: f is in GHz, d is the separation distance (cm)

**Table 1-Example Power Thresholds(mw)**

| Frequency (MHz) | Distance(mm) |    |    |     |     |     |     |     |     |     |
|-----------------|--------------|----|----|-----|-----|-----|-----|-----|-----|-----|
|                 | 5            | 10 | 15 | 20  | 25  | 30  | 35  | 40  | 45  | 50  |
| 300             | 39           | 65 | 88 | 110 | 129 | 148 | 166 | 184 | 201 | 217 |
| 450             | 22           | 44 | 67 | 89  | 112 | 135 | 158 | 180 | 203 | 226 |
| 835             | 9            | 25 | 44 | 66  | 90  | 116 | 145 | 175 | 207 | 240 |
| 1900            | 3            | 12 | 26 | 44  | 66  | 92  | 122 | 157 | 195 | 236 |
| 2450            | 3            | 10 | 22 | 38  | 59  | 83  | 111 | 143 | 179 | 219 |
| 3600            | 2            | 8  | 18 | 32  | 49  | 71  | 96  | 125 | 158 | 195 |
| 5800            | 1            | 6  | 14 | 25  | 40  | 58  | 80  | 106 | 136 | 169 |

## TEST RESULT

☒ Passed

☐ Not Applicable

TRF No. FCC RF Exposure\_R1

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**BT**

| Test mode | Channel Frequency (MHz) | Max. Measured Power (dBm) | Tune up tolerance (dBm) | Max. Tune up Power |    | Evaluation distance (cm) | Exemption Limit (mW) |
|-----------|-------------------------|---------------------------|-------------------------|--------------------|----|--------------------------|----------------------|
|           |                         |                           |                         | dBm                | mw |                          |                      |
| BDR/EDR   | 2402                    | 2.86                      | $2 \pm 1$               | 3                  | 2  | 0.5                      | 3                    |

**BLE**

| Test mode | Channel Frequency (MHz) | Max. Measured Power (dBm) | Tune up tolerance (dBm) | Max. Tune up Power |      | Evaluation distance (cm) | Exemption Limit (mW) |
|-----------|-------------------------|---------------------------|-------------------------|--------------------|------|--------------------------|----------------------|
|           |                         |                           |                         | dBm                | mw   |                          |                      |
| BLE1M     | 2402                    | 3.84                      | $3 \pm 1$               | 4                  | 2.51 | 0.5                      | 3                    |

**Note:**

- The tune-up power was declared by the applicant
- $dBi = dBd + 2.15$
- The maximum antenna gain is 2.07dBi. (Antenna gain provided by the applicant. Can affect the validity of results.)
- To maintain compliance with the RF exposure guidelines, place the equipment greater than 0.5cm from nearby persons
- The BT and BLE can not be transmit simultaneously.

**Result:** Compliant

**--THE END--**