

**FCC ID: WA2ST4230**

According to KDB 447498 D04 Interim General RF Exposure Guidance v01

**1. MPE-Based Exemption**

An alternative to the SAR-based exemption is provided in § 1.1307(b)(3)(i)(C), for a much wider frequency range, from 300 kHz to 100 GHz, applicable for separation distances greater or equal to  $\lambda/2\pi$ , where  $\lambda$  is the free-space operating wavelength in meters. The MPE-based test exemption condition is in terms of ERP, defined as the product of the maximum antenna gain and the delivered maximum time-averaged power. For this case, a RF source is an RF exempt device if its ERP (watts) is no more than a frequency-dependent value, as detailed tabular form in Appendix B. These limits have been derived based on the basic specifications on Maximum Permissible Exposure (MPE) considered for the FCC rules in § 1.1310(e)(1).

**Table 1 to 1.1307(b)(3)(i)(c) – Single RF Sources Subject to Routine Environmental Evaluation**

| RF Source Frequency (MHz) | Threshold ERP (watts) |
|---------------------------|-----------------------|
| 0.3-1.34                  | $1\,920\,R^2$         |
| 1.34-30                   | $3\,450\,R^2/f^2$     |
| 30-300                    | $3.83\,R^2$           |
| 300-1 500                 | $0.012\,8\,R^2f$      |
| 1 500-100 000             | $19.2\,R^2$           |

**2. RF Exposure Test Exemptions for Single Source**

| Mode                 | Frequency Range (MHz) | Minimum Separation Distance (cm) | Maximum Average Target Power (dBm) | Maximum Tune up (dB) | Maximum Average Output Power (dBm) | Antenna Gain (dBi) | ERP   |       | Threshold ERP (mW) | Ratio | Result |
|----------------------|-----------------------|----------------------------------|------------------------------------|----------------------|------------------------------------|--------------------|-------|-------|--------------------|-------|--------|
|                      |                       |                                  |                                    |                      |                                    |                    | (dBm) | (mW)  |                    |       |        |
| Bluetooth Low energy | 2 402 ~ 2 480         | 20                               | 8.0                                | 1.5                  | 9.5                                | -0.06              | 7.29  | 5.358 | 768                | 0.007 | Pass   |

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|---------------|-----------------------|----------------------------------|-----------------------------|--------------------|-------|---------|--------------------|-------|--------|
|               |                       |                                  |                             |                    | (dBm) | (mW)    |                    |       |        |
| LTE Band 2    | 1 850 ~ 1 910         | 20                               | 21.5                        | 3.69               | 23.04 | 201.372 | 768                | 0.262 | Pass   |
| LTE Band 66/4 | 1 710 ~ 1 780         | 20                               | 21.5                        | 1.32               | 20.67 | 116.681 | 768                | 0.152 | Pass   |
| LTE Band 5    | 824 ~ 849             | 20                               | 21.5                        | 0.29               | 19.64 | 92.045  | 421.888            | 0.218 | Pass   |
| LTE Band 12   | 699 ~ 716             | 20                               | 21.5                        | -3.07              | 16.28 | 42.462  | 357.888            | 0.119 | Pass   |
| LTE Band 13   | 777 ~ 787             | 20                               | 21.5                        | 1.09               | 20.44 | 110.662 | 397.824            | 0.278 | Pass   |

Note ;

- ERP (dBm) = Maximum average power (dBm) + Antenna gain (dBi) -2.15
- Maximum average target power is the manufacturer's declared rated power.
- Maximum average output power = Maximum average target power (dBm) + Maximum tune up (dB).

**3. Conclusion: No SAR is required.**