

## 4 FCC§15.247(i), §1.1310, § 2.1091 – Maximum Permissible Exposure (MPE)

### 4.1 Applicable Standard

According to FCC §2.1093 and §1.1307(b) (1), 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.

According to KDB 447498 D01 General RF Exposure Guidance v06

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot$

$[f(\text{GHz})] \leq 3.0$  for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR, where

1.  $f(\text{GHz})$  is the RF channel transmit frequency in GHz.
2. Power and distance are rounded to the nearest mW and mm before calculation.
3. The result is rounded to one decimal place for comparison.
4. 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.

### 4.2 RF Exposure Evaluation Result

#### MPE Evaluation:

| Mode       | Frequency Range (MHz) | Antenna Gain |           | Target Power |          | Evaluation Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | MPE Limit (mW/cm <sup>2</sup> ) |
|------------|-----------------------|--------------|-----------|--------------|----------|--------------------------|-------------------------------------|---------------------------------|
|            |                       | (dBi)        | (numeric) | (dBm)        | (mW)     |                          |                                     |                                 |
| BLE        | 2402-2480             | 5.89         | 3.8815    | 21.00        | 125.8925 | 20                       | 0.0973                              | 1.0                             |
| BR/EDR     | 2402-2480             | 5.89         | 3.8815    | 21.00        | 125.8925 | 20                       | 0.0973                              | 1.0                             |
| Wi-Fi 2.4G | 2412-2462             | 5.89         | 3.8815    | 23.00        | 199.5262 | 20                       | 0.1542                              | 1.0                             |

Note: Wi-Fi and BT can't simultaneously.

**Result:** MPE evaluation of single and simultaneous transmission meet the requirement of standard.