

## RF EXPOSURE EVALUATION

According to FCC 1.1310 and KDB 447498 D01 V06, The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

| Frequency range (MHz)                                          | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm <sup>2</sup> ) | Averaging time (minutes) |
|----------------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| <b>(A) Limits for Occupational/Controlled Exposure</b>         |                               |                               |                                     |                          |
| 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                        |
| 300-1,500                                                      |                               |                               | f/300                               | 6                        |
| 1,500-100,000                                                  |                               |                               | 5                                   | 6                        |
| <b>(B) Limits for General Population/Uncontrolled Exposure</b> |                               |                               |                                     |                          |
| 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                       |
| 300-1,500                                                      |                               |                               | f/1500                              | 30                       |
| 1,500-100,000                                                  |                               |                               | 1.0                                 | 30                       |

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

### MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 * P * G}}{d}$$

$$\text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Average 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

$$Pd = \frac{30 * P * G}{377 * D^2}$$

From the EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

## Measurement Result

### BT:

Operation Frequency: 2402-2480MHz,

Power density limited: 1mW/ cm<sup>2</sup>

Power density limited: 1mW/cm

Antenna Type: PCB Antenna

Antenna :2.6 dBi

R=20cm

$mW=10^{(dBm/10)}$

| Mode   | Channel Freq. (MHz) | modulation | conducted power | Tune-up power (dBm) | Max           |       | Antenna |       | Evaluation result | Power density Limits |
|--------|---------------------|------------|-----------------|---------------------|---------------|-------|---------|-------|-------------------|----------------------|
|        |                     |            | (dBm)           |                     | tune-up power |       | Gain    |       |                   |                      |
|        |                     |            |                 |                     | (dBm)         | (dBm) | (mW)    | (dBi) | Numeric           | (mW/cm2 )            |
| BLE    | 2402                | GFSK       | 2.54            | 1.5±1               | 2.5           | 1.778 | 2.60    | 1.82  | 0.0006            | 1                    |
|        | 2440                |            | 0.87            | 1±1                 | 2             | 1.585 | 2.60    | 1.82  | 0.0006            | 1                    |
|        | 2480                |            | 0.94            | 1±1                 | 2             | 1.585 | 2.60    | 1.82  | 0.0006            | 1                    |
| BLE 2M | 2402                | 802.11n20  | 2.37            | 1.5±1               | 2.5           | 1.778 | 2.60    | 1.82  | 0.0006            | 1                    |
|        | 2440                |            | 0.51            | 1.5±1               | 2.5           | 1.778 | 2.60    | 1.82  | 0.0006            | 1                    |
|        | 2480                |            | 0.84            | 1.5±1               | 2.5           | 1.778 | 2.60    | 1.82  | 0.0006            | 1                    |

### Conclusion:

For the max result : 0.0006≤ 1.0, SAR is not required.

### NFC

Operation Frequency: 13.56MHz

Antenna Type: Induction coil

Antenna gain: 0dBi;

R=20cm

Based on the Maximum allowed field strength of production tolerance was 79.70dBμV/m

at 3m in frequency 13.56MHz, thus;

$EIRP[dBm]=E[dB\mu V/m]-95.2=-15.5dBm$

| Mode | Channel Freq. (MHz) | modulation | conducted power | Tune-up power (dBm) | Max           |       | Antenna |         | Evaluation result | Power density Limits |          |
|------|---------------------|------------|-----------------|---------------------|---------------|-------|---------|---------|-------------------|----------------------|----------|
|      |                     |            | (dBm)           |                     | tune-up power |       | Gain    |         |                   | (mW/cm2 )            | (mW/cm2) |
|      |                     |            |                 |                     | (dBm)         | (mW)  | (dBi)   | Numeric |                   |                      |          |
| NFC  | 13.56               | ASK        | -15.5           | -15±1               | -14           | 0.040 | 0.00    | 1.00    | 0.000008          | 0.97893              |          |

### Conclusion:

For the max result : 0.000008≤ 0.97893, SAR is not required.

Signature:

Date: 2026-04-25



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