

RF Exposure Evaluation

LIMIT

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 ²) | Averaging time (minutes) |
|---|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| (A) Limits for Occupational/Controlled Exposures | | | | |
| 0.3–3.0 | 614 | 1.63 | *(100) | 6 |
| 3.0–30 | 1842/f | 4.89/f | *(900/f ²) | 6 |
| 30–300 | 61.4 | 0.163 | 1.0 | 6 |
| 300–1500 | - | - | f/300 | 6 |
| 1500–100,000 | - | - | 5 | 6 |
| (B) Limits for General Population/Uncontrolled Exposure | | | | |
| 0.3–1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34–30 | 824/f | 2.19/f | *(180/f ²) | 30 |
| 30–300 | 27.5 | 0.073 | 0.2 | 30 |
| 300–1500 | - | - | f/1500 | 30 |
| 1500–100,000 | - | - | 1.0 | 30 |

Note: f = frequency in MHz

EVALUATION METHOD

Transmission formula: $Pd = (Pout * G) / (4 * \pi * r^2)$

Where

Pd = power density in mW/cm², **Pout** = output power to antenna in mW, **G** = gain of antenna in linear scale;

Pi = 3.1416, **R** = distance between observation point and center of the radiator in cm

TEST RESULT

Passed

Not Applicable

| Frequency range (MHz) | Type | Conducted Power (dBm) | Maximum Tune-up (dBm) | Power Density (mW/cm ²) | Limit (mW/cm ²) | Result |
|-----------------------|---------|-----------------------|-----------------------|-------------------------------------|-----------------------------|--------|
| 2402-2480 | BT-EDR | -7.39 | -7.00 | 0.00008 | 1.0000 | Pass |
| 2402-2480 | BT-BLE | 7.05 | 8.00 | 0.0024 | 1.0000 | Pass |
| 2412-2462 | 802.11g | 24.65 | 25.00 | 0.1215 | 1.0000 | Pass |
| 5470-5725 | 802.11a | 19.76 | 20.00 | 0.0125 | 1.0000 | Pass |

Note:

- 1) The maximum antenna gain is -2.04dBi (5G WiFi) and 2.85dBi (BT and 2.4G WiFi)
- 2) The exposure evaluation safety distance is 20mm.