



FCC §15.247 (i), §2.1091 – RF Exposure

## FCC ID: 2A49R-895D7

### Applied procedures / limit

According to FCC §15.247(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

### Limits for Occupational / Controlled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|------------------------------------------|------------------------------------------------------------------|
| 0.3-3.0               | 614                               | 1.63                              | (100)*                                   | 6                                                                |
| 3.0-30                | 1842 / f                          | 4.89 / f                          | (900 / f)*                               | 6                                                                |
| 30-300                | 61.4                              | 0.163                             | 1.0                                      | 6                                                                |
| 300-1500              |                                   |                                   | F/300                                    | 6                                                                |
| 1500-100,000          |                                   |                                   | 5                                        | 6                                                                |

Note: f is frequency in MHz

\* = Power density limit is applicable at frequencies greater than 100 MHz

### Limits for General Population / Uncontrolled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|------------------------------------------|------------------------------------------------------------------|
| 0.3-1.34              | 614                               | 1.63                              | (100)*                                   | 30                                                               |
| 1.34-30               | 824/f                             | 2.19/f                            | (180/f)*                                 | 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

\* = Plane-wave equivalent power density



## MPE PREDICTION

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density

P = power input to antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna, R=0.2m

## TEST RESULTS

|           | Tune up<br>Produce<br>power | Maximum<br>output power<br>(dBm) | Output<br>power to<br>antenna<br>(mW) | Antenna Gain<br>(numeric) | Power<br>Density (S)<br>(mW/<br>cm <sup>2</sup> ) | Limit (mW<br>/ cm <sup>2</sup><br>) | Result |
|-----------|-----------------------------|----------------------------------|---------------------------------------|---------------------------|---------------------------------------------------|-------------------------------------|--------|
| 2.4G WIFI | 18±1                        | 19                               | 79.43                                 | 1.29(1.09dBi)             | 0.020390                                          | 1                                   | Pass   |
| 5G WIFI   | 16±1                        | 17                               | 50.12                                 | 1.57(1.95dBi)             | 0.015659                                          | 1                                   | Pass   |
| 6G WIFI   | 13±1                        | 14                               | 25.12                                 | /                         | 0.004999                                          | 1                                   | Pass   |
| BLE       | 4±1                         | 5                                | 3.16                                  | 1.29(1.09dBi)             | 0.000811                                          | 1                                   | Pass   |
| BT        | 5±1                         | 6                                | 3.98                                  | 1.29(1.09dBi)             | 0.001022                                          | 1                                   | Pass   |

**Note: Only the maximum power is evaluated. The 6G WIFI value is EIRP power, and all others are conducted power.**

### For the Max simultaneous transmission:

2.4G WIFI+5G WIFI+6XD+BT

Simultaneous transmitting =  $0.020390/1 + 0.015659/1 + 0.004999/1 + 0.001022/1 = 0.04207 \leq 1.0$

For the max result :  $0.04207 \leq 1.0$ , compliance with FCC's RF Exposure