

1 MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 Standard Applicable:

According to §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.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1093 RF exposure is calculated.

Limits for Maximum Permissive Exposure (MPE)

| Frequency Range (MHz) | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm ²) | Averaging Time (minute) |
|---|-------------------------------|-------------------------------|-------------------------------------|-------------------------|
| 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 |
| 1500-15000 | / | / | 1.0 | 30 |

F = frequency in MHz

* = Plane-wave equipment power density

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Maximum Permissible Exposure (MPE) Evaluation

2.4GHz mode (Average): Tune up tolerance $\pm 0.34\text{dBm}$

| Channel | Frequency (MHz) | Max. Output include tune up tolerance Power (dBm) | Output Power (mW) | Limit (mW) |
|---------|-----------------|---|-------------------|------------|
| 1 | 2406.00 | 12.34 | 17.140 | 1000 |
| 10 | 2442.00 | 12.01 | 15.885 | 1000 |
| 18 | 2474.00 | 11.73 | 14.894 | 1000 |

MPE Prediction

Prediction of MPE limit at a given distance

Equation from page 18 of 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

| | | |
|---|-----------|-----------------------|
| Max. output power including tune-up tolerancel: | 12.34 | (dBm) |
| Max. output power including tune-up tolerancel: | 17.139573 | (mW) |
| Duty cycle: | 1.88 | (%) |
| Maximum Pav : | 0.322224 | (mW) |
| Peak Antenna gain (Maximum): | 1.16 | (dBi) |
| Peak Antenna gain (linear): | 1.3061709 | (numeric) |
| Prediction distance: | 20 | (cm) |
| Prediction frequency: | 2406 | (MHz) |
| MPE limit for uncontrolled exposure at prediction | 1 | (mW/cm ²) |
| Power density at predication frequency at 20 (cm) | 0.000084 | (mW/cm ²) |

Measurement Result

The predicted power density level at 20 cm is 0.000084 mW/cm².

This is below the uncontrolled exposure limit of 1 mW/cm² at 2406MHz.

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