

RF Exposure Considerations for FCC ID: 004-IDS1016

1-mW Test Exemption for LF 125kHz

Per FCC KDB 447498 D04 Interim General RF Exposure Guidance v01, and per § 1.1307(b)(3)(i)(A), a single RF source is exempt RF device if the available maximum time-averaged power is no more than 1 mW, regardless of separation distance.

ERP calculation:

$$EIRP = (E \cdot d)^2 / 30$$

Where :

E is the field strength in V/m

d is the measurement distance in m

EIRP is the equivalent isotropically radiated power in W

Working in dB units:

$$ERIP_{[dBm]} = E_{[dB\mu V/m]} + 20 \log(d_{[m]}) - 104.77$$

$$E_{[dB\mu V/m]} = \text{Radiated field at distance } d_{[m]}$$

$$ERP_{[dBm]} = ERIP_{[dBm]} - 2.14$$

Measure E field as per test reports:

IDS1016 (iMARK BP): -10.8dB μ V/m @ 300m (Average)

$$\rightarrow ERP_{[dBm]} = -68.2dBm$$

$$\rightarrow ERP_{[mW]} = 0.153nW$$

→ Below the 1mW test exemption

MPE calculation for UHF transmitter (902.5-927.5MHz)

Prediction of MPE limit at a prediction distance:

$$S = \frac{P \cdot G}{4 \cdot \pi \cdot R^2} = \frac{E \cdot I \cdot R \cdot P}{4 \cdot \pi \cdot R^2}$$

S : Power density (mW/cm²)

P : Peak output power at antenna terminal (mW)

G : Numerical Antenna gain

R : Distance of radiation to antenna (cm)

<i>Frequency (MHz)</i>	<i>Maximum E.I.R.P. (mW)</i>	<i>R (cm)</i>	<i>Power Density S (mW/cm²)</i>	<i>MPE limit (mW/cm²)</i>	<i>% of limit</i>	<i>Limit (%)</i>	<i>Verdict</i>
919 / 920MHz	0.684	20	0.00014	0.6	0.023%	100%	Below MPE limit for uncontrolle d exposure

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Conclusion: Therefore, the device complies with FCC's RF radiation exposure limits for general population for a mobile device.

Certified By

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