KDB 447498, RSS-102

47 CFR §§1.1307 and 2.1091

Radio frequency radiation exposure evaluation: mobile devices.

For purposes of these requirements mobile devices are defined by the FCC and IC as transmitters designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimetres is normally maintained between radiating structures and the body of the user or nearby persons. These devices are normally evaluated for exposure potential with relation to the MPE limits. As the 20cm separation specified under FCC and IC rules may not be achievable under normal operation of the EUT, an RF exposure calculation is needed to show the minimum distance required to be less than power the density limit, as required.

Prediction of MPE limit at a given distance

Using KDB 447498

$$S = \frac{EIRP}{4\pi R^2} \text{ re - arranged } R = \sqrt{\frac{EIRP}{S4\pi}}$$

where:

S = power density
R = distance to the centre of radiation of the antenna
EIRP = EUT Maximum power

Note:

The EIRP measurement was calculated from the peak conducted carrier power plus the antenna gain.

Result:

Prediction Frequency (MHz)	Maximum EIRP (mW)	Power density limit (S) (mW/m^2)	Distance (R) required to be less than (S)
2402	7.22	1	0.76

Prediction Frequency (MHz)	Maximum EIRP (W)	Power density limit (S) (W/m^2)	Distance (R) required to be less than (S)
2402	0.00722	10	0.0076