

MPE Calculation

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47 CFR §§1.1307 and 2.1091

2.1091 Radio frequency radiation exposure evaluation: mobile devices.

A mobile device is defined as a transmitting device 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 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimetre separation requirement.

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where:

S = power density

P = power input to the antenna

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

R = distance to the centre of radiation of the antenna

Maximum peak output power at the antenna terminal:	13	dBm
Maximum peak output power at the antenna terminal:	20	mW
Antenna gain (typical):	0.5	dBi
Maximum antenna gain:	1.1	numeric
Prediction distance:	20	cm
Prediction frequency:	2480	MHz

Result

Prediction Frequency (MHz)	Maximum allowable antenna gain: (dBi)	Power density (S) at prediction frequency: (mW/cm ²)	MPE limit for uncontrolled exposure at prediction frequency: (mW/cm ²)	Result
2480	0.4	0.004	1	Pass