



Prediction of MPE at a given distance

1. Limits

The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

KDB Test Methodology: KDB 447498 D01 v06.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) 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
300-1,500			f/1500	30
1,500-100,000			1.0	30

2. Test Procedure

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

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

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

R = distance to the centre of radiation of the antenna

**3. Result**

Mode	Frequency (MHz)	Prediction distance (cm)	RF output power(Max) (dBm)	Tune-up power (Max)		MPE (mW/cm ²)	Limit (mW/cm ²)	SAR Test Exclusion
				dBm	mW			
GSM 850	824.2-848.8	20	30.71	31	1258.9254	0.4951	0.5495	Yes
PCS 1900	1850.2-1909.8	20	28.20	29	794.3282	0.3124	1.0000	Yes
WCDMA B2	1852.4-1907.6	20	23.97	24	251.1886	0.0988	1.0000	Yes
WCDMA B4	1712.4-1752.6	20	23.83	24	251.1886	0.0988	1.0000	Yes
WCDMA B5	826.4-846.6	20	23.25	24	251.1886	0.0032	0.5509	Yes
LTE B2	1850~1910	20	24.45	25	316.2278	0.1244	1.0000	Yes
LTE B4	1710~1755	20	25.28	26	398.1072	0.1566	1.0000	Yes
LTE B5	824~849	20	25.10	26	398.1072	0.0051	0.5493	Yes
LTE B7	2500~2570	20	24.87	25	316.2278	0.0219	1.0000	Yes
LTE B66	1710~1780	20	24.66	25	316.2278	0.1244	1.0000	Yes

GSM:

Maximum Gain is -11.93dBi for GSM 850

Maximum Gain is 2.96dBi for PCS1900

WCDMA:

Maximum Gain is 2.96dBi for WCDMA Band 2

Maximum Gain is 2.96dBi for WCDMA Band 4

Maximum Gain is -11.93dBi for WCDMA Band 5

LTE:

Maximum Gain is 2.96dBi for LTE Band 2

Maximum Gain is 2.96dBi for LTE Band 4

Maximum Gain is -11.93dBi for LTE Band 5

Maximum Gain is -4.58dBi for LTE Band 7

Maximum Gain is 2.96dBi for LTE Band 66

Conclusion: Then SAR evaluation is not required.

§ 2.1091 Radiofrequency radiation exposure evaluation: mobile devices.

For purposes of this section, the definitions in § 1.1307(b)(2) of this chapter shall apply. 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 RF source's radiating structure(s) and the body of the user or nearby persons.