



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			
LTE B2(Cat-M)	1850.7~1919.3	20	23.86	24	251.1886	0.0662	1.0000	Yes
LTE B4(Cat-M)	1710.7~1754.3	20	23.95	24	251.1886	0.0465	1.0000	Yes
LTE B12(Cat-M)	699.7~715.3	20	23.87	24	251.1886	0.0281	0.3496	Yes
LTE B2(NB-IoT)	1850.1~1909.9	20	23.79	24	251.1886	0.0662	1.0000	Yes
LTE B4(NB-IoT)	1710.1~1754.9	20	23.92	24	251.1886	0.0465	1.0000	Yes
LTE B12(NB-IoT)	699.1~715.9	20	23.94	24	251.1886	0.0281	0.3496	Yes

Maximum Gain is 0.85dBi for Band 2,
Maximum Gain is 0.79dBi for Band 4,
Maximum Gain is 0.24dBi for Band 12

Then SAR evaluation is not required.