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)

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 tune-uppower		MPE (mW/cm^2)	Limit (mW/cm^2)	SAR Test Exclusion
			dBm	dBm	mW			
BT	2441	80	7.076	7.5	5.100	0.0002	1	Yes
2.4G WiFi	2437	80	21.584	22	144.012	0.0057	1	Yes
UHF	440	80	37.263	38	5324.760	0.2094	0.293	Yes
GSM850	824.2	80	25.81	26	398.1072	0.0124	0.5495	Yes
GSM1900	1850.2	80	22.81	26	398.1072	0.0124	1.0000	Yes
WCDMA B2	1852.4	80	25.00	26	398.1072	0.0124	1.0000	Yes
WCDMA B4	1712.4	80	25.00	26	398.1072	0.0124	1.0000	Yes
WCDMA B5	826.4	80	25.00	26	398.1072	0.0124	0.5509	Yes
LTE B2	1850.7	80	25.00	26	398.1072	0.0124	1.0000	Yes
LTE B4	1710.7	80	25.00	26	398.1072	0.0124	1.0000	Yes
LTE B5	824.70	80	25.00	26	398.1072	0.0124	0.5498	Yes
LTE B7	2502.50	80	25.00	26	398.1072	0.0124	1.0000	Yes
LTE B12	699.70	80	25.00	26	398.1072	0.0124	0.4665	Yes
LTE B13	779.50	80	25.00	26	398.1072	0.0124	0.5197	Yes
LTE B25	1850.7	80	25.00	26	398.1072	0.0124	1.0000	Yes
LTE B26(814-824)	814.7	80	25.00	26	398.1072	0.0124	0.5431	Yes
LTE B26(824-849)	824.7	80	25.00	26	398.1072	0.0124	0.5498	Yes
LTE B38	2572.5	80	25.00	26	398.1072	0.0124	1.0000	Yes
LTE B41	2498.5	80	25.00	26	398.1072	0.0124	1.0000	Yes

Note: The power data for 2/3/4G is sourced from the RF exposure assessment report of FCC ID: XMR201903EG25G

Maximum Simultaneous transmission MPE Ratios for BT+WIFI +UHF+WWAN:

Max MPE ratio $_{BT}$/Limit	Max MPE ratio $_{WIFI}$/Limit	Max MPE ratio $_{UHF}$/Limit	Max MPE ratio $_{2/3/4G}$/Limit	∑MPE ratios	Limit	Result
0.0002	0.0057	0.2094	0.0124	0.2277	1	PASS

BT&WIFI Antenna Gain: 1.51dBi, 1.42(numeric)

UHF Antenna Gain: 4dBi, 2.51(numeric)

2/3/4G Antenna Gain: 4dBi, 2.51(numeric), (2/3/4GCotains FCC ID: XMR201903EG25G).

In summary, SAR evaluation is not required.