GTS

RF Exposure evaluation

According to 447498 D04 Interim General RF Exposure Guidance v01

$$P_{th} \text{ (mW)} = ERP_{20\ cm} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \qquad (B.1)$$

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20\ cm}(d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20\ cm} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \qquad (B.2)$$

where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\ cm}\sqrt{f}}\right)$$

and f is in GHz, d is the separation distance (cm), and ERP_{20cm} is per Formula (B.1). The example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)									
	5	10	15	20	25	30	35	40	45	50
300	39	65	88	110	129	148	166	184	201	217
450	22	44	67	89	112	135	158	180	203	226
835	9	25	44	66	90	116	145	175	207	240
1900	3	12	26	44	66	92	122	157	195	236
2450	3	10	22	38	59	83	111	143	179	219
3600	2	8	18	32	49	71	96	125	158	195
5800	1	6	14	25	40	58	80	106	136	169

ERP/EIRP = P_T+G_T −L_C

ERP/EIRP is the equivalent (or effective) radiated power [in same units as P_T, typically dBW, dBm, or power spectral density (psd)], relative to either a dipole antenna (ERP) or an isotropic antenna (EIRP).

P_T is the transmitter output power, in dBW, dBm, or psd (power over a specified reference bandwidth).

G_T is the gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP).

L_C is the signal attenuation in the connecting cable between the transmitter and the antenna, in dB.

Band	Frequency (MHz)	Output power (dBm)	Ant gain(dBi)	EIRP(dBm)	ERP(dBm)	ERP(mw)	Distance (cm)	P_{th} (mW)
BT EDR	2441	2.31	0.86	3.17	1.02	1.26	0.5	2.8
BLE	2440	1.4	0.86	2.26	0.11	1.026	0.5	2.8

ERP = EIRP −2.15 dB

WORSE CASE

For BT EDR mode:

1.26mW<2.8mW

For BLE mode:

1.026mW<2.8mW

Remark:

Then SAR evaluation is not required