

RF Exposure evaluation
For FCC ID: 2BNYA-MIGHTOX

According to 447498 D04 Interim General RF Exposure Guidance v01

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

where

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

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

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

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

$$eirp = pt \times gt = (EXd)^2/30$$

where:

pt = transmitter output power in watts,

gt = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m, --- $10^{((\text{dBuV/m})/20)}/10^6$

d = measurement distance in meters (m)---3m

$$S_{opt} = (EXd)^2/30 \times gt$$

Ant gain = -0.58dBi, so Ant numeric gain = 0.875

Field strength = 93.33dB μ V/m @3m@2441MHz (Worst Case)

$$So \ Pt = \{ [10^{(93.33/20)}/10^6 \times 3]^2 / (30 \times 0.875) \} \times 1000 \text{ mW}$$

$$= 0.738 \text{ mW} < 2.76 \text{ mW}$$

Field strength = 91.35dB μ V/m @3m@2441MHz (Worst Case)

$$So \ Pt = \{ [10^{(91.35/20)}/10^6 \times 3]^2 / (30 \times 0.875) \} \times 1000 \text{ mW}$$

$$= 0.468 \text{ mW} < 2.76 \text{ mW}$$

$$0.738 \text{ mW} / 2.76 \text{ mW} + 0.468 \text{ mW} / 2.76 \text{ mW} = 0.44 < 1$$

Then SAR evaluation is not required