FCC §1.1307 (B) & §2.1091- MPE-BASED EXEMPTION

Applicable Standard

According to subpart sub-part 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

According to KDB 447498 D04 Interim General RF Exposure Guidance

MPE-Based Exemption:

General frequency and separation-distance dependent MPE-based effective radiated power(ERP) thresholds are in Table B.1 [Table 1 of § 1.1307(b)(3)(i)(C)] to support an exemption from further evaluation from 300 kHz through 100 GHz.

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	1,920 R^2.
1.34-30	3,450 R^2/f^2.
30-300	3.83 R^2.
300-1,500	0.0128 R^2f.
1,500-100,000	19.2R^2.

R is the minimum separation distance in meters
f = frequency in MHz

For multiple RF sources: Multiple RF sources are exempt if:

in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation:

$$\sum_{i=1}^{a} \frac{P_i}{P_{th,i}} + \sum_{j=1}^{b} \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^{c} \frac{Evaluated_k}{Exposure\ Limit_k} \leq 1$$

Result

Mode	Frequency (MHz)	Tune up conducted power#	Antenna Gain#		ERP		Evaluation Distance (m)	MPE-Based Exemption Threshold (mW)
		(dBm)	(dBi)	(dBd)	(dBm)	(mW)		
BLE	2402-2480	0	3.026	2.010	0.876	1.223	0.2	768

Note 1: The tune-up power and antenna gain was declared by the applicant.
Note 2: 0dBd=2.15dBi.
Note 3. For NFC, the maximum E-field strength is 82.59 dBuV/m@3m=0.13474 V/m@3m
EIRP= (E*r)^2/30=(0.13474*3)^2/30=0.05447 mW, the NFC limit is 3450*(0.2^2)/（13.56^2）=0.75052W=750.52mw

BLE and NFC can’t transmit simultaneously

To maintain compliance with the FCC’s RF exposure guidelines, place the equipment at least 20cm from nearby persons.