FCC ID:2AXH6-K2PRO

RF exposure evaluation

According to§15.247(i), §1.1307 and KDB447498, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the commission's guidance.

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

TABLE B.1—THRESHOLDS FOR SINGLE RF SOURCES SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION

RF Source Frequency			Minimum Distance			Threshold ERP
f_L MHz		f_H MHz	$\lambda_L / 2\pi$		$\lambda_H / 2\pi$	W
0.3	–	1.34	159 m	–	35.6 m	1,920 R^2
1.34	–	30	35.6 m	–	1.6 m	3,450 R^2/f^2
30	–	300	1.6 m	–	159 mm	3.83 R^2
300	–	1,500	159 mm	–	31.8 mm	0.0128 R^2f
1,500	–	100,000	31.8 mm	–	0.5 mm	19.2R^2
Subscripts L and H are low and high; λ is wavelength. From §1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.						

For mobile devices that are not exempt per Table B.1 [Table 1 of §1.1307(b)(1)(i)(C)] at distances from 20 cm to 40 cm and in 0.3 GHz to 6 GHz, evaluation of compliance with the exposure limits in §1.1310 is necessary if the ERP of the device is greater than ERP20cm in Formula (B.1) [repeated from §2.1091(c)(1); also in §1.1307(b)(1)(i)(B)].

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

According to FCC Part 2.1091 and § 1.1307(b)(3)(i)(C) , this unlicensed transmitting devices is categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use, According to the KDB 447498 , the simple calculation as below:

WIFI

Antenna Gain: 2.41dBi
Conducted Transmit Power Max: = 16.35dBm = 43.15mW
EIRP=16.35dBm+2.41dBi=18.76dBm
ERP= 18.76-2.15dB= 16.61dBm
The maximun output power specified is: 16.61dBm (45.81mW)

The MPE limit is $19.2R^2$ (768mW) for general population and uncontrolled exposure in the 2.4GHz frequency range according to FCC Part 1.1307(b)(3)(i)(C). As the measured power density at 20cm from the transmitter is lower than the MPE limit, the compliance to the MPE limit can be ensured by indicating the minimum 20cm separation between the transmitter's radiating structure and body of the user or nearby persons.

NFC

Main Power：39.68dBμV/m=39.68-95.20=-55.52dBm

Antenna gain: 0 dBi
Conducted Transmit Power Max: = -55.52
EIRP=-55.52dBm + 0dBi=-55.52Bm
ERP= -55.52-2.15dB= -57.67dBm
The maximun ERP power specified is -57.67 dBm = 0.000001710mW

The MPE limit is $3450R^2/f^2$ (750mW) for general population and uncontrolled exposure in the 13.56MHz frequency range according to FCC Part 1.1307(b)(3)(i)(C). As the measured power density at 20cm from the transmitter is lower than the MPE limit, the compliance to the MPE limit can be ensured by indicating the minimum 20cm separation between the transmitter's radiating structure and body of the user or nearby persons.