* RF Exposure

1. Regulation

According to §15.247(i), 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 levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this Chapter.

Limits for Maximum Permissive Exposure: RF exposure is calculated.

Frequency Range	Electric Field Strength [V/m]	Magnetic Field Strength [A/m]	Power Density [㎽/㎠]	Averaging Time [minute]
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/1 500	30
1 500 ~ 15 000	/	/	1.0	30

*f=frequency in ㎒, *= plane-wave equivalent power density*

MPE (Maximum Permissive Exposure) Prediction

Predication of MPE limit at a given distance: Equation from page 18 of OET Bulletin 65, Edition 97-01

$S = PG/4\pi R^2 \quad \left(\Rightarrow R = \sqrt{PG/4\pi S}\right)$

S = power density [㎽/㎠]

P = Power input to antenna [㎽]

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna [㎝]

480-5 Shin-dong, Yeongtong-gu, Suwon-city, Gyunggi-do, 443-390, Korea
82-31-336-9919 (Main) 82-505-299-8311 (Fax)

2. RF Exposure Compliance Issue

The information should be included in the user's manual:
This appliance and its antenna must not be co-located or operation in conjunction with any other antenna or transmitter. A minimum separation distance of 20 ㎝ must be maintained between the antenna and the person for this appliance to satisfy the RF exposure requirements.

3. Calculation Result of RF Exposure

Channel	Target power [dB]	Tune up tolerance [dB]	Max tune up power [dB]	Max tune up power [㎽]	Ant Gain [dBm]	Ant Gain [㎽]	Power Density at 20 ㎝ [㎽/㎠]	Limit [㎽/㎠]
2.4 ㎓_n HT20 MIMO	19.00	±2.0	21.00	125.89	3.10	2.04	0.051 14	1.000 00
5.0 ㎓_n HT20 MIMO	19.00	±2.0	21.00	125.89	2.80	1.91	0.047 72	1.000 00

4. Target power and tolerance, Max tuneup power

Wifi 2.4 ㎓

Channel	Target power	tolerance	Max tune up power
802.11b_Lowest	17.00	±2	19.00
802.11b_Middle	17.00	±2	19.00
802.11b_Highest	17.00	±2	19.00
802.11g_Lowest	16.00	±2	18.00
802.11g_Middle	16.00	±2	18.00
802.11g _Highest	16.00	±2	18.00
802.11n_HT20_Lowest	16.00	±2	18.00
802.11n_HT20_Middle	16.00	±2	18.00
802.11n_HT20_Highest	16.00	±2	18.00
802.11n_HT20_MIMO_Lowest	19.00	±2	21.00
802.11n_HT20_MIMO_Middle	19.00	±2	21.00
802.11n_HT20_MIMO_Highest	17.00	±2	19.00

Wifi 5.0 GHz_5 150 Band

Mode	Target power	tolerance	Max tuneup power
802.11a_Lowest	16.00	±2	18.00
802.11a_Middle	16.00	±2	18.00
802.11a_Highest	16.00	±2	18.00
802.11n HT20_Lowest	16.00	±2	18.00
802.11n HT20_Middle	16.00	±2	18.00
802.11n HT20_Highest	16.00	±2	18.00
802.11n HT20_MIMO_Lowest	19.00	±2	21.00
802.11n HT20_MIMO_Middle	19.00	±2	21.00
802.11n HT20_MIMO_Highest	19.00	±2	21.00

Wifi 5.0 GHz_5 250 Band

Mode	Target power	tolerance	Max tuneup power
802.11a_Lowest	17.00	±2	19.00
802.11a_Middle	17.00	±2	19.00
802.11a_Highest	17.00	±2	19.00
802.11n HT20_Lowest	17.00	±2	19.00
802.11n HT20_Middle	17.00	±2	19.00
802.11n HT20_Highest	17.00	±2	19.00
802.11n HT20_MIMO_Lowest	19.00	±2	21.00
802.11n HT20_MIMO_Middle	19.00	±2	21.00
802.11n HT20_MIMO_Highest	19.00	±2	21.00

Wifi 5.0 GHz_5 470 Band

Mode	Target power	tolerance	Max tuneup power
802.11a_Lowest	17.00	±2	19.00
802.11a_Middle	17.00	±2	19.00
802.11a_Highest	17.00	±2	19.00
802.11n HT20_Lowest	17.00	±2	19.00
802.11n HT20_Middle	17.00	±2	19.00
802.11n HT20_Highest	17.00	±2	19.00
802.11n HT20_MIMO_Lowest	19.00	±2	21.00
802.11n HT20_MIMO_Middle	19.00	±2	21.00
802.11n HT20_MIMO_Highest	19.00	±2	21.00

Wifi 5.0 GHz_5 720 Band

Mode	Target power	tolerance	Max tuneup power
802.11a_Lowest	14.00	±2	16.00
802.11a_Middle	14.00	±2	16.00
802.11a_Highest	15.00	±2	17.00
802.11n HT20_Lowest	15.00	±2	17.00
802.11n HT20_Middle	15.00	±2	17.00
802.11n HT20_Highest	15.00	±2	17.00
802.11n HT20_MIMO_Lowest	17.00	±2	19.00
802.11n HT20_MIMO_Middle	17.00	±2	19.00
802.11n HT20_MIMO_Highest	17.00	±2	19.00

480-5 Shin-dong, Yeongtong-gu, Suwon-city, Gyunggi-do, 443-390, Korea
82-31-336-9919 (Main) 82-505-299-8311 (Fax)