

## 10. RADIO FREQUENCY EXPOSURE

### 10.1. Limit

According to §1.1310 and §2.1091 RF exposure is calculated.

**Table: Limits for General Population/Uncontrolled Exposure**

Frequency Range (MHz)	Power Density (S) (mW/cm <sup>2</sup> )
0.3–1.34	*(100)
1.34–30	*(180/f <sup>2</sup> )
30–300	0.2
300–1500	f/1500
1500–100,000	1.0

F = frequency in MHz

\* = Plane-wave equivalent power density

### Maximum Permissible Exposure

The MPE was calculated at 20cm to show compliance with the power density limit.

$$S = PG/4\pi R^2$$

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.

Note:

1. Manufacturer declared that the maximum antenna gain for Wi-Fi is 3dBi(Max.).
2. Manufacturer declared that the nearest distance between human and the EUT is 20cm.
3. Only record worst case data.

Test Mode	Channel	Frequency (MHz)	Power (dBm, Peak)	Power Tune Up (dBm, Peak)
802.11b	Low	2412	18.39	19±1.0
	Middle	2437	19.31	19±1.0
	High	2462	19.93	19±1.0
802.11g	Low	2412	17.41	18±1.0
	Middle	2437	18.50	18±1.0
	High	2462	18.92	18±1.0
802.11n HT20	Low	2412	16.47	17±1.0
	Middle	2437	17.48	17±1.0
	High	2462	17.88	17±1.0
802.11n HT40	Low	2422	17.38	18±1.0
	Middle	2437	18.25	18±1.0
	High	2452	18.87	18±1.0

Test Mode	Channel	Frequency (MHz)	Power (dBm, AV)	Power Tune Up (dBm)
802.11a	Low	5180	17.88	17.0±1.0
	Middle	5220	17.29	17.0±1.0
	High	5240	17.09	17.0±1.0
802.11n(HT20)	Low	5180	15.52	15.0±1.0
	Middle	5220	15.87	15.0±1.0
	High	5240	15.47	15.0±1.0
802.11n(HT40)	Low	5190	15.91	15.0±1.0
	High	5230	15.17	15.0±1.0
802.11a	Low	5745	15.95	15.0±1.0
	Middle	5785	14.49	15.0±1.0
	High	5825	14.20	15.0±1.0
802.11n(HT20)	Low	5745	15.59	15.0±1.0
	Middle	5785	14.71	15.0±1.0
	High	5825	14.32	15.0±1.0
802.11n(HT40)	Low	5755	15.50	15.0±1.0
	High	5795	15.20	15.0±1.0

## 10.2 Test Results

Test Mode	Channel	Max. Tune Up Power (dBm, Peak)	Max. Tune Up Power (mW)	MPE (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
802.11b	Low	20.0	100.00	0.0397	1.0
	Middle	20.0	100.00	0.0397	1.0
	High	20.0	100.00	0.0397	1.0
802.11g	Low	19.0	79.43	0.0315	1.0
	Middle	19.0	79.43	0.0315	1.0

	High	19.0	79.43	0.0315	1.0
802.11n HT20	Low	18.0	63.10	0.0251	1.0
	Middle	18.0	63.10	0.0251	1.0
	High	18.0	63.10	0.0251	1.0
	Low	19.0	79.43	0.0315	1.0
802.11n HT40	Middle	19.0	79.43	0.0315	1.0
	High	19.0	79.43	0.0315	1.0

Test Mode	Channel	Max. Tune Up Power (dBm, AV)	Max. Tune Up Power (mW)	MPE (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
802.11a	Low	18.0	63.10	0.0251	1.0
	Middle	18.0	63.10	0.0251	1.0
	High	18.0	63.10	0.0251	1.0
802.11n(HT20)	Low	16.0	39.81	0.0158	1.0
	Middle	16.0	39.81	0.0158	1.0
	High	16.0	39.81	0.0158	1.0
802.11n(HT40)	Low	16.0	39.81	0.0158	1.0
	High	16.0	39.81	0.0158	1.0
802.11a	Low	16.0	39.81	0.0158	1.0
	Middle	16.0	39.81	0.0158	1.0
	High	16.0	39.81	0.0158	1.0
802.11n(HT20)	Low	16.0	39.81	0.0158	1.0
	Middle	16.0	39.81	0.0158	1.0
	High	16.0	39.81	0.0158	1.0
802.11n(HT40)	Low	16.0	39.81	0.0158	1.0
	High	16.0	39.81	0.0158	1.0

Antenna Gain (typical): Wi-Fi: 3dBi, 2.00 (numeric)

Prediction distance: >=20cm

The power density level worst case at 20 cm is below the uncontrolled exposure limit.

Simultaneous transmission:

This device doesn't support simultaneous transmission. Only single operating band at the same time is allowed.