

8. RADIO FREQUENCY EXPOSURE

8.1. 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 ²)
0.3–1.34	*(100)
1.34–30	*(180/f ²)
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 is 3.0dBi for TX.
2. Manufacturer declared that the nearest distance between human and the EUT is 20cm.
3. Only record worst case data.

802.11b

Conducted Peak output Power in dBm	16.78	dBm
Max. Conducted Peak output Power in mW	47.64	mW
Prediction distance	20	cm
Prediction frequency	2462	MHz
Antenna Gain(typical)	5.0	dBi
Antenna Gain(numeric)	3.16	
Power density at prediction frequency(S)	0.0300	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1	mW/cm ²

802.11g

Conducted Peak output Power in dBm	15.96	dBm
Max. Conducted Peak output Power in mW	39.45	mW
Prediction distance	20	cm
Prediction frequency	2462	MHz
Antenna Gain(typical)	5.0	dBi
Antenna Gain(numeric)	3.16	
Power density at prediction frequency(S)	0.0248	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1	mW/cm ²

802.11n-HT20

Conducted Peak output Power in dBm	16.08	dBm
Max. Conducted Peak output Power in mW	40.55	mW
Prediction distance	20	cm
Prediction frequency	2462	MHz
Antenna Gain(typical)	5.0	dBi
Antenna Gain(numeric)	3.16	
Power density at prediction frequency(S)	0.0255	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1	mW/cm ²

802.11n-HT40

Conducted Peak output Power in dBm	15.45	dBm
Max. Conducted Peak output Power in mW	35.08	mW
Prediction distance	20	cm
Prediction frequency	2452	MHz
Antenna Gain(typical)	5.0	dBi
Antenna Gain(numeric)	3.16	
Power density at prediction frequency(S)	0.0221	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1	mW/cm ²

802.11a(5180~5240MHz)

Conducted Peak output Power in dBm	21.27	dBm
Max. Conducted Peak output Power in mW	133.97	mW
Prediction distance	20	cm
Prediction frequency	5180	MHz
Antenna Gain(typical)	5.0	dBi
Antenna Gain(numeric)	3.16	
Power density at prediction frequency(S)	0.0843	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1	mW/cm ²

802.11a(5745~5805MHz)

Conducted Peak output Power in dBm	20.72	dBm
Max. Conducted Peak output Power in mW	118.03	mW
Prediction distance	20	cm
Prediction frequency	5805	MHz
Antenna Gain(typical)	5.0	dBi
Antenna Gain(numeric)	3.16	
Power density at prediction frequency(S)	0.0742	mW/cm ²
MPE limit for uncontrolled exposure at prediction frequency	1	mW/cm ²

8.2 Test Results

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