

Calculation and sample for Confirmation

Dear Reviewer,

As specified in Table 1B of 47 CFR 1.1310 – Limits for Maximum Permissible Exposure(MPE), Limits for General Population/Uncontrolled Exposure:

Frequency range (MHz)	Power density (mW/cm ²)
300 – 1,500	f/1500
1,500 – 100,000	1.0

The RF Exposure level is calculated using the general equation:

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

the EUT antenna gain is 2.0 dBi

R = 20 cm

$\pi = 3.1416$

The power density limit is:

For 1,500 – 100,000MHz: 1.0 mW/cm^{2c}

Solving for S, the power density at 20 cm is

For WIFI:

802.11b:

Frequency (MHz)	dBm	mW	G(dBi)	Numeric	R(cm)	S(mW/cm ²)	Limit (mW/cm ²)
2412	15.93	39.17	2.0	1.6	20	0.01235	1
2437	15.22	33.27	2.0	1.6	20	0.01049	1
2462	14.28	26.79	2.0	1.6	20	0.00845	1

802.11g:

Frequency (MHz)	dBm	mW	G(dBi)	Numeric	R(cm)	S(mW/cm ²)	Limit (mW/cm ²)
2412	15.2	33.11	2.0	1.6	20	0.01044	1
2437	14.82	30.34	2.0	1.6	20	0.00957	1
2462	13.93	24.72	2.0	1.6	20	0.00779	1

802.11n-20:

Frequency (MHz)	dBm	mW	G(dBi)	Numeric	R(cm)	S(mW/cm ²)	Limit (mW/cm ²)
2412	15.17	32.89	2.0	1.6	20	0.01037	1
2437	13.66	23.23	2.0	1.6	20	0.00732	1
2462	13.58	22.80	2.0	1.6	20	0.00719	1

802.11n-40:

Frequency (MHz)	dBm	mW	G (dBi)	Numeric	R (cm)	S (mW/cm ²)	Limit (mW/cm ²)
2422	14.32	27.04	2.0	1.6	20	0.00853	1
2437	14.04	25.35	2.0	1.6	20	0.00799	1
2452	13.36	21.68	2.0	1.6	20	0.00683	1

So, the power density is kept.

Please contact us if you have any additional questions.

Best Regards

Morlab

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