

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 = 5 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 5 cm is

For WIFI:

802.11b:

Frequency (MHz)	dBm	mW	G(dBi)	Numeric	R(cm)	S(mW/cm ²)	Limit(mW/cm ²)
2412	18.71	74.30	2.0	1.6	5	0.02343	1
2437	17.9	61.66	2.0	1.6	5	0.31106	1
2462	18.39	69.02	2.0	1.6	5	0.34821	1

802.11g:

Frequency (MHz)	dBm	mW	G(dBi)	Numeric	R(cm)	S(mW/cm ²)	Limit(mW/cm ²)
2412	18.88	77.27	2.0	1.6	5	0.02436	1
2437	19.54	89.95	2.0	1.6	5	0.45377	1
2462	20.4	109.65	2.0	1.6	5	0.55314	1

802.11n (20MHz):

Frequency (MHz)	dBm	mW	G(dBi)	Numeric	R(cm)	S(mW/cm ²)	Limit(mW/cm ²)
2412	20.46	111.17	2.0	1.6	5	0.03505	1
2437	20.07	101.62	2.0	1.6	5	0.51267	1
2462	20.70	117.49	2.0	1.6	5	0.59270	1

802.11n (40MHz)

Frequency (MHz)	dBm	mW	G(dBi)	Numeric	R(cm)	S(mW/cm ²)	Limit(mW/cm ²)
2422	19.55	90.16	2.0	1.6	5	0.02843	1
2437	20.26	106.17	2.0	1.6	5	0.53560	1
2452	20.80	120.23	2.0	1.6	5	0.60651	1

So, the power density is kept.

Please contact us if you have any additional questions.

Best Regards

Shanghai Skylabs Co., Ltd.

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