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:

$$\mathbf{S = PG/ 4\pi R^2}$$

The EUT antenna gain is 1.2dBi

R = 20 cm

π = 3.1416

The power density limit is:

For 1,500 – 100,000MHz: 1.0 mW/cm^2

Solving for S, the power density at 20 cm is

Tune up power tolerance and use tune up maximum power to assess the emission exploure, the worst configure is recorded and as blow:

Mode	Transmit PK Power(dBm) Max	Transmit PK Power(dBm) Min	Power Tolerance (dBm)	Tune up Maximum Power(dBm)	Antenna Options
802.11g	24.20	23.80	24±1	25	An 1
802.11g	22.60	22.14	22±1	23	An 2
802.11n 20M	24.06	23.13	24±1	25	An1
802.11n 20M	21.64	21.30	21±1	22	An2
802.11n 40M	25.19	24.29	25±1	26	An1
802.11n 40M	22.19	21.77	22±1	23	An2

Test at 802.11g

Frequency (MHz)	dBm	mW	G(dBi)	Numeric	R(cm)	S(mW/cm2)	Limit (mW/cm2)	remark
2412	25	316.23	1.2	1.3	20	0.08293	1	Ant1
2462	23	199.53	1.2	1.3	20	0.05233	1	Ant2
/	/	/	1.2	1.3	20	0.13526	1	Ant1+Ant2

Note: separately the MPE result for each antenna is provided, then sum the total of them to compare the Limit.

Test at 802.11n 20M

Frequency (MHz)	dBm	mW	G(dBi)	Numeric	R(cm)	S(mW/cm2)	Limit (mW/cm2)	remark
2462	25	316.23	1.2	1.3	20	0.08293	1	Ant1
2462	22	158.49	1.2	1.3	20	0.04156	1	Ant2
/	/	/	1.2	1.3	20	0.12450	1	Ant1+Ant2

Note: separately the MPE result for each antenna is provided, then sum the total of them to compare the Limit.

Test at 802.11n 40M

Frequency (MHz)	dBm	mW	G(dBi)	Numeric	R(cm)	S(mW/cm2)	Limit (mW/cm2)	remark
2452	26	398.11	1.2	1.3	20	0.10440	1	Ant1
2452	23	199.53	1.2	1.3	20	0.05233	1	Ant2
/	/	/	1.2	1.3	20	0.15673	1	Ant1+Ant2

Note: separately the MPE result for each antenna is provided, then sum the total of them to compare the Limit.

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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