

Test Result of RF Exposure Evaluation

According to the KDB-447498 D01 V06, FCC 47CFR § 2.1091 the following RF exposure evaluation shall to demonstrate RF exposure compliance.

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm², P_{out} = output power to antenna in mW;

G = gain of antenna in linear scale, $\pi = 3.1416$;

R = distance between observation point and center of the radiator in cm.

WIFI 2.4GHz ANT A

Frequency (MHz)	Output Power (dBm)	Target power W/ tolerance (dBm)	Max tune up power tolerance (dBm)	Output power to antenna (mW)	Antenna Gain(dBi)	Power Density at R=20cm (mW/cm ²)	Limit (mW/cm ²)	Result
802.11b								
2412	10.16	9.9±1.0	10.9	12.303	4.3	0.00659	1	Pass
2437	10.82	9.9±1.0	10.9	12.303	4.3	0.00659	1	Pass
2462	10.59	9.9±1.0	10.9	12.303	4.3	0.00659	1	Pass
802.11g								
2412	9.17	8.4±1.0	9.4	8.710	4.3	0.00466	1	Pass
2437	9.35	8.4±1.0	9.4	8.710	4.3	0.00466	1	Pass
2462	9.26	8.4±1.0	9.4	8.710	4.3	0.00466	1	Pass
802.11n(20)								
2412	8.53	7.6±1.0	8.6	7.244	4.3	0.00388	1	Pass
2437	8.27	7.6±1.0	8.6	7.244	4.3	0.00388	1	Pass
2462	8.19	7.6±1.0	8.6	7.244	4.3	0.00388	1	Pass
802.11n(40)								
2422	7.67	6.8±1.0	7.8	6.026	4.3	0.00323	1	Pass
2437	7.72	6.8±1.0	7.8	6.026	4.3	0.00323	1	Pass
2452	7.43	6.8±1.0	7.8	6.026	4.3	0.00323	1	Pass

ANT B

Frequency (MHz)	Output Power (dBm)	Target power W/ tolerance (dBm)	Max tune up power tolerance (dBm)	Output power to antenna (mW)	Antenna Gain(dBi)	Power Density at R=20cm (mW/cm2)	Limit (mW/cm2)	Result
802.11b								
2412	10.48	10.0±1.0	11.0	12.589	4.3	0.00674	1	Pass
2437	10.91	10.0±1.0	11.0	12.589	4.3	0.00674	1	Pass
2462	10.63	10.0±1.0	11.0	12.589	4.3	0.00674	1	Pass
802.11g								
2412	9.29	8.5±1.0	9.5	8.913	4.3	0.00477	1	Pass
2437	9.47	8.5±1.0	9.5	8.913	4.3	0.00477	1	Pass
2462	9.38	8.5±1.0	9.5	8.913	4.3	0.00477	1	Pass
802.11n(20)								
2412	8.12	7.5±1.0	8.5	7.079	4.3	0.00379	1	Pass
2437	8.23	7.5±1.0	8.5	7.079	4.3	0.00379	1	Pass
2462	8.41	7.5±1.0	8.5	7.079	4.3	0.00379	1	Pass
802.11n(40)								
2422	7.33	6.7±1.0	7.7	5.888	4.3	0.00315	1	Pass
2437	7.62	6.7±1.0	7.7	5.888	4.3	0.00315	1	Pass
2452	7.28	6.7±1.0	7.7	5.888	4.3	0.00315	1	Pass

WIFI 5GHz ANT A

Frequency (MHz)	Output Power (dBm)	Target power W/ tolerance (dBm)	Max tune up power tolerance (dBm)	Output power to antenna (mW)	Antenna Gain(dBi)	Power Density at R=20cm (mW/cm2)	Limit (mW/cm2)	Result
802.11a								
5180	12.57	11.7±1.0	12.7	18.621	5.3	0.01255	1	Pass
5200	11.68	11.7±1.0	12.7	18.621	5.3	0.01255	1	Pass
5240	11.83	11.7±1.0	12.7	18.621	5.3	0.01255	1	Pass
802.11n(20)								
5180	11.29	10.3±1.0	11.3	13.490	5.3	0.00909	1	Pass
5200	11.17	10.3±1.0	11.3	13.490	5.3	0.00909	1	Pass
5240	11.08	10.3±1.0	11.3	13.490	5.3	0.00909	1	Pass
802.11n(40)								
5190	10.89	9.9±1.0	10.9	12.303	5.3	0.00829	1	Pass
5230	10.75	9.9±1.0	10.9	12.303	5.3	0.00829	1	Pass

WIFI 5GHz ANT B

Frequency (MHz)	Output Power (dBm)	Target power W/ tolerance (dBm)	Max tune up power tolerance (dBm)	Output power to antenna (mW)	Antenna Gain(dBi)	Power Density at R=20cm (mW/cm2)	Limit (mW/cm2)	Result
802.11a								
5180	11.92	11.0±1.0	12.0	15.849	5.3	0.01068	1	Pass
5200	11.74	11.0±1.0	12.0	15.849	5.3	0.01068	1	Pass
5240	11.78	11.0±1.0	12.0	15.849	5.3	0.01068	1	Pass
802.11n(20)								
5180	11.31	10.4±1.0	11.4	13.804	5.3	0.00931	1	Pass
5200	11.24	10.4±1.0	11.4	13.804	5.3	0.00931	1	Pass
5240	10.97	10.4±1.0	11.4	13.804	5.3	0.00931	1	Pass
802.11n(40)								
5190	10.73	9.8±1.0	10.8	12.023	5.3	0.00810	1	Pass
5230	10.62	9.8±1.0	10.8	12.023	5.3	0.00810	1	Pass

Simultaneous transmission MPE According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations; $\sum$ of MPE ratios ≤ 1.0

WIFI 2.4G ANT A+ANT B

Model	Frequency (MHz)	Power Density at R=20cm (mW/cm ²) ANT A	Power Density at R=20cm (mW/cm ²) ANT B	Power Density at R=20cm (mW/cm ²) ANT A+ANT B	Limit (mW/cm ²)	Result
802.11b	2412	0.00659	0.00674	0.01333	1	Pass
	2437	0.00659	0.00674	0.01333	1	Pass
	2462	0.00659	0.00674	0.01333	1	Pass
802.11g	2412	0.00466	0.00477	0.00944	1	Pass
	2437	0.00466	0.00477	0.00944	1	Pass
	2462	0.00466	0.00477	0.00944	1	Pass
802.11n20	2412	0.00388	0.00379	0.00767	1	Pass
	2437	0.00388	0.00379	0.00767	1	Pass
	2462	0.00388	0.00379	0.00767	1	Pass
802.11n40	2422	0.00323	0.00315	0.00638	1	Pass
	2437	0.00323	0.00315	0.00638	1	Pass
	2452	0.00323	0.00315	0.00638	1	Pass

WIFI 5G ANT A+ANT B

Model	Frequency (MHz)	Power Density at R=20cm (mW/cm ²) ANT A	Power Density at R=20cm (mW/cm ²) ANT B	Power Density at R=20cm (mW/cm ²) ANT A+ANT B	Limit (mW/cm ²)	Result
802.11a	5180	0.01255	0.01068	0.02324	1	Pass
	5200	0.01255	0.01068	0.02324	1	Pass
	5240	0.01255	0.01068	0.02324	1	Pass
802.11n20	5180	0.00909	0.00931	0.01840	1	Pass
	5200	0.00909	0.00931	0.01840	1	Pass
	5240	0.00909	0.00931	0.01840	1	Pass
802.11n40	5190	0.00829	0.00810	0.01640	1	Pass
	5230	0.00829	0.00810	0.01640	1	Pass

Conclusion:

So no SAR is required.