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/cm2)
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 2.0dBi(Max.).

2. Manufacturer declared that the nearest distance between human and the EUT is 20cm.

3. Only record worst case data.

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Test Mode	Channel	Frequency (MHz)	ANT Power (dBm)	ANT Power Tune Up (dBm)
GFSK	Low	2402	2.44	2.0±1.0
	Middle	2441	2.34	2.0±1.0
	High	2480	2.16	2.0±1.0
π/4DQPSK	Low	2402	0.90	1.0±1.0
	Middle	2441	0.85	1.0±1.0
	High	2480	1.63	1.0±1.0
8DPSK	Low	2402	0.95	1.0±1.0
	Middle	2441	0.89	1.0±1.0
	High	2480	0.82	1.0±1.0
802.11b	Low	2412	12.29	12.0±1.0
	Middle	2437	12.33	12.0±1.0
	High	2462	12.38	12.0±1.0
802.11g	Low	2412	11.49	11.0±1.0
	Middle	2437	11.22	11.0±1.0
	High	2462	11.25	11.0±1.0
802.11n HT20	Low	2412	11.44	11.0±1.0
	Middle	2437	11.46	11.0±1.0
	High	2462	11.61	11.0±1.0
802.11n HT40	Low	2412	11.37	11.0±1.0
	Middle	2437	11.80	11.0±1.0
	High	2462	11.50	11.0±1.0

8.2 Test Results

Test Mode	Channel	ANT Max. Tune Up Power (mW)	ANT MPE (mW/cm^2)	Limit (mW/cm^2)
GFSK	Low	1.995	0.00063	1.0
	Middle	1.995	0.00063	1.0
	High	1.995	0.00063	1.0
π/4DQPSK	Low	1.585	0.00050	1.0
	Middle	1.585	0.00050	1.0
	High	1.585	0.00050	1.0
8DPSK	Low	1.585	0.00050	1.0
	Middle	1.585	0.00050	1.0
	High	1.585	0.00050	1.0
802.11b	Low	19.953	0.00627	1.0

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	Middle	19.953	0.00627	1.0
	High	19.953	0.00627	1.0
802.11g	Low	15.849	0.00498	1.0
	Middle	15.849	0.00498	1.0
	High	15.849	0.00498	1.0
802.11n HT20	Low	15.849	0.00498	1.0
	Middle	15.849	0.00498	1.0
	High	15.849	0.00498	1.0
802.11n HT40	Low	15.849	0.00498	1.0
	Middle	15.849	0.00498	1.0
	High	15.849	0.00498	1.0

According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;
∑ of MPE ratios ≤ 1.0

Max. MPE Ratio for BT (mW/cm2)	Max. MPE Ratio for WIFI (mW/cm2)	∑ MPE ratios	Limit	Results
0.00063	0.00627	0.0069	1.000	Pass

Note: Antenna Gain (typical): 2.0dBi, 1.58(numeric)

Prediction distance: >=20cm

Conclusion
The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

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