



## FCC §15.247 (i), §2.1091 – RF Exposure

### FCC ID: 2AQT5-GD-240-RX

#### Applied procedures / limit

According to FCC §15.247(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

#### Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

Note: *f* is frequency in MHz

\* = Power density limit is applicable at frequencies greater than 100 MHz

#### Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: *f* = frequency in MHz

\* = Plane-wave equivalent power density



## **5G**

*IEEE 802.11a*

*max possible output power (PK conducted) : 14±1dbm*

*IEEE 802.11N(20)*

*max possible output power (PK,conducted) : 13±1dbm*

*IEEE 802.11N(40)*

*max possible output power (PK conducted) : 11±1dbm*

*IEEE 802.11ac(20)*

*max possible output power (PK conducted) : 13±1dbm*

*IEEE 802.11ac(40)*

*max possible output power (PK conducted) : 11±1dbm*

*IEEE 802.11ac(80)*

*max possible output power (PK conducted) : 9±1dbm*

*The max possible output power (PK,conducted) of All (IEEE 802.11a , IEEE 802.11n(20), IEEE 802.11n(40), IEEE 802.11ac(20), IEEE 802.11ac(40), IEEE 802.11ac(80)) is IEEE 802.11ac(20).*



TX 802.11a Mode						
CH36	5180	14.03	13.80	N/A	23.98	Pass
CH40	5200	14.76	14.07	N/A	23.98	Pass
CH48	5240	14.54	14.09	N/A	23.98	Pass
TX 802.11 n20M Mode						
CH36	5180	13.28	12.73	16.02	23.98	Pass
CH40	5200	13.26	12.98	16.13	23.98	Pass
CH48	5240	13.84	13.42	16.65	23.98	Pass
TX 802.11 n40M Mode						
CH38	5190	11.15	10.40	13.80	23.98	Pass
CH46	5230	10.93	10.58	13.77	23.98	Pass
TX 802.11 AC20M Mode						
CH36	5180	13.05	12.77	15.92	23.98	Pass
CH40	5200	13.27	12.85	16.08	23.98	Pass
CH48	5240	13.73	13.37	16.56	23.98	Pass
TX 802.11 AC40M Mode						
CH38	5190	10.57	10.16	13.38	23.98	Pass
CH46	5230	10.71	10.65	13.69	23.98	Pass
TX 802.11 AC80M Mode						
CH42	5210	9.73	9.25	12.51	23.98	Pass

## MPE PREDICTION

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

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

Where: 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, R=20cm

## Test Result of RF Exposure Evaluation



## 5.1G

	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 <sup>2</sup> )	Total Power Density at R=20cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
802.11a ANT1	14±1.0	15	31.62	1.58 (2.00dBi)	0.00994	/	1.0	Pass
802.11a ANT2	14±1.0	15	31.62	1.58 (2.00dBi)	0.00994	/	1.0	Pass
802.11n 20MHz ANT1	13±1.0	14	25.12	1.58 (2.00dBi)	0.00790	0.01580	1.0	Pass
802.11n 20MHz ANT2	13±1.0	14	25.12	1.58 (2.00dBi)	0.00790		1.0	Pass
802.11n 40MHz ANT1	11±1.0	12	15.85	1.58 (2.00dBi)	0.00498	0.00997	1.0	Pass
802.11n 40MHz ANT2	11±1.0	12	15.85	1.58 (2.00dBi)	0.00498		1.0	Pass
802.11ac 20MHz ANT1	13±1.0	14	25.12	1.58 (2.00dBi)	0.00790	0.01580	1.0	Pass
802.11ac 20MHz ANT2	13±1.0	14	25.12	1.58 (2.00dBi)	0.00790		1.0	Pass
802.11ac 40MHz ANT1	10±1.0	11	12.59	1.58 (2.00dBi)	0.00396	0.00792	1.0	Pass
802.11ac 40MHz ANT2	10±1.0	11	12.59	1.58 (2.00dBi)	0.00396		1.0	Pass
802.11ac 80MHz ANT1	9±1.0	10	10.00	1.58 (2.00dBi)	0.00314	0.00629	1.0	Pass
802.11ac 80MHz ANT2	9±1.0	10	10.00	1.58 (2.00dBi)	0.00314		1.0	Pass

Note: Antenna A gain: 2dBi, Antenna B gain: 2dBi, transmit signals are correlated  
 For MIMO mode for 802.11 n / ac, Directional gain =5.01dbi