

FCC MPE CALCULATION (FCC ID: KMH-14H074-NA1)

RF Exposure Requirements:	47 CFR §1.1307(b)
RF Radiation Exposure Limits:	47 CFR §1.1310
RF Radiation Exposure Guidelines:	FCC OST/OET Bulletin Number 65
EUT Frequency Band:	BT/BLE: 2402-2480MHz WLAN 802.11b/g/n-HT20/HT40: 2412-2462MHz 802.11a/n: 5500-5720MHz, 5725-5825MHz 802.11n-40MHz: 5510-5710MHz, 5755-5795MHz 802.11ac: 5530-5690MHz, 5775MHz GSM850: 824.2-848.8MHz GSM1900: 1850.2-1909.8MHz WCDMA Band2: 1852.4-1907.6 MHz WCDMA Band 4: 1712.4 - 1752.6 MHz WCDMA Band5: 826.4-846.6 MHz LTE Band 2: 1850.7-1909.3 MHz LTE Band 4: 1710.7-1754.3 MHz LTE Band 5: 824.7-848.3 MHz LTE Band 7: 2502.5-2567.5MHz LTE Band 12: 699.7-715.3 MHz LTE Band 17: 706.5-713.5 MHz LTE Band 38: 2572.5-2617.5MHz LTE Band 66: 1710.7-1779.3 MHz

Limits for General Population/Uncontrolled Exposure in the band of:	300 - 1500 MHz,
Power Density Limit:	f/1500 mW/cm ²
Limits for General Population/Uncontrolled Exposure in the band of:	1500 - 100,000 MHz
Power Density Limit:	1 mW / cm ²

Equation: $S = PG / 4\pi R^2$ or $R = \sqrt{PG / 4\pi S}$
Where, S = Power Density
P = Power Input to Antenna
G = Antenna Gain
R = distance to the center of radiated antenna

Prediction distance 27 cm

Radio	Frequency (MHz)	Max Conducted Output Power (dBm)	Antenna Gain (dBi)	Separation distance (cm)	Power Density (mW/ cm ²)	MPE Limit (mW/ cm ²)
BT/BDR&EDR	2402-2480	8.68	3.40	27	0.002	1
BT/BLE	2402-2480	11.12	3.40	27	0.003	1
WLAN 11b/g/n	2412-2462	18.30	12.59	27	0.134	1
WLAN 11a/n/ac	5500-5825	12.68	10.143	27	0.021	1
GSM850	824.2-848.8MHz	31.76	4.32	27	0.443	0.550
GSM1900	1850.2-1909.8MHz	29.89	5.53	27	0.380	1
WCDMA B2	1852.4-1907.6	24.36	5.53	27	0.106	1
WCDMA B4	1712.4 - 1752.6	24.07	5.53	27	0.100	1
WCDMA B5	826.4-846.6	24.23	4.32	27	0.078	0.551
LTE Band2	1850.7-1909.3	23.79	5.53	27	0.093	1
LTE Band4	1710.7-1754.3	23.85	5.53	27	0.095	1
LTE Band5	824.7-848.3	23.30	4.32	27	0.063	0.550
LTE Band7	2502.5-2567.5MHz	23.40	5.91	27	0.093	1
LTE Band12	699.7-715.3	22.91	4.32	27	0.058	0.466
LTE Band17	706.5-713.5	23.07	4.32	27	0.060	0.471
LTE Band38	2572.5-2617.5MHz	24.02	5.91	27	0.107	1
LTE Band66	1710.7-1779.3	23.82	5.53	27	0.094	1

The above results show that the device complies with the MPE requirement.

The BT/BLE and WLAN can use internal or external antenna. The cellular will use external antenna only.

The internal antenna is not co-located with the external antenna because of more than 27 cm separation distance.

When the BT/BLE, WLAN and Cellular all use external antenna, the BT/BLE is able to transmit simultaneously with WLAN, Cellular

The ratio = $0.003/1 + 0.134/1 + 0.443/0.550 = 0.942 < 1.0$

The above results show that the device complies with the simultaneous transmission MPE requirement.

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