4 FCC §2.1091– RF Exposure

According to §2.1091 (Mobile Devices) RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*($180/f^2$)	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

4.1 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

4.2 Test Results

For transmission with DSRC, 3G, Wi-Fi, and BT

DSRC (FCC ID: 2AEGPMK5RSU)

Maximum peak output power at antenna input terminal (dBm):	22.81
Maximum peak output power at antenna input terminal (mW):	199.99
Prediction distance (cm):	20
Predication frequency (MHz):	5860
Maximum Antenna Gain, typical (dBi):	6.10
Maximum Antenna Gain (numeric):	4.074
Power density of prediction frequency at prediction distance (mW/cm^2):	0.155
limit (mW/cm^2):	1.00

3G (FCC ID: XPYTOBYL201)

Maximum peak output power at antenna input terminal (dBm):	24.5
Maximum peak output power at antenna input terminal (mW):	281.84
Prediction distance (cm):	20
Predication frequency (MHz):	836
Maximum Antenna Gain, typical (dBi):	3.03
Maximum Antenna Gain (numeric):	2.009
Power density of prediction frequency at prediction distance (mW/cm^2):	0.1126
limit (mW/cm^2):	0.557

Wi-Fi (FCC ID: XF6-RS9113DB)

Maximum peak output power at antenna input terminal (dBm):	17.85
Maximum peak output power at antenna input terminal (mW):	60.95
Prediction distance (cm):	20
Predication frequency (MHz):	2442
Maximum Antenna Gain, typical (dBi):	2.00
Maximum Antenna Gain (numeric):	1.585
Power density of prediction frequency at prediction distance (mW/cm^2):	0.0192
limit (mW/cm^2):	1.00

Bluetooth (FCC ID: XF6-RS9113DB)

Maximum peak output power at antenna input terminal (dBm):	17.15
Maximum peak output power at antenna input terminal (mW):	51.88
Prediction distance (cm):	20
Predication frequency (MHz):	2440
Maximum Antenna Gain, typical (dBi):	2.00
Maximum Antenna Gain (numeric):	1.585
Power density of prediction frequency at prediction distance (mW/cm^2):	0.0164
limit (mW/cm^2):	1.00

The sum of the ratio of MPE values at 20 cm to their respective limits is 0.393.

Results

For the different combination of transmitters, a separation distance of 20 cm complies with the MPE simultaneous transmission limit of ≤ 1.0.