5.8.   RF EXPOSURE REQUIRMENTS [§§ 15.247(i), 1.1310 & 2.1091]

5.8.1.   Limits

§ **1.1310:** The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1307(b).

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f^2)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) 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

f = frequency in MHz
* = Plane-wave equivalent power density

Note 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

Note 2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

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5.8.2. Method of Measurements

Calculation Method of Power Density/RF Safety Distance:

$$S = \frac{PG}{4\pi \cdot r^2} = \frac{EIRP}{4\pi \cdot r^2}$$

Where,   P: power input to the antenna in mW

                        EIRP: Equivalent (effective) isotropic radiated power.

                        S: power density mW/cm^2

                        G: numeric gain of antenna relative to isotropic radiator

                        r: distance to centre of radiation in cm

$$r = \sqrt{\frac{PG}{4\pi \cdot S}} = \sqrt{\frac{EIRP}{4\pi \cdot S}}$$

FCC radio frequency exposure limits may be exceeded at distances closer than r cm from the antenna of this device.

5.8.3. RF Evaluation for Mobile Applications

Maximum RF Power conducted, $P_{conducted}$**[W]:**	0.25
Maximum Antenna Gain, **G[dBi]**:	3
Maximum EIRP, P_{EIRP}**[W]**:	0.5
MPE Limit for General Population/Uncontrolled Exposure, $S_{uncontrolled}$**[mW/cm^2]**	0.3135
Min Calculated RF Safety Distance for General Population/Uncontrolled Exposure, $r_{safety\_uncontrolled}$**[cm]**	12
Min Required RF Safety Distance for General Population/Uncontrolled Exposure, $r_{safety\_uncontrolled}$**[cm]**	**20cm**, since calculated value is below 20cm

5.8.4. RF Evaluation for Portable Applications

For portable applications, refer to SAR test report for portable host products with the module integrated.

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