
FCC §15.247 (I) & §1.1310 & §2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.247 (i) and subpart 1.1310 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

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 (minutes)
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

Calculated Formulary:

Predication of MPE limit at a given distance

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm²);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

Calculated Data:

Test Mode	Frequency Range (MHz)	Antenna Gain		Tune-up Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
GFSK	2402	-0.5	0.89	-23.46	0.0045	20	0.0000008	1.0000
	2440	-0.5	0.89	-23.76	0.0045	20	0.0000008	1.0000
	2480	-0.5	0.89	-23.12	0.0049	20	0.00000087	1.0000
$\pi/4$ DQPSK	2402	-0.5	0.89	-23.15	0.0048	20	0.00000085	1.0000
	2440	-0.5	0.89	-23.40	0.0046	20	0.00000081	1.0000
	2480	-0.5	0.89	-22.60	0.0055	20	0.00000097	1.0000
8-DPSK	2402	-0.5	0.89	-23.12	0.0049	20	0.00000087	1.0000
	2440	-0.5	0.89	-22.91	0.0051	20	0.0000009	1.0000
	2480	-0.5	0.89	-22.54	0.0058	20	0.000001	1.0000

Conclusion: The EUT meets exemption requirement - RF exposure evaluation greater than 20cm distance specified in § 2.1091. If the device built into a host as a portable usage, the additional RF exposure evaluation may be required as specified by § 2.1093.