

MPE Ratio for FCC 15.231

Power Density Based on 20 separation distance (cm)

433.92	Frequency (MHz)
0.32	Power to Antenna (dBm)
0	Antenna gain (dBi)

FCC

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

0.00021
 Power Density (mW/cm²)

Canada	FCC	Limit (mW/cm ²)
0.166	0.28928	Limit (mW/cm ²)
0.166	0.289	Margin
0.001	0.001	MPE Ratio

(General Population)

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 Exposure				
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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			1.0	30

Device FCC ID XQC-CSBHK02
 Date 12/9/2020
 Prepared By Kyle F.

Canada

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
0.003-10 ⁻²¹	83	90	-	Instantaneous*
0.1-10	-	0.73/ f	-	6**
1.1-10	87/ f ^{0.5}	-	-	6**
10-20	27.46	0.0728	2	6
20-48	58.07/ f ^{0.25}	0.1540/ f ^{0.25}	8.944/ f ^{0.5}	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 f ^{0.3417}	0.008335 f ^{0.3417}	0.02619 f ^{0.6834}	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ f ^{1.2}
150000-300000	0.158 f ^{0.5}	4.21 x 10 ⁻⁴ f ^{0.5}	6.67 x 10 ⁻⁵ f	616000/ f ^{1.2}

Note: f is frequency in MHz.
 *Based on nerve stimulation (NS).
 ** Based on specific absorption rate (SAR).

Power Density Based on 20 separation distance (cm)

2402	Frequency (MHz)
19.375	Power to Antenna (dBm)
-7.955	Antenna gain (dBi)

FCC

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

0.00276
 Power Density (mW/cm²)

Canada	FCC	Limit (mW/cm ²)
0.535	1	Limit (mW/cm ²)
0.532	0.997	Margin
0.005	0.003	MPE Ratio

(General Population)

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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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			1.0	30

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MPE Ratio of simultaneous operation based on highest power density compared to the FCC limits

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Date December 9, 2020
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e.i.r.p			
0.32	0.001	Ratio 1	345 MHz
11.42	0.003	Ratio 2	BLE
0.004		Total	Ratio Must be <=1

Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0 , according to calculated/estimated, numerically modeled, or measured field strengths or power density.

447498 D01

0.996 Remaining

MPE Ratio Combined for both 345 MHz and BLE