

Health Canada — Safety Code 6

General Public / Uncontrolled Environments

Safety Code 6 by Health Canada is based on the premise that the most important biological effect of RF radiation is the heating of the body, also referred to as thermal effect. Thus the exposure limits of Safety Code 6 limit the body temperature increase due to RF radiation exposure to 1 degree Celsius. RF measurements are averaged over 6 minutes.

In 2015, the exposure limits of Safety Code 6 were updated. The limits for 2.4 GHz Wi-Fi networks and 2.1 GHz LTE cellular networks, for example, were lowered by about 50% from 10,000,000 $\mu\text{W}/\text{m}^2$ to 5,350,000 $\mu\text{W}/\text{m}^2$ and 4,880,000 $\mu\text{W}/\text{m}^2$, respectively.

Wireless network/device	Frequency MHz	Power density $\mu\text{W}/\text{m}^2$	Power density $\mu\text{W}/\text{cm}^2$
dLAN/ PLC	30	1,630,000	163
FM radio	100	1,290,000	129
GSM cellular network	800	2,520,000	252
Wireless smart meter	900	2,740,000	274
DECT cordless phone	1900	4,560,000	456
LTE cellular network	2100	4,880,000	488
Wi-Fi, cordless phone	2400	5,350,000	535
Wi-Fi	5000	8,830,000	883
	6000–150000	10,000,000	1,000

All above exposure limits are rounded to the nearest ten thousand.

Frequency in MHz	ICNIRP 1998***	Safety Code 6 — 2009		Safety Code 6 — 2015	
	Power density $\mu\text{W}/\text{m}^2$	Power density $\mu\text{W}/\text{m}^2$	Power density W/m^2	Power density $\mu\text{W}/\text{m}^2$	Power density W/m^2
0.003–1			(280 V/m)		(83 V/m)
1–10			(280/f V/m)		(87/f ^{0.5} V/m)
10–30			(28 V/m)		27.46 V/m*
10–20				2,000,000	2
20–48					8.944/f ^{0.5}
30	2,000,000			1,632,944	
dLAN/PLC	(28 V/m)	(28 V/m)			
48–300				1,291,000	1.291
30–300			2**		
100 FM Radio	2,000,000	2,000,000		1,291,000	
300 – 6000					0.02619 f ^{0.6834}
300–1500			f/150		
1500–15000		10,000,000	10		
GSM 800	4,000,000	5,333,333	5	2,524,100	2.52
900	4,500,000	6,000,000	6	2,735,680	2.74
1800	9,000,000	10,000,000	10	4,393,280	4.39
1900	9,500,000	10,000,000	10	4,558,640	4.56
LTE 2100	10,000,000	10,000,000	10	4,881,350	4.88
WLAN 2400	10,000,000	10,000,000	10	5,347,760	5.35
WLAN 5000	10,000,000	10,000,000	10	8,831,030	8.83
6000–15000				10,000,000	10
15000–150000		10,000,000	10	10,000,000	10
150000–300000			6.67 x 10 ⁻⁵ f		6.67 x 10 ⁻⁵ f

* 10 –20 MHz

** Power density limit applicable to frequencies greater than 100 MHz

*** Revision underway

Health Canada — [Safety Code 6](#) (2015) ICNIRP [Guideline](#) (1998)

Katharina Consulting – beyond the visible

www.katharinaconsulting.com

250-642-2774