

# International Radio Frequency "RF" Exposure Limits for 1800 MHz Range

(Cell Phone, WiFi, Smart Meters, etc)

Location	Reference	Exposure time	Limit Based On	Lower by	$\mu\text{W}/\text{m}^2$	V/m
Most of Western Europe	IEEE C95.1-1999 and ICNIRP	30 minutes	Thermal / Heating	-	10,000,000	61.4
USA	(FCC) IEEE C95.1-1999 and ICNIRP	30 minutes	Thermal / Heating	-	10,000,000	61.4
Canada	Safety Code 6, Table 5 (2015)	6 minutes	Thermal / Heating	66 x	4,393,278.4	40.7
Russia	Sanitary Norms and Regulations 2.2.4/2.1.8.055-96	3 hours +	Biological Effects	100 x	100,000	6.14
China	UDC 614.898.5 GB 9175 -88	3 hours +	Biological Effects	100 x	100,000	6.14
Italy	Sanitary Norms and Regulations 2.2.4/2.1.8.055-96	3 hours +	Biological Effects	100 x	100,000	6.14
Most of Eastern Europe	Sanitary Norms and Regulations 2.2.4/2.1.8.055-96	3 hours +	Biological Effects	100 x	100,000	6.14
Switzerland	Ordinance on Protection from Non-ionising Radiation (NISV)	Long Term	Precautionary	100 x	100,000	6.14
Toronto Board of Health, Canada	Proposed 1999	Long Term	Precautionary	100 x	100,000	6.14
Bio-Initiative Report recommendation	Bio-Initiative Report 2007	Long Term	Biological / Precautionary	10,000 x	1,000	0.614
Salzburg Resolution on Mobile Telecommunication	Preventive public health protection, Salzburg, June 7-8, 2000	Long Term	Precautionary	10,000 x	1,000	0.614
European Parliament	Resolution 1815, Strasburg, May 27, 2011	Long Term	Precautionary	10,000 x	106	0.2
Building Biology Guidelines Germany (Sleeping Areas)	SBM2008 - Level of No Biological Concern	Long Term	Precautionary	100,000,000 x	0.1	0.006,14
Cell Phone Operational Requirements				10,000,000,000 x	0.001	0.000,061,4
Natural Cosmic Radiation	MAES 2000	Long Term	Natural Exposure	10,000,000,000,000 x	0.000,001	0.000,000,061,4
Average Indoor Urban Exposure Toronto, Canada	Safe Living Technologies Inc. 2011	Long Term			200 - 5000	0.3 - 1.4

milliVolts Per Meter	Volts Per Meter	Watts/Sq Meter	milliWatts/sq Meter	microWatts/Sq Meter	Watts/Sq Centimeter	milliWatts/Sq Centimeter	microWatts/Sq Centimeter
0.001,94 mV/m	0.000,001,94 V/m	0.000,000,000,000,01 W/m <sup>2</sup>	0.000,000,000,01 mW/m <sup>2</sup>	0.000,000,01 μW/m <sup>2</sup>	0.000,000,000,000,001 W/cm <sup>2</sup>	0.000,000,000,001 mW/cm <sup>2</sup>	0.000,000,000,001 μW/cm <sup>2</sup>
0.006,14 mV/m	0.000,006,14 V/m	0.000,000,000,000,1 W/m <sup>2</sup>	0.000,000,000,1 mW/m <sup>2</sup>	0.000,000,1 μW/m <sup>2</sup>	0.000,000,000,000,01 W/cm <sup>2</sup>	0.000,000,000,01 mW/cm <sup>2</sup>	0.000,000,000,01 μW/cm <sup>2</sup>
0.019,4 mV/m	0.000,019,4 V/m	0.000,000,000,001 W/m <sup>2</sup>	0.000,000,001 mW/m <sup>2</sup>	0.000,001 μW/m <sup>2</sup>	0.000,000,000,000,01 W/cm <sup>2</sup>	0.000,000,000,01 mW/cm <sup>2</sup>	0.000,000,000,1 μW/cm <sup>2</sup>
0.0614 mV/m	0.000,061,4 V/m	0.000,000,000,01 W/m <sup>2</sup>	0.000,000,01 mW/m <sup>2</sup>	0.000,01 μW/m <sup>2</sup>	0.000,000,000,000,01 W/cm <sup>2</sup>	0.000,000,000,01 mW/cm <sup>2</sup>	0.000,000,001 μW/cm <sup>2</sup>
0.194 mV/m	0.000,194 V/m	0.000,000,000,1 W/m <sup>2</sup>	0.000,000,1 mW/m <sup>2</sup>	0.000,1 μW/m <sup>2</sup>	0.000,000,000,000,01 W/cm <sup>2</sup>	0.000,000,000,01 mW/cm <sup>2</sup>	0.000,000,01 μW/cm <sup>2</sup>
0.614 mV/m	0.000,614 V/m	0.000,000,001 W/m <sup>2</sup>	0.000,001 mW/m <sup>2</sup>	0.001 μW/m <sup>2</sup>	0.000,000,000,000,1 W/cm <sup>2</sup>	0.000,000,000,1 mW/cm <sup>2</sup>	0.000,000,1 μW/cm <sup>2</sup>
1.94 mV/m	0.001,94 V/m	0.000,000,01 W/m <sup>2</sup>	0.000,01 mW/m <sup>2</sup>	0.01 μW/m <sup>2</sup>	0.000,000,000,001 W/cm <sup>2</sup>	0.000,000,001 mW/cm <sup>2</sup>	0.000,001 μW/cm <sup>2</sup>
6.14 mV/m	0.006,14 V/m	0.000,000,1 W/m <sup>2</sup>	0.000,1 mW/m <sup>2</sup>	0.1 μW/m <sup>2</sup>	0.000,000,000,01 W/cm <sup>2</sup>	0.000,000,01 mW/cm <sup>2</sup>	0.000,01 μW/cm <sup>2</sup>
19.4 mV/m	0.019,4 V/m	0.000,001 W/m <sup>2</sup>	0.001 mW/m <sup>2</sup>	1 μW/m <sup>2</sup>	0.000,000,000,1 W/cm <sup>2</sup>	0.000,000,1 mW/cm <sup>2</sup>	0.000,1 μW/cm <sup>2</sup>
61.4 mV/m	0.061,4 V/m	0.000,01 W/m <sup>2</sup>	0.01 mW/m <sup>2</sup>	10 μW/m <sup>2</sup>	0.000,000,001 W/cm <sup>2</sup>	0.000,001 mW/cm <sup>2</sup>	0.001 μW/cm <sup>2</sup>
194 mV/m	0.194 V/m	0.000,1 W/m <sup>2</sup>	0.1 mW/m <sup>2</sup>	100 μW/m <sup>2</sup>	0.000,000,01 W/cm <sup>2</sup>	0.000,01 mW/cm <sup>2</sup>	0.01 μW/cm <sup>2</sup>
614 mV/m	0.614 V/m	0.001 W/m <sup>2</sup>	1 mW/m <sup>2</sup>	1,000 μW/m <sup>2</sup>	0.000,000,1 W/cm <sup>2</sup>	0.000,1 mW/cm <sup>2</sup>	0.1 μW/cm <sup>2</sup>
1,942 mV/m	1.94 V/m	0.01 W/m <sup>2</sup>	10 mW/m <sup>2</sup>	10,000 μW/m <sup>2</sup>	0.000,001 W/cm <sup>2</sup>	0.001 mW/cm <sup>2</sup>	1 μW/cm <sup>2</sup>
6,140 mV/m	6.14 V/m	0.1 W/m <sup>2</sup>	100 mW/m <sup>2</sup>	100,000 μW/m <sup>2</sup>	0.000,01 W/cm <sup>2</sup>	0.01 mW/cm <sup>2</sup>	10 μW/cm <sup>2</sup>
19,416 mV/m	19.4 V/m	1 W/m <sup>2</sup>	1,000 mW/m <sup>2</sup>	1,000,000 μW/m <sup>2</sup>	0.000,1 W/cm <sup>2</sup>	0.1 mW/cm <sup>2</sup>	100 μW/cm <sup>2</sup>
61,400 mV/m	61.4 V/m	10 W/m <sup>2</sup>	10,000 mW/m <sup>2</sup>	10,000,000 μW/m <sup>2</sup>	0.001 W/cm <sup>2</sup>	1 mW/cm <sup>2</sup>	1,000 μW/cm <sup>2</sup>
194,164 mV/m	194 V/m	100 W/m <sup>2</sup>	100,000 mW/m <sup>2</sup>	100,000,000 μW/m <sup>2</sup>	0.01 W/cm <sup>2</sup>	10 mW/cm <sup>2</sup>	10,000 μW/cm <sup>2</sup>
614,003 mV/m	614 V/m	1,000 W/m <sup>2</sup>	1,000,000 mW/m <sup>2</sup>	1,000,000,000 μW/m <sup>2</sup>	0.1 W/cm <sup>2</sup>	100 mW/cm <sup>2</sup>	100,000 μW/cm <sup>2</sup>
1,941,648 mV/m	1942 V/m	10,000 W/m <sup>2</sup>	10,000,000 mW/m <sup>2</sup>	10,000,000,000 μW/m <sup>2</sup>	1 W/cm <sup>2</sup>	1,000 mW/cm <sup>2</sup>	1,000,000 μW/cm <sup>2</sup>
6,140,032 mV/m	6140 V/m	100,000 W/m <sup>2</sup>	100,000,000 mW/m <sup>2</sup>	100,000,000,000 μW/m <sup>2</sup>	10 W/cm <sup>2</sup>	10,000 mW/cm <sup>2</sup>	10,000,000 μW/cm <sup>2</sup>

Formuals: V/m = √ (W/m<sup>2</sup> x 377) Volts per meter = the square root of the product of Watts per square meter times 377

Note: V/m and mV/m are rounded

milliVolts Per Meter	Volts Per Meter	Watts/Sq Meter	milliWatts/sq Meter
0.001,94 mV/m	0.000,001,94 V/m	0.000,000,000,000,01 W/m <sup>2</sup>	0.000,000,000,01 mW/m <sup>2</sup>
0.006,14 mV/m	0.000,006,14 V/m	0.000,000,000,000,1 W/m <sup>2</sup>	0.000,000,000,1 mW/m <sup>2</sup>
0.019,4 mV/m	0.000,019,4 V/m	0.000,000,000,001 W/m <sup>2</sup>	0.000,000,001 mW/m <sup>2</sup>
0.0614 mV/m	0.000,061,4 V/m	0.000,000,000,01 W/m <sup>2</sup>	0.000,000,01 mW/m <sup>2</sup>
0.194 mV/m	0.000,194 V/m	0.000,000,000,1 W/m <sup>2</sup>	0.000,000,1 mW/m <sup>2</sup>
0.614 mV/m	0.000,614 V/m	0.000,000,001 W/m <sup>2</sup>	0.000,001 mW/m <sup>2</sup>
1.94 mV/m	0.001,94 V/m	0.000,000,01 W/m <sup>2</sup>	0.000,01 mW/m <sup>2</sup>
6.14 mV/m	0.006,14 V/m	0.000,000,1 W/m <sup>2</sup>	0.000,1 mW/m <sup>2</sup>
19.4 mV/m	0.019,4 V/m	0.000,001 W/m <sup>2</sup>	0.001 mW/m <sup>2</sup>
61.4 mV/m	0.061,4 V/m	0.000,01 W/m <sup>2</sup>	0.01 mW/m <sup>2</sup>
194 mV/m	0.194 V/m	0.000,1 W/m <sup>2</sup>	0.1 mW/m <sup>2</sup>
614 mV/m	0.614 V/m	0.001 W/m <sup>2</sup>	1 mW/m <sup>2</sup>
1,942 mV/m	1.94 V/m	0.01 W/m <sup>2</sup>	10 mW/m <sup>2</sup>
6,140 mV/m	6.14 V/m	0.1 W/m <sup>2</sup>	100 mW/m <sup>2</sup>
19,416 mV/m	19.4 V/m	1 W/m <sup>2</sup>	1,000 mW/m <sup>2</sup>
61,400 mV/m	61.4 V/m	10 W/m <sup>2</sup>	10,000 mW/m <sup>2</sup>
194,164 mV/m	194 V/m	100 W/m <sup>2</sup>	100,000 mW/m <sup>2</sup>
614,003 mV/m	614 V/m	1,000 W/m <sup>2</sup>	1,000,000mW/m <sup>2</sup>
1,941,648 mV/m	1942 V/m	10,000 W/m <sup>2</sup>	10,000,000 mW/m <sup>2</sup>
6,140,032 mV/m	6140 V/m	100,000 W/m <sup>2</sup>	100,000,000 mW/m <sup>2</sup>

**Formuals:  $V/m = \sqrt{W/m^2 \times 377}$  Volts per meter = the square root of the product of Watts per square meter**

**Note: V/m and mV/m are rounded**

microWatts/Sq Meter	Watts/Sq Centimeter	milliWatts/Sq Centimeter	microWatts/Sq Centimeter
0.000,000,01 $\mu\text{W}/\text{m}^2$	0.000,000,000,000,000,001 $\text{W}/\text{cm}^2$	0.000,000,000,000,001 $\text{mW}/\text{cm}^2$	0.000,000,000,001 $\mu\text{W}/\text{cm}^2$
0.000,000,1 $\mu\text{W}/\text{m}^2$	0.000,000,000,000,000,01 $\text{W}/\text{cm}^2$	0.000,000,000,000,01 $\text{mW}/\text{cm}^2$	0.000,000,000,01 $\mu\text{W}/\text{cm}^2$
0.000,001 $\mu\text{W}/\text{m}^2$	0.000,000,000,000,000,1 $\text{W}/\text{cm}^2$	0.000,000,000,000,1 $\text{mW}/\text{cm}^2$	0.000,000,000,1 $\mu\text{W}/\text{cm}^2$
0.000,01 $\mu\text{W}/\text{m}^2$	0.000,000,000,000,001 $\text{W}/\text{cm}^2$	0.000,000,000,001 $\text{mW}/\text{cm}^2$	0.000,000,001 $\mu\text{W}/\text{cm}^2$
0.000,1 $\mu\text{W}/\text{m}^2$	0.000,000,000,000,01 $\text{W}/\text{cm}^2$	0.000,000,000,01 $\text{mW}/\text{cm}^2$	0.000,000,01 $\mu\text{W}/\text{cm}^2$
0.001 $\mu\text{W}/\text{m}^2$	0.000,000,000,000,1 $\text{W}/\text{cm}^2$	0.000,000,000,1 $\text{mW}/\text{cm}^2$	0.000,000,1 $\mu\text{W}/\text{cm}^2$
0.01 $\mu\text{W}/\text{m}^2$	0.000,000,000,001 $\text{W}/\text{cm}^2$	0.000,000,001 $\text{mW}/\text{cm}^2$	0.000,001 $\mu\text{W}/\text{cm}^2$
0.1 $\mu\text{W}/\text{m}^2$	0.000,000,000,01 $\text{W}/\text{cm}^2$	0.000,000,01 $\text{mW}/\text{cm}^2$	0.000,01 $\mu\text{W}/\text{cm}^2$
1 $\mu\text{W}/\text{m}^2$	0.000,000,000,1 $\text{W}/\text{cm}^2$	0.000.000,1 $\text{mW}/\text{cm}^2$	0.000,1 $\mu\text{W}/\text{cm}^2$
10 $\mu\text{W}/\text{m}^2$	0.000,000,001 $\text{W}/\text{cm}^2$	0.000,001 $\text{mW}/\text{cm}^2$	0.001 $\mu\text{W}/\text{cm}^2$
100 $\mu\text{W}/\text{m}^2$	0.000,000,01 $\text{W}/\text{cm}^2$	0.000,01 $\text{mW}/\text{cm}^2$	0.01 $\mu\text{W}/\text{cm}^2$
1,000 $\mu\text{W}/\text{m}^2$	0.000,000,1 $\text{W}/\text{cm}^2$	0.000,1 $\text{mW}/\text{cm}^2$	0.1 $\mu\text{W}/\text{cm}^2$
10,000 $\mu\text{W}/\text{m}^2$	0.000,001 $\text{W}/\text{cm}^2$	0.001 $\text{mW}/\text{cm}^2$	1 $\mu\text{W}/\text{cm}^2$
100,000 $\mu\text{W}/\text{m}^2$	0.000,01 $\text{W}/\text{cm}^2$	0.01 $\text{mW}/\text{cm}^2$	10 $\mu\text{W}/\text{cm}^2$
1,000,000 $\mu\text{W}/\text{m}^2$	0.000,1 $\text{W}/\text{cm}^2$	0.1 $\text{mW}/\text{cm}^2$	100 $\mu\text{W}/\text{cm}^2$
10,000,000 $\mu\text{W}/\text{m}^2$	0.001 $\text{W}/\text{cm}^2$	1 $\text{mW}/\text{cm}^2$	1,000 $\mu\text{W}/\text{cm}^2$
100,000,000 $\mu\text{W}/\text{m}^2$	0.01 $\text{W}/\text{cm}^2$	10 $\text{mW}/\text{cm}^2$	10,000 $\mu\text{W}/\text{cm}^2$
1,000,000,000 $\mu\text{W}/\text{m}^2$	0.1 $\text{W}/\text{cm}^2$	100 $\text{mW}/\text{cm}^2$	100,000 $\mu\text{W}/\text{cm}^2$
10,000,000,000 $\mu\text{W}/\text{m}^2$	1 $\text{W}/\text{cm}^2$	1,000 $\text{mW}/\text{cm}^2$	1,000,000 $\mu\text{W}/\text{cm}^2$
100,000,000,000 $\mu\text{W}/\text{m}^2$	10 $\text{W}/\text{cm}^2$	10,000 $\text{mW}/\text{cm}^2$	10,000,000 $\mu\text{W}/\text{cm}^2$

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