

Precautionary Exposure Guidelines for RF/Microwave Radiation from Wireless Communication Systems ("Wi-Fi", Cell Phones, Tablets, indoor Routers...)

Source:

<http://www.emfwise.com/emf-safety-standards.php>, with a few corrections and additional information added by **Natural Energy Works**.

The following Precautionary Guidelines for RF/Microwave Radiation are based on scientific research about biological and health effects at extremely low power densities. These are up to **90 million times lower** than [international safety standards](#), which are based on an outdated dogma maintaining that the only harm of microwave radiation lies in its thermal effects. See the [Table of Effects](#) for the levels at which various effects have been reported.

***Note** that the unit of measurement used here is **microWatts/m²** ($\mu\text{W}/\text{m}^2$), while the **Trifield TF2** and the **Cornet ED-88T Plus Meters** measure in **milliWatts/m²** (mW/m^2). Use our **Unit Conversion Table** we sent with your order to compare!*

The following charts are colored in accordance with the official **Building Biology RF/Microwave Exposure Guidelines** (see page 2).

Year	Power Density Limit	Name	Description
2001	1,000$\mu\text{W}/\text{m}^2$	Salzburg Resolution	Equivalent of $1 \text{ mW}/\text{m}^2 = 0.1 \mu\text{W}/\text{cm}^2 = 0.6 \text{ V}/\text{m}$; The recommendation of Salzburg, Austria and now also organizations like BioInitiative and Next-Up. In 2008, Liechtenstein adopts the goal of $0.6 \text{ V}/\text{m}$, approximately $1000 \mu\text{W}/\text{m}^2$ by 2013. Proposed Limit for Public Exposure to Mobile Phone Base Stations
2011	170 $\mu\text{W}/\text{m}^2$	Seletun Scientific Statement 2011	Equivalent of $0.17 \text{ mW}/\text{m}^2$
2001	100 $\mu\text{W}/\text{m}^2$	EU Parliament STOA 2001	Equivalent of $100 \text{ nW}/\text{cm}^2$

ATTENTION: The note in the *Description* column for the **EU Parliament's STOA 2001** recommendation is not correct. What the directive actually states is: "...at locations where there is any long-term exposure, power densities should **not exceed 10 nanoW/cm²**."

However 10 nanoW/cm² were correctly converted to **100 microW/m²** in the *Power Density Limit* column on the left.

Based on new research results, the earlier guidelines from the 2001 Salzburg Resolution soon proved insufficient, and in 2002 the Federal State of Salzburg, Austria issued **much stricter exposure limits** which are still valid today, but now violated even in much of Europe:

Year	Power Density Limit	Name	Description
2002	10 μW/m²	New Salzburg Precautionary Exposure Limit Outdoor	Equivalent of 10 μW/m ² =0.06 V/m The recommendation for GSM 900/1800 mobile phone base stations updated by Salzburg Public Health; See also SBM 2008 below. Proposed Target for Personal Precaution
2012	3-6 μW/m²	Bioinitiative 2012 Recommendation	Equivalent of 0.3-0.6 nW/cm ²
2002	1 μW/m²	New Salzburg Precautionary Exposure Limit Indoor	Equivalent of 1 μW/m ² =0.02 V/m Recommendation for indoor exposures, updated by Salzburg Public Health. Burgerforum 1999 & London Resolution of 2007 agree with the New Salzburg Exposure Limit.

The upcoming **5G network** will increase radiation levels even more dramatically by factors of 10 to 15 times, aside from the introduction of multiple new frequencies in the Gigahertz (GHz) range, which have *never* been tested for safety.

Building Biology RF/Microwave Exposure Guidelines for Sleeping Areas

No Concern	Slight Concern	Severe concern	Extreme concern
<0.1μW/m²	0.1μW/m² to 10μW/m²	10μW/m² to 1000μW/m²	> 1000μW/m²

The **Oberfranken study** evaluated medical complaints of 356 people with long-term RF radiation pollution in their homes. Above 100 microW/m², only 5-6% of the people did *not* have adverse health effects. This is a level far below current safety standards.

It is therefore recommended to put all mobile devices into **Airplane Mode** during the night. The microwave radiation intensity from other indoor wireless devices such as Wi-Fi routers and cordless phone base stations is also typically well above 20,000 $\mu\text{W}/\text{m}^2$ at close range (20 mW/m^2). It's like having a small cell tower inside your home. Although exposure is reduced with distance from the device according to the **Inverse Square Law**, such strong radiation sources are better shut off during the night as well. It is also suggested to keep your sleeping area as far away as possible from any "smart meters" for power, gas, or other utilities that may have been installed in or around your home.

Outdated International Safety Standards for Microwaves

Now compare the above Precautionary Guidelines with our current international safety standards for RF/microwave exposures which are dangerously out of date. The units in the red column below are once again provided in $\mu\text{W}/\text{m}^2$, use the **Unit Conversion Table** to find the figures in mW/m^2 .

Year	Power Density Limit	Name	Description
1966	100,000,000 $\mu\text{W}/\text{m}^2$	ANSI C95.1	Based on thermal effects
1992	10,000,000 $\mu\text{W}/\text{m}^2$	ANSI/IEEE C95.1-1992	Based on thermal effects, first recommended by IEEE ten years earlier in 1982. EPA calls it seriously flawed.
1996	10,000,000 $\mu\text{W}/\text{m}^2$ 5,800,000 $\mu\text{W}/\text{m}^2$	FCC	USA: 5,800 mW/m^2 averaged over a 30-minute period (869 MHz), previously recommended in 1986 by NCRP; 10,000 mW/m^2 for PCS frequencies(1.85-1.99 GHz)
1998	9,000,000 $\mu\text{W}/\text{m}^2$ 4,500,000 $\mu\text{W}/\text{m}^2$	ICNIRP	9000 mW/m^2 for 1800 MHz and 4,500 mW/m^2 for 900 MHz. 4,500 mW/m^2 is the equivalent of 61.0 V/m Prevalent standard

Standards for personal wireless devices are also extremely high. For example:

- **Mobile Phones:** For mobile phones, the standard in the USA and Canada is a **SAR of 1.6 Watts/kg**, based on behavioral disturbances observed in monkeys at 4 Watts/kg. (The European Union allows a SAR of 2.0 Watts/kg.) However, harmful effects are seen in rat brains after only 2 hours of 0.2 Watts/kg exposure. Check the **Table of Effects** to see the levels at which various effects have been reported.

Also see this [article by Dr. Mercola](#) on the flaws of the SAR standard, which is based on thermal health effects only.

Furthermore, as found in the -> **PhoneGate Scandal**, most mobile phones **exceed these SAR limits by multiple factors** when placed in direct body contact, as people usually use their phones!

- **Microwave Ovens:** The standard is 10,000,000 μ W/m² (or 10,000 mW/m², when using the Trifield TF2 or Cornet ED-88TPlus Meters) at a 5 cm distance, for FDA Guidelines for Microwave Ovens. That's over **1 billion times higher** than Natural Background (-> see the **Comparison Table** you received with your order)!

Please note: These PDF documents are part of the information on Electromagnetic Fields (EMFs) and RF/Microwave Radiation provided by **Natural Energy Works** to our **Trifield TF2 Meter** and **Cornet ED88T Plus Meter** customers.

They are for educational purposes only and not intended to be used as a substitute for medical or professional environmental health advice. Customers are encouraged to make their own informed health care decisions at their own risk and expense.

Version date: **November 2019**

These documents may be updated as new information comes to our attention.

Check back occasionally at <http://www.naturalenergyworks.net/>