

LIMITES DE EXPOSICION A RADIO FRECUENCIA

EN ALGUNOS PAISES DE EUROPA

Exposure limits and unit conversions

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Exposure limits for ELECTRIC fields (50/60Hz)	
100 V/m	Recommended 1996 as maximum for "workers" and their working environments by the NCRP, but not yet official.
1.000 V/m	Maximum limit as recommended by ACGIH for persons with pacemakers or other electronic implants
5.000 V/m	Current limit in Germany and recommendation of IRPA/INIRC for "private individuals"
10.000 V/m	Exposure limit for "workers" as suggested by IRPA/INIRC
20.000 V/m	Exposure limit for "workers" as suggested by ACGIH
25.000 V/m	Exposure limit for "workers" for a maximum of 2 hours, as suggested by IRPA/INIRC

All values applicable for 50/60Hz
 NCRP = National Council of Radiation Protection and Measurements
 ACGIH = American Conference of Governmental Industrial Hygienists
 IRPA/INIRC = International Commission on Non-Ionizing Radiation Protection

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Exposure limits for ELECTROMAGNETIC fields (50/60 Hz)

1.000 nT	Recommended as maximum for "private individuals" by the NCRP in 1996, but not yet official
10.000 nT	Recommended as maximum for "workers" and their working environments by the NCRP in 1996, but not yet official
100.000 nT	Current exposure limit in Germany and IRPA/INIRC recommendation for "private individuals" (daily, constant exposure). Maximum limit as recommended by the ACGIH for persons with pacemakers or other electronic implants.
500.000 nT	IRPA/INIRC recommendation for "workers" (daily, constant exposure)
1.000.000 nT	IRPA/INIRC exposure limit for "private individuals" (daily exposure for few hours)
5.000.000 nT	IRPA/INIRC recommendation for "workers" (daily exposure for few hours)

All values applicable for 50/60Hz
 NCRP = National Council of Radiation Protection and Measurements
 ACGIH = American Conference of Governmental Industrial Hygienists
 IRPA/INIRC = International Commission on Non-Ionizing Radiation Protection

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Exposure limits for RF fields (450MHz)

0,000.23 W/m ²	BUND recommendation 1997
0,001 W/m ²	"Precautionary limit" in Austria
0,02 W/m ²	Exposure limit in Russia
0,023 W/m ²	ECOLOG recommendation 1998 (Germany)
0,1 W/m ²	Exposure limit in poland
0,16 W/m ²	Exposure limit in italy
0,24 W/m ²	Exposure limit in CSSR

2 W/m ²	Exposure limit in New Zealand
2,3 W/m²	Exposure limit in Germany and ICNIRP recommendation 1998
3 W/m ²	Exposure limit in Canada (Safety Code 6, 1997)
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Exposure limits for RF fields (900MHz)	
0,000.45 W/m ²	BUND recommendation 1997
0,001 W/m ²	"Precautionary limit" in Austria
0,02 W/m ²	Exposure limit in Russia
0,045 W/m ²	ECOLOG-recommendation 1998 (Germany)
0,1 W/m ²	Exposure limit in Poland
0,16 W/m ²	Exposure limit in Italy
0,24 W/m ²	Exposure limit in CSSR
2 W/m ²	Exposure limit in New Zealand
3 W/m ²	Exposure limit in Canada (Safety Code 6, 1997)
4,5 W/m²	Exposure limit in Germany and ICNIRP recommendation 1998
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Exposure limits for RF fields (1800MHz)	
0,000.9 W/m ²	BUND recommendation 1997
0,001 W/m ²	"Precautionary limit" in Austria
0,02 W/m ²	Exposure limit in Russia
0,09 W/m ²	ECOLOG recommendation 1998 (Germany)
0,1 W/m ²	Exposure limit in Poland
0,16 W/m ²	Exposure limit in Italy

0,24 W/m ²	Exposure limit in CSSR
2 W/m ²	Exposure limit in New Zealand
3 W/m ²	Exposure limit in Canada (Safety Code 6, 1997)
9 W/m²	Exposure limit in Germany and ICNIRP recommendation 1998
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Conversion between units: mV/m to V/m and kV/m		
1 mV/m	0,001 V/m	0,000.001 kV/m
10 mV/m	0,01 V/m	0,000.01 kV/m
100 mV/m	0,1 V/m	0,000.1 kV/m
1.000 mV/m	1 V/m	0,001 kV/m
10.000 mV/m	10 V/m	0,01 kV/m
100.000 mV/m	100 V/m	0,1 kV/m
1.000.000 mV/m	1.000 V/m	1 kV/m
10.000.000 mV/m	10.000 V/m	10 kV/m
100.000.000 mV/m	100.000 V/m	100 kV/m
mV/m = millivolts per metre, V/m = volts per metre, kV/m = kilovolts per metre © Aaronia AG, D-54597 Euscheid www.elektrosmog.de, Tel. ++49(0)6556-93033. No responsibility taken for the correctness of this information		

Conversion between units: nT to µT and mT		
1 nT	0,001 µT	0,000.001 mT
10 nT	0,01 µT	0,000.01 mT
100 nT	0,1 µT	0,000.1 mT
1.000 nT	1 µT	0,001 mT
10.000 nT	10 µT	0,01 mT
100.000 nT	100 µT	0,1 mT
1.000.000 nT	1.000 µT	1 mT
10.000.000 nT	10.000 µT	10 mT
nT = nanotesla, µT = microtesla, mT = millitesla © Aaronia AG, D-54597 Euscheid www.elektrosmog.de, Tel. ++49(0)6556-93033. No responsibility taken for the correctness of this information.		

Conversion between units: µG to mG and G		
10 µG	0,01 mG	0,000.01 G
100 µG	0,1 mG	0,000.1 G
1.000 µG	1 mG	0,001 G
10.000 µG	10 mG	0,01 G
100.000 µG	100 mG	0,1 G
1.000.000 µG	1.000 mG	1 G
10.000.000 µG	10.000 mG	10 G
100.000.000 µG	100.000 mG	100 G
µG = microgauss, mG = milligauss, G = gauss © Aaronia AG, D-54597 Euscheid www.elektrosmog.de, Tel. ++49(0)6556-93033. No responsibility taken for the correctness of this information.		

Conversion between units: W/m ² to mW/cm ² and µW/cm ²		
0,000.01 W/m ²	0,000.001 mW/cm ²	0,001 µW/cm ²
0,000.1 W/m ²	0,000.01 mW/cm ²	0,01 µW/cm ²
0,001 W/m ²	0,000.1 mW/cm ²	0,1 µW/cm ²
0,01 W/m ²	0,001 mW/cm ²	1 µW/cm ²
0,1 W/m ²	0,01 mW/cm ²	10 µW/cm ²
1 W/m ²	0,1 mW/cm ²	100 µW/cm ²
10 W/m ²	1 mW/cm ²	1.000 µW/cm ²
100 W/m ²	10 mW/cm ²	10.000 µW/cm ²
1.000 W/m ²	100 mW/cm ²	100.000 µW/cm ²
10.000 W/m ²	1.000 mW/cm ²	1.000.000 µW/cm ²
100.000 W/m ²	10.000 mW/cm ²	10.000.000 µW/cm ²
W/m ² = watts per square metre, mW/cm ² = milliwatts per square centimetre, µW/cm ² = microwatts per square centimetre © Aaronia AG, D-54597 Euscheid www.elektrosmog.de, Tel. ++49(0)6556-93033. No responsibility taken for the correctness of this information.		

Conversion between units: Tesla to Gauss	
1 T	10.000 G
100mT	1.000 G
10mT	100 G
1mT	10 G
100 µT	1 G
10 µT	100 mG
1 µT	10 mG
100 nT	1 mG
10 nT	100 µG
1 nT	10 µG
T = tesla, G = gauss © Aaronia AG, D-54597 Euscheid www.elektrosmog.de, Tel. ++49(0)6556-93033. No responsibility taken for the correctness of this information.	

Conversion between units: W/m ² to dBm/m ² and dBW/m ²		
0,000.01 W/m ²	-20 dBm/m ²	-50 dBW/m ²
0,000.1 W/m ²	-10 dBm/m ²	-40 dBW/m ²
0,001 W/m ²	0 dBm/m ²	-30 dBW/m ²
0,01 W/m ²	10 dBm/m ²	-20 dBW/m ²
0,1 W/m ²	20 dBm/m ²	-10 dBW/m ²
1 W/m ²	30 dBm/m ²	0 dBW/m ²
10 W/m ²	40 dBm/m ²	10 dBW/m ²
100 W/m ²	50 dBm/m ²	20 dBW/m ²
1.000 W/m ²	60 dBm/m ²	30 dBW/m ²
10.000 W/m ²	70 dBm/m ²	40 dBW/m ²
100.000 W/m ²	80 dBm/m ²	50 dBW/m ²
W/m ² = watts per square metre, dBm/m ² = decibels per square metre, dBW/m ² = decibel watts per square metre © Aaronia AG, D-54597 Euscheid www.elektrosmog.de, Tel. ++49(0)6556-93033. No responsibility taken for the correctness of this information.		

Conversion between units: dBm to V/m, W/m ² , A/m			
0 dBm	6,75V/m	0,121W/m ²	0,017.9A/m
-1 dBm	6,02V/m	0,096.0W/m ²	0,016.0A/m
-2 dBm	5,36V/m	0,076.3W/m ²	0,014.2A/m
-3 dBm	4,78V/m	0,060.6W/m ²	0,012.7A/m

-4 dBm	4,26V/m	0,048.1W/m ²	0,011.3A/m
-5 dBm	3,80V/m	0,038.2W/m ²	0,010.1A/m
-6 dBm	3,38V/m	0,030.4W/m ²	0,008.98A/m
-7 dBm	3,02V/m	0,024.1W/m ²	0,008.00A/m
-8 dBm	2,69V/m	0,019.2W/m ²	0,007.13A/m
-9 dBm	2,40V/m	0,015.2W/m ²	0,006.35A/m
-10dBm	2,13V/m	0,012.1W/m ²	0,005.66A/m
-11dBm	1,90V/m	0,009.60W/m ²	0,005.05A/m
-12dBm	1,70V/m	0,007.63W/m ²	0,004.50A/m
-13dBm	1,51V/m	0,006.06W/m ²	0,004.01A/m
-14dBm	1,35V/m	0,004.81W/m ²	0,003.57A/m
-15dBm	1,20V/m	0,003.82W/m ²	0,003.18A/m
-16dBm	1,07V/m	0,003.04W/m ²	0,002.84A/m
-17dBm	0,954V/m	0,002.41W/m ²	0,002.53A/m
-18dBm	0,850V/m	0,001.92W/m ²	0,002.25A/m
-19dBm	0,758V/m	0,001.52W/m ²	0,002.01A/m
-20dBm	0,675V/m	0,001.21W/m ²	0,001.79A/m
-21dBm	0,602V/m	0,000.960W/m ²	0,001.60A/m
-22dBm	0,536V/m	0,000.763W/m ²	0,001.42A/m
-23dBm	0,478V/m	0,000.606W/m ²	0,001.27A/m
-24dBm	0,426V/m	0,000.481W/m ²	0,001.13A/m
-25dBm	0,380V/m	0,000.382W/m ²	0,001.01A/m
-26dBm	0,338V/m	0,000.304W/m ²	0,000.898A/m
-27dBm	0,302V/m	0,000.241W/m ²	0,000.800A/m
-28dBm	0,269V/m	0,000.192W/m ²	0,000.713A/m
-29dBm	0,240V/m	0,000.152W/m ²	0,000.635A/m
-30dBm	0,213V/m	0,000.121W/m ²	0,000.566A/m
-31dBm	0,190V/m	0,000.096.0W/m ²	0,000.505A/m
-32dBm	0,170V/m	0,000.076.3W/m ²	0,000.450A/m
-33dBm	0,151V/m	0,000.060.6W/m ²	0,000.401A/m
-34dBm	0,135V/m	0,000.048.1W/m ²	0,000.357A/m
-35dBm	0,120V/m	0,000.038.2W/m ²	0,000.318A/m
-36dBm	0,107V/m	0,000.030.4W/m ²	0,000.284A/m
-37dBm	0,095.4V/m	0,000.024.1W/m ²	0,000.253A/m
-38dBm	0,085.0V/m	0,000.019.2W/m ²	0,000.225A/m
-39dBm	0,075.8V/m	0,000.015.2W/m ²	0,000.201A/m
-40dBm	0,067.5V/m	0,000.012.1W/m ²	0,000.179A/m
-41dBm	0,060.2V/m	0,000.009.60W/m ²	0,000.160A/m
-42dBm	0,053.6V/m	0,000.007.63W/m ²	0,000.142A/m
-43dBm	0,047.8V/m	0,000.006.06W/m ²	0,000.127A/m
-44dBm	0,042.6V/m	0,000.004.81W/m ²	0,000.113A/m
-45dBm	0,038.0V/m	0,000.003.82W/m ²	0,000.101A/m
-46dBm	0,033.8V/m	0,000.003.04W/m ²	0,000.089.8A/m
-47dBm	0,030.2V/m	0,000.002.41W/m ²	0,000.080.0A/m
-48dBm	0,026.9V/m	0,000.001.92W/m ²	0,000.071.3A/m
-49dBm	0,024.0V/m	0,000.001.52W/m ²	0,000.063.5A/m
-50dBm	0,021.3V/m	0,000.001.21W/m ²	0,000.056.6A/m
-51dBm	0,019.0V/m	0,000.000.960W/m ²	0,000.050.5A/m
-52dBm	0,017.0V/m	0,000.000.763W/m ²	0,000.045.0A/m
-53dBm	0,015.1V/m	0,000.000.606W/m ²	0,000.040.1A/m
-54dBm	0,013.5V/m	0,000.000.481W/m ²	0,000.035.7A/m
-55dBm	0,012.0V/m	0,000.000.382W/m ²	0,000.031.8A/m
-56dBm	0,010.7V/m	0,000.000.304W/m ²	0,000.028.4A/m
-57dBm	0,009.54V/m	0,000.000.241W/m ²	0,000.025.3A/m
-58dBm	0,008.50V/m	0,000.000.192W/m ²	0,000.022.5A/m
-59dBm	0,007.58V/m	0,000.000.152W/m ²	0,000.020.1A/m
-60dBm	0,006.75V/m	0,000.000.121W/m ²	0,000.017.9A/m
-61dBm	0,006.02V/m	0,000.000.096.0W/m ²	0,000.016.0A/m
-62dBm	0,005.36V/m	0,000.000.076.3W/m ²	0,000.014.2A/m
-63dBm	0,004.78V/m	0,000.000.060.6W/m ²	0,000.012.7A/m
-64dBm	0,004.26V/m	0,000.000.048.1W/m ²	0,000.011.3A/m
-65dBm	0,003.80V/m	0,000.000.038.2W/m ²	0,000.010.1A/m
-66dBm	0,003.38V/m	0,000.000.030.4W/m ²	0,000.008.98A/m
-67dBm	0,003.02V/m	0,000.000.024.1W/m ²	0,000.008.00A/m
-68dBm	0,002.69V/m	0,000.000.019.2W/m ²	0,000.007.13A/m

-69dBm	0,002.40V/m	0,000.000.015.2W/m ²	0,000.006.35A/m
-70dBm	0,002.13V/m	0,000.000.012.1W/m ²	0,000.005.66A/m

dBm = decibel milliwatts, W/m² = watts per square metre, V/m = volts per metre, A/m amperes per metre

WARNING: This conversion table is ONLY applicable for the HF-Detektor II PROFI with retracted telescopic antenna inside the frequency range specified in the Schaffner EMC calibration certificate!

NOT usable for other measurement devices!

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Typical transmission power used by transmission towers

Provider:	Frequency:	Transmission power:
C-Netz	450 MHz	8 to 35 watts
D-Netz	900 MHz	10 to 50 watts
E-Netz	1900 MHz	10 watts
Cityruf	470 MHz	100 watts
Eurosignal	87 MHz	up to 2000 watts

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Typical transmission power used by mobile phones

Provider:	Frequency:	Transmission power:
CT1+	900 MHz	0,01 watts
CT2	1000 MHz	0,01 watts
DECT	1900 MHz	0,25 watts
C-Netz	450 MHz	0,75 watts
E-Netz	1800 MHz	up to 1 watts
D-Netz	900 MHz	up to 2 watts
C-Netz portable	450 MHz	up to 5 watts
D-Netz fixed	900 MHz	up to 8 watts
C-Netz fixed	450 MHz	up to 15 watts

Values in MHz are approximate. Some of these services have been suspended

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At a glance: Wavelength to frequency with frequency band names

Frequency:	Wavelength:	Band:
3 Hz-30 Hz	100.000 km - 10.000 km	ULF
30 Hz-300 Hz	10.000 km - 1.000 km	ELF
300 Hz-3 kHz	1.000 km - 100 km	VF
3 kHz-30 kHz	100 km - 10 km	VLF
30 kHz-300 kHz	10 km - 1 km	LF
300 kHz-3 MHz	1 km - 100 m	MF
3 MHz-30 MHz	100 m - 10 m	HF
30 MHz-300 MHz	10 m - 1 m	VHF
300 MHz-3 GHz	1 m - 10 cm	UHF
3 GHz - 30 GHz	10 cm - 1 cm	SHF
30 GHz- 300 GHz	1 cm - 1 mm	EHF

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