

**Exposure Limit Values (ELVs) and Action Levels (ALs) from EU Directive, for  
exposure to magnetic fields in the frequency range from 0 Hz to 10 MHz**

Frequency (f) [Hz]	ELVs		Frequency (f) [Hz]	ALs		
	Sensory effects	Health effects		Magnetic flux density (B) (RMS) [μT]		Magnetic flux density for exposure of limbs to a localized B (RMS) [μT]
				<i>Low</i>	<i>High</i>	
0 – 1	External magnetic flux density (B <sub>0</sub> ) [T]  - Normal working conditions 2  - Localized limbs exposure 8	External magnetic flux density (B <sub>0</sub> ) [T]  -Controlled working conditions 8	0 – 1			
1 – 10	Internal electric field strength [Vm <sup>-1</sup> <sub>(peak)</sub> ] 0.7/f		1 – 8	2.0 x 10 <sup>5</sup> /f <sup>2</sup>	3.0 x 10 <sup>5</sup> /f	9.0 x 10 <sup>5</sup> /f
10 – 25	Internal electric field strength [Vm <sup>-1</sup> <sub>(peak)</sub> ] 0.07		8 – 25	2.5 x 10 <sup>4</sup> /f	3.0 x 10 <sup>5</sup> /f	9.0 x 10 <sup>5</sup> /f
25 – 400	Internal electric field strength [Vm <sup>-1</sup> <sub>(peak)</sub> ] 0.0028/f		25 – 300	1.0 x 10 <sup>3</sup>	3.0 x 10 <sup>5</sup> /f	9.0 x 10 <sup>5</sup> /f
1 – 3000		Internal electric field strength [Vm <sup>-1</sup> <sub>(peak)</sub> ] 1.1	300 – 3000	3.0 x 10 <sup>5</sup> /f	3.0 x 10 <sup>5</sup> /f	9.0 x 10 <sup>5</sup> /f
3000 – 10*10 <sup>6</sup>		Internal electric field strength [Vm <sup>-1</sup> <sub>(peak)</sub> ] 3.8 x 10 <sup>-4</sup> f	3000 – 10*10 <sup>6</sup>	1.0 x 10 <sup>2</sup>	1.0 x 10 <sup>2</sup>	3.0 x 10 <sup>2</sup>

**Basic Restrictions and the Reference Levels from ICNIRP guidelines for controlling movement in a SMF (ICNIRP 2014) and exposure to time-varying magnetic field in the frequency range from 0 to 10 MHz (ICNIRP 2010)**

Frequency (f) [Hz]	Basic restrictions		Frequency (f) [Hz]	Reference levels		
	Internal electric field strength [Vm <sup>-1</sup> <sub>(peak)</sub> ]			dB/dt [Ts <sup>-1</sup> <sub>(peak)</sub> ]		
	Phosphenes effects (uncontrolled exposure)	PNS effects (controlled exposure)		Phosphenes effects (uncontrolled exposure)	PNS effects (controlled exposure)	
<b>0 – 0.66</b>	1.1	1.1	<b>0 – 0.66</b>	2.7	2.7	
<b>0.66 – 1</b>	0.7/f	1.1	<b>0.66 – 1</b>	1.8/f	2.7	
	CNS tissue of the head	All tissues of the head and body		E-field strength (E) [kVm <sup>-1</sup> ]	Magnetic field strength (H) [Am <sup>-1</sup> ]	Magnetic flux density (B) [T]
<b>1 -10</b>	0.5/f	0.8	<b>1 -8</b>	20	1.63 x 10 <sup>5</sup> /f <sup>2</sup>	0.2/f <sup>2</sup>
<b>10 – 25</b>	0.05		<b>8 - 25</b>	20	2 x 10 <sup>4</sup> /f	2.5 x 10 <sup>-2</sup> /f
<b>25 – 400</b>	2 x 10 <sup>-3</sup> f		<b>25 – 300</b>	5 x 10 <sup>2</sup> /f	8 x 10 <sup>2</sup>	1 x 10 <sup>-3</sup>
<b>400 – 3000</b>	0.8		<b>300 – 3000</b>	5 x 10 <sup>2</sup> /f	2.4 x 10 <sup>5</sup> /f	0.3/f
<b>3000 - 10*10<sup>6</sup></b>	2.7 x 10 <sup>-4</sup> f	2.7 x 10 <sup>-4</sup> f	<b>3000 – 10*10<sup>6</sup></b>	1.7 x 10 <sup>-1</sup>	80	1 x 10 <sup>-4</sup>

**Basic restrictions (ICNIRP Guidelines 1998) / ELVs (2013/35/EU Directive) for time varying magnetic fields in the frequency range 100 kHz – 10 GHz.**

Frequency (f) [Hz]	Whole-body average SAR (W kg <sup>-1</sup> )	Localized SAR (head and trunk) (W kg <sup>-1</sup> )	Localized SAR (limbs) (W kg <sup>-1</sup> )
100*10 <sup>3</sup> – 10*10 <sup>9</sup>	0.4	10	20

All SAR values are to be averaged over any 6-min period.  
 ELVs from EU Directive refers to frequency range of 100 kHz - 6 GHz.