



Value of the magnetic induction (μT) met in occupational and medical conditions

Prepared by [Belgian BioElectroMagnetics Group \(BBEMG\)](#)

	Range of frequencies (Hz)	Mean Magnetic induction (*) (μT)
At the office		
Photocopier	50	1 to 1.2
Fax	50	0.4
Computer screen	50	0.7
Halogen lamp	50	0.17
In factories		
Aluminium production	0	1000 to 7000
Electrolytic processes	0/50	1000 to 10000
Welding machines	0/50	130000 (peak)
Induction furnace	1/10000	1000 to 6000
At hospital		
NMR	0	1000 to 7000
Bone consolidation	1 to 75	1 to 30
Transcranial stimulations	Stimulations trains to 25Hz	2000000
In the transport		
High speed train	50Hz	50

Comment: the list is not exhaustive and we are willing to extend it according to your interests. Do not hesitate to ask for new entries.

Belgian legislation

FEDERAL PUBLIC SERVICE EMPLOYMEN, LABOUR AND SOCIAL DIALOGUE

See the Royal decree in [French](#) or in [Dutch](#) (June 10, 2016).

This Royal decree transposes into Belgian law [Directive 2013/35/EU](#) of the European Parliament and the Council (26 June 2013) on minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields).

(*) The term "Magnetic field" is often used instead of "Magnetic induction" (or "Magnetic flux density"). That is why you can find magnetic field (H in Ampere/meter) expressed in Tesla (or Gauss with $10^{-4} \text{ T} = 1 \text{ G}$), which is the unit of magnetic induction (B).

Magnetic field H and magnetic induction field B are linked, in a given material, by the equation:

$$\mathbf{B} = \mu * \mathbf{H}$$

where μ is the magnetic permeability of the material (in Henry/meter).

The magnetic permeability of a material is the capability of this material to channel magnetic induction, in other words, to concentrate magnetic flux lines and thus to increase the value of magnetic induction. It means that this value depends on the material in which it is produced.

The channelling of the magnetic field in a material which is also a conductor is especially reduced, because of contact current (lien...) when frequency of field variation, permeability and conductivity are high.