

### APPENDIX 3. REQUIREMENTS FOR SPECIFIC EMF ASSESSMENTS IN RESPECT OF COMMON WORK ACTIVITIES AND EQUIPMENT

The table in this appendix lists many common work activities, equipment and workplaces, and provides an indication of whether assessments are likely to be required for:

- workers with active implants
- other workers at particular risk
- workers not at particular risk

The entries in this table are based on whether a situation is likely to give rise to field strengths in excess of either the reference levels in Council Recommendation 1999/519/EC or the action levels in the regulations, and if so, whether those fields are likely to be highly localised or not.

The table is based on the use of equipment conforming to recent standards that has been correctly maintained and is being used as intended by the manufacturer. Where work involves the use of very old, non-standard or poorly maintained equipment, the guidance in the table may not be applicable.

Where every activity in a workplace has a ‘no’ in all three columns, it should not be necessary to carry out a specific assessment as there is expected to be no risk from EMF. In these situations further actions will not normally be required. Similarly, for workplaces where there is no access for those reliant on active medical devices or other workers at particular risk, provided every activity has a ‘no’ in column 1, it should not be necessary to carry out a specific EMF assessment.

Type of equipment or workplace	Assessment required for		
	Workers not at particular risk*  (1)	Workers at particular risk (excluding those reliant on active medical devices)†  (2)	Workers with active implants or body-worn active medical devices§  (3)
<b>Wireless communications</b>			
Phones, cordless (including base stations for DECT cordless phones) – use of	No	No	Yes
Phones, cordless (including base stations for DECT cordless phones) – workplaces containing	No	No	No
Phones, mobile – use of	No	No	Yes
Phones, mobile – workplaces containing	No	No	No
Wireless Communication Devices (e.g. WiFi or Bluetooth) including access points for WLAN – use of	No	No	Yes

Type of equipment or workplace	Assessment required for		
	Workers not at particular risk*	Workers at particular risk (excluding those reliant on active medical devices)†	Workers with active implants or body-worn active medical devices‡
	(1)	(2)	(3)
Wireless Communication Devices (e.g. WiFi or Bluetooth) including access points for WLAN – workplaces containing	No	No	No
<b>Office</b>			
Audio-visual equipment (eg televisions, DVD players)	No	No	No
Audio-visual equipment containing radiofrequency transmitters	No	No	Yes
Communication equipment and networks, wired	No	No	No
Computer and IT equipment	No	No	No
Fan heaters, electric	No	No	No
Fans, electric	No	No	No
Office equipment (eg photocopiers, paper shredders, electrically operated staplers)	No	No	No
Phones (landline) and fax machines	No	No	No
<b>Infrastructure (buildings and grounds)</b>			
Alarm systems	No	No	No
Base station antennas, inside operator's designated exclusion zone	Yes	Yes	Yes
Base station antennas, outside operator's designated exclusion zone	No	No	No
Garden appliances (electric operated) – use of	No	No	Yes
Garden appliances (electric) – workplaces containing	No	No	No
Heating equipment (electrical) for room heating	No	No	No

Type of equipment or workplace	Assessment required for		
	Workers not at particular risk*	Workers at particular risk (excluding those reliant on active medical devices)†	Workers with active implants or body-worn active medical devices‡
	(1)	(2)	(3)
Household and professional appliances, e.g. refrigerator, washing machine, dryer, dishwasher, oven, toaster, microwave oven, iron, provided it does not contain transmission equipment such as WLAN, Bluetooth or mobile phones	No	No	No
Lighting equipment, e.g. area lighting and desk lamps	No	No	No
Lighting equipment, RF or microwave energised	Yes	Yes	Yes
Work places accessible to the general public which meet the reference levels specified in Council Recommendation 1999/519/EC	No	No	No
<b>Security</b>			
Article surveillance systems and RFID	No	No	Yes
Erasers, Tape or Hard Drive	No	No	Yes
Metal detectors	No	No	Yes
<b>Electrical supply</b>			
Electrical circuit where the conductors are close together and having a net current of 100 A or less – includes wiring, switchgear, transformers, etc – exposure to magnetic fields	No	No	No
Electrical circuit where the conductors are close together and having a net current of greater than 100 A – includes wiring, switchgear, transformers, etc – exposure to magnetic fields	Yes	Yes	Yes
Electrical circuits within an installation, with a phase current rating of 100 A or less for the individual circuit – includes wiring, switchgear, transformers, etc – exposure to magnetic fields	No	No	No

Type of equipment or workplace	Assessment required for		
	Workers not at particular risk*	Workers at particular risk (excluding those reliant on active medical devices)†	Workers with active implants or body-worn active medical devices‡
	(1)	(2)	(3)
Electrical circuits within an installation, with a phase current rating of greater than 100 A for the individual circuit – includes wiring, switchgear, transformers, etc – exposure to magnetic fields	Yes	Yes	Yes
Electrical installations with a phase current rating of greater than 100 A – includes wiring, switchgear, transformers, etc – exposure to magnetic fields	Yes	Yes	Yes
Electrical installations with a phase current rating of 100 A or less – includes wiring, switchgear, transformers, etc – exposure to magnetic fields	No	No	No
Generators and emergency generators – work on	No	No	Yes
Inverters, including those on photovoltaic systems	No	No	Yes
Overhead bare conductor rated at a voltage up to 100 kV, or overhead line up to 150 kV, above the workplace – exposure to electric fields	No	No	No
Overhead bare conductor rated at a voltage greater than 100 kV, or overhead line greater than 150 kV <sup>1</sup> , above the workplace – exposure to electric fields	Yes	Yes	Yes
Overhead bare conductors of any voltage - exposure to magnetic fields	No	No	No
Underground or insulated cable circuit, rated at any voltage – exposure to electric fields	No	No	No
Wind turbines, work on	No	Yes	Yes
<b>Light industry</b>			

<sup>1</sup> For overhead lines above 150 kV the electric field strength will usually, but not always, be lower than the reference level specified in Council Recommendation 1999/519/EC.

Type of equipment or workplace	Assessment required for		
	Workers not at particular risk*	Workers at particular risk (excluding those reliant on active medical devices)†	Workers with active implants or body-worn active medical devices‡
	(1)	(2)	(3)
Arc welding processes, manual (including MIG, MAG, TIG) when following good practice and not supporting cable on body	No	No	Yes
Battery chargers, industrial	No	No	Yes
Battery chargers, large professional	No	No	Yes
Coating and painting equipment	No	No	No
Control equipment not containing radio transmitters	No	No	No
Corona surface treatment equipment	No	No	Yes
Dielectric heating	Yes	Yes	Yes
Dielectric welding	Yes	Yes	Yes
Electrostatic painting equipment	No	Yes	Yes
Furnaces, resistively heated	No	No	Yes
Glue guns (portable) – workplaces containing	No	No	No
Glue guns – use of	No	No	Yes
Heat guns (portable) – workplaces containing	No	No	No
Heat guns – use of	No	No	Yes
Hydraulic ramps	No	No	No
Induction heating	Yes	Yes	Yes
Induction heating systems, automated, fault-finding and repair involving close proximity to the EMF source	No	Yes	Yes
Induction sealing equipment	No	No	Yes
Induction soldering	Yes	Yes	Yes
Machine tools (for example pedestal drills, grinders, lathes, milling machines, saws)	No	No	Yes
Magnetic particle inspection (crack detection)	Yes	Yes	Yes

Type of equipment or workplace	Assessment required for		
	Workers not at particular risk*	Workers at particular risk (excluding those reliant on active medical devices)†	Workers with active implants or body-worn active medical devices‡
	(1)	(2)	(3)
Magnetizer/demagnetizers, industrial (including tape erasers)	Yes	Yes	Yes
Measuring equipment and instrumentation not containing radio transmitters	No	No	No
Microwave heating and drying, in woodworking industries (wood drying, wood forming, wood gluing)	Yes	Yes	Yes
RF plasma devices including vacuum deposition and sputtering	Yes	Yes	Yes
Tools (electric handheld and transportable e.g. drills, sanders, circular saws, and angle grinders) – use of	No	No	Yes
Tools (electric handheld and transportable) – workplaces containing	No	No	No
Welding systems, automated, fault-finding, repair and teaching involving close proximity to the EMF source	No	Yes	Yes
Welding, manual resistance (spot welding, seam welding)	Yes	Yes	Yes
<b>Heavy industry</b>			
Electrolysis, industrial	Yes	Yes	Yes
Furnaces, arc melting	Yes	Yes	Yes
Furnaces, induction melting (smaller furnaces normally have higher accessible fields than larger furnaces)	Yes	Yes	Yes
<b>Construction</b>			
Construction equipment (e.g. concrete mixers, vibrators, cranes, etc) – work in close proximity	No	No	Yes
Microwave drying, in construction industry	Yes	Yes	Yes

Type of equipment or workplace	Assessment required for		
	Workers not at particular risk*	Workers at particular risk (excluding those reliant on active medical devices)†	Workers with active implants or body-worn active medical devices‡
	(1)	(2)	(3)
<b>Medical</b>			
Medical equipment not employing EMF for diagnosis or treatment	No	No	No
Medical equipment using EMF for diagnosis and treatment (for example, short wave diathermy, transcranial magnetic stimulation)	Yes	Yes	Yes
<b>Transport</b>			
Motor vehicles and plant – work in close proximity to starter, alternator, ignition systems	No	No	Yes
Radar, air traffic control, military, weather and long range	Yes	Yes	Yes
Trains and trams, electrically driven	Yes	Yes	Yes
<b>Miscellaneous</b>			
Battery chargers, inductive or proximity coupling	No	No	Yes
Battery chargers, non-inductive coupling designed for household use	No	No	No
Broadcasting systems and devices (radio and TV: LF, MF, HF, VHF, UHF)	Yes	Yes	Yes
Equipment generating static magnetic fields > 0.5 millitesla, whether generated electrically or from permanent magnets (for example, magnetic chucks, tables and conveyors, lifting magnets, magnetic brackets, nameplates, badges)	No	No	Yes
Equipment placed on the European market as compliant with Council Recommendation 1999/519/EC or harmonised EMF standards	No	No	No
Headphones producing strong magnetic fields	No	No	Yes
Inductive cooking equipment, professional	No	No	Yes

Type of equipment or workplace	Assessment required for		
	Workers not at particular risk <sup>*</sup>	Workers at particular risk (excluding those reliant on active medical devices) <sup>†</sup>	Workers with active implants or body-worn active medical devices <sup>§</sup>
	(1)	(2)	(3)
Non-electrical equipment of all types except those containing permanent magnets	No	No	No
Portable equipment (battery powered) not containing radiofrequency transmitters	No	No	No
Radios, two-way (for example walkie-talkies, vehicle radios)	No	No	Yes
Transmitters, battery driven	No	No	Yes

**Notes:**

\* Assessment required against applicable action levels or exposure limit values.

† Assess against Council Recommendation reference levels.

§ Localised personal exposure may exceed reference levels in Council Recommendation – this will need to be considered in the risk assessment, which should be informed by information supplied by the healthcare team responsible for implanting device and/or subsequent care.