UNIVERSITY OF BATH HEALTH AND SAFETY STANDARD

Electromagnetic Fields (EMF)

Version Number	Version 4	Date of Approval	June 2026	Review Date	Three years from acceptance by UHSC
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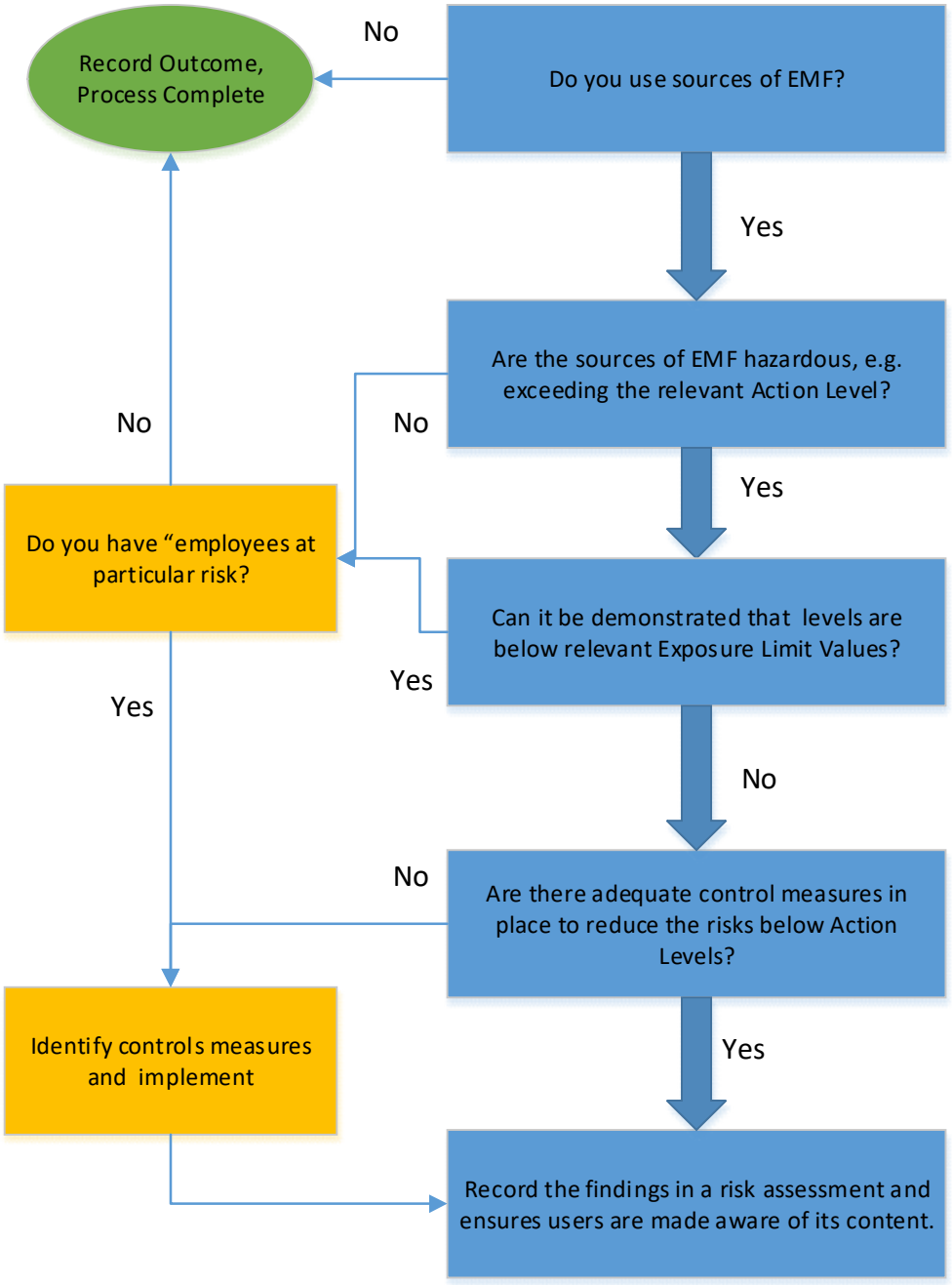
Aims	The University is committed to ensuring the health, safety and welfare of all staff, students and visitors. Exposure to high levels of Electromagnetic Fields (EMFs) can give rise to effects that may be irritating or unpleasant. The effects that occur depend on the frequency range and intensity of the EMFs to which an employee is exposed. The University will reduce exposure of all persons affected by its operations to EMFs by carrying out assessments with reference to action levels (ALs) and exposure limit values (ELVs).				
Scope	This standard only applies to work activities and/or equipment used at the University of Bath which produce Electromagnetic Fields (EMFs).				
Relevant Legislation	• Health & Safety at Work etc. Act 1974 (HASWA) • The Management of Health & Safety at Work Regulations 1999 (MHSWR) • The Control of Electromagnetic Fields at Work Regulations (CEMFAW) 2016 HSE Guidance Electromagnetic fields Electromagnetic fields at work HSE Guidance HSG281				
Definitions	Electromagnetic Fields (EMF) An EMF is produced whenever a piece of electrical or electronic equipment (i.e. TV, food mixer, computer mobile phone etc.) is used. EMFs are static electric, static magnetic and time-varying electric, magnetic and electromagnetic (radio wave) fields with frequencies up to 300 GHz. It is a form of non-ionising radiation. EMFs at different frequencies affect the human body in different ways, causing sensory and health effects.				
	Non-Ionising radiation Any type of electromagnetic radiation that does not carry enough energy to ionise atoms or molecules (convert them to ions).				
	Effects of exposure to EMF (depending on the field and frequency range) Sensory effects include nausea, vertigo, metallic taste in the mouth, flickering sensations (magnetophosphenes) in peripheral vision. Health effects include micro shocks, nerve stimulation, effects on the central and peripheral nervous system of the body: tingling, muscle contraction, heart arrhythmia, and thermal stress such as burns. Indirect effects include interference with active or passive implanted or body-worn medical devices, electric shocks, uncontrolled attraction of ferromagnetic objects (potential to be struck by flying objects) and sparks caused by induced fields triggering fires or explosions where flammable fuels, vapours or gases are present.				

	Action Levels Exposure levels which if not exceeded will ensure compliance with associated Exposure Limit Values and no further action is required.
	Exposure Limit Values An exposure level which, if exceeded, could potentially pose a risk of harm to persons.
	Employees at particular risk Means employees who have informed you of any condition which could mean they are more susceptible to effects from EMF exposure (such as their wearing of active implanted medical devices (AIMDs), passive implanted medical devices (PIMDs) or body-worn medical devices (BWMDs) or of their pregnancy) and employees who work in close proximity to electro-explosive devices, explosive materials or flammable atmospheres.
Responsibility for implementation	Faculty Deans Heads of Departments Director of Campus Infrastructure Technical Managers Supervisors/Managers
Training availability:	Task specific induction training by supervisors

Standard to meet:		**Accountability**	**Reference documents and more information**
1.	Check for sources of EMF within areas of responsibility. Record outcome of check, even if no hazardous sources identified.	Heads of Department/ Director of Campus Infrastructure	See Tables 2 and 3 in Electromagnetic fields at work HSE Guidance HSG281
2.	Assess the levels of EMFs to which persons may be exposed. Consult: - manufacturers data - tables in HSG281 of equipment and associated risk - relevant British Standards Carry out and record a risk assessment for hazardous sources of EMF.	Technical Managers/ Supervisors/ Managers	
3.	Devise and implement an action plan where exposure could exceed the exposure limit value to reduce levels.	Technical Managers/ Supervisors/ Managers	
4.	Ensure employees at particular risk are taken into account in the risk assessment.	Technical Managers/ Supervisors/ Managers	See Tables 6 and 7 in Electromagnetic fields at work HSE Guidance HSG281
5.	Provide information and training on the particular risks posed to employees by EMFs in the workplace and details of any action taken to remove or control them.	Technical Managers/ Supervisors/ Managers	
6.	Take appropriate action if employees are exposed to EMFs in excess of the ELVs.	Technical Managers/ Supervisors/ Managers	
7.	Provide health surveillance or medical examination, as required by risk assessment.	SHEW	

8.	Use any protective equipment provided to prevent/minimise exposure to electromagnetic fields in the workplace when required and in accordance with instruction.	Employees	

Decision Tree for EMF Compliance



Generic Risk Assessment:

Risk Assessment Title: Electromagnetic Fields (EMF)	Date Reviewed: June 2026	Review Date: June 2029
Overview/Description of Activity: Assessment of the potential exposure of persons to Electromagnetic Fields during work activities at the University of Bath. This assessment only covers hazards associated with EMF exposure; other incidental hazards associated with the operations covered should be included in the specific assessment for the task.	**Duration/Frequency of Activity**: Activities can vary in duration and length depending on the type of work being carried out. This assessment applies for short term and long-term work of any frequency.	
Location of Activity: University of Bath premises	**Generic or Specific Assessment: Generic Assessment**	

#	Hazard(s) identified	Who might be affected and how	Existing controls & measures	Severity (a)	Likelihood (b)	Risk Rating (a x b)	Additional control/action required
1	Exposure to EMF in range 0-1 Hz, e.g., Nuclear Magnetic Resonance (NMR) spectrometers, MRI scanners.	Persons subject to scans, those carrying out the work activity and in operational area. Direct effects may include micro-shocks, nausea, vertigo, metallic taste in the mouth, flickering sensations (magnetophosphenes) in peripheral vision. Indirect effects such as uncontrolled attraction of ferromagnetic objects with risk of physical injury.	• Equipment manufactured in accordance with requirements of PUWER and Machinery Directive 2006/42/EC (CE marked) • Equipment operated by trained, competent persons in accordance with manufacturer's instructions • Equipment maintained in accordance with manufacturer's instructions • Local operating instructions and risk assessments in place • Access control, warning signs and floor markings where required • Appropriate PPE provided and worn, e.g., insulating shoes, gloves and protective clothing	2	2	4	

#	Hazard(s) identified	Who might be affected and how	Existing controls & measures	Severity (a)	Likelihood (b)	Risk Rating (a x b)	Additional control/action required
2	Exposure to EMF in range 1Hz-10MHz, e.g., Use of electric hand held tools	Persons carrying out the work activity. Experience nausea, vertigo, metallic taste, flickering sensations, nerve stimulation, tingling, muscle contraction, heart arrhythmia. Possible shocks/burns from contact currents.	• Equipment manufactured in accordance with requirements of PUWER and Machinery Directive 2006/42/EC (CE marked) • Equipment operated by trained, competent persons in accordance with manufacturer's instructions • Equipment maintained in accordance with manufacturer's instructions • Local operating instructions and risk assessments in place • Appropriate PPE provided and worn, e.g. insulating shoes, gloves and protective clothing • Electric hand held tools defined as being below Exposure Levels (HSG281)	2	2	4	

#	Hazard(s) identified	Who might be affected and how	Existing controls & measures	Severity (a)	Likelihood (b)	Risk Rating (a x b)	Additional control/action required
3	Exposure to EMF in range 1Hz-10MHz, e.g. welding (spot and arc)	Persons carrying out the work activity. Main hazard from magnetic fields. Experience nausea, vertigo, metallic taste, flickering sensations, nerve stimulation, tingling, muscle contraction, heart arrhythmia. Possible skin burns.	• Equipment manufactured in accordance with requirements of PUWER and Machinery Directive 2006/42/EC (CE marked) • Equipment operated by trained, competent persons in accordance with manufacturer's instructions • Equipment maintained in accordance with manufacturer's instructions • Local operating instructions and risk assessments in place • Minimise duration of work and proximity to magnetic field (electrodes) • Appropriate PPE provided and worn, e.g. welding visor with filter shade or goggles with correct level of protection, flame retardant clothing and gloves • Warning signs, barriers and restriction of access to work area where necessary	3	2	6	

#	Hazard(s) identified	Who might be affected and how	Existing controls & measures	Severity (a)	Likelihood (b)	Risk Rating (a x b)	Additional control/action required
4	Persons using general office /household type electrical equipment, e.g. computers, AV equipment, mobile phones, lighting, room heaters, microwave ovens, toasters etc.	Exposure to very low levels of EMF to person/s using equipment	• This type of equipment is determined to be below action levels and so risk is within acceptable levels and no further control is required.	1	1	1	
5	Exposure of "persons at particular risk", e.g. Persons with implanted medical devices, body worn medical devices and pregnant workers	Persons may be more susceptible to effects of exposure to EMF as stated above.	• A specific risk assessment must be carried out for workers who have declared such a condition.	3	2	6	