

Risk Assessment for the working with electromagnetic fields - Generic

Scope:

This document outlines the details and procedures and information on electromagnetic fields created by electronic equipment at BBC Studioworks. It also contains a generic assessment as well as details on how the hazard is controlled from specific items of equipment. This document helps to ensure compliance with the **Control of Electromagnetic at Work regulations 2016**

The Requirement:

The CEMFAW Regulations require employers to assess employees' potential exposure to Electromagnetic Fields (EMFs) with reference to action levels (ALs) and exposure limit values (ELVs). An EMF is produced whenever a piece of electrical or electronic equipment (i.e. TV, food mixer, computer, mobile phone etc.) is used.

They are present in virtually all workplaces and if they are of high enough intensity, controls may be required to make sure employees are protected from any adverse effects.

Risk Assessment

Employers are required to undertake a risk assessment in order to:

- assess the levels of EMFs to which your employees may be exposed;
- ensure that exposure is below a set of ELVs,
- ensure that employees at particular risk, such as expectant mothers and workers with active or passive implanted or body-worn medical devices are taken into account,
- help provide information and training on the particular risks (if any) posed to employees by EMFs in the workplace and details of any action you are taking to remove or control them.

The majority of equipment will not require any extra controls although some may require extra research and work to ensure that levels are below the Action Values as set out in the regulations. As part of this the engineers should ensure that all equipment that comes under the regulations is recorded, particularly equipment that either transmits or receives.

The people that might be harmed: Studioworks employees, contractors, public, artists

HAZARD	CONTROL
<p>Exposure to EMFs</p> <p>Various sensory and health effects including but not limited to:</p> <ul style="list-style-type: none"> • Nausea • Vertigo • Flickering sensation in peripheral vision • Muscle contraction • Heart arrhythmia • Thermal stress • Localised Limb heating 	<ul style="list-style-type: none"> • All items of electrical equipment are initially identified and checked against the guidance document: HSG281: A Guide to the Control of Electromagnetic Fields at Work Regulations - Table 2 which gives an indicative, but not exhaustive list of electrical equipment that is below the ALs. Items on this list require no further assessment. (<i>Table2 is recreated below for reference</i>) • Where equipment is identified to be within Table 3 or is not listed on Table 2 we undertake to establish that levels are below the ALs by various means including: <ul style="list-style-type: none"> ○ a check of technical data supplied with the equipment, emission information and other safety-related data provided by the manufacturer or distributor of equipment used; ○ any reports of ill health or symptoms around the use of specific equipment; ○ sector or industry standards and guidelines, where available; ○ exposure databases where available; ○ information provided by trade associations and other industry bodies; ○ consulting the EC's non-binding guide to good practice for implementing Directive 2013/35/EU: Electromagnetic fields 5 (see volume 1 Practical guide and volume 2 Case studies). • Initial exposure assessments are undertaken by Senior Engineers within the studios by completing the Exposure Assessment log • Where the Action Level (AL) is exceeded an individual assessment must be undertaken and completed by a competent person.

HAZARD	CONTROL
<p>Further assessment (including employees at particular risk)</p>	<p>Where further assessment is required it must include, as relevant, consideration of:</p> <ul style="list-style-type: none"> • the ALs and ELVs; • the frequency of the EMFs, level, duration and type of exposure, including the distribution over the employee’s body and the variations between areas in the workplace; • direct effects; • indirect effects; • simultaneous exposure to multiple frequency fields; • multiple sources of exposure; • information available from the manufacturer of relevant equipment; • information obtained from any appropriate health surveillance undertaken; • the existence of replacement equipment designed to reduce the level of exposure to EMFs; • other health and safety-related information; • employees at particular risk, especially where a member of staff informs that they have an implanted or body-worn device (as detailed in Table 4, 6 & 7) or is an expectant mother (as detailed in Table 5) a separate assessment should be undertaken into the effects of working around equipment identified as high risk.
<p>Action Plan</p>	<p>Where an action needs to be put in place the plan should consider:</p> <ul style="list-style-type: none"> • If you need to produce an action plan, it must include consideration of: • other working methods that entail less exposure to EMFs; • the choice of equipment emitting less intense EMFs, taking account of the work to be done; • technical and/or organisational measures that limit the duration and/or intensity of emission of EMFs, including, where necessary, the use of interlocks, screening or similar health protection mechanisms. In many

HAZARD	CONTROL
	<p>situations ELVs are only exceeded where the employee is close to the EMF source; this can be remedied by moving the person further away from the EMF source or by installing screening (you should note that screening may not be effective for low-frequency work activities);</p> <ul style="list-style-type: none"> • the use of signage, access controls and floor markings. If areas are already suitably restricted for other reasons, cannot be entered accidentally, and if workers in the areas are informed of the risks arising from EMF exposure, signs may not be required; • exposure to electric fields – measures and procedures to manage spark discharges and contact currents through technical means and through the training of workers; • appropriate maintenance of equipment and design of workplaces and, when replacing or hiring equipment, consider selecting equipment which emits less intense EMFs; • providing personal protective equipment, e.g. insulating shoes, gloves and other protective clothing, where appropriate.

Table 2 from HSG281

<p>Wireless communications</p>	<ul style="list-style-type: none"> • Phones (landlines, mobile phones, cordless, digital enhanced cordless telephone (DECT) base stations) and fax machines in workplaces. • Wireless communications devices (e.g. Wi-Fi or Bluetooth) including access points for wireless local area network (WLAN) (NB: Special consideration should be given to employees with active implants – see ‘employees at particular risk’)
<p>Office</p>	<ul style="list-style-type: none"> • Audio-visual equipment: TVs, DVDs etc. • Communication equipment and wired networks • Computer and IT equipment • Electric fans, fan heaters and room heaters • Office equipment, e.g. photocopiers, printers, shredders etc.
<p>Buildings and grounds</p>	<ul style="list-style-type: none"> • Workplaces accessible to the general public which meet the exposure limits for the general public specified in Council Recommendation 1999/519/EC Alarm systems • Electrical room heating equipment • Base station antennas outside operator’s designated exclusion zone • Electric garden appliances • Electric handheld and transportable tools • Household and professional appliances, e.g. washing machine/dryer, oven, toaster, as long as wireless local area network (WLAN) and Bluetooth are not involved; if they are, special consideration should be given to employees with active implants, see ‘employees at particular risk’ • Lighting, including desk lamps

<p>Electrical supply</p>	<ul style="list-style-type: none"> • Overhead line at any voltage crossing the workplace (magnetic) • Overhead line at any voltage crossing the workplace if the exposure is indoors, or if the exposure is outdoors but not directly underneath the line (electric) • Overhead line at any voltage up to and including 275 kV. If the exposure is outdoors and directly underneath the line (note that 400 kV lines will often not pose a risk either, but it is theoretically possible for some low-clearance line to exceed the low action level) (electric) • Any electrical circuit/installation (including cables, busbars, switchgear and transformers), where the cables carrying the electrical currents are bundled together and touching, or nearly so, and there are no unusual earthing arrangements that could create unbalanced currents • Any electrical circuit/installation (including cables, busbars, switchgear and transformers), where the cables or busbars carrying the electrical currents are separated, and the rating of the circuit or that part of it is <100A (equivalent to 23kW for a single-phase 230V circuit, 69kW for a three-phase 230V circuit, or 1.9MW for a three-phase 11kV circuit).
<p>Light industry</p>	<ul style="list-style-type: none"> • Coating and painting equipment • Control equipment not containing radio transmitter • Measuring equipment and instrumentation not containing radio transmitters.
<p>Miscellaneous</p>	<ul style="list-style-type: none"> • Equipment placed on the European market as compliant with Council Recommendation 1999/519/EC or harmonised EMF standards • Battery chargers, non-inductive coupling designed for household use • Battery-powered portable equipment that does not contain radio frequency transmitters • Hydraulic ramps Workplaces containing electrical handheld, portable tools.