

REGULATORY IMPACT ANALYSIS (RIA)

SAFETY, HEALTH AND WELFARE AT WORK

(Electromagnetic Fields) REGULATIONS 2016

(S.I. No. ... of 2016)

5th January 2015

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1. Foreword

The Health and Safety Authority, herein after referred to as ‘the Authority’, has prepared this Regulatory Impact Analysis (RIA) in line with the Revised RIA Guidelines, (Department of the Taoiseach, 2009).

This RIA considers the options and assesses the impacts of the requirement to transpose the Directive 2013/35/EU of The European Parliament and of The Council of 26th June 2013 implementing the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields) (20th individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC and repealing Directive 2004/40/EC. The deadline for Member States to comply with the Directive is 1st July 2016.

The impact of transposing the Directive through the proposed new Regulations is expected to be minimal for the majority of employers given that many of the obligations already exist in principles expounded in the Safety, Health and Welfare at Work Act 2005 and Part 2, Chapter 2, Use of Work Equipment and Part 3, Electricity of the Safety, Health and Welfare at Work (General Application) Regulations 2007. However there will be compliance costs for employers in a number of specified sectors.

The proposed new Regulations apply the same principles specifically to the issue of electromagnetic fields but are more explicit and specific with regard to certain obligations such as exposure limit values, action levels, assessment of risk, determination of exposure, provisions aimed at avoiding or reducing risks, employee information, training, consultation and participation of employees and health surveillance.

Exposure limit values may be exceeded for magnetic resonance imaging (MRI) equipment used in the healthcare sector provided other safe guards are implemented.

All employers will be required to carry out an EMF risk assessment, and the guidance prepared by the EU Commission should assist in making this a fairly simple exercise. For the majority of employers this will not involve calculations or measurements and no further action is needed. However there will be additional compliance costs and requirements for employers in a number of specified sectors, e.g. telecommunications, where calculations or measurements will be required as part of the risk assessment. The costs are likely to be proportionally higher for SMEs than for bigger organisations. Indicative costs are outlined in section 5, Impact Analysis. However these costs are not considered to be disproportionate when balanced against the savings to be made by the reduction of harmful direct and indirect effects in employees caused by electromagnetic fields.

Direct effects are separated into non-thermal effects, such as the stimulation of nerves, muscles and sensory organs, and thermal effects such as tissue heating.

Indirect effects occur where the presence of an object within an electromagnetic field may become the cause of a safety or health hazard, e.g. interference with medical equipment or implanted body devices.

The Directive and the proposed Regulations do not cover long term effects, e.g. cancer. Neither do they include risks resulting from contact with live conductors.

2. Policy context

This RIA assesses the legislative proposal to transpose Council Directive 2013/35/EU of the 26th June 2013. The Directive implements the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields) (20th individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC and repealing Directive 2004/40/EC. The deadline for Member States to comply with the Directive is 1st July 2016. Similar to the majority of EU member states, Directive 2004/40/EC was never enacted in Ireland because it was deemed to be too onerous, especially as regards the use of MRI equipment in the healthcare sector.

The Authority is the agency with responsibility for enforcing this new legislation in Ireland. In current Irish legislation the main provisions relating to the risk of exposure to electromagnetic fields at work are already contained, generally, in the Safety, Health and Welfare at Work Act, 2005 and the Safety, Health and Welfare at Work (General Application) Regulations, 2007. The proposed new Regulations have specific requirements related to the prevention of direct and indirect effects caused by electromagnetic fields.

3. Objectives

The primary objective of the proposed legislation is to increase the level of protection for workers exposed to electromagnetic fields in the course of their work.

A secondary objective is to ensure that Ireland complies with the Directive by the deadline of 1st July 2016 and thereby avoids any penalties imposed by the European Commission for non-compliance.

4. Options

The options for addressing the transposition of Directive 2013/35/EU are as follows:

Option 1	Do nothing
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Option 1, do nothing, would leave Ireland in breach of the requirement for member states to transpose the Directive by 1st July 2016. The Commission could proceed to take legal action with potentially significant financial penalties arising for the state. It could further create a situation where workers in Ireland exposed to electromagnetic fields while at work are afforded a lower level of protection than workers in other member states.

Option 2 Introduce new Regulations

Option 2; introduce new Regulations on the basis that Option1 is not viable. It is recommended to transpose Directive 2013/35/EU into Irish law by way of the proposed Regulations. The impact of this option is assessed in more detail in the following section.

5. Impact analysis

The impacts of the proposed Regulations are expected to be minimal for the majority of employers on the basis that existing provisions already enforced in Irish legislation protect the majority of employees to a large degree. All employers will be required to carry out an EMF risk assessment and the guidance prepared by the EU Commission should make this a fairly simple exercise. Nothing more will be required for these employers. However in certain sectors, where there is a potential for higher exposures, calculations or measurements will be required as part of the risk assessment. The cost of compliance for employers in these sectors is justified by a reduction in the harmful direct and indirect effects in employees caused by electromagnetic fields. New or further clarified requirements under the Directive are listed below:

Article 3 Exposure limit values and action levels

Article 3 limits maximum exposures by setting exposure limit values (ELVs) for sensory and health effects. These are defined in Annexes II and III of the EMF Directive. In most cases ELVs are specified in terms of internal body quantities that cannot be directly measured or simply calculated. For this reason Article 3 introduces action levels (ALs) which are set in terms of external field quantities that can be more easily found by measurement or calculation. The ALs are defined in Annexes II and III of the EMF Directive. In general, provided the ALs are not exceeded, then it can be assumed that exposure will comply with the ELVs and further assessment is not needed.

Article 3 allows some ALs to be exceeded in some circumstances.

Article 4 Assessment of risk and determination of exposure

When assessing risks from EMF in the workplace, it is necessary to understand the nature of the fields that are present. Electromagnetic fields are defined in the EMF Directive as static electric, static magnetic and time varying electric, magnetic and electromagnetic fields with frequency ranges from 0Hz to 300 GHz. However, it allows employers to take account of information provided by manufacturers or published in databases and only requires them to assess fields themselves by measurement or calculation where it is not possible to demonstrate compliance by any other means. The guidance published by the EU Commission will assist employers in carrying out the risk assessment.

There is provision in Article 4 that the risk assessment can be made public but this will be governed by data protection legislation for personal data and the need for the protection of employers' commercial interests.

Article 5 Provisions aimed at avoiding or reducing risks

Provided the ALs are not exceeded and any other risks from EMF are low, employers do not need to take further action other than to review the risk assessment periodically to keep it up to date and relevant.

Where ALs are exceeded, the employer may try to demonstrate compliance with the ELVs and the absence of other safety risks from EMF if this is possible. However, in many cases it will be easier and cheaper to implement measures to prevent risks than to demonstrate compliance with the ELVs.

Prevention measures follow the general Principles of Prevention as outlined in Schedule 3 of the 2005 Act and include elimination, substitution, technical and organisational measures and personal protective equipment.

Article 5 also specifies the precautions to be taken where Article 3 allows ALs to be exceeded.

Article 6 Worker information and training

Where risks have been identified as part of the risk assessment, appropriate information and training must be provided to employees. This is in accordance with Sections 9 and 10 of the 2005 Act and includes the results of the risk assessment, any possible sensory and health symptoms, possible indirect safety effects and concepts such as ELVs and ALs.

Article 7 Consultation and participation of workers

This is in accordance with Section 26 of the 2005 Act dealing specifically with EMF.

Article 8 Health surveillance

Exposures above the ELVs may cause sensory effects of the nerves and muscles at low frequency and heating effects of tissues at high frequencies. Once the source of the EMF is removed, symptoms will normally disappear and there are no residual effects. Electric shocks and burns to the body may result from indirect effects.

Routine health surveillance or medical examinations are not required for the majority of workers.

EMF is listed in Schedule 8 of the General Application Regulations 2007 as a physical agent that could cause foetal lesions or be likely to disturb placental attachments or both, and therefore is a particular risk for pregnant employees. Also employees with active or passive implanted medical devices or with body-worn devices may be at risk from EMFs. These categories of employees who are routinely exposed to EMF during their work should have periodic consultations with an occupational health provider as part of routine health surveillance.

Employees may need immediate access to health services as a result of accidental over exposure to EMF resulting in either direct or indirect effects. However there are no specific investigations that should be undertaken following over exposure to EMF.

An eye examination by an optician may be required following over exposure to high frequency fields, with a follow up examination within 3 months.

Benefits of introducing proposed Regulations

Health and safety benefits: The introduction of the proposed Regulations should further reduce the harmful direct and indirect effects of EMFs to employees exposed to them while at work. These workers will benefit from the reassurance that there is a specific set of requirements to protect against this common occupational hazard.

Business benefits: The reduction of indirect effects has benefits such as the non-interference with medical equipment and the reduced risk of fire and explosion and electric shock and burns.

Costs of introducing proposed Regulations

Compliance costs: These are costs that employers in some sectors will have to bear in order to comply with the proposed Regulations. The indicative costs specified in Table 1 below are taken directly from the Impact Assessment of the proposed Directive. The policy option adopted by the EU

Commission was for a new Directive with revised exposure limits and partial exemptions and the costs indicated are for this option. Costs are either for an individual workplace or a company/establishment.

Costs will be higher for small and medium enterprises as generally these will not have in-house expertise or resources that larger companies have and will therefore have to engage consultants.

Generally these are once off costs to be borne by the company, but in some situations they could be considered an annual cost if there are substantial changes in workplace design, equipment used or working procedures.

Table 1: Costs

Sector	Cost (€)
Electricity generation and transmission	1250 (per workplace)
Electric welding	1375 (per establishment)
Induction heating	2680 (per establishment)
Surgical diathermy	2720 (per establishment)
Radio frequency sealers	3000 (per establishment)
Broadcasting	150 (per establishment)
Magnetic resonance imaging (MRI)	325 (per installation)

(Source: Commission Staff Working Paper, 2011, Impact Assessment of proposed EMF Directive)

Compliance costs are the costs of actions by employers to meet the requirements of the proposed Regulations and are made up of 3 types: generic, sectoral or activity specific and training.

A. Generic costs

These include an analysis of the situation, carrying out the risk assessment and drawing up an action plan.

B. Sectoral or activity specific costs

These costs include EMF measurement and the introduction of protection measures.

C. Training costs

Employees in these sectors will need specific information about the potential health effects arising from over exposure, the results of the risk assessment and the protective measures taken by the employer.

The obligation to produce a risk assessment specifically for EMFs will have limited impact as many employers in the telecommunications, power and healthcare will already include it as a topic in their

risk assessments, given the importance of the hazard in these sectors. These employers have an existing and on-going process of preparing risk assessments. This includes assessing the risk to employees of harmful exposures to electromagnetic fields. At most, the new obligation will involve the inclusion of this topic in the existing and on-going process of preparing the risk assessment.

However it will impose a new obligation for small enterprises in electric welding, induction heating and RF sealing where typically a small number of employees are employed per establishment. It is likely these companies will seek external expertise to carry out the risk assessment and any measurements necessary. Additional cost included is training up of an employee in order to be competent at understanding the requirements.

In terms of new equipment it is usual for training and information to be provided to employees by suppliers as part of the package when purchasing new equipment; the employer will be required to supplement this training as required to ensure employee competency when using new equipment. This is unlikely to incur additional costs to the employer.

Enforcement costs: These are the costs for the Authority associated with the enforcement of the proposed Regulations and provision of guidance as follows;

- A number of inspectors will have to be trained up in order to be able to carry out EMF inspections in a competent manner. If a similar approach is adopted as for other physical agents such as noise and vibration this will be limited to occupational hygiene inspectors.
- Some measuring equipment will have to be purchased and calibrated on an ongoing basis. Equipment costs are estimated to be €10k and ongoing calibration €2k annually.
- The Authority will make available free on its website the guidance document prepared by the EU Commission to support the new Regulations.

6. Consultation

The proposed Regulations and a draft RIA will be made available on the Authority's website for a period of 1 month in June/July 2015. Key stakeholders will also be consulted directly, including the following:

- Department of Jobs, Enterprise and Innovation
- Department of Energy, Communications and Natural Resources
- Members of Electro Technical Council of Ireland (ETCI), Technical Committee (TC15), Human Exposure to Electromagnetic Fields
- ESB
- RTE
- Eircom
- Mobile phone operators
- Health Services Executive (HSE)
- Irish Business and Employers' Confederation (IBEC)

- Irish Congress of Trade Unions (ICTU)
- Faculty of Occupational Medicine (FOM), RCPI
- Occupational physicians
- Medical physicists
- Medical equipment suppliers

The Legislation and Guidance Sub-Committee of the Board will initially consider the draft Regulations at a meeting on the 4th June 2015 for submission to the Board meeting on the 19th June 2015.

Arising from the consultation phase, a number of amendments may be made to the draft Regulations and these will be brought to the attention of the Legislation and Guidance Sub-Committee of the Board for consideration later in 2015. Subject to these amendments being approved, it is proposed the draft Regulations will be cleared to go to a Board meeting in September or October 2015. At this meeting the draft Regulations will be cleared for submission to the Department of Jobs, Enterprise and Innovation for consideration with a view to formal legal settlement by the Office of Parliamentary Council to the Government.

7. Enforcement and Compliance

The Authority is the primary enforcer of occupational safety, health and welfare legislation through its inspection process. Initially there will be approximately 50 inspections relating to electromagnetic fields in various sectors in 2017 and compliance with the Regulations will be monitored through these inspections and planned inspections in later years.

8. Review

In early 2018, the Authority will review the impact of the proposed Regulations through monitoring of enforcement statistics, requests for information, and reviewing progress with stakeholders in the sector.

References

Draft Non-binding guide to good practice for implementing Directive 2013/35/EU Electromagnetic Fields, *Public Health England, 2014*

Impact Assessment of proposed EU Directive on electromagnetic fields, *EU Commission, 2011*