

<p>Title: Post Implementation Review: Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Electromagnetic Fields) Regulations 2016.</p> <p>PIR No: DfTPIR0060</p> <p>Original IA/RPC No: RPC-3185-DfT</p> <p>Lead department or agency: Maritime and Coastguard Agency</p> <p>Other departments or agencies: N/A</p> <p>Contact for enquiries: Julie.Carlton@mcga.gov.uk</p>	Post Implementation Review
	Date: 18/07/2023
	Type of regulation: EU
	Type of review: Statutory
	Date measure came into force: 21/11/2016
	Recommendation: Keep
	RPC Opinion: N/A

Recommendation and Summary of Justification

This is a review of the Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Electromagnetic Fields) Regulations 2016 (S.I. 2016/1026 - **'the 2016 Regulations'**)¹.

Overall, the 2016 Regulations act as part of a harmonised approach to safety standards, align the maritime and shore-based sectors, are considered non-contentious and are low-cost, and therefore the Maritime and Coastguard Agency (MCA) conclude that the 2016 Regulations are fit for purpose and recommend that they should be **kept**.

In addition to regular opportunities for feedback the MCA undertook a stakeholder engagement exercise to aid in assessing the efficacy of the 2016 Regulations and the few responses received affirmed that they are appropriate and do not require amendment.

1. What were the policy objectives of the measure?

The 2016 Regulations transposed into UK Law Directive 2013/35/EU of the European Parliament and of the Council of 26 June 2013 on 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 (**'Directive 2013/35'**)².

The policy objectives for the 2016 Regulations were to:

- ensure seafarers remain protected from adverse health and safety risks (as far as appropriate, consistent with protection for shore-based workers)
- ensure control measures already in place are taken into account so any burdens on business are minimised.

Implementation was intended to be proportionate to the risks and to consider existing controls in order to minimise the impact on businesses.

¹ <https://www.legislation.gov.uk/ukSI/2016/1026/contents>

² <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:179:0001:0021:en:PDF>

The approach taken by the Health and Safety Executive (HSE) and followed by the MCA in implementing the 2016 Regulations provides for a two-staged assessment by industry. For many ships, a preliminary assessment would be sufficient to identify whether they needed to take measures to reduce risk from electromagnetic fields (EMF) to the seafarers working on their ships, in accordance with the legislation. As best practice on ships already provided protection to seafarers from these risks before the introduction of the legislation, the preliminary assessment would allow employers to assure themselves that risks had been reduced so far as reasonably practicable. No more action would be needed under this legislation by such employers. The legislation however provides an explicit framework to ensure that those employers which may not have previously identified the risks to seafarers from EMF would, as the result of the preliminary assessment, be aware of those risks and therefore would be required to put in place suitable measures. In this way, the burden of compliance only fell on those companies where there remains a significant risk.

2. What evidence has informed the PIR?

A stakeholder engagement exercise was held from January to March 2022. The questions asked are at Annex A. The Maritime and Coastguard Agency (MCA) wrote to about 56 stakeholders, including the UK Chamber of Shipping, trade associations across the industry, seafarer unions, companies, and a range of government stakeholders, seeking views on the draft 2016 Regulations. Only two responses were received, both from significant representative organisations: one from an industry group representing a wide-ranging spectrum of the UK shipping industry, including some small and medium sized enterprises, and the other from a seafarer organisation. One indicated that the draft 2016 Regulations were generally considered satisfactory. The other was a “NIL” return, also suggesting no serious concerns. There were no requests or suggestions for improvement of the guidance. In addition to a consultation being sent to stakeholders, the issue was also raised by MCA at regular health and safety meetings with industry, where no response was received.

Surveyors are regularly on-board UK ships to inspect their safety management systems and compliance with the Maritime Labour Convention, which includes health and safety provisions. The results of inspections are entered onto the MCA’s Pelorus database, but this data is currently unavailable due to technical difficulties between systems. The MCA hope to address this issue for the future.

3. To what extent have the policy objectives been achieved?

The risks from electromagnetic fields are believed to be well controlled under existing legislation and therefore no significant benefits were expected to be realised from the implementation of the 2016 Regulations, although small improvements in safety were anticipated.

Additionally, when considering the limited impact on safety that the 2016 Regulations were expected to have, the publication of the 2016 Regulations and supporting guidance has raised awareness of the issue of EMF in the industry, while ensuring only proportionate costs for industry. To that extent, the MCA believe the policy objectives outlined above have been achieved. Only one consultation response was received answering the questions, and the response stated that the policy objective had been achieved.

Regulation was used to fulfil the policy objectives, rather than using guidance, for two reasons. Firstly, this was an EU Directive. Secondly, the approach is in line with HSE’s approach, and keeps the policies consistent.

Sign-off for Post Implementation Review: Director, UK Maritime Services and Parliamentary Under Secretary of State (Aviation, Maritime and Security)

I have read the PIR and I am satisfied that it represents a fair and proportionate assessment of the impact of the measure.

Signed: Katy Ware

Date: 4 May 2023

Signed: Baroness Vere

Date: 18/07/2023

4. What were the original assumptions?

The original impact assessment conducted in 2016³ (**the 2016 IA**) estimated the following costs:

- Scoping – Although all shipowners will need to be aware of the 2016 Regulations, for many it will be possible to tell from a very rapid review of the 2016 Regulations and guidance that they have no practical relevance for them.
- Familiarisation – For those shipowners for which the 2016 Regulations appear to be of practical relevance, it will take time to familiarise themselves with the new requirements.
- Assessment of exposure levels – For those shipowners for which the 2016 Regulations appear to be of practical relevance, shipowners will be required to update their risk assessments.
- Recording exemption – There will be shipowners that, after having assessed their exposure levels, find that they exceed ELV but are able to apply for a derogation. There will be a small administrative cost of recording this exemption.
- Cost to the MCA – The cost of publishing information via a Marine Guidance Note.

The 2016 IA was informed by work done by HSE.

For the cost of scoping, the 2016 IA assumed that all businesses undertook scoping to understand whether they are bound by the 2016 Regulations. The number of businesses engaged in water transport activities was 1,482 in 2013, with a further 3,404 engaged in fishing activities in 2013. This is based on data from the Office for National Statistics (ONS) Annual Business Survey. Each firm was assumed to have one person spending ten minutes on scoping, +/- 10% to reflect uncertainty. The 2016 IA assumed a labour cost of £17 an hour (“science, engineering and technology individuals”, ONS Annual Survey of Hours and Earnings (ASHE) 2015, uplifted by 20% to account for non-wage costs (in line with the Department for Transport’s Transport Appraisal Guide (TAG) and Eurostat guidance). This indicated a “best estimate” of around £13,800.

For familiarisation costs, it was assumed that 0% to 20% of companies in scope would be required to take additional measures (central scenario of 10%). It was also assumed that some companies wouldn’t be immediately certain of if they were required to make changes, and so they assumed that 30% - 50% of businesses would incur familiarisation costs (central estimate of 40%). Each firm was assumed to have a familiarisation time of two hours with a £17 an hour labour cost. This gives a one-off estimate of £66,000.

For assessment of exposure levels, the 2016 IA estimated that one hour of time per firms requiring an assessment (so 0% - 20% of firms in scope, central estimate of 10%), with a labour cost of £17 an hour. This resulted in an estimate of £8,300 as a one-off cost.

For recording exemptions, the 2016 IA assumed 30 minutes (+/- 10%) per firm with a labour cost of £17 an hour. Again, 10% of businesses are assumed to be relevant for this cost in the central case. This resulted in a one-off cost of £4,100. No requests for exemptions have been received in the past five years.

For MCA costs, this is expected to involve about five days of staff time, plus the publication cost for a Marine Guidance Note (wage costs are estimated at about £139 per day, based on MCA wage rates uplifted by 30% to account for non-wage costs (MCA Finance Guideline), plus £75 for publication), resulting in a one-off cost of about £980.

In the central scenario, this resulted in a total cost of £93,733 (2014 prices). No ongoing costs were identified.

The 2016 IA identified few benefits, believing that the issue was already well controlled and noting that no evidence had been provided on harm from electromagnetic fields. The benefit of the 2016 Regulation was an increase in safety, although this is likely to be a small benefit, as mild exposure to EMF can cause light headedness and high levels of exposure are rare. The 2016 IA noted that the 2016 Regulations could result in increased awareness of risks from EMF, but no benefits were monetised.

³ https://www.legislation.gov.uk/ukia/2016/208/pdfs/ukia_20160208_en.pdf

The 2016 IA noted that only five responses were received to the government consultation. No evidence was provided, and no comments were received on the cost assumptions underlying the assessment of costs and benefits in the 2016 IA. For this PIR, stakeholders were again asked through consultation if the assessment of impact was accurate (see Annex B question 3), and one respondent answered the question, stating that they felt the assumptions were accurate. No other consultees answered that question.

All vessels are in scope for the 2016 Regulations, but a smaller number of vessels will carry equipment which will impact EMF safety on board.

We currently have no means of assessing the accuracy of industry's view. We do not have personal injury accident data for the years since the 2016 Regulations were introduced (awaited this year) but are unaware of any serious injuries/harm caused by EMF on board ships through MCA contacts with industry.

5. Were there any unintended consequences?

No evidence of unintended consequences has been identified. No issues were raised as part of the stakeholder consultation (see Annex A question 4), however, the response rate to the consultation was very low. No concerns were raised through regular informal feedback opportunities with the MCA.

6. Has the evidence identified any opportunities for reducing the burden on business?

The MCA as part of its stakeholder engagement asked both whether the assessment of costs in the original 2016 IA was accurate (Annex A question 3), and whether the MCA guidance could be improved (Annex A question 5). Few responses were received. Those responses were content with the 2016 IA and did not request any changes to guidance.

7. How does the UK approach compare with the implementation of similar measures internationally, including how EU member states implemented EU requirements that are comparable or now form part of retained EU law, or how other countries have implemented international agreements?

One of the MCA's key stakeholders, the UK Chamber of Shipping, has members operating ships under other EU flags. The Chamber was included in the consultation. No concerns were raised about differences between the UK regime and that of our European neighbours. The UK's method of implementation, which closely followed the approach taken by the Health and Safety Executive who implemented parallel legislation for workplaces ashore, aimed to minimise the burdens on businesses through practical assessment of exposure levels, proportionate risk management and exemptions. We have no evidence that this has not been successful.

Summary

➤ Post Implementation Review:

The review provisions for this post implementation review were contained within the 2016 Regulations.

➤ History

In 1993 the European Commission proposed the need for a physical agent's directive, regarding the exposure of workers to the risks arising from noise, vibration, artificial optical radiation (AOR) and electromagnetic fields.

2002 and 2003 saw Directives relating to vibration and noise, respectively.

In 2004 *EU Directive 2004/40/EC* ('the 2004 Directive') of the European Parliament and of the Council of 29 April 2004 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields) (18th individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC) was introduced. However, following its introduction, concerns were expressed by stakeholders regarding the potential impact of the implementation of the 2004 Directive on the use of medical procedures based on medical imaging. Subsequently the 2004 Directive was amended.

In 2013 *EU Directive 2013/35* ('the 2013 Directive') of 26 June 2013 on 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) was introduced with the effect of repealing the 2004 Directive and introducing more appropriate and proportionate measures to protect workers from the risks associated with electromagnetic fields.

The 2016 Regulations transposed the 2013 Directive into UK law.

➤ Recommendation:

Keep - the MCA recommend that the 2016 Regulations are fit for purpose and should be kept.

In addition to regular opportunities for feedback the MCA undertook a stakeholder engagement exercise to aid in assessing the efficacy of the 2016 Regulations and the few responses received affirmed that they are appropriate and do not require amendment.

MCA policy is that health and safety legislation for ships should as far as possible align with that for workers ashore to ensure an equivalent level of safety for seafarers, and to avoid conflicting standards at the margin between the two regimes. HSE is retaining the Control of Electromagnetic Fields at Work Regulations 2016 and the maritime legislation should therefore remain in place.

➤ Cost Summary:

The assumptions underpinning the implementation of the 2016 Regulations that they would realise a negligible cost/benefit appears to be reliable.

➤ Proportionality:

Low – the MCA have adopted a proportionately light touch approach to this review. The MCA host and take part in several stakeholder engagement meetings per year which affords an avenue for receiving any feedback. In the years that the 2016 Regulations have been in place the MCA have not identified or been made aware of any issues with them. At the time of implementation, the 2016 Regulations were not contentious and did not infringe on policy owned by other Departments.

➤ Lessons Learned:

The technical difficulties interrogating the Pelorus database is an issue still to be resolved.

➤ Next Steps:

The post implementation review process is a cyclical mechanism resulting in a published recommendation every 5 years. The MCA is working on improved analysis of personal injury accident data, and the MCA will use this to identify any trends in incidents relating to particular risks, including EMF. In addition, the MCA will seek to develop systems which would allow the interrogation of inspection data to identify deficiencies relating to particular risks to health and safety. This work will inform the next review which is due to be published before 21 November 2026

ELECTROMAGNETIC FIELDS ON SHIPS: BACKGROUND

1. Introduction

1.1 The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Electromagnetic Fields) Regulations 2016 (“the Regulations”) were made in October 2016, coming into force in November 2016, and contain a provision for five-yearly review. This paper is to invite contributions to that review regarding the practical impact of the Regulations in the light of experience.

1.2 The purpose of a post implementation review is to assess:

- the extent to which those objectives intended to be achieved by the Regulations are achieved;
- to assess whether those objectives remain appropriate and, if so, the extent to which they could be achieved with a system that imposes less regulation.

1.3 The review must also consider how other member States regulate in this area.

1.4 The Regulations were intended to ensure seafarers remain protected from the risks to their health and safety from electromagnetic fields to which they may be exposed while at work. The method of implementation, which closely followed the approach taken by the Health and Safety Executive who implemented parallel legislation for workplaces ashore, aimed to minimise the burdens on businesses through practical assessment of exposure levels, proportionate risk management and exemptions. An impact assessment was undertaken of the expected impact of the Regulations.

2. Electromagnetic fields

2.1. An electromagnetic field (EMF) is a type of non-ionising radiation that occurs naturally in the environment and, as it is created whenever electrical energy is used, is present in virtually all workplaces. The vast majority of field strengths are at such a low level that they will not cause undesired or harmful effects. However, there are field strengths in some workplaces that may present a risk. EMFs are not a singular hazard. The term acts as an umbrella title for static electric, static magnetic and time-varying electric, magnetic and electromagnetic fields with frequencies up to 300GHz. Fields with frequencies higher than 300GHz are considered optical radiation and are not covered in this Directive.

2.2. Electric fields are associated with voltage differences and magnetic fields are associated with the flow of an electric current. EMFs are made up of an electric field and a magnetic field in a special arrangement which allows them to travel together away from the equipment that has produced them. They carry power which can be deposited in anything that they intercept. One example of an electromagnetic wave is a radio signal which carries power from a distant transmitter to a radio set.

2.3. The Regulations deal with EMFs with frequencies up to 300GHz. These fields are produced by a wide range of sources that workers may encounter in the workplace e.g. manufacturing processes and forms of communication. Two general types of risk are considered: direct risks from EMF effects on the body and indirect risks by the EMF affecting other things in the environment that can create a safety or health hazard. The risks arising from exposures to EMF depends on the intensity or strength of the fields and, for some time-varying fields, their frequency as well. (Time-varying means that as time increases, the magnetic field changes).

2.4. The Regulations do not address any possible long-term health effects related to EMF exposure. While it is known exposure to EMFs can produce immediate effects, there is no conclusive or well-established scientific evidence or proof of a causal relationship that prolonged or repeated exposure to very weak fields, even over a long period of time, causes cancer or has any other adverse health effect.

2.5. The Regulations do not cover the risk resulting from contact with live conductors. Measures for the safe use of equipment (for example the Merchant Shipping and Fishing Vessels (Provision and Use of Work Equipment) Regulations 2006, address this risk.

3. EMF on ships

3.1. Most ships of any size will be fitted with or carry some equipment which creates an EMF. This includes radio and satellite equipment, radar powered hand tools, domestic-type galley equipment, welding equipment and generators, and electrical distribution systems.

3.2. However, in some cases the levels of EMF are not harmful and in other cases seafarers do not generally spend time in sufficient proximity to such equipment so as to create such exposure as to constitute a health and safety risk to seafarers.

4. Policy objective of the Regulation

4.1. The Regulations give full effect to Directive 2013/35/EC in line with the UK's Treaty obligations at the time. Although the pre-existing legislative framework was generally deemed sufficient to combat the risks, the Regulations and guidance were intended to ensure seafarers remain protected and the burdens on businesses are minimised through practical assessment of exposure levels, proportionate risk management and exemptions.

5. Estimated impact of the Regulation

5.1. HSE reported that the risks from EMF were generally already well understood and well managed in the UK (and the MCA therefore inferred also in the UK shipping industry) before the introduction of the Regulations through the use of existing legislation: HSE inspectors did not come across many instances of workers at risk and there had been very few incidents or accidents reported in recent years as a direct result of exposure from EMF.

5.2. As explained in the Impact Assessment (IA) published with the Regulations, taking into account existing safety measures, compliance costs were not expected to be significant. It was anticipated that there would be costs related to scoping the impact of the Regulations and familiarisation. In addition, shipowners were expected to incur costs of undertaking risk assessments, whilst some of these would also incur a cost of applying for an exemption. There were also costs to the MCA through the staff costs and publication costs of producing guidance.

5.3. Since risks from EMF were believed to be well controlled under existing legislation, no significant benefits were expected from the Regulations beyond a small improvement in safety.

5.4. In conducting their Post Implementation Review of the shore-based Control of Electromagnetic Fields at Work Regulations 2016, the HSE found that their IA had underestimated costs incurred as familiarization and conducting risk assessments had taken more time than anticipated. One reason given for this was that the guidance was not very clear. The MCA invited comments on the guidance accompanying the Regulations for the maritime sector (Marine Guidance Note MGN 559(M+F)) as part of the Stakeholder engagement exercise. No suggestions for improvement were received and one stakeholder representing seafarers specifically stated that the guidance was clear.

6. Assumptions on which assessment was made

6.1. That the existing legislative framework was sufficient and that specific legislation on EMFs was unnecessary. Evidence suggested that EMF was being managed satisfactorily using the Framework Directive (89/391/EEC), implemented in the UK through the Management of Health and Safety Regulations 1999 (for shore-based industry) and the Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997, as amended, ("the General Duties Regulations", for the maritime sector). Under these Regulations, duty holders were already obliged to manage all hazards in the workplace, including those resulting from EMFs, through risk assessment and adoption of proportionate control measures that reduce the risks to as low a level as is reasonably practicable

7. Guidance

7.1. The MCA published MGN 559 (M+F) to explain and support the implementation of the Regulations. This closely followed HSE guidance HSG281.

STAKEHOLDER ENGAGEMENT ON POST IMPLEMENTATION REVIEW: QUESTIONS FOR STAKEHOLDERS

1. In your view, has the objective of protecting workers from risks from electromagnetic fields been achieved?
2. Has the introduction of the Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 2016 (as explained in MGN 559(M+F)) resulted in any changes in your safety procedures on board your ship/fishing vessel?
3. In the light of experience, was the assessment of the impact of the Regulations made at the introduction in 2016 accurate? If not, what impacts did you experience? Please consider both costs and benefits and quantify if possible (e.g. x hours of administrative work, training for y crew members).
4. Were there any unintended impacts of the Regulations?
5. Does MGN 559 (M+F) give useful guidance and is it clear? How could it be improved?