Notice of proposal to make the Wireless Telegraphy (Mobile Communication Services on Ships) (Exemption) Regulations 2017

Implementing a Commission Decision

Consultation

Publication date: 31 May 2017

Closing Date for Responses: 3 July 2017

About this document

This consultation document concerns Ofcom's proposal to make new regulations by statutory instrument that would enable passengers to connect their mobile devices (with 2G, 3G and 4G technologies) to a system providing mobile communication on board ships, if certain standards and requirements are met, without the need for a wireless telegraphy licence. These regulations intend to implement a recent decision by the European Commission, and they will replace similar exemption regulations we made in 2011.

To give proper effect to the European Commission decision, we propose to include in the ship radio wireless telegraphy licences, an authorisation for the installation and use of mobile apparatus, which requires ship operators to comply with certain new technical and operational requirements. We have included a draft amendment of the Notice of Variation to the ship radio licence in this consultation document, for information only.

The deadline to submit responses for this consultation is 3 July 2017.

Contents

Section 1

Executive summary

1.1 This document consults on our proposal to implement the requirements of the European Commission ("EC") Implementation Decision of 1 February 2017 (2017/191/EU) (the "Amending Decision").[1] To do this, we intend to make the Wireless Telegraphy (Mobile Communication Services on Ships) (Exemption) Regulations 2017 (the "Proposed Regulations") which would revoke and replace the Wireless Telegraphy (Mobile Communication Services on board Ships) (Exemption) Regulations 2011 (the "MCV Exemption Regulations").[2]

1.2 Mobile communication services on board vessels ("MCV") enable ship passengers or crew to use their own mobile apparatus (mobile devices such as handsets, tablets or laptop dongles) without connecting directly with land mobile networks. MCV systems consist of one or more pico-cell base stations ("vessel-BS") on board a ship providing access to a core network via a backhaul link (for example via satellite) to which the mobile apparatus used by passengers must connect to. The MCV operates, in essence, similar to a land base station providing connectivity to passengers when the ship is in international waters or in areas of territorial seas[3] where there is insufficient or no land based mobile network coverage.

1.3 The use of mobile apparatus connecting to MCV systems has been permitted since 2011 through the MCV Exemption Regulations; however, it is only allowed in the 880 to 915 MHz and 925 MHz to 960 MHz (the "900 MHz" frequency band) and 1710 to 1785 MHz and 1805 to 1880 MHz (the "1800 MHz" frequency band) using the Global System for Mobile communication ("GSM") 2G technology.

1.4 In order to facilitate further deployment of new communication technologies and frequency bands, the EC issued a mandate to the European Conference of Postal and Telecommunications Administrations ("CEPT") to undertake technical studies on whether seaborne mobile apparatus using Universal Mobile Telecommunications Service ("UMTS") 3G technology operating in the 1920 to 1980 MHz and 2110 to 2170 MHz (the "2100 MHz" frequency band) and Long Term Evolution ("LTE") 4G technology operating in the 1800 MHz frequency band and 2500 MHz to 2570 MHz and 2620 MHz to 2690 MHz (the "2.6 GHz" frequency band) can coexist with land based networks.

1.5 The CEPT produced CEPT Report 62[4] that concluded that it would be possible to extend MCV services to other frequency bands and newer technologies; UMTS 2100 MHz band and LTE 1800 MHz and 2.6 GHz bands, provided that certain operational and technical conditions are met. The EC adopted the CEPT report and agreed the Amending Decision that introduces the use of 3G and 4G technologies to be used by seaborne passengers on board MCV equipped ships. As a European Member State, the UK is bound by the terms of the Amending Decision and the requirement to implement them by 3 August 2017.

1.6 Ofcom is responsible for authorising use of the radio spectrum. We permit the use of the radio spectrum either by granting wireless telegraphy licences under the Wireless

[1] http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017D0191&from=EN
[2] http://www.legislation.gov.uk/uksi/2011/316/pdfs/uksi_20110316_en.pdf
[3] As defined in the United Nations Convention on the Law of the Sea
[4] http://www.erodocdb.dk/Docs/doc98/official/pdf/CEPTREP062.PDF

Telegraphy Act 2006 (the "WT Act") or by making statutory regulations exempting users of particular equipment from the requirement to hold such a licence. It is unlawful and an offence to install or use wireless telegraphy apparatus without holding a licence granted by Ofcom, unless the use of such equipment is exempted.[5]

1.7 In order to meet the requirements of the Amending Decision, we propose in this consultation to extend the current licence exemption arrangements for MCV services by making the Proposed Regulations. We set out the general effect of the Proposed Regulations in Section 3 of this document. In summary, they are seeking to:

i) revoke and replace the existing the MCV Exemption Regulations;

ii) continue to permit, on a licence exempt basis, the use of GSM technologies connecting to MCV systems in the 900 MHz and 1800 MHz bands (subject to complying with various terms, provisions and limitations);

iii) extend the licence exemption regime to cover the use of UMTS 2100 MHz and LTE 1800 MHz and 2.6 GHz bands to connect to MCV services (subject to complying with various terms, provisions and limitations); and

iv) outline the technical parameters that the MCV systems in the UMTS 2100 MHz LTE 1800 MHz and 2.6 GHz bands must meet in order to be exempt from the need to hold a wireless telegraphy licence.

1.8 Separate to the ships passengers' use of mobile apparatus (to the extent exempted under the Proposed Regulations), the use of MCV systems themselves is authorised under Ofcom's practice via a Notice of Variation ("NoV") to the existing ship WT Act licences. In order for Ofcom to authorise the deployment and use of the base station on a ship, we propose to amend the NoV, incorporating the changes set out in the Amending Decision. The NoV sets out the new technical conditions and operational requirements under which MCV systems would be licensed for operation in a UK registered ship. A draft copy of the revised NoV is provided in Annex 7 of this document for information only.

1.9 As with all radio equipment on a ship, holders of the relevant wireless telegraphy licences are responsible for the installation, operation of the on board MCV radio equipment and the avoidance of interference to land systems. Although the Proposed Regulations will enable use of mobile apparatus when connected to the prescribed MCV systems on a licence exempt basis, there is no mandatory requirement on ship operators to install these systems on their ships.

1.10 In accordance with the requirements of section 122(4) and (5) of the WT Act, this document gives statutory notice of our proposal to make the Proposed Regulations. We are not, however, seeking comments on the draft amendment to the NoV as it is implementing the mandatory EU obligations in the Amending Decision and the amendment of relevant ship radio wireless telegraphy licences is done at the request of the holders of such licences.

1.11 Comments on the Proposed Regulations are invited by 3 July 2017. Subject to our consideration of responses, we intend to bring the new Regulations into force in August 2017. A regulatory impact assessment for the Proposed Regulations is available at Annex 4 to this document. The Proposed Regulations is included in this

[5] Section 8(1) of the WT Act.

document at Annex 5. Further copies may be obtained from www.ofcom.org.uk or from Ofcom at Riverside House, 2a Southwark Bridge Road, London SE1 9HA.

Document structure

1.12 This document is structured as follows:

i) Section 2 contains the background on proposals.

ii) Section 3 sets out the general effects of the Proposed Regulations.

iii) A regulatory impact assessment ("RIA") for the Proposed Regulations is available in Annex 4. The RIA sets out the risks, costs and benefits of the proposals and the effects that the Proposed Regulations would have.

iv) Annex 5 contains a draft of the Proposed Regulations.

v) Annex 6 contains a copy of the Amending Decision.

vi) A copy of the draft amendment to the NoV for the ship radio licence is in Annex 7.

vii) Annex 8 contains a list of abbreviations used in this document.

Section 2

Background on proposals

MCV services

2.1 Mobile communication services on board vessels ("MCV") enable persons on board a ship to send and receive calls, data and text messages using their own mobile apparatus (mobile devices such as handsets, tablets or laptop dongles) without connecting directly with land mobile networks. Cargo ships can also use MCV services for continuous monitoring of a container's temperature and humidity so that the quality of merchandise can be verified from a distance at any time.

2.2 MCV systems consist of one or more pico-cell base stations ("vessel-BS") on board a ship providing access to a core network via a backhaul link (for example via satellite) to which the mobile apparatus used by passengers must connect to. The MCV operates, in essence, similar to a land base station providing connectivity to passengers when the ship is in international waters or in areas of territorial seas[6] where there is insufficient or no land based mobile network coverage.

2.3 It is necessary to ensure that MCV services do not generate any harmful interference to land based networks and to prevent connection to MCV systems when connection to land based mobile networks is possible. European Union ("EU") Member States are required to make MCV services available on a non-protected, non-interference basis according to specified technical conditions and the harmonised European Telecommunications Standards Institute ("ETSI") standard or equivalent specifications. However, there is no mandatory requirement for ship operators to install MCV systems. Ultimately, any decisions roll out or deploy MCV services is the responsibility of the ship master or operator.

2.4 However, the vessel-BS is subject to the licensing requirement of section 8(1) of the Wireless Telegraphy Act 2006 (the "WT Act"). [7] Authorisation of the vessel-BS on a ship is covered by the Notice of Variation ("NoV") for the ship radio WT Act licence. Ship operators will therefore need to apply to Ofcom for an amendment of their ship radio licence. We believe that this approach enables the master to control the use of the vessel-BS and to issue instructions to limit its use or turn it off. The draft amendment to the NoV will set out the new technical conditions and operational requirements under which MCV systems would be licensed for operation in a UK ship. A copy of the draft amendment to the NoV for the ship radio licence is provided in Annex 7 of this document for information only.

Background to the Amending Decision

2.5 On 19 March 2010, the European Commission ("EC") published a decision (2010/166/EU) on harmonised conditions of spectrum for MCV services in the European Union, (the "2010 MCV Decision").[8] The 2010 MCV Decision set out the technical and operational conditions necessary to allow the use of Global System for Mobile communication ("GSM") 2G technology on board a ship when connecting to a MCV service operating in the 880 to 915 MHz and 925 MHz to 960 MHz (the "900

[6] As defined in the United Nations Convention on the Law of the Sea
[7] It is unlawful and an offence to install or use wireless telegraphy apparatus without holding a licence granted by Ofcom, unless the use of such equipment is exempted
[8] http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010D0166&from=EN

MHz" frequency band) and 1710 to 1785 MHz and 1805 to 1880 MHz (the "1800 MHz" frequency band). We implemented the 2010 MCV Decision by making the Wireless Telegraphy (Mobile Communication Services on board Ships) (Exemption) Regulations 2011 (the "MCV Exemption Regulations")[9] which permits persons on ships to use GSM mobile apparatus operating in 900 MHz and 1800 MHz bands, on a licence exempt basis when connected to MCV systems.

2.6 In light of advancements in technology and increasing demand of users of mobile apparatus to be connected everywhere and at all times, and in order to facilitate further deployment of new communication technologies and frequency bands, the EC issued a mandate to the European Conference of Postal and Telecommunications Administrations ("CEPT") to undertake technical studies on whether seaborne apparatus using Universal Mobile Telecommunications Service ("UMTS") 3G technology operating in the 1920 to 1980 MHz and 2110 to 2170 MHz (the "2100 MHz" frequency band) and Long Term Evolution ("LTE") 4G technology operating in the 1800 MHz band and 2500 MHz to 2570 MHz and 2620 MHz to 2690 MHz (the "2.6 GHz" frequency band) can coexist with land-based networks.

2.7 The CEPT produced CEPT Report 62[10] that concluded that it would be possible to extend MCV services to other frequency bands and newer technologies using UMTS in 2100 MHz band and LTE in both 1800 MHz and 2.6 GHz bands, provided that certain operational and technical conditions are met. The EC adopted the CEPT by making the Commission Implementation Decision of 1 February 2017 (2017/191/EU) (the "Amending Decision") [11].

2.8 The Amending Decision extends the harmonisation of MCV services to cover 3G technology in the 2100 MHz frequency band 4G technology in the 1800 MHz and 2.6 GHz frequency bands on an MCV equipped ship. As a EU Member State, the UK is bound by the terms of the Amending Decision and the requirement to implement them by 3 August 2017.

2.9 We propose to implement the Amending Decision by making the Wireless Telegraphy (Mobile Communication Services on Ships) (Exemption) Regulations 2017 (the "Proposed Regulations"). We set out the general effect of the Proposed Regulations in Section 3 of this document. In summary, they are seeking to:

i) revoke and replace the existing the MCV Exemption Regulations;

ii) continue to permit, on a licence exempt basis, the use of GSM technologies connecting to MCV systems in the 900 MHz and 1800 MHz bands (subject to complying with various terms, provisions and limitations);

iii) extend the licence exemption regime to cover the use of UMTS 2100 MHz and LTE 1800 MHz and 2.6 GHz bands to connect to MCV services (subject to complying with various terms, provisions and limitations); and

iv) outline the technical parameters that the MCV systems in the UMTS 2100 MHz LTE 1800 MHz and 2.6 GHz bands must meet in order to be exempt from the need to hold a wireless telegraphy licence.

[9] http://www.legislation.gov.uk/uksi/2011/316/pdfs/uksi_20110316_en.pdf
[10] http://www.erodocdb.dk/Docs/doc98/official/pdf/CEPTREP062.PDF
[11] http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017D0191&from=EN

Notice of Proposal

2.10 We are responsible for authorising use of the radio spectrum. We permit the use of the radio spectrum either by granting wireless telegraphy licences under the WT Act or by making regulations exempting users of particular equipment from the requirement to hold such a licence.

2.11 Under section 8(1) of the WT Act, it is unlawful to establish or use a wireless telegraphy station or install or use wireless telegraphy apparatus without holding a licence granted by us, unless the installation or use of such equipment is exempted. We can exempt the installation or use of wireless telegraphy apparatus by making statutory regulations under section 8(3) of the WT Act. Such exemption may be absolute or subject to such terms, provisions and limitations as may be so specified.

2.12 Under section 8(4) of the WT Act, we have to make regulations to exempt equipment if its installation or use is not likely to:

- involve undue interference with wireless telegraphy;
- have an adverse effect on technical quality of service;
- lead to inefficient use of the part of the electromagnetic spectrum available for wireless telegraphy;
- endanger safety of life;
- prejudice the promotion of social, regional or territorial cohesion; or
- prejudice the promotion of cultural and linguistic diversity and media pluralism.

2.13 In accordance with the requirements of section 8(3B) of the WT Act, the terms, provisions and limitations specified in the regulations must be:

- objectively justifiable in relation to the wireless telegraphy stations or wireless telegraphy apparatus to which they relate;
- not such as to discriminate unduly against particular persons or against a particular description of persons;
- proportionate to what they are intended to achieve; and
- transparent in relation to what they are intended to achieve.

2.14 We make exemption regulations by means of a statutory instrument. Before making any such regulations, we are required by section 122(4) of the WT Act to give notice of our proposal to do so. Under section 122(5), the notice must state that we propose to make the regulations in question, set out their general effects, specify an address from which a copy of the proposed regulations or order may be obtained, and specify a time period of at least one month during which any representations with respect to the proposal must be made to us.

Next steps

2.15 The deadline for responses to this Notice is on **3 July 2017**. Having taken account of any comments received on the Proposed Regulations, we expect to publish a statement on this notice by August 2017 and subsequently to make and bring into force the new exemption regulations.

Section 3

General effects of the Proposed Regulations

Introduction

3.1 We have summarised in Section 2 of this document the legal framework that is relevant to the Proposed Regulations, including our role in exempting the use of wireless telegraphy apparatus by Ofcom making regulations under section 8(3) of the WT Act.

3.2 In this Section 3, we set out the general effects of the Proposed Regulations as required by section 122(5) of the WT Act. We are proposing to make the Proposed Regulations as set out in Annex 5 to this document.

Extent of application

3.3 The Proposed Regulations will apply in the United Kingdom, the Channel Islands and the Isle of Man, subject to formal agreement of the Crown Dependencies.

The Proposed Regulations

Overall general effect

3.4 The overall general effect of the Proposed Regulations is to implement the Amending Decision. The Proposed Regulations propose to replace the existing MCV Exemption Regulations by revoking them and replacing them (see regulation 2).

Interpretation (regulation 3)

3.5 Some of the expressions[12] defined for the purposes of the Proposed Regulations remain unchanged as compared to the MCV Exemption Regulations.

3.6 We have amended some of the expressions[13] used in the MCA Exemption Regulations to make them clearer or to reflect changes introduced by the Amending Decision.

3.7 In light of those amendments, as well as changes introduced by the Amending Decision, we have also introduced some new expressions.[14]

Exempted use of apparatus (regulation 4)

3.8 The Proposed Regulations would exempt the use of apparatus on board a ship which is registered in the British Islands, and within the limits of the British Islands and the

[12] These relevant expressions are “apparatus”, “dBi”, “dBm”, “ETSI”, “kHz”, “MHz”, “the 900 MHz band” and “the 1800 MHz band”.
[13] See “baseline”, “GSM system”, “mobile communication services on ships” and “ship base transceiver station”.
[14] See “LTE system”, “public electronic communications network”, “quality criteria”, “selection timer”, “signal”, “the 1900/2100 MHz band”, “the 2600 MHz band”, “timing advance parameter”, “UMTS system” and “user inactivity release timer”.

territorial waters adjacent thereto, or, for the time being, beyond the British Islands and the territorial waters adjacent thereto.

3.9 That exemption is, however, not absolute. It only applies where the terms, provisions and limitations in regulation 5 are met.

Terms, provisions and limitations (regulation 5)

3.10 Regulation 5 mirrors the technical parameters and standards set in the Amending Decision (see Annex 6 to this document). It sets out the terms, provisions and limitations that must be met for the exemption in regulation 4 to apply to the apparatus on board an aircraft. Given the extent of changes introduced by the Amending Decision in that regard, regulation 5 of the Proposed Regulations differs significantly as compared to the MCV Exemption Regulations.

3.11 Regulation 5(1) provides that the exemption shall apply only if the apparatus (mobile devices such as handsets, tablets or computer dongles) operate as part of a GSM, UMTS or LTE system in specific frequency bands. These systems are defined by reference to ETSI standards specified in the Proposed Regulations in order to reflect the corresponding definitions in Article 1 of the Amending Decision (which, in turn, amends Article 2 of the 2010 MCV Decision).

3.12 Regulation 5(2) outlines what the apparatus must be used for and when it can be used, which reflects corresponding conditions set out in the Annex to the Amending Decision. Regulation 5(2) therefore provides that the apparatus must only be used for mobile communication services on board ships (as defined in regulation 3) and when the ship is at least two nautical miles from the baseline for GSM and UMTS systems and at least four nautical miles from the baseline for LTE systems.

3.13 Regulation 5(3) sets out specified transmit power limits that the ship base transceiver station must limit the apparatus to. They reflect corresponding conditions set out in the Annex to the Amending Decision, where they specify parameters for transmit power/power density.

3.14 Regulation 5(4) provides that the apparatus must connect directly a relevant network that complies with the requirements set out in regulation 5(5) to 5(7).

3.15 Regulation 5(5) sets out the technical limits that the ship base transceiver station must employ in order to, in particular, mitigate interference to electronic communications networks based on land for GSM systems. They reflect corresponding conditions set out under paragraph (1) of the Annex to the Amending Decision for GSM systems. They also include requirements about only using indoor antennas when the ship is between two and twelve nautical miles from the baseline, and restrictions relating to the maximum power density and receiver sensitivity.

3.16 Regulation 5(6) sets out technical restrictions on ship base transceiver station for LTE systems. They reflect corresponding conditions set out under paragraph (3) of the Annex to the Amending Decision for LTE systems. They provide, in particular, that the ship base transceiver station must only use indoor antennas when the ship is between four and twelve nautical miles from the baseline. Also, that station is restricted to using a bandwidth no greater than 5 MHz and restricted to certain emissions and powers depending on location. They also impose a number of additional requirements that the ship transceiver station must implement, in particular to mitigate any interference to electronic communication networks based on the land. Those additional requirements include:

- the selection timer being must be set at 10 minutes;
- the timing advance parameter must be set according to a range of 400 metres;
- the user inactivity release timer must be set at 2 seconds; and
- the station's carrier centre frequency must not be aligned with electronic communication networks based on the land.

3.17 Regulation 5(7) sets out technical restrictions on ship base transceiver station for UMTS systems. They reflect corresponding conditions set out under paragraph (2) of the Annex to the Amending Decision for LTE systems. They apply similar restrictions (with some variations) as those set out above for LTE systems.

3.18 Regulation 5(8) provides that the apparatus must not cause or contribute to undue interference to other wireless telegraphy. This requirement implements Article 3 of the Amending Decision.

Do you have any comments on the drafting of the Proposed Regulations?

Annex 1

Responding to this consultation

How to respond

A1.1 Ofcom invites written views and comments on the issues raised in this document, to be made by **5pm on 3 July 2017**.

A1.2 Ofcom strongly prefers to receive responses using the online web form at https://www.ofcom.org.uk/consultations-and-statements/category-3/mobile-on-ships-regulations-2017, as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response cover sheet (see Annex 3), to indicate whether or not there are confidentiality issues. This response coversheet is incorporated into the online web form questionnaire.

A1.3 For larger consultation responses - particularly those with supporting charts, tables or other data - please email Eniola.Awoyale@ofcom.org.uk attaching your response in Microsoft Word format, together with a consultation response coversheet.

A1.4 Responses may alternatively be posted or faxed to the address below, marked with the title of the consultation.

Eniola Awoyale
Ofcom
Riverside House
2A Southwark Bridge Road
London
SE1 9HA

A1.5 Note that we do not need a hard copy in addition to an electronic version. Ofcom will acknowledge receipt of responses if they are submitted using the online web form but not otherwise.

A1.6 It would be helpful if your response could include direct answers to the questions asked in this document, which are listed together at Annex 4. It would also help if you can explain why you hold your views and how Ofcom's proposals would impact on you.

Further information

A1.7 If you want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Eniola Awoyale on 020 7 783 4680

Confidentiality

A1.8 We believe it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all responses on our website, www.ofcom.org.uk, ideally on receipt. If you think your response should be kept confidential, can you please specify what part or whether

all of your response should be kept confidential, and specify why. Please also place such parts in a separate annex.

A1.9 If someone asks us to keep part or all of a response confidential, we will treat this request seriously and will try to respect this. But sometimes we will need to publish all responses, including those that are marked as confidential, in order to meet legal obligations.

A1.10 Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use. Ofcom's approach on intellectual property rights is explained further on its website at http://www.ofcom.org.uk/terms-of-use/

Next steps

A1.11 Following the end of the consultation period, Ofcom intends to publish a statement by August 2017. Please note that you can register to receive free mail Updates alerting you to the publications of relevant Ofcom documents. For more details, please see: http://www.ofcom.org.uk/email-updates/

Ofcom's consultation processes

A1.12 Ofcom seeks to ensure that responding to a consultation is easy as possible. For more information, please see our consultation principles in Annex 2.

A1.13 If you have any comments or suggestions on how Ofcom conducts its consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at consult@ofcom.org.uk . We would particularly welcome thoughts on how Ofcom could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, who are less likely to give their opinions through a formal consultation.

A1.14 If you would like to discuss these issues or Ofcom's consultation processes more generally you can alternatively contact Steve Gettings, Secretary to the Corporation, who is Ofcom's consultation champion:

Steve Gettings
Ofcom
Riverside House
2a Southwark Bridge Road
London SE1 9HA

Tel: 020 7981 3601

Email steve.gettings@ofcom.org.uk

Annex 2

Ofcom's consultation principles

Ofcom has seven principles that it follows for every public written consultation:

Before the consultation

A2.1 Wherever possible, we will hold informal talks with people and organisations before announcing a big consultation, to find out whether we are thinking along the right lines. If we do not have enough time to do this, we will hold an open meeting to explain our proposals, shortly after announcing the consultation.

During the consultation

A2.2 We will be clear about whom we are consulting, why, on what questions and for how long.

A2.3 We will make the consultation document as short and simple as possible, with a summary of no more than two pages. We will try to make it as easy as possible for people to give us a written response. If the consultation is complicated, we may provide a short Plain English / Cymraeg Clir guide, to help smaller organisations or individuals who would not otherwise be able to spare the time to share their views.

A2.4 We will consult for up to ten weeks, depending on the potential impact of our proposals.

A2.5 A person within Ofcom will be in charge of making sure we follow our own guidelines and aim to reach the largest possible number of people and organisations who may be interested in the outcome of our decisions. Ofcom's Consultation Champion is the main person to contact if you have views on the way we run our consultations.

A2.6 If we are not able to follow any of these seven principles, we will explain why.

After the consultation

A2.7 We think it is important that everyone who is interested in an issue can see other people's views, so we usually publish all the responses on our website as soon as we receive them. After the consultation we will make our decisions and publish a statement explaining what we are going to do, and why, showing how respondents' views helped to shape these decisions.

Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title:

To (Ofcom contact):

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

Please tick below what part of your response you consider is confidential, giving your reasons why

Nothing ☐

Whole response ☐

Part of the response ☐

Name/contact details/job title ☐

Organisation ☐

If there is no separate annex, which parts?

If you want part of your response, your name or your organisation not to be published, can Ofcom still publish a reference to the contents of your response (including, for any confidential parts, a general summary that does not disclose the specific information or enable you to be identified)?

DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response that Ofcom can publish. However, in supplying this response, I understand that Ofcom may need to publish all responses, including those which are marked as confidential, in order to meet legal obligations. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

Ofcom seeks to publish responses on receipt. If your response is non-confidential (in whole or in part), and you would prefer us to publish your response only once the consultation has ended, please tick here.

Name Signed (if hard copy)

Annex 3

Consultation question

A3.1 As required by section 122 of the WT Act, we must give notice of proposals that we intend to make and consider any representations that we receive. This document gives notice of our proposal to make the Wireless Telegraphy (Mobile Communication Services on Ships) (Exemption) Regulations 2017.

Do you have any comments on the drafting of the Proposed Regulations?

Annex 4

Regulatory Impact Assessment

Introduction

A4.1 Ofcom acts in accordance with Government practice that, where a statutory regulation is made, a Regulatory Impact Assessment ("RIA") must be undertaken. We also comply with our duty under section 7 of the Communications Act 2003 (the "2003 Act") to undertake impact assessments.

A4.2 The analysis in this document is a regulatory impact assessment relating to the Wireless Telegraphy (Mobile Communication Services on Ships) (Exemption) Regulations 2017 (the "Proposed Regulations"). It is consistent with the Government practice on RIAs and Ofcom's duty under the 2003 Act.

A4.3 Impact assessments provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making. This is reflected in section 7 of the 2003 Act, which imposes a duty on Ofcom to carry out impact assessments where our decisions would be likely to have a significant effect on businesses or the general public, or when there is a major change in our activities.

A4.4 As a matter of policy we are committed to carrying out and publishing impact assessments in relation to the great majority of our policy decisions. For further information about our approach to impact assessments, see the guidelines, Better policy-making: Ofcom's approach to impact assessment, which are on our website: http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf.

A4.5 This RIA relates to our proposals with regards to mobile communication services on vessels (MCV). MCV systems enable persons on board a ship to use mobile apparatus (mobile devices such as handsets, tablets or laptop dongles) whilst seaborne without connecting directly with land mobile networks. MCV systems consist of one or more pico-cell base stations ("vessel-BS") to which the mobile apparatus used by persons on a ship must connect to. The MCV operates, in essence, similar to a land base station.

Legislative background

A4.6 In the UK, we are responsible for authorising use of the radio spectrum. We permit the use of the radio spectrum either by granting wireless telegraphy licences under the Wireless Telegraphy Act (the "WT Act") or by making regulations exempting users of particular equipment from the requirement to hold such a licence. Under section 8(1) of the WT Act, it is unlawful to establish or use a wireless telegraphy station or install or use wireless telegraphy apparatus without holding a licence granted by us, unless the installation or use of such equipment is exempted. We can exempt the installation or use of wireless telegraphy apparatus by making statutory regulations under section 8(3) of the WT Act. Such exemption may be absolute or subject to such terms, provisions and limitations as may be so specified.

A4.7 However, under section 8(4) of the WT Act, we have to make regulations to exempt equipment if its installation or use is not likely to:

- involve undue interference with wireless telegraphy;
- have an adverse effect on technical quality of service;
- lead to inefficient use of the part of the electromagnetic spectrum available for wireless telegraphy;
- endanger safety of life;
- prejudice the promotion of social, regional or territorial cohesion; or
- prejudice the promotion of cultural and linguistic diversity and media pluralism.

A4.8 In accordance with the requirements of section 8(3B) of the WT Act, the terms, provisions and limitations specified in the regulations must be:

- objectively justifiable in relation to the wireless telegraphy stations or wireless telegraphy apparatus to which they relate;
- not such as to discriminate unduly against particular persons or against a particular description of persons;
- proportionate to what they are intended to achieve; and
- transparent in relation to what they are intended to achieve.

Proposal

A4.9 It is our intention to implement the requirements of the European Commission ("EC") Implementation Decision of 1 February 2017 (2017/191/EU) (the "Amending Decision").[15] To do this, we propose to make the Proposed Regulations which would revoke and replace the Wireless Telegraphy (Mobile Communication Services on board Ships) (Exemption) Regulations 2011 (the "MCV Exemption Regulations").[16]

A4.10 The MCV Exemption Regulations permit the use of MCV services in the 880 to 915 MHz and 925 MHz to 960 MHz (the "900 MHz" frequency band) and 1710 to 1785 MHz and 1805 to 1880 MHz (the "1800 MHz" frequency band) using the Global System for Mobile communication ("GSM") 2G technology, on a licence exempt basis.

A4.11 In light of the development of new communication technologies and frequency band, the EC agreed the Amending Decision that introduces the use of Universal Mobile Telecommunications Service ("UMTS") 3G technology operating in the 1920 to 1980 MHz and 2110 to 2170 MHz (the "2100 MHz" frequency band) and Long Term Evolution ("LTE") 4G technology operating in the 1800 MHz band, and 2500 MHz to 2570 MHz and 2620 MHz to 2690 MHz (the "2.6 GHz" frequency band) by seaborne passengers on board MCV equipped ships. As a European Union ("EU") Member State, the UK is bound by the terms of the Amending Decision and the requirement to implement them by 3 August 2017.

[15] http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017D0191&from=EN
[16] http://www.legislation.gov.uk/uksi/2011/316/pdfs/uksi_20110316_en.pdf

A4.12 In order to meet the requirements of the Amending Decision, we propose to extend the current licence exemption arrangements for MCV services by making the Proposed Regulations In summary, they are seeking to:

i) revoke and replace the existing the MCV Exemption Regulations;

ii) continue to permit, on a licence exempt basis, the use of GSM technologies connecting to MCV systems in the 900 MHz and 1800 MHz bands (subject to complying with various terms, provisions and limitations);

iii) extend the licence exemption regime to cover the use of UMTS 2100 MHz and LTE 1800 MHz and 2.6 GHz bands to connect to MCV services (subject to complying with various terms, provisions and limitations); and

iv) outline the technical parameters that the MCV systems in the UMTS 2100 MHz LTE 1800 MHz and 2.6 GHz bands must meet in order to be exempt from the need to hold a wireless telegraphy licence.

A4.13 Separately to ship passengers' use of the mobile apparatus, the deployment and use of the ship base station on the ship is itself subject to separate requirements under wireless telegraphy licences. Specifically, the use of MCV systems is authorised under Ofcom's practice via a Notice of Variation ("NoV") to the existing ship WT Act licences. We intend to amend the existing NoV in line with the Amending Decision. The NoV will set out the new technical conditions and operational requirements under which MCV systems would be licensed for operation in a UK ship. A draft copy of the revised NoV is provided in Annex 7 of this document for information only.

A4.14 As with all radio equipment on a ship, holders of the relevant wireless telegraphy licences are responsible for the installation, operation of the on board MCV radio equipment and the avoidance of interference to land systems. Although the Proposed Regulations will enable use of mobile apparatus when connected to the prescribed MCV systems on a licence exempt basis, there is no mandatory requirement on ship operators to install these systems on their ships.

The citizen and/or consumer interest

A4.15 Our principal duty under section 3 of the 2003 Act is to further the interests of citizens in relation to communications matters and of consumers in relevant markets, where appropriate by promoting competition. We take account of the impact of our decisions upon both citizen and consumer interests in the markets we regulate.

A4.16 We must, in particular, have regard to securing the optimal use for wireless telegraphy of spectrum and have regard to the principle under which all regulatory activities should be proportionate, consistent and targeted only at cases in which action is needed. Ofcom's priority for the Proposed Regulations is to remove unnecessary regulatory burdens, while ensuring that MVA services can be safely made available. We have considered the wider impact beyond immediate stakeholders in the radiocommunications community. We believe that the Proposed Regulations will be of benefit to consumers for the following reasons:

i) The proposal to make the Proposed Regulations concern the use of mobile apparatus using MCV systems on a licence-exempt basis, which reduces the regulatory and administrative burden on our stakeholders and helps to secure the optimal use of spectrum.

ii) The extension of MCV services to more technologies and frequencies bands will bring new legal certainty and economic opportunities, for service providers who want to offer seamless maritime mobile connectivity across borders. It would also help to ensure seamless mobile connectivity for consumers and business users and would enhance the potential of innovative maritime communication services; thereby helping passengers and crew members stay connected, and also enabling specific wireless applications which require continuous port-to-port connections.

iii) It will provide operators of MCV services with more flexibility to deploy mobile networks using a wider range of technologies. This, in turn, will help to improve access to voice and data services for end users while travelling on ships. It will provide extended coverage and higher data speeds on more journeys - changing the overall experience for travelers on an MCV enabled ship.

iv) The Proposed Regulations allows for the mutual recognition of Member States' authorisations for MCV on the basis of common technical and authorisation requirements. This will make communication more assessable to citizens and consumers on board MCV equipped ships across the EU. If the UK did not participate in this approach, it might be argued that UK businesses and consumers would be disadvantaged in not having access to these innovative services.

Ofcom's policy objective

A4.17 We seek, wherever possible, to reduce the regulatory burden upon our stakeholders, in this instance users of the radio spectrum. We can achieve this by to removing the need for spectrum users to apply for an individual wireless telegraphy licence to authorise the use of radio equipment.

A4.18 In accordance with the WT Act, we aim to exempt from licensing the use of specified equipment where it is not likely that such use will cause undue interference to other legitimate users of the radio spectrum. At the EU level, the technical work has now been done which sets out the technical criteria that would prevent land-based systems from being interfered with. European bodies have set out the common technical requirements for MCV services and have developed a set of technical parameters to reduce the risk of possible interference to terrestrial network. We believe that these will be adequate to reduce the risk of harmful interference.

A4.19 We are also required to implement EU legislation relating to radio spectrum and, from time to time, this requires licence exemption arrangements to be changed. As a Member State of the EU, the UK is bound by the terms of the Amending Decision and the requirement to implement them.

Options considered

A4.20 The options open to Ofcom in relation to the implementation of the Amending Decision are as follows:

- to make the Proposed Regulations to implement the Amending Decision; or
- to do nothing.

Analysis of the different options

Make Proposed Regulations

A4.21 The EC defined the technical and authorisation parameters and requirements which will allow MCV to be used across Europe. The outcome of the Amending Decision is a mandatory requirement for Member States to make 2G, 3G and 4G technologies available across Europe for MCV services. This requirement cannot be disregarded and Member States are expected to authorise the use of MCV systems. The most efficient route to mandatory compliance is to make the Proposed Regulations

Costs to business

A4.22 Costs to business are likely to be lower under a licence-exemption approach than the requirement for users to obtain individual licences. Licence-exemption represents the least cost regulatory approach to authorisations on the use of spectrum. For example, if use of spectrum is authorised through a WT Act licence, businesses face administrative costs associated with applying for the licence. In addition, there are licence charges that must be paid on the initial issue of the licence and on its renewal.

A4.23 Supporters of MCV services argue that such systems offer additional value to passengers. Their business cases rest on the assumption that passengers will pay for the service. If MCV services are not valued by consumers, they will not be used and few installations will be made. We can therefore rely on the market to determine the degree to which MCV services are rolled out.

Costs to Ofcom

A4.24 There are one-off administrative costs associated with making Regulations. We considered that the implementation costs to be low, both in absolute terms and in comparison to licensing alternatives that might require an auction or the maintenance of an annually renewable licence scheme if licences are awarded on a first come first served basis. Moreover, the costs such as they are will also be offset by the benefits to business and consumer outlined above.

A4.25 More importantly if we did not implement an EU Decision, the EC and others could begin legal proceedings against the UK, the costs of which we deem to be potentially very high both quantitive and qualitively, outweighing any costs we consider to be associated with correct implementation.

Do nothing

A4.26 By doing nothing, we would be in breach of the Amending Decision and could be open to infraction proceedings initiated by the EC or others. Doing nothing would also mean that MCV operators will only be limited to using GSM technology operating in the 900 MHz and 1800 MHz bands when using MCV services in the UK. Access to and use of other technologies (UMTS and LTE) and more frequency bands will not be permitted.

The preferred option

A4.27 The preferred option therefore is to make the Proposed Regulations as indicated in order to comply with the Amending Decision. The benefits of this option are that the

UK remains compliant with its EU obligations. Furthermore, it will continue to allow passengers/crew on board MCV equipped ships to benefit from use of their mobile apparatus using GSM 2G technology and further benefit from more access to voice and data services through UMTS 3G in 2100 MHz and LTE 4G technologies in 1800 MHz and 2.6 GHz bands.

Equality Impact Assessment

A4.28 Following an initial assessment of our policy proposals, we consider that it is reasonable to assume that any impacts on consumers and citizens arising from the Proposed Regulations would not differ significantly between groups or classes of UK consumers and citizens, all of whom would have access to these services, potentially at end-user prices reflective of all general input costs, including opportunity costs of spectrum used.

A4.29 We do not consider that there is evidence to suggest that the proposal to make the Proposed Regulations would have a significantly greater direct financial impact on groups including based on gender, race or disability or for consumers in Northern Ireland relative to consumers in general.

A4.30 We have not carried out a full Equality Impact Assessment in relation to race equality or equality schemes under the Northern Ireland and disability equality schemes at this stage. This is because we are not aware that the proposals being considered here are intended (or would, in practice) have a significant differential impact on different gender or racial groups, on consumers in Northern Ireland or on disabled consumers compared to consumers in general.

Annex 5

The Proposed Regulations (DRAFT SI)

STATUTORY INSTRUMENTS

2017 No. 0000

ELECTRONIC COMMUNICATIONS

The Wireless Telegraphy (Mobile Communication Services on Ships) (Exemption) Regulations 2017

Made - - - - *XXXX 2017*

Coming into force - - *XXXX 2017*

The Office of Communications ("OFCOM"), in exercise of the powers conferred by section 8(3) and section 122(7) of the Wireless Telegraphy Act 2006(**a**) and in exercise of those sections of the Act(**b**) as extended to the Bailiwick of Guernsey, to the Bailiwick of Jersey and to the Isle of Man, make the following Regulations.

Before making these Regulations, OFCOM have given notice of their proposal to do so in accordance with section 122(4)(a) of the Act, published notice of their proposal in accordance with section 122(4)(b) of the Act, and have considered the representations made to them before the time specified in the notice in accordance with section 122(4)(c) of the Act.

Citation and commencement

1. These Regulations may be cited as the Wireless Telegraphy (Mobile Communication Services on Ships) (Exemption) Regulations 2017 and come into force on [XXXX].

Revocation

2. The Wireless Telegraphy (Mobile Communication Services on Board Ships) (Exemption) Regulations 2011(**c**) are hereby revoked.

Interpretation

3. In these Regulations—

"apparatus" means wireless telegraphy apparatus;

"baseline" means the baseline for measuring the breadth of the territorial waters under the United Nations Convention on the Law of the Sea(**d**);

"dBi" means decibels of power referenced to the gain of an isotrope antenna;

"dBm" means decibels of power referenced to one milliWatt;

(**a**) 2006 c.36.
(**b**) Section 8(3) and section 122(7) were extended to the Bailiwick of Guernsey by article 2 of the Wireless Telegraphy (Guernsey) Order 2006 (S.I. 2006/3325); to the Bailiwick of Jersey by article 2 of the Wireless Telegraphy (Jersey) Order 2006 (S.I. 2006/3324); and to the Isle of Man by article 2 of the Wireless Telegraphy (Isle of Man) Order 2007 (S.I. 2007/278).
(**c**) S.I. 2011/316.
(**d**) Cmnd. 8941.

"ETSI" means the European Telecommunications Standards Institute;

"GSM system" means an electronic communications network that complies with the GSM standards EN 301 502(**a**) and EN 301 511(**b**) published by ETSI;

"kHz" means kilohertz;

"LTE system" means an electronic communications network that complies with the LTE standards EN 301 908–1(**c**), EN 301 908–13(**d**) and EN 301 908–14(**e**) published by ETSI;

"MHz" means megahertz;

"mobile communication services on board ships" means electronic communications services provided by an undertaking to enable persons on board a ship to communicate via public electronic communications networks using a GSM system, LTE system or UMTS system without establishing direct connections with electronic communications networks based on land;

"public electronic communications network" has the meaning given to it by section 151(1) of the Communications Act 2003(**f**);

"quality criteria" mean the values broadcast by a ship base transceiver station specifying the minimum required received signal level in the cell (as expressed in dBm) required for access by the apparatus to that cell;

"selection timer" means the values set by a ship base transceiver station relating to the frequency of which the apparatus seeks to establish direct connections with a public electronic communications network based on land (also known as the Public Land Mobile Network selection timer);

"ship base transceiver station" means a mobile pico-cell located on a ship supporting mobile communication services on board ships;

"signal" has the meaning given to it by section 32(10) of the Communications Act 2003;

"the 900 MHz band" means the 880–915 MHz frequency band (for the uplink from the apparatus to the ship base transceiver station) and the 925–960 MHz frequency band (for the downlink from the ship base transceiver station to the apparatus);

"the 1800 MHz band" means the 1710–1785 MHz frequency band (for the uplink from the apparatus to the ship base transceiver station) and the 1805–1880 MHz frequency band (for the downlink from the ship base transceiver station to the apparatus);

"the 1900/2100 MHz band" means the 1920–1980 MHz frequency band (for the uplink from the apparatus to the ship base transceiver station) and the 2110–2170 MHz frequency band (for the downlink from the ship base transceiver station to the apparatus);

"the 2600 MHz band" means the 2500–2570 MHz frequency band (for the uplink from the apparatus to the ship base transceiver station) and the 2620–2690 MHz frequency band (for the downlink from the ship base transceiver station to the apparatus);

"timing advance parameter" means the values set by a ship base transceiver station relating to the parameter needed to calculate the delay in the conveyance of signals transmitted from the ship base transceiver station to the apparatus;

"UMTS system" means an electronic communications network that complies with the UMTS standards EN 301 908–1, EN 301 908–2(**g**) and EN 301 908–3(**h**) published by ETSI; and

"user inactivity release timer" means the values set by a ship base transceiver station relating to the duration in which it will determine the apparatus as being inactive when no signals are

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(**a**) EN 301 502 (version 12.5.2) published in OJEU No C149, 12.5.2017, p 13.
(**b**) EN 301 511 (version 9.0.2) published in OJEU No C149, 12.5.2017, p 14.
(**c**) EN 301 908–1 (version 11.1.1) published in OJEU No C149, 12.5.2017, p 15.
(**d**) EN 301 908–13 (version 11.1.1) published in OJEU No C149, 12.5.2017, p 16.
(**e**) EN 301 908–14 (version 11.1.2) published in OJEU No C149, 12.5.2017, p 16.
(**f**) 2003 c.21.
(**g**) EN 301 908–2 (version 11.1.1) published in OJEU No C149, 12.5.2017, p 15.
(**h**) EN 301 908–3 (version 11.1.3) published in OJEU No C149, 12.5.2017, p 16.

transmitted between the ship base transceiver station and the apparatus (also known as the Radio Resource Control user inactivity release timer).

Exemption

4. The use of any apparatus on board a ship which is—

(a) registered in the British Islands; and

(b) within the limits of the British Islands and the territorial waters adjacent thereto, or, for the time being, beyond the British Islands and the territorial waters adjacent thereto,

is hereby exempt from the provisions of section 8(1) of the Wireless Telegraphy Act 2006 where the terms, provisions and limitations in regulation 5 are met.

Terms, provisions and limitations

5.—(1) The apparatus must only operate—

(a) where it forms part of a GSM system, in the 900 MHz band or the 1800 MHz band;

(b) where it forms part of a LTE system, in the 1800 MHz band or the 2600 MHz band; and

(c) where it forms part of an UMTS system, in the 1900/2100 MHz band.

(2) The apparatus must only be used—

(a) for mobile communication services on board ships;

(b) where it forms part of a GSM system or an UMTS system, when the ship is two nautical miles or more from the baseline; and

(c) where it forms part of a LTE system, when the ship is four nautical miles or more from the baseline.

(3) When controlled by a ship base transceiver station, the apparatus must operate with a maximum radiated output power which is no greater than—

(a) where it forms part of a GSM system—

(i) 5 dBm in the 900 MHz band; and

(ii) 0 dBm in the 1800 MHz band;

(b) where it forms part of a LTE system, 0 dBm in the 1800 MHz band and in the 2600 MHz band; and

(c) where it forms part of an UMTS system, 0 dBm for each 5 MHz in the 1900/2100 MHz band.

(4) The apparatus must connect directly to a ship base transceiver station that complies with the requirements set out in paragraphs (5) to (7).

(5) Where the apparatus forms part of a GSM system, the requirements referred to in paragraph (4) are—

(a) the ship base transceiver station must only use indoor antennas when the ship is between two and twelve nautical miles from the baseline;

(b) the ship base transceiver station must operate such that there is a maximum power density in external areas of the ship of −80 dBm for each 200 kHz with reference to a 0 dBi measurement antenna gain;

(c) the ship base transceiver station must mitigate interference using the following techniques or other techniques which provide at least an equivalent mitigation of interference—

(i) the receiver sensitivity and disconnection threshold (as described in the GSM standards TS 144 018(**a**) and TS 148 008(**a**) published by ETSI) of the apparatus is—

(**a**) ETSI TS 144 018 (version 14.1.0) published on 11 April 2017.

(aa) when the ship is between two and three nautical miles from the baseline, equal to or higher than –70 dBm for each 200 kHz; and

(bb) when the ship is between three and twelve nautical miles from the baseline, equal to or higher than –75 dBm for each 200 kHz;

(ii) discontinuous transmission (as described in the GSM standard TS 148 008 published by ETSI) is activated in the uplink from the apparatus to the ship base transceiver station; and

(iii) the timing advance (as described in the GSM standard TS 144 018 published by ETSI) is set to the minimum.

(6) Where the apparatus forms part of a LTE system, the requirements referred to in paragraph (4) are—

(a) the ship base transceiver station must only use indoor antennas when the ship is between four and twelve nautical miles from the baseline; and

(b) the ship base transceiver station must only use bandwidth which is no greater than 5 MHz (duplex) for each of the 1800 MHz band or the 2600 MHz band;

(c) the ship base transceiver station must operate such that—

(i) its emissions on board the ship's deck must be equal to or less than –98 dBm for each 5 MHz;

(ii) when the ship is between four and twelve nautical miles from the baseline, the quality criteria are equal to or higher than –83 dBm for each 5 MHz;

(iii) the selection timer is set to 10 minutes;

(iv) the timing advance parameter is set according to a cell range for the distributed antenna system that is equal to 400 metres;

(v) the user inactivity release timer is set to 2 seconds; and

(vi) its carrier centre frequency must not be aligned with electronic communications networks based on land.

(7) Where the apparatus forms part of a UMTS system, the requirements referred to in paragraph (4) are—

(a) the ship base transceiver station must only use indoor antennas when the ship is between two and twelve nautical miles from the baseline;

(b) the ship base transceiver station must only use bandwidth which is no greater than 5 MHz (duplex);

(c) the ship base transceiver station must operate such that—

(i) its emissions on board the ship's deck must be equal to or less than –102 dBm for each 5 MHz;

(ii) when the ship is between two and twelve nautical miles from the baseline, the quality criteria are equal to or higher than –87 dBm for each 5 MHz;

(iii) the selection timer is set to 10 minutes;

(iv) the timing advance parameter is set according to a cell range for the distributed antenna system that is equal to 600 metres;

(v) the user inactivity release timer is set to 2 seconds; and

(vi) its carrier centre frequency must not be aligned with electronic communications networks based on land.

(8) The apparatus must not cause or contribute to undue interference to any wireless telegraphy.

(a) ETSI TS 148 008 (version 14.0.0) published on 6 April 2017.

EXPLANATORY NOTE

(This note is not part of the Regulations)

These Regulations give effect to EU obligations of the United Kingdom contained in the Commission Implementing Decision 2017/191/EU of 1 February 2017 amending Decision 2010/166/EU in order to introduce new technologies and frequency bands for mobile communication services on board vessels (MCV services) in the European Union (OJEU No L 29, 3.2.2017, p 63). These Regulations revoke the Wireless Telegraphy (Mobile Communication Services on Board Ships) (Exemption) Regulations 2011 (S.I. 2011/316).

These Regulations exempt the use of wireless telegraphy apparatus which complies with certain terms, provisions and limitations, from the requirement to be licensed under section 8(1) of the Wireless Telegraphy Act 2006 (c.36). The apparatus must be on board a ship which is registered in the British Islands and the exemption applies when the ship is within the limits of the British Islands and the territorial waters adjacent thereto, or, for the time being, beyond the British Islands and the territorial waters adjacent thereto (Regulation 4).

The terms, provisions and limitations for the exemption to apply are set out in regulation 5. These include the requirement that the apparatus must only operate in the 900 MHz band or the 1800 MHz band where it forms part of a GSM system; in the 1800 MHz band or the 2600 MHz band where it forms part of a LTE system; and in the 1900/2100 MHz band where it forms part of an UMTS system (regulation 5(1)). The apparatus must only be used for mobile communication services on boards ships and when the ship is within certain specified distance (which depends on whether the apparatus forms part of a GSM, LTE or UMTS system) from the baseline (regulation 5(2)). The apparatus must also operate with a maximum radiated output power (depending on the type of system of which the apparatus forms part) falling within the limits specified by regulation 5(3). The apparatus must connect directly to a ship base transceiver station (regulation 5(4)) that complies with further technical requirements set out in regulation 5(5) to (7), depending on the type of system of which the apparatus forms part. Finally, the apparatus must not cause or contribute to any undue interference to any wireless telegraphy (regulation 5(8)).

Except for the ETSI standards TS 144 018 and TS 148 008, the ETSI standards referred to in the Regulations are published in the Official Journal of the European Union (OJEU) and available to the public from the official website of the European Union at http://eur-lex.europa.eu/oj/direct-access.html or from the EU Bookshop (as managed by the Publications Office of the European Union) by emailing: bookshop@publications.europa.eu. The ETSI standards TS 144 018 and TS 148 008 are available to the public from ETSI on their website at http://www.etsi.org or from the ETSI Secretariat at 650 Route des Lucioles, 06921 Sophia-Antipolis CEDEX, France (Tel: +33 4 92 94 42 00).

A full regulatory impact assessment of the effect that these Regulations will have on the costs to business is available to the public from OFCOM's website at http://www.ofcom.org.uk or from the OFCOM Library at Riverside House, 2a Southwark Bridge Road, London SE1 9HA. Copies of this assessment have also been placed in the library of the House of Commons.

Annex 6

The Amending Decision

3.2.2017 EN Official Journal of the European Union L 29/63

COMMISSION IMPLEMENTING DECISION (EU) 2017/191

of 1 February 2017

amending Decision 2010/166/EU, in order to introduce new technologies and frequency bands for mobile communication services on board vessels (MCV services) in the European Union

(notified under document C(2017) 450)

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Decision No 676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in the European Community (Radio Spectrum Decision) (1), and in particular Article 4(3) thereof,

Whereas:

(1) Commission Decision 2010/166/EU (2) sets technical and operational conditions necessary to allow the use of GSM on board vessels (MCV services) in the Union.

(2) The development of enhanced means of communications supported by technical progress can improve the capacity for all citizens to be connected everywhere and at all times in line with the Radio Spectrum Policy Programme established by Decision No 243/2012/EU of the European Parliament and of the Council (3) and contribute to the implementation of the Digital Single Market. Moreover, spectrum should be used in accordance with the principles of technology and service neutrality set out in Directive 2002/21/EC of the European Parliament and of the Council (4).

(3) Decision 2010/166/EU calls on the Member States to keep under review the use of the 900 MHz and 1 800 MHz bands by systems providing MCV services in their territorial seas, in particular with regard to the continued relevance of all the conditions in that Decision and to instances of harmful interference. Member States are also required to submit to the Commission a report on their findings and the Commission should, where appropriate, review Decision 2010/166/EU.

(4) The reports provided by Member States to the Commission have strongly confirmed the need to allow new communication technologies for MCV use.

(5) In order to facilitate further deployment of MCV applications in the Union, the Commission gave a mandate on 16 November 2015 to the European Conference of Postal and Telecommunications Administrations ('the CEPT') in accordance with Article 4(2) of Decision No 676/2002/EC to examine the possibility for coexistence of seaborne devices using LTE technology with terrestrial electronic communications networks operating in the 1 710-1 785/1 805-1 880 MHz and 2 500-2 570/2 620-2 690 MHz bands and the coexistence of seaborne devices using UMTS technology with terrestrial electronic communications networks operating in the 1 920-1 980/2 110-2 170 MHz bands.

(6) Following that mandate, the CEPT adopted on 17 June 2016 its report 62 which concluded that it would be possible to operate MCV, provided that the relevant technical conditions are met, using LTE technology in the 1 710-1 785/1 805-1 880 MHz and 2 500-2 570/2 620-2 690 MHz bands and UMTS technology in the 1 920-1 980/2 110-2 170 MHz band. Therefore, Decision 2010/166/EU should be amended based on the results of CEPT report 62 to include those technologies and frequencies and allow the use of systems based on these technologies on board vessels.

(1) OJ L 108, 24.4.2002, p. 1.
(2) Commission Decision 2010/166/EU of 19 March 2010 on harmonised conditions of use of radio spectrum for mobile communication services on board vessels (MCV services) in the European Union (OJ L 72, 20.3.2010, p. 38).
(3) Decision No 243/2012/EU of the European Parliament and of the Council of 14 March 2012 establishing a multiannual radio spectrum policy programme (OJ L 81, 21.3.2012, p. 7).
(4) Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive) (OJ L 108, 24.4.2002, p. 33).

(7) Without prejudice to the requirements set out in the Annex, and in order to protect other authorised uses of spectrum, Member States may place additional geographic restrictions on the operation of the MCV system in their territorial sea.

(8) Considering the importance of the UMTS and LTE technologies for wireless communications in the Union, the possibility to use MCV LTE systems and MCV UMTS systems as described in this Decision should apply as early as possible and not later than 6 months after the date of notification of this Decision.

(9) MCV technical specifications should remain under review in order to ensure that they match technological progress.

(10) The measures provided for in this Decision are in accordance with the opinion of the Radio Spectrum Committee,

HAS ADOPTED THIS DECISION:

Article 1

Decision 2010/166/EU is amended as follows:

1. Article 1 is replaced by the following:

'*Article 1*

The purpose of this Decision is to harmonise the technical conditions for the availability and efficient use of the 900 MHz, 1 800 MHz, 1 900/2 100 MHz, 2 600 MHz frequency bands for systems providing mobile communications on board vessels services within territorial seas in the Union.'.

2. Article 2 is amended as follows:

(a) point 1 is replaced by the following:

'1. "mobile communication services on board vessels (MCV services)" means electronic communication services, as defined in Article 2(c) of Directive 2002/21/EC of the European Parliament and of the Council (*), provided by an undertaking to enable persons on board a vessel to communicate via public communication networks using a system subject to Article 3 without establishing direct connections with land-based mobile networks;

(*) Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive) (OJ L 108, 24.4.2002, p. 33).';

(b) point 7 is replaced by the following:

'7. "vessel base transceiver station (vessel BS)" means a mobile pico-cell located on a vessel and supporting GSM, LTE or UMTS services in compliance with the Annex to this Decision;';

(c) the following points are added:

'8. "the 1 900/2 100 MHz bands" means the 1 920-1 980 MHz band for uplink (terminal transmit, base station receive) and 2 110-2 170 MHz band for downlink (base station transmit, terminal receive);

9. "the 2 600 MHz band" means the 2 500-2 570 MHz band for uplink (terminal transmit, base station receive) and 2 620-2 690 MHz band for downlink (base station transmit, terminal receive);

10. "LTE system" means an electronic communications network as defined in the Annex to Commission Implementing Decision 2011/251/EU (*);

11. "UMTS system" means an electronic communications network as defined in the Annex to Implementing Decision 2011/251/EU.

(*) Commission Implementing Decision 2011/251/EU of 18 April 2011 amending Decision 2009/766/EC on the harmonization of the 900 MHz and 1 800 MHz frequency bands for terrestrial systems capable of providing pan-European electronic communications services in the Community (OJ L 106, 27.4.2011, p. 9)'.

3. Article 3 is replaced by the following:

'*Article 3*

1. Member States shall make available at least 2 MHz of spectrum in the uplink direction and 2 MHz of corresponding paired spectrum in the downlink direction within the 900 and/or 1 800 MHz bands for GSM systems providing MCV services on a non-interference and non-protected basis in their territorial seas.

2. As early as possible, and 6 months after the date of notification of this Decision at the latest, Member States shall make available 5 MHz of spectrum in the uplink direction and 5 MHz of corresponding paired spectrum in the downlink direction within the 1 900/2 100 MHz bands for UMTS systems and within the 1 800 and 2 600 MHz bands for LTE systems providing MCV services on a non-interference and non-protected basis in their territorial seas.

3. Member States shall ensure that the systems covered by paragraphs 1 and 2 comply with the conditions set out in the Annex.'.

4. Article 4 is replaced by the following:

'*Article 4*

Member States shall keep under review the use of the frequency bands by the systems providing MCV services in their territorial seas, which are referred to in Article 3(1) and (2), in particular with regard to the continued relevance of all the conditions set out in Article 3 and to instances of harmful interference.'.

5. The Annex is replaced by the text in the Annex to this Decision.

Article 2

This Decision is addressed to the Member States.

Done at Brussels, 1 February 2017.

For the Commission

Andrus ANSIP

Vice-President

ANNEX

ANNEX

Conditions to be met by a system providing MCV services in the territorial seas of the Member States of the European Union, in order to avoid harmful interference to land-based mobile networks

(1) Conditions to be met by GSM systems operating in the 900 MHz band and 1 800 MHz band providing MCV services in the territorial seas of the Member States, in order to avoid harmful interference to land-based mobile networks

The following conditions shall apply:

(a) the system providing MCV services shall not be used closer than 2 nautical miles (1) from the baseline, as defined in the United Nations Convention on the Law of the Sea;

(b) only indoor vessel-BS antenna(s) shall be used between 2 and 12 nautical miles from the baseline;

(c) limits to be set for mobile terminals when used on board vessel and for vessel-BS:

Parameter	Description
Transmit power/power density	For mobile terminals used on board vessels and controlled by the vessel-BS in the 900 MHz band, maximum radiated output power: 5 dBm
	For mobile terminals used on board vessels and controlled by the vessel-BS in the 1 800 MHz band, maximum radiated output power: 0 dBm
	For base stations on board vessels, the maximum power density measured in external areas of the vessel, with reference to a 0 dBi measurement antenna gain: – 80 dBm/200 kHz
Channel access and occupation rules	Techniques to mitigate interference that provide at least equivalent performance to the following mitigation factors based on GSM standards shall be used: — between 2 and 3 nautical miles from the baseline, the receiver sensitivity and the disconnection threshold (ACCMIN (2) and min RXLEV (3) level) of the mobile terminal used on board vessel shall be equal to or higher than – 70 dBm/200 kHz and between 3 and 12 nautical miles from the baseline equal to or higher than – 75 dBm/200 kHz, — discontinuous transmission (4) shall be activated in the MCV system uplink direction, — the timing advance (5) value of the vessel-BS shall be set to the minimum.

(2) ACCMIN (RX_LEV_ACCESS_MIN): as described in GSM standard ETSI TS 144 018.
(3) RXLEV (RXLEV-FULL-SERVING-CELL): as described in GSM standard ETSI TS 148 008.
(4) Discontinuous transmission, or DTX: as described in GSM standard ETSI TS 148 008.
(5) Timing advance: as described in GSM standard ETSI TS 144 018.

(2) Conditions to be met by UMTS systems in the 1 900/2 100 MHz bands providing MCV services in the territorial seas of the Member States, in order to avoid harmful interference to land-based mobile networks

The following conditions shall apply:

(a) the system providing MCV services shall not be used closer than 2 nautical miles from the baseline, as defined in the United Nations Convention on the Law of the Sea;

(1) One nautical mile = 1 852 metres

(b) only indoor vessel-BS antenna(s) shall be used between 2 and 12 nautical miles from the baseline;

(c) only bandwidth up to 5 MHz (duplex) can be used;

(d) limits to be set for mobile terminals when used on board vessel and for vessel-BS:

Parameter	Description
Transmit power/power density	For mobile terminals transmitting in the 1 900 MHz band used on board vessels and controlled by the vessel-BS transmitting in the 2 100 MHz band, maximum radiated output power: 0 dBm/5 MHz
Emissions on deck	The vessel-BS emission on deck shall be equal or below – 102 dBm/5 MHz (Common Pilot Channel)
Channel access and occupation rules	Between 2 and 12 nautical miles from the baseline, the quality criteria (minimum required received signal level in the cell) shall be equal to or higher than: – 87 dBm/5 MHz
	The Public Land Mobile Network selection timer shall be set to 10 minutes
	The timing advance parameter shall be set according to a cell range for the MCV distributed antenna system equal to 600 m
	The Radio Resource Control user inactivity release timer shall be set to 2 seconds
Non alignment with land networks	MCV carrier centre frequency shall not be aligned with land network carriers

(3) Conditions to be met by LTE systems in the 1 800 MHz band and 2 600 MHz band providing MCV services in the territorial seas of the Member States, in order to avoid harmful interference to land-based mobile networks

The following conditions shall apply:

(a) the system providing MCV services shall not be used closer than 4 nautical miles from the baseline, as defined in the United Nations Convention on the Law of the Sea;

(b) only indoor vessel-BS antenna(s) shall be used between 4 and 12 nautical miles from the baseline;

(c) only a bandwidth of up to 5 MHz (duplex) can be used per frequency band (1 800 MHz and 2 600 MHz);

(d) limits to be set for mobile terminals when used on board vessel and for vessel-BS:

Parameter	Description
Transmit power/power density	For mobile terminals used on board vessels and controlled by the vessel-BS in the 1 800 MHz band and 2 600 MHz band, maximum radiated output power: 0 dBm
Emissions on deck	The vessel-BS emission on deck shall be equal or below – 98 dBm/5 MHz (equivalent to – 120 dBm/15 kHz)

Parameter	Description
Channel access and occupation rules	Between 4 and 12 nautical miles from the baseline, the quality criteria (minimum required received signal level in the cell) shall be equal to or higher than – 83 dBm/5 MHz (equivalent to – 105 dBm/15 kHz)
	The Public Land Mobile Network selection timer shall be set to 10 minutes
	The timing advance parameter shall be set according to a cell range for the MCV distributed antenna system equal to 400 m
	The Radio Resource Control user inactivity release timer shall be set to 2 seconds
Non alignment with land networks	MCV carrier centre frequency shall not be aligned with land network carriers'

Annex 7

Draft amendment to the Notice of Variation (NoV) of ship licence

VARIATION OF SHIP RADIO LICENCE
FOR THE PURPOSE OF INSTALLING AND USING A BASE TRANSCEIVER STATIONS FOR MOBILE COMMUNICATION SERVICES ON BOARD SHIPS

Extract from Ship's Radio Licence Terms and Conditions

Mobile Communication on board Ships

1. Where a Ship base transceiver station used for supporting mobile communication services on board ships is installed or used, the following terms and conditions shall apply.

   (a) The ship base transceiver station must only operate—
   - where it forms part of a GSM system, in the 900 MHz band or the 1800 MHz band;
   - where it forms part of a LTE system, in the 1800 MHz band or the 2600 MHz band; and
   - where it forms part of an UMTS system, in the 1900/2100 MHz band.

   (b) The ship base transceiver must only be used—
   - for mobile communication services on board ships;
   - where it forms part of a GSM system or an UMTS system, when the ship is two nautical miles or more from the baseline; and
   - where it forms part of a LTE system, when the ship is four nautical miles or more from the baseline.

   (c) The ship base transceiver station must control the apparatus so that it operates with a maximum radiated output power which is no greater than—
   - where it forms part of a GSM system—
     - 5 dBm in the 900 MHz band; and
     - 0 dBm in the 1800 MHz band;
   - where it forms part of a LTE system, 0 dBm in the 1800 MHz band and in the 2600 MHz band; and
   - where it forms part of an UMTS system, 0 dBm for each 5 MHz in the 1900/2100 MHz band.

   (d) Where the ship base transceiver station forms part of a GSM system, the ship base transceiver station must comply with the following requirements—
   - must only use indoor antennas when the ship is between two and twelve nautical miles from the baseline;
   - must operate such that there is a maximum power density in external areas of the ship of –80 dBm for each 200 kHz with reference to a 0 dBi measurement antenna gain;

- must mitigate interference using the following techniques or other techniques which provide at least an equivalent mitigation of interference—
    - the receiver sensitivity and disconnection threshold (as described in the GSM standards TS 144 018([17]) and TS 148 008([18]) published by ETSI) of the apparatus is—
    - when the ship is between two and three nautical miles from the baseline, equal to or higher than –70 dBm for each 200 kHz; and
    - when the ship is between three and twelve nautical miles from the baseline, equal to or higher than –75 dBm for each 200 kHz;
    - discontinuous transmission (as described in the GSM standard TS 148 008 published by ETSI) is activated in the uplink from the apparatus to the ship base transceiver station; and
    - the timing advance (as described in the GSM standard TS 144 018 published by ETSI) is set to the minimum.

(e) Where the ship base transceiver station forms part of a LTE system, the ship base transceiver station must comply with the following requirements—

- must only use indoor antennas when the ship is between four and twelve nautical miles from the baseline; and
- must only use bandwidth which is no greater than 5 MHz (duplex) for each of the 1800 MHz band or the 2600 MHz band;
- must operate such that—
    - its emissions on board the ship's deck must be equal to or less than –98 dBm for each 5 MHz;
    - when the ship is between four and twelve nautical miles from the baseline, the quality criteria are equal to or higher than –83 dBm for each 5 MHz;
    - the selection timer is set to 10 minutes;
    - the timing advance parameter is set according to a cell range for the distributed antenna system that is equal to 400 metres;
    - the user inactivity release timer is set to 2 seconds; and
    - its carrier centre frequency must not be aligned with electronic communications networks based on land.

(f) Where the ship base transceiver station s forms part of a system, the ship base transceiver station must comply with the following requirements—

- must only use indoor antennas when the ship is between two and twelve nautical miles from the baseline;
- must only use bandwidth which is no greater than 5 MHz (duplex);
- must operate such that—
    - its emissions on board the ship's deck must be equal to or less than –102 dBm for each 5 MHz;

([17]) ETSI TS 144 018 (version 14.1.0) published on 11 April 2017.
([18]) ETSI TS 148 008 (version 14.0.0) published on 6 April 2017.

- when the ship is between two and twelve nautical miles from the baseline, the quality criteria are equal to or higher than –87 dBm for each 5 MHz;
- the selection timer is set to 10 minutes;
- the timing advance parameter is set according to a cell range for the distributed antenna system that is equal to 600 metres;
- the user inactivity release timer is set to 2 seconds; and
- its carrier centre frequency must not be aligned with electronic communications networks based on land.

(g) The ship base transceiver station must not cause or contribute to undue interference to any wireless telegraphy.

2. This authorisation does not affect the requirement, where necessary, to obtain licences or authorisations under other legislation or from other countries prior to the installation or operation of a ship base transceiver station, in particular outside UK territorial waters. The Licensee is encouraged to seek its own independent professional advice in this respect.

3. Insofar as it applies in this licence to the installation and use of Mobile Communication on board Ships equipment:

(a) "apparatus" means wireless telegraphy apparatus;

(b) "baseline" means the baseline for measuring the breadth of the territorial waters under the United Nations Convention on the Law of the Sea([19]);

(c) "dBi" means decibels of power referenced to the gain of an isotrope antenna;

(d) "dBm" means decibels of power referenced to one milliWatt;

(e) "ETSI" means the European Telecommunications Standards Institute;

(f) "GSM system" means an electronic communications network that complies with the GSM standards EN 301 502([20]) and EN 301 511([21]) published by ETSI;

(g) "kHz" means kilohertz;

(h) "LTE system" means an electronic communications network that complies with the LTE standards EN 301 908–1([22]), EN 301 908–13([23]) and EN 301 908–14([24]) published by ETSI;

(i) "MHz" means megahertz;

(j) "mobile communication services on board ships" means electronic communications services provided by an undertaking to enable persons on board a ship to communicate via public electronic communications networks using a GSM system, LTE system or UMTS system without establishing direct connections with electronic communications networks based on land;

(k) "public electronic communications network" has the meaning given to it by section 151(1) of the Communications Act 2003([25]);

([19]) Cmnd. 8941.
([20]) EN 301 502 (version 12.5.2) published in OJEU No C149, 12.5.2017, p 13.
([21]) EN 301 511 (version 9.0.2) published in OJEU No C149, 12.5.2017, p 14.
([22]) EN 301 908–1 (version 11.1.1) published in OJEU No C149, 12.5.2017, p 15.
([23]) EN 301 908–13 (version 11.1.1) published in OJEU No C149, 12.5.2017, p 16.
([24]) EN 301 908–14 (version 11.1.2) published in OJEU No C149, 12.5.2017, p 16.
([25]) 2003 c.21.

(l) “quality criteria” mean the values broadcast by a ship base transceiver station specifying the minimum required received signal level in the cell (as expressed in dBm) required for access by the apparatus to that cell;

(m) “selection timer” means the values set by a ship base transceiver station relating to the frequency of which the apparatus seeks to establish direct connections with a public electronic communications network based on land (also known as the Public Land Mobile Network selection timer);

(n) “ship base transceiver station” means a mobile pico-cell located on a ship supporting mobile communication services on board ships;

(o) “signal” has the meaning given to it by section 32(10) of the Communications Act 2003;

(p) “the 900 MHz band” means the 880–915 MHz frequency band (for the uplink from the apparatus to the ship base transceiver station) and the 925–960 MHz frequency band (for the downlink from the ship base transceiver station to the apparatus);

(q) “the 1800 MHz band” means the 1710–1785 MHz frequency band (for the uplink from the apparatus to the ship base transceiver station) and the 1805–1880 MHz frequency band (for the downlink from the ship base transceiver station to the apparatus);

(r) “the 1900/2100 MHz band” means the 1920–1980 MHz frequency band (for the uplink from the apparatus to the ship base transceiver station) and the 2110–2170 MHz frequency band (for the downlink from the ship base transceiver station to the apparatus);

(s) “the 2600 MHz band” means the 2500–2570 MHz frequency band (for the uplink from the apparatus to the ship base transceiver station) and the 2620–2690 MHz frequency band (for the downlink from the ship base transceiver station to the apparatus);

(t) “timing advance parameter” means the values set by a ship base transceiver station relating to the parameter needed to calculate the delay in the conveyance of signals transmitted from the ship base transceiver station to the apparatus;

(u) “UMTS system” means an electronic communications network that complies with the UMTS standards EN 301 908–1, EN 301 908–2([26]) and EN 301 908–3([27]) published by ETSI; and

(v) “user inactivity release timer” means the values set by a ship base transceiver station relating to the duration in which it will determine the apparatus as being inactive when no signals are transmitted between the ship base transceiver station and the apparatus (also known as the Radio Resource Control user inactivity release timer).

([26]) EN 301 908–2 (version 11.1.1) published in OJEU No C149, 12.5.2017, p 15.
([27]) EN 301 908–3 (version 11.1.3) published in OJEU No C149, 12.5.2017, p 16.

Annex 8

Abbreviations

- CEPT - European Conference of Postal and Telecommunications Administrations
- EC - European Commission
- ETSI - European Telecommunications Standards Institute
- GHz - Gigahertz
- GSM - Global System for Mobile Communications
- LTE - Long Term Evolution
- MHz - Megahertz
- NoV – Notice of Variation
- UMTS - Universal Mobile Telecommunications System
- Vessel-BS – Vessel Base Station
- WT Act - Wireless Telegraphy Act 2006