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# Ship Radio licence and Ship Portable Radio licence

## Terms, conditions and limitations

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These terms and conditions apply to licences that authorise the use of Earth Station equipment across the full 14-14.5 GHz band.

For licences that may authorise Earth Station equipment between 14-14.25 GHz, but which do not authorise the use of Earth Station equipment across the full 14-14.5 GHz band, [these terms and conditions](#) apply.

# Ship Radio and Ship Portable licence

## Introduction

- 1 These terms and conditions are incorporated into and form part of the terms, provisions and limitations of each Ship Radio Licence or Ship Portable Radio Licence (as appropriate) issued by Ofcom. Each such licence is referred to herein as “the Licence”.

## Licence variation and revocation

- 2 Ofcom may exercise their power to vary or revoke the Licence in accordance with the Wireless Telegraphy Act 2006 (“the WT Act”).
- 3 The Licensee shall be notified of any variation or revocation of the Licence in writing or by a general notice applicable to holders of this class of Licence.

## Interpretation

- 4 In the Licence:
  - (a) the establishment, installation and use of the “radio equipment” shall be interpreted as establishment and use of stations and installation and use of apparatus for wireless telegraphy as specified in the WT Act;
  - (b) the terms used shall have the same meaning as they have in the WT Act;
  - (c) the schedules form part of the Licence together with any subsequent schedules which Ofcom may issue as a variation to the Licence at a later date;
  - (d) an Authority to Operate means an authority issued by the Secretary of State pursuant to the WT Act;
  - (e) a Maritime Radio Operator’s Certificate of Competence is a certificate issued by the Secretary of State pursuant to the WT Act;
  - (f) “Licence details” means all information provided by the Licensee in the Licence application or in any application to amend the Licence and all information recorded in the Licence;
  - (g) the terms 'ship' and 'vessel' also include:
    - (i) a hovercraft;
    - (ii) a light station;
    - (iii) installations to which the Continental Shelf Act 1964 applies;
    - (iv) other structures within the territorial (external) waters of the United Kingdom, the Channel Islands (The Bailiwick of Jersey and the Bailiwick of Guernsey) or the Isle of Man;
    - (v) a survival craft.
  - (h) the Interpretation Act 1978 shall apply to the Licence as it applies to an Act of Parliament.

## Licence changes and confirmation of licence details

- 5 The Licence is not transferable.
- 6 The Licensee must give prior or immediate notice to Ofcom of any change in the Licence details.
- 7 The Licensee must provide confirmation to Ofcom that the Licence details are correct at least once every ten (10) years where the Licence details have not changed during that period.

## Fees

- 8 The Licensee shall pay to Ofcom the relevant fee as provided in the WT Act and the Regulations made under the WT Act on or before the date of issue of the Licence or any other date which may be made in the Regulations, failing which Ofcom may revoke the Licence.

## Radio equipment use

- 9 The Licensee must ensure that the radio equipment covered by the Licence is constructed and used only in accordance with the terms specified in the schedules relevant to the Licence.
- 10 The Licensee must ensure that the radio equipment is used only by persons:
- (a) who have been authorised by the Licensee to do so and who have been made aware of, and comply with, the terms of the Licence; and
  - (b) who hold, or are under the direct personal supervision of a person who holds, a relevant Maritime Radio Operator's Certificate of Competence and valid Authority to Operate.
- 11 Clause 10 (b) shall not apply to persons using channels M (157.850 MHz) and M2 (161.425 MHz).
- 12 Notwithstanding the terms set out in Clause 10 above, in the event of an emergency where there is a risk to life, the radio equipment may be used by any person to summon assistance.

## Access and inspection

- 13 The Licensee shall permit a person authorised by Ofcom:
- (a) to have access to the radio equipment; and
  - (b) to inspect the Licence, the relevant Maritime Radio Operator's Certificate of Competence and valid Authority to Operate and any notices of variation to the Licence, and the radio equipment at any and all reasonable times or, when in the opinion of that person an urgent situation exists, at any time, to ensure that the radio equipment is being used in accordance with the terms of the Licence.

## Modification, restriction and close down

- 14 A person authorised by Ofcom may require the radio equipment to be modified in operation, restricted, or either temporarily or permanently closed down with immediate effect if in the opinion of the person authorised by Ofcom:
- (a) a breach of the Licence has occurred; or
  - (b) the use of the radio equipment is causing or contributing to undue interference to the use of other authorised radio equipment.
- 15 Ofcom may require the radio equipment to be modified in operation, restricted or either temporarily or permanently closed down either immediately or on the expiry of such period as Ofcom may specify:
- (a) in the interests of long term spectrum planning; or
  - (b) in the event of a national or local state of emergency being declared.
- 16 Ofcom may exercise the power set out in clause 15 by a written notice served on the Licensee or by a general notice applicable to holders of this class of Licence.

# Schedule 1 – applicable to a Ship Radio Licence

## Radio equipment use

- 1 The Licensee shall ensure that the radio equipment is only used:
  - (a) to send messages to other ship stations, coast stations, aircraft stations and satellite stations from radio stations used on-board;
  - (b) to receive messages intended for general reception or for specific reception by the radio equipment from other ship stations, coast stations, aircraft stations, satellite stations, special service stations, radio navigation stations and from radio stations used on board;
  - (c) to send to and to receive from any radio station any message which is necessary for the safety of life or for navigational safety reasons; or
  - (d) to send "public correspondence" messages from the vessel indicated in the Licence to stations linked to a public telecommunication system and to receive messages from such stations which are intended to be received by this vessel.
- 2 The radio equipment must be used on board the vessel indicated in the Licence except in the case of an emergency when the radio equipment may be used anywhere.
- 3 The Licensee shall ensure that the establishment, installation, modification or use of the Radio Equipment is carried out in accordance with the provisions set out in Schedule 4 of this Licence in relation to electromagnetic field (EMF) exposure.

## Keeping and display of licence documents

- 4 The Licence, the relevant Maritime Radio Operator's Certificate of Competence and valid Authority to Operate, and any notices of variation to the Licence shall be kept with or near to the licensed radio equipment at all times, where it is physically practicable to do so.
- 5 The Licence, the relevant Maritime Radio Operator's Certificate of Competence and valid Authority to Operate and any notices of variation to the Licence shall accompany the radio equipment to which it relates, when the vessel is taken abroad.

## Identification of transmissions

- 6 The Licensee shall use one of the following methods of identification for all transmissions:
  - (a) the vessel call sign indicated in the Licence;
  - (b) the ship station Maritime Mobile Service Identity ("MMSI") indicated in the Licence;
  - (c) the Hovercraft Registration Mark;
  - (d) the vessel's name and, where necessary, the name of the owner of the vessel or the vessel registration number or port of registry providing this would not delay distress, urgency or safety communications.
- 7 None of the information referred to in clause 6 shall be sent in code.
- 8 The call sign as described in clause 6(a) shall remain with the vessel, and shall if necessary be surrendered on the sale, transfer, destruction or loss of the vessel.

- 9 Where it relates to the ship (as opposed to individual items of equipment), the MMSI described in clause 6(b) shall if necessary be surrendered on change of ownership, transfer, destruction or loss of the vessel.

## Radio equipment and conformity requirements

- 10 Maritime radio equipment<sup>1</sup> intended for use on board United Kingdom, Channel Islands or the Isle of Man licensed vessels shall;
- (a) comply with the Merchant Shipping (Marine Equipment) Regulations 2016 or the Merchant Shipping (Marine Equipment) Regulations 1999;
  - (b) comply with the applicable UK Radio Interface Requirements (published by Ofcom); or
  - (c) have been previously type approved in accordance with Section 84 of the Telecommunications Act 1984 and with the provision that the equipment has been placed on the market before 8 April 2001. (After 7 April 2000 type approval certificates are not applicable); or
  - (d) have been previously type approved in accordance with the Merchant Shipping Notice MSN 1735 (M+F) published by the Maritime and Coastguard Agency.
- 11 Where included in Section 1, maritime radio equipment used on board the ship shall only be used on ship frequencies and to the maximum powers and classes of emission allocated in accordance with the relevant International Telecommunication Union (ITU) Radio Regulations and ITU-R Recommendations<sup>2</sup> within the frequency bands indicated below:

### Frequency bands applicable to a Ship Radio Licence:

#### Radiotelegraphy (including DSC for frequency bands as applicable)

<b>Frequency/band</b>	415 kHz to 535 kHz	1,605 kHz to 4,000 kHz	4,000 kHz to 27,500 kHz
<b>ITU Frequency or band designation</b>	X	Y	Z

#### Radiotelephony (including AIS, DSC for frequency bands as applicable)

<b>Frequency/band</b>	1,605 kHz to 4,000 kHz	4,000 kHz to 27,500 kHz	156 MHz to 174 <sup>3</sup> MHz
<b>ITU frequency or band designation</b>	T	U	V

<sup>1</sup> Clauses 10(a) to 10(d) are not intended to specify particular radio equipment conformance or approval requirements that would apply to particular types of vessel. Information relating to mandatory requirements may be obtained from The Maritime and Coastguard Agency.

<sup>2</sup> Available from [sales@itu.int](mailto:sales@itu.int)

<sup>3</sup> 25 kHz channel spacing

<b>Frequency/band</b>	457.525 <sup>4</sup> MHz 467.525 <sup>4</sup> MHz 457.550 <sup>4</sup> MHz 467.550 <sup>4</sup> MHz 457.575 <sup>4</sup> MHz 467.575 <sup>4</sup> MHz  457.5375 <sup>5</sup> MHz 457.5625 <sup>5</sup> MHz 467.5375 <sup>5</sup> MHz 467.5625 <sup>5</sup> MHz	Channel “M” (157.850 <sup>3</sup> MHz) for use in United Kingdom, Channel Islands or the Isle of Man territorial waters only.	Channel “M2” (161.425 <sup>4</sup> MHz) for use in United Kingdom, Channel Islands or the Isle of Man territorial waters only.
<b>ITU frequency or band designation</b>	–	–	–

**Other frequencies:**

<b>Frequency/band</b>	EPIRB 2,182 kHz	EPIRB (PLB) 121.5 MHz	EPIRB (PLB) 243 MHz
<b>ITU frequency or band designation</b>	A	B	C
<b>Frequency/band</b>	Satellite EPIRB/PLB 406 MHz to 406.1 MHz	Satellite EPIRB operation within 1,645.5 MHz to 1,646.5 MHz	SART 9,200 MHz to 9,500 MHz
<b>ITU frequency or band designation</b>	E	F	G
<b>Frequency/band</b>	Mobile satellite 1,626.5 MHz to 1,660.5 MHz  Receive frequency band 1,525 MHz to 1,559 MHz	Ship to aircraft on-scene communications 121.5, 123.1 MHz	Radar/radar target enhancer 2,900 MHz to 3,100 MHz
<b>ITU frequency or band designation</b>	S	–	–

<b>Frequency/band</b>	Radar/radar target enhancer 9,300 MHz to 9,500 MHz
<b>ITU Frequency or band designation</b>	–

<sup>4</sup> 12.5 kHz or 25 kHz channel spacing

<sup>5</sup> 12.5 kHz channel spacing

# Schedule 2 – applicable to a Ship Portable Radio Licence

## Radio equipment use

- 1 The Licence covers the use of the radio equipment up to the limit of United Kingdom, Channel Islands or the Isle of Man territorial seas only.
- 2 The Licensee shall ensure that the radio equipment (which may be used on any vessel) is only used:
  - (a) to send messages to other ship stations, coast stations, aircraft stations;
  - (b) to receive messages intended for general reception or for specific reception by the radio equipment from other ship stations, coast stations and aircraft stations; or
  - (c) to send to and to receive from any radio station any message, necessary for the safety of life or for navigational safety reasons.
- 3 The radio equipment listed in Section 1 of the Licence may consist of one or more of the following:
  - (a) one (1) hand held portable VHF radio transceiver with an integral antenna and power supply, which is not designed to be permanently installed on a vessel;
  - (b) the equipment described in clause 3(a), with the additional functionality of VHF/DSC transmissions;
  - (c) one (1) Emergency Position Indicating Radio Beacon (EPIRB) and/or one (1) Personal Locator Beacon (PLB) operating on 121.5 MHz, 243 MHz, 406 MHz band or 1.6 GHz band; or
  - (d) one (1) piece of aeronautical search and rescue equipment with frequencies 121.5 and 123.1 MHz;
  - (e) one each of:
    - MOB DSC operating on 156.525 MHz
    - MOB AIS operating between 156 to 163 MHz
    - AIS SAR transmitter operating between 156 to 163 MHz
    - EPIRB AIS, operating between 156 to 163 MHz

which comply with the radio equipment and conformity requirements in clauses 10 and 11 of this schedule.
- 4 The radio equipment shall be used on board a vessel or its tender except in the case of an emergency when the radio equipment may be used anywhere.

## Keeping and display of licence documents

- 5 The Licence, the relevant Maritime Radio Operator's Certificate of Competence and valid Authority to Operate, and any notices of variation to the Licence shall be kept with or near to the licensed radio equipment at all times, where it is physically practicable to do so.

## Identification of transmissions

- 6 The Licensee shall use one of the following methods of identification for all transmissions:
  - (a) the "T" reference number indicated in the Licence;
  - (b) a Maritime Mobile Service Identity ("MMSI") indicated in the Licence;
  - (c) the Hovercraft Registration Mark;
  - (d) the vessel's name and, where necessary, the name of the owner of the vessel or the vessel registration number or port of registry providing this would not delay distress, urgency or safety communications.
- 7 None of the information referred to in clause 6 shall be sent in code.
- 8 The "T" reference number as described in clause 6(a) shall if necessary be surrendered on change of ownership, transfer, destruction or loss of the radio equipment.
- 9 The MMSI number as described in clause 6(b) shall remain with the radio equipment and shall, if necessary, be surrendered on destruction or loss of the radio equipment.

## Radio equipment and conformity requirements

- 10 Radio equipment<sup>6</sup> intended for use on board any vessel shall;
  - (a) comply with the Merchant Shipping (Marine Equipment) Regulations 2016 or the Merchant Shipping (Marine Equipment) Regulations 1999; or
  - (b) comply with the applicable UK Radio Interface Requirements (published by Ofcom); or
  - (c) have been previously type approved in accordance with Section 84 of the Telecommunications Act 1984 and with the provision that the equipment has been placed on the market before 8 April 2001. (After 7 April 2000 type approval certificates are not applicable); or
  - (d) have been previously type approved in accordance with the Merchant Shipping Notice MSN 1735 (M+F) published by the Maritime and Coastguard Agency.
- 11 Where included in Section 1, the radio equipment used shall only be used on ship frequencies and to the maximum powers and classes of emission allocated in accordance with the relevant International Telecommunication Union (ITU) Radio Regulations and ITU-R Recommendations<sup>7</sup> within the frequency bands indicated below:

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<sup>6</sup> Clauses 10(a) to 10(d) are not intended to specify particular radio equipment conformance or approval requirements that would apply to particular types of vessel. Information relating to mandatory requirements may be obtained from: The Maritime and Coastguard Agency.

<sup>7</sup> Extracts from the ITU Radio Regulations and Recommendations ITU-R are available from [sales@itu.int](mailto:sales@itu.int)



## Frequency bands applicable to a Ship Portable Radio Licence:

### Radiotelephony (including DSC for frequency bands as applicable)

<b>Frequency or band</b>	156 MHz to 174 <sup>8</sup> MHz	Channel "M" <sup>8</sup> (157.850) MHz for use in United Kingdom, Channel Islands or the Isle of Man territorial waters only	Channel "M2" <sup>8</sup> (161.425) MHz for use in United Kingdom, Channel Islands or the Isle of Man territorial waters only.
<b>ITU frequency or band designation</b>	V	–	–

### Other Frequencies

<b>Frequency/band</b>	EPIRB/PLB 121.5 MHz	EPIRB/PLB 243 MHz	Satellite EPIRB/PLB 406 MHz to 406.1 MHz
<b>ITU frequency or band designation</b>	B	C	E
<b>Frequency/band</b>	Satellite EPIRB operation within 1,645.5 MHz to 1,646.5 MHz	Ship to aircraft on scene communications 121.5, 123.1 MHz	
<b>ITU frequency or band designation</b>	F	–	

<sup>8</sup> 25 kHz channel spacing

# Schedule 3 - Special channels and radio equipment

## MMSIs for certain devices

- 1 Where a device in column 1 of the table, below, is used under the Licence, it must be identified with an MMSI in the format described in column 2.

Type of device	Format of MMSI
Hand-held DSC transceiver	2359nnnnn
AIS-SART	970XXYYYY
MOB-DSC or MOB-AIS	972XXYYYY
EPIRB-AIS	974XXYYYY

### Notes to the table

- i. MMSIs for hand-held DSC transceivers will in the future be changed to a new format
- ii. Where they each occur in column 2, 'XX' indicates a code that identifies the manufacturer of the device and 'YYYY' is a unique number assigned by the manufacturer to the individual device.
- iii. An MMSI for an AIS-SART, MOB-DSC, MOB-AIS or EPIRB-AIS is not supplied by Ofcom but by the manufacturer, who will programme it into the device.

## 'Channel 31' equipment

- 2 Where apparatus is used on the duplex channel operating on ship transmit frequency 157.55 MHz c/w 162.15 MHz ("Channel 31" and "Channel 31 equipment"), the following conditions apply.
- (a) Channel 31 equipment may be used only under a Ship Radio Licence and not a Ship Portable Radio Licence.
  - (b) Channel 31 equipment is to be used on a 'No-Interference No-Protected' basis. Use of this channel must not cause harmful interference to and may not claim protection from, other authorised use of radio.
  - (c) Channel 31 equipment may not be used unless the vessel is farther than 30 nautical miles from the low water line along the Coast of the United Kingdom, Channel Islands or the Isle of Man.
  - (d) Channel 31 equipment must in all other respects comply with Schedule 1 Paragraph 9 of the Licence.
  - (e) If used on vessels covered by the Safety of Life at Sea Convention, Channel 31 equipment must comply with IEC 60945, published in August 2002 by the International Electrotechnical Commission, the relevant requirements of which for the purposes of the Licence are Clause 4.5.1 as relevant to Clause 9 (Interference - Electromagnetic Compatibility), Clause 4.5.2 as relevant to Clause 11.1 (Acoustic noise and signals), and Clause 4.5.3 as relevant to Clause 11.2 (Compass safe distance); and
  - (f) Use of Channel 31 equipment within the territorial waters of administrations other than the United Kingdom, Channel Islands or the Isle of Man is subject to applicable regulations and authorisations of those administrations.

- (g) Insofar as it applies in this Licence to the installation and use of Channel 31 equipment, “IEC 60945” means the Fourth Edition published in August 2002 of the International Electrotechnical Commission Standard – “Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results”

### **Automatic Transmitter Identification System (‘ATIS’)**

- 3 Where apparatus is installed or used to operate pursuant to the Regional Arrangement on Radiocommunication Service on Inland Waterways (“ATIS equipment”), the following terms and conditions shall apply.
- (a) ATIS equipment may be used only under a Ship Radio Licence and not a Ship Portable Radio Licence.
  - (b) ATIS equipment shall comply with and be used in accordance with the technical and operational criteria detailed in The Regional Arrangement on the Radiocommunication Service on Inland Waterways (“the RAINWAT Arrangement”);
  - (c) ATIS equipment may be used only on inland waterways in Contracting Administrations to the RAINWAT Arrangement;
  - (d) Use of ATIS equipment within the jurisdiction of any administration other than the United Kingdom, Channel Islands or the Isle of Man is subject to regulation of that administration;
  - (e) Insofar as it applies in this licence to the installation and use of ATIS equipment, “ATIS equipment” includes any ATIS equipment or facility;
  - (f) ATIS equipment must not be used in the United Kingdom, Channel Islands or the Isle of Man (including their territorial seas); and
  - (g) ATIS equipment must conform to the essential requirements of the Radio Equipment Regulations 2017 (SI 2017/1206) and Commission Decision 2000/637/EC.

### **Mobile Communication on board Ships**

- 4 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<sup>9</sup> and TS 148 008<sup>10</sup> 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;

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<sup>9</sup> ETSI TS 144 018 (version 14.1.0) published on 11 April 2017.

<sup>10</sup> ETSI TS 148 008 (version 14.0.0) published on 6 April 2017.

- 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 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;
    - 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.
- 5 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 United Kingdom, Channel Islands or the Isle of Man territorial waters. The Licensee is encouraged to seek its own independent professional advice in this respect.
- 6 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<sup>11</sup>;
  - (c) “**dB<sub>i</sub>**” means decibels of power referenced to the gain of an isotrope antenna;
  - (d) “**dB<sub>m</sub>**” 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<sup>12</sup> and EN 301 511<sup>13</sup> published by ETSI;
  - (g) “**kHz**” means kilohertz;

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<sup>11</sup> Cmnd. 8941.

<sup>12</sup> EN 301 502 (version 12.5.2) published in OJEU No C149, 12.5.2017, p 13.

<sup>13</sup> EN 301 511 (version 9.0.2) published in OJEU No C149, 12.5.2017, p 14

- (h) “**LTE system**” means an electronic communications network that complies with the LTE standards EN 301 908–1<sup>14</sup>, EN 301 908–13<sup>15</sup> and EN 301 908–14<sup>16</sup> 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<sup>17</sup>;
- (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 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

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<sup>14</sup> EN 301 908–1 (version 11.1.1) published in OJEU No C149, 12.5.2017, p 15.

<sup>15</sup> EN 301 908–13 (version 11.1.1) published in OJEU No C149, 12.5.2017, p 16.

<sup>16</sup> EN 301 908–14 (version 11.1.2) published in OJEU No C149, 12.5.2017, p 16.

<sup>17</sup> 2003 c.21.

standards EN 301 908–1, EN 301 908–2<sup>18</sup> and EN 301 908–3<sup>19</sup> 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).

## Earth Stations on Moving Platforms or ‘ESOMPs’

- 7 Where sending and receiving Earth Station(s) on Mobile Platforms (“ESOMPs”) for the purpose of providing wireless telegraphy links between the ESOMP and Satellite(s) (together “ESOMP Equipment”) is installed or used on the Ship to which this licence refers, the following terms and conditions shall apply.
  - (a) ESOMP equipment may be used only under a Ship Radio Licence and not a Ship Portable Radio Licence.
  - (b) The ESOMP Equipment shall be operated on a ‘non-interference non-protected’ basis, that is, use of ESOMP equipment must not cause harmful interference to and may not claim protection from, other authorised use of radio operating in accordance with Article 5 of the Radio Regulations, wherever that other service may be operating;
  - (c) Within the territorial seas of the United Kingdom, Channel Islands or the Isle of Man, the licensee may operate ESOMP Equipment only in the frequency bands identified below:
    - (i) 27.5 – 27.8185 GHz, 28.4545 – 28.8265 GHz and 29.4625 – 30 GHz for transmission (Earth-to-space)
    - (ii) 17.3 – 20.2 GHz for reception (space-to-Earth)
  - (d) Outwith the territorial seas of the UK, the Channel Islands and the Isle of Man, the licensee may operate ESOMP Equipment in any part of the frequency band 27.5 – 30 GHz;
  - (e) Within the territorial seas of an administration other than the UK, the Channel Islands or the Isle of Man, ESOMP Equipment shall be used in accordance with the relevant regulations and authorisations of that administration;
  - (f) Means shall be used to allow transmissions of ESOMP Equipment to be identified.
  - (g) The operation of ESOMP Equipment shall comply with the essential requirements of the Radio Equipment Regulations (SI 2017/1206) and with the technical and operational criteria contained within the UK Interface Requirement 2093.
  - (h) Insofar as it applies in this licence to the installation and use of ESOMP equipment:
    - (i) “**Earth Station**” means a station for transmitting and receiving wireless telegraphy intended for communication with one or more satellites;
    - (ii) “**Radio Regulations**” means the most recent version of the International Telecommunication Union Radio Regulations made under Article 13 of the Constitution of the International Telecommunication Union; and
    - (iii) “**UK Interface Requirement IR 2093**” means the UK Interface Requirement 2093 – Earth Stations on Mobile Platforms (ESOMPs) published by Ofcom in accordance with the

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<sup>18</sup> EN 301 908–2 (version 11.1.1) published in OJEU No C149, 12.5.2017, p 15.

<sup>19</sup> EN 301 908–3 (version 11.1.3) published in OJEU No C149, 12.5.2017, p 16.

## Radio Equipment Directive;

- (i) This does not affect the requirement, where necessary, to obtain licences or authorisations under other legislation or from other countries before installing or operating an ESOMP, in particular outside the territory of the UK, the Channel Islands and the Isle of Man.

## Earth Station on a Vessel ('ESV')

- 8 Where sending and receiving Earth Station(s) on board a vessel for the purpose of providing wireless telegraphy links between the ESV and Geostationary Satellite(s) ("ESV equipment") is installed or used on the Ship, the following terms and conditions shall apply.
  - (a) ESV equipment may be used only under a Ship Radio Licence and not a Ship Portable Radio Licence.
  - (b) The Licensee must identify all transmission using the ESV terminal identity number
  - (c) The ESV equipment may operate only on the following frequencies:
    - (i) ESV (space-to-Earth) operation limited to 10.70 – 11.70 GHz for reception
    - (ii) ESV (space-to-Earth) operation limited to 12.50 – 12.75 GHz for reception
  - (d) The ESV equipment must be operated on a "non-Interference Non-Protected" basis. That is, use of the ESV equipment must not cause harmful interference to and may not claim protection from, other authorised use of radio operating in accordance with Article 5 of the Radio Regulations, wherever that other service may be operating;
  - (e) The ESV equipment must not be operated when the vessel is within one nautical mile of United Kingdom, Channel Islands or the Isle of Man land or within an area listed in Schedule 3 to the Associated ESV Network Operator Licence, without specific permission from both the relevant Maritime Port Authority and Ofcom, except as permitted under Schedule 4 to the Associated ESV Network Operator Licence;
  - (f) The ESV equipment must comply with the appropriate essential requirements of the Radio Equipment Regulations (SI 2017/1206);
  - (g) The ESV equipment must comply with IEC 60945, published in August 2002 by the International Electrotechnical Commission, the relevant requirements of which for the purposes of this Licence are:
    - (i) Clause 4.5.1 as relevant to Clause 9 (Interference - Electromagnetic Compatibility);
    - (ii) Clause 4.5.2 as relevant to Clause 11.1 (Acoustic noise and signals); and
    - (iii) Clause 4.5.3 as relevant to Clause 11.2 (Compass safe distance)
  - (h) The maximum power may not exceed 39 dBW/40 kHz e.i.r.p. (53 dBW e.i.r.p. total per channel) from any individual ESV.
  - (i) The vessel may transmit a maximum of two 14.0 to 14.25 GHz channels up to a total of 56 dBW e.i.r.p. under this Licence.
  - (j) Where the ESV equipment is operating between one nautical mile and four nautical miles of United Kingdom, Channel Islands or the Isle of Man land, the minimum elevation angle used by the ESV must exceed 7 degrees
  - (k) Where the ESV equipment is operating within one nautical mile of United Kingdom, Channel



Islands or the Isle of Man land, the minimum elevation angle used by the ESV must exceed 15 degrees.

- (l) The ESV equipment must employ a parabolic dish with a minimum diameter of 0.6m.
- (m) The antenna must operate in accordance with Recommendation ITU-R S.580-6
- (n) The ESV shall employ a stabilised platform with the ability to maintain a pointing accuracy +/- 0.2 degrees towards the geo-stationary satellite throughout transmissions;
- (o) Operation of the ESV equipment within the territorial waters of administrations other than the United Kingdom, Channel Islands or the Isle of Man is subject to the relevant regulations and authorisations of those administrations; and
- (p) Insofar as it applies in the Licence to the installation and use of ESV equipment:
  - (i) **“Associated ESV Network Operator Licence”** means the Earth Station/s on Vessel/s (ESV) Network Operator Licence No. ESV Licence No.[e.g. ESV0001] issued by Ofcom to Network operator licensee e.g. Telenor Satellite Network on Date of issue of Network licence [full date] under the Act;
  - (ii) **“Earth Station”** means a station for transmitting and receiving wireless telegraphy located on the surface of the earth and intended for communication with one or more satellites;
  - (iii) **“Geostationary Satellite”** means a satellite having the earth as its primary body and which remains approximately in a fixed position relative to the earth;
  - (iv) **“IEC 60945”** means the Fourth Edition published in August 2002 of the International Electrotechnical Commission Standard – “Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results”;
  - (v) **“Radio Equipment Regulations”** means Statutory Instrument 2017/1206;
  - (vi) **“Recommendation ITU-R S. 580-6”** means the Recommendation S.580-6 published in January 2004 by the International Telecommunication Union<sup>20</sup>; and
  - (vii) **“Radio Regulations”** means the most recent version of the International Telecommunication Union Radio Regulations made under Article 13 of the Constitution of the International Telecommunication Union.

### **Satellite Earth Station equipment in the Ku band (14-14.5 GHz)**

- 9 In relation to the use of Earth Station equipment (“ES equipment”) installed or used on the Ship to which this licence refers and transmitting on frequencies between 14-14.5 GHz (Earth to space), the following terms and conditions shall apply:
- (a) The ES equipment may be used only under a Ship Radio Licence and not a Ship Portable Radio Licence.
  - (b) The ES Equipment shall be operated on a ‘non-interference non-protected’ basis, that is, use of ES equipment must not cause harmful interference to and may not claim protection from, other authorised use of radio operating in accordance with Article 5 of the Radio Regulations, wherever that other service may be operating;
  - (c) When the ship is within the territorial seas of the United Kingdom, Channel Islands or the

Isle of Man, the ES equipment may be used only if authorised to do so under a "Satellite (Earth Station Network) Licence" issued to the operator of the earth station network;

- (d) The ES equipment may transmit with an e.i.r.p. no greater than 55 dBW;
- (e) If operating to a geostationary satellite, the ES equipment must employ a stabilised platform and must maintain a pointing accuracy +/- 0.2 degrees towards the relevant geostationary satellite throughout transmissions;
- (f) At angles greater than or equal to 2.5 degrees from the antenna main beam axis, the e.i.r.p. of the ES equipment, if operating to a geostationary satellite, shall not exceed 20 dBW/40 kHz;
- (g) All transmissions from the ES equipment must be clearly identifiable;
- (h) The ES equipment must at all times operate such that it conforms to UK IR 2077;
- (i) Operation of ES equipment within the territorial waters of administrations other than the United Kingdom, Channel Islands or the Isle of Man is subject to the relevant regulations and authorisations of those administrations.
- (j) Insofar as it applies in this licence to the installation and use of ES equipment:
  - (i) "**Satellite (Earth Station Network) Licence**" means the licence issued by Ofcom to the satellite network operator under the WT Act;
  - (ii) "**Earth Station**" means a station for transmitting and receiving wireless telegraphy located on the surface of the earth and intended for communication with one or more satellites;
  - (iii) "**Geostationary Satellite**" means a satellite having the earth as its primary body and which remains approximately in a fixed position relative to the earth;
  - (iv) "**UK IR 2077**" means the UK Interface Requirement 2077 – Satellite Earth Station Networks, published by Ofcom in accordance with the Radio Equipment Directive.

# Schedule 4

## Conditions relating to Electromagnetic Fields (EMF) Compliance

### Sites which are not shared with another licensee

1. The Licensee shall only establish, install, modify or use Relevant Radio Equipment if the total electromagnetic field exposure levels produced by the Licensee's On-Site Radio Equipment do not exceed the basic restrictions<sup>20</sup> in the relevant tables for general public exposure identified in the ICNIRP Guidelines<sup>21</sup> in any area where a member of the general public is or can be expected to be present when transmissions are taking place.

### Sites which are shared with another licensee

2. In the case of a shared site where the Shared Site Exemption applies to the Licensee, the Licensee shall comply with paragraph 1 above.
3. In the case of a shared site where the Shared Site Exemption does not apply to the Licensee, the Licensee shall only establish, install, modify or use the Relevant Radio Equipment if:
  - (a) the total electromagnetic field exposure levels produced by the Licensee's On-Site Radio Equipment, together with
  - (b) the total electromagnetic field exposure levels produced by all other wireless telegraphy stations and wireless telegraphy apparatus operated by another licensee on the same site for which the Licensee can reasonably assume that a Shared Site Exemption does not apply,do not exceed the basic restrictions<sup>22</sup> in the relevant tables for general public exposure identified in the ICNIRP Guidelines<sup>23</sup> in any area where a member of the general public is or can be expected to be present when transmissions are taking place.

### Emergency Situations

4. The obligations in paragraphs 1, 2 and 3 above will not apply if the Relevant Radio Equipment is being used for the purpose of seeking emergency assistance or reporting and responding to an emergency situation (in the vicinity of that situation) including for search and rescue activities and maritime emergency communications.<sup>24</sup>

### Relationship with authorised transmission levels

5. The Licensee shall comply with paragraphs 1, 2 and 3 above notwithstanding the maximum transmission levels authorised in the Licence.

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<sup>20</sup> Compliance with the reference levels for general public exposure identified in the ICNIRP Guidelines will ensure compliance with the basic restrictions.

<sup>21</sup> The relevant tables for general public exposure are identified in Ofcom's "Guidance on EMF Compliance and Enforcement".

<sup>22</sup> Compliance with the reference levels for general public exposure identified in the ICNIRP Guidelines will ensure compliance with the basic restrictions.

<sup>23</sup> The relevant tables for general public exposure are identified in Ofcom's "Guidance on EMF Compliance and Enforcement".

<sup>24</sup> Further information on emergency situations is set out in Ofcom's "Guidance on EMF Compliance and Enforcement".

## Records

6. The Licensee shall keep, or shall procure that a third party shall keep, and shall make available to Ofcom on request, records (including the type of records identified in Ofcom's "Guidance on EMF Compliance and Enforcement") that demonstrate how it has complied with paragraphs 1, 2 and 3 above when Relevant Radio Equipment is established, installed, modified or used.

## Ofcom's "Guidance on EMF Compliance and Enforcement"

7. When evaluating its compliance with paragraphs 1, 2 and 3 above, the Licensee shall take into account Ofcom's "Guidance on EMF Compliance and Enforcement" that is in force at the relevant time.

## Interpretation

In this Schedule:

**"dBi"** means the ratio in dB (decibel) when comparing the gain of the antenna to the gain of an isotropic antenna. An isotropic antenna is a theoretical antenna which radiates power uniformly in all directions.

**"EIRP"** means equivalent isotropically radiated power which is the product of the power supplied to an antenna and the absolute or isotropic antenna gain in a given direction relative to an isotropic antenna.

**"ERP"** means effective radiated power which is the product of the power supplied to an antenna and its gain in a given direction relative to a half-wave dipole.

**"general public"** means any person who is not: (a) the Licensee, owner, operator or installer of the Relevant Radio Equipment; or (b) acting under a contract of employment or otherwise acting for purposes connected with their trade, business or profession or the performance by them of a public function.<sup>25</sup>

**"ICNIRP Guidelines"** means the version of the Guidelines published by the International Commission on Non-Ionizing Radiation Protection for limiting exposure to electromagnetic fields which are identified in Ofcom's "Guidance on EMF Compliance and Enforcement" that is in force at the relevant time.<sup>26</sup>

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<sup>25</sup> There is pre-existing health and safety legislation which already requires employers to protect workers from exposure to electromagnetic fields ("EMF") including the following legislation specifically relating to EMF (as amended from time to time): [The Control of Electromagnetic Fields at Work Regulations 2016](#), [The Control of Electromagnetic Fields at Work Regulations \(Northern Ireland\) 2016](#) and [The Merchant Shipping and Fishing Vessels \(Health and Safety at Work\) \(Electromagnetic Fields\) Regulations 2016](#).

<sup>26</sup> Ofcom's "Guidance on EMF Compliance and Enforcement" will initially require the Licensee to comply with the ICNIRP Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to 300 GHz), published in: Health Physics 74(4):494-522, dated April 1998 and available at: <https://www.icnirp.org/cms/upload/publications/ICNIRPemfgdl.pdf> ("1998 Guidelines") or the ICNIRP Guidelines for limiting exposure to electromagnetic fields (100 KHz to 300 GHz), published in: Health Physics 118(5): 483–524; 2020 and available at: <https://www.icnirp.org/cms/upload/publications/ICNIRPrfgdl2020.pdf> ("2020 Guidelines"). However, once work on the relevant standards explaining the methodology for assessing compliance with the 2020 Guidelines has progressed sufficiently, Ofcom will publish a public consultation on updating its "Guidance on EMF Compliance and Enforcement" to explain that going forward Ofcom will be requiring the Licensee to comply with the 2020 Guidelines only. Following this public consultation, Ofcom will publish an updated version of Ofcom's "Guidance on EMF Compliance and Enforcement" on its website. Ofcom will follow the same process for any subsequent versions of the ICNIRP Guidelines.

**“Licensee’s On-Site Radio Equipment”** means the Relevant Radio Equipment and any other wireless telegraphy station(s) and wireless telegraphy apparatus on the same site which transmits at powers higher than 10 Watts EIRP or 6.1 Watts ERP.<sup>27</sup>

**“Relevant Radio Equipment”** means all the Radio Equipment that is authorised by this Licence to transmit at powers higher than 10 Watts EIRP or 6.1 Watts ERP.

**“Shared Site Exemption”** means any of the following three situations apply on a shared site in relation to the Licensee’s or another licensee’s wireless telegraphy station(s) or wireless telegraphy apparatus that is authorised to transmit at powers higher than 10 Watts EIRP or 6.1 Watts ERP:

- The first situation is that all of the licensee’s wireless telegraphy station(s) or wireless telegraphy apparatus on a shared site do not transmit at a combined total radiated power in any particular direction<sup>28</sup> that is higher than 100 Watts EIRP or 61 Watts ERP.<sup>29</sup>
- The second situation is that the total electromagnetic field exposure levels produced by the licensee’s wireless telegraphy station(s) or wireless telegraphy apparatus in any area where a member of the general public is or can be expected to be present when transmissions are taking place is no more than 5% of the basic restrictions or 5% of the reference levels in the relevant tables for general public exposure identified in the ICNIRP Guidelines.<sup>30</sup>
- The third situation is where the licensee’s wireless telegraphy station or wireless telegraphy apparatus has an antenna gain that is equal to or higher than 29 dBi and has a fixed beam.

**“shared site”** means a site that is shared by the Licensee and at least one other licensee for the purposes of establishing, installing, modifying or using wireless telegraphy stations or wireless telegraphy apparatus.

**“site”** means a physical structure, building, vehicle or moving platform.

**“wireless telegraphy apparatus”** has the meaning given to it in section 117 of the Wireless Telegraphy Act 2006.

**“wireless telegraphy station”** has the meaning given to it in section 117 of the Wireless Telegraphy Act 2006.

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<sup>27</sup> 10 Watts EIRP is equivalent to 6.1 Watts ERP. In linear units  $EIRP (W) = 1.64 \times ERP (W)$ ; in decibels  $EIRP (dB) = ERP (dB) + 2.15$ . Ofcom’s “Guidance on EMF Compliance and Enforcement” explains how the Licensee can determine if wireless telegraphy station(s) or wireless telegraphy apparatus “transmits at powers higher than 10 Watts EIRP or 6.1 Watts ERP”.

<sup>28</sup> For the purpose of this situation, the combined total radiated power is a simple sum of the radiated powers (in EIRP or ERP) of all of the licensee’s wireless telegraphy station(s) or wireless telegraphy apparatus on the shared site that transmits signals covering the same or overlapping areas.

<sup>29</sup> 100 Watts EIRP is equivalent to 61 Watts ERP.

<sup>30</sup> The relevant tables for general public exposure are identified in Ofcom’s “Guidance on EMF Compliance and Enforcement”.