

Commission Decision 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 (notified under document C(2010) 1644) (Text with EEA relevance) (2010/166/EU)

COMMISSION DECISION

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

(notified under document C(2010) 1644)

(Text with EEA relevance)

(2010/166/EU)

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)<sup>(1)</sup>, and in particular Article 4(3) thereof,

Whereas:

- (1) The 2010 policy, as the strategic framework for a European Information Society<sup>(2)</sup>, promotes an open and competitive digital economy in the European Union and emphasises information and communication technologies as a driver of inclusion and quality of life. The development of additional means of communicating could be beneficial for work productivity and for growth in the mobile telephony market.
- (2) Maritime connectivity applications are used on board freight and passenger ships sailing within territorial seas and international waters in the European Union and are often pan-European or inter-State in nature. Systems providing mobile communication services on board vessels ('MCV services') aim to complement existing mobile connectivity when operating in those areas of the territorial seas of the European Union Member States, as defined in the United Nations Convention on the Law of the Sea, that are not covered by land-based mobile networks, which are subject to Commission Decision 2009/766/EC of 16 October 2009 on the harmonisation of the 900 MHz and 1 800 MHz frequency bands for terrestrial systems capable of providing pan-European electronic communications service in the Community<sup>(3)</sup>. A coordinated approach to the regulation of such MCV services should support the objectives of the single market and potentially improve the availability of GSM services within the European Union.
- (3) Harmonisation of the rules on the use of radio spectrum across the European Union should facilitate the deployment and uptake of MCV services within the European

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Union, the main aims being to avoid harmful interference towards land-based mobile networks and to prevent connection to systems providing MCV services when connection to land-based mobile networks is possible.

- (4) Pursuant to Article 4(2) of Decision No 676/2002/EC, the European Commission has given a mandate<sup>(4)</sup> to the European Conference of Postal and Telecommunications Administrations (hereinafter CEPT) to identify the technical and operational conditions required to ensure the avoidance of harmful interference from GSM systems used on board vessels in the 900 MHz and 1 800 MHz frequency bands in the territorial seas of Member States with the operation of existing land-based mobile networks, also in areas of these territorial seas where services are provided by these networks, and to ensure that land-based mobile terminals are not connected to such a system when it is in use within the territorial seas and that any mobile terminals are not prevented from connecting to land-based networks. This Decision is based on the technical studies undertaken by CEPT under the European Commission mandate, as presented in CEPT Report 28<sup>(5)</sup>.
- (5) The system providing MCV services considered in the CEPT Report consists of one or more pico-cell base stations (vessel-BS) on board a vessel, providing access to a GSM core network via a backhaul link, for example via satellite, which uses different parts of spectrum than the 900 MHz and 1 800 MHz frequency bands. The vessel-BS of such a system serve roaming GSM mobile terminals carried by ship passengers or crew by providing connectivity in the GSM-900 and/or GSM-1 800 frequency band when the vessel is in international waters or in areas of territorial seas where there is no or insufficient land-based mobile network coverage.
- (6) The CEPT Report concludes that systems providing MCV services are not to be used closer than two nautical miles (NM) from the baseline of a coastal state. It lists a number of technical and operational conditions for the usage of such systems within territorial seas between 2 and 12 NM from the baseline.
- (7) Equipment for MCV services covered by this Decision falls within the scope of Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity<sup>(6)</sup>. Compliance with the pertinent Harmonised Standards for GSM-900 and/or GSM-1 800 referred to in that Directive entails the presumption of conformity with its requirements, hence allowing the placing of such equipment on the market.
- (8) While there are European Telecommunications Standards Institute harmonised standards setting technical requirements to allow GSM equipment conforming to these requirements to be placed on the market, and while such GSM equipment may be used by systems providing MCV services, it is nevertheless necessary to set the specific operational values to be met by systems providing MCV services operating in territorial seas to avoid harmful interference with land-based networks.
- (9) Therefore, the Annex to this Decision contains all the technical and operational requirements listed in the CEPT report. These requirements which are within the ranges of the adaptable parameters of the GSM standards are expected to ensure coexistence between systems providing MCV services and land-based GSM/UMTS networks in

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the 900 and 1 800 MHz bands, as well as short-range aeronautical radio navigation systems (RSBN systems) operating in the 862-960 MHz band. These requirements include mitigation techniques based on specific operational GSM system parameters, but other means or other mitigation techniques may be used if they provide an equivalent level of protection.

- (10) This Decision cannot be considered to impose obligations on Member States that do not have territorial seas. This is without prejudice to the authorisation of MCV services, which is outside the scope of this Decision, but which may require action by Member States in conformity with EU law in regard to vessels of their nationality.
- (11) Member States should strive to make available, as early as possible, the entire 900 MHz and 1 800 MHz frequency bands for systems providing MCV services on a non-interference and non-protected basis in their territorial seas in order, for example, to avoid discrimination between rights holders in these bands. However, if national circumstances prevent the entire bands from being made available, Member States may make available a smaller amount of spectrum, but should at least make available 2 MHz of spectrum in the uplink direction and 2 MHz of spectrum in the downlink direction, as such an amount of spectrum is considered the minimum required for the operation of MCV services.
- (12) To ensure that the conditions specified in this Decision continue to be relevant and given the rapid changes in the radio spectrum environment, national administrations should monitor, where possible, the use of the radio spectrum by equipment for MCV services, so as to subject this Decision to active review. Such a review should take into account technological development and verify that the initial assumptions for the operation of MCV services are still relevant.
- (13) The measures provided for in this Decision are in accordance with the opinion of the Radio Spectrum Committee,

HAS ADOPTED THIS DECISION:

### *[<sup>F1</sup>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.]

#### **Textual Amendments**

- F1** Substituted by [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\) \(Text with EEA relevance\).](#)

### *Article 2*

For the purposes of this Decision:

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1. ‘<sup>F1</sup>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<sup>(7)</sup>, 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;]
2. ‘the 900 MHz band’ means the 880-915 MHz band for uplink (terminal transmit, base station receive) and 925-960 MHz band for downlink (base station transmit, terminal receive);
3. ‘the 1 800 MHz band’ means the 1 710-1 785 MHz band for uplink (terminal transmit, base station receive) and 1 805-1 880 MHz band for downlink (base station transmit, terminal receive);
4. ‘GSM system’ means an electronic communications network, that complies with the GSM standards, as published by European Telecommunications Standards Institute, in particular EN 301 502 and EN 301 511;
5. ‘on a non-interference and non-protected basis’ means that no harmful interference may be caused to any radio-communication service and that no claim may be made for protection of these services against harmful interference originating from other radio-communication services;
6. ‘territorial sea’ is to be understood in the meaning of the United Nations Convention on the Law of the Sea;
7. [<sup>F1</sup>‘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;]
8. [<sup>F2</sup>‘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<sup>(8)</sup>;
11. ‘UMTS system’ means an electronic communications network as defined in the Annex to Implementing Decision 2011/251/EU.]

#### Textual Amendments

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- F2** Inserted by 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).

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### *[<sup>F1</sup> 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.]

#### **Textual Amendments**

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### *[<sup>F1</sup> 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.]

#### **Textual Amendments**

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### *Article 5*

Member States shall submit to the European Commission a report on their findings with regard to the review referred to in Article 4 of this Decision. The European Commission shall, where appropriate, proceed to a review of this Decision.

### *Article 6*

This Decision is addressed to the Member States.

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## I<sup>F1</sup> 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<sup>(9)</sup> 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 <sup>a</sup> and min RXLEV <sup>b</sup> level) of the mobile terminal

**a** ACCMIN (RX\_LEV\_ACCESS\_MIN); as described in GSM standard ETSI TS 144 018.

**b** RXLEV (RXLEV-FULL-SERVING-CELL); as described in GSM standard ETSI TS 148 008.

**c** Discontinuous transmission, or DTX; as described in GSM standard ETSI TS 148 008.

**d** Timing advance; as described in GSM standard ETSI TS 144 018.

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	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 <sup>c</sup> shall be activated in the MCV system uplink direction,
—	the timing advance <sup>d</sup> value of the vessel-BS shall be set to the minimum.
<b>a</b>	ACCMIN (RX_LEV_ACCESS_MIN); as described in GSM standard ETSI TS 144 018.
<b>b</b>	RXLEV (RXLEV-FULL-SERVING-CELL); as described in GSM standard ETSI TS 148 008.
<b>c</b>	Discontinuous transmission, or DTX; as described in GSM standard ETSI TS 148 008.
<b>d</b>	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;
- (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

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	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)
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



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	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]

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- (1) [OJ L 108, 24.4.2002, p. 1.](#)
- (2) COM(2005) 229 final of 1 June 2005.
- (3) [OJ L 274, 20.10.2009, p. 32.](#)
- (4) Mandate to the CEPT on mobile communication services on vessels, 8 July 2008.
- (5) Final report from CEPT to the European Commission in response to the EC Mandate on mobile communication services on board vessels (MCV), 1 July 2009.
- (6) [OJ L 91, 7.4.1999, p. 10.](#)
- (7) [<sup>F1</sup>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](#)).]
- (8) [<sup>F2</sup>Commission Implementing Decision 2011/251/EU of 18 April 2011 amending Decision 2009/766/EC on the harmonisation 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](#)).]
- (9) [<sup>F1</sup>One nautical mile = 1 852 metres]

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#### Textual Amendments

- F1** Substituted by [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\) \(Text with EEA relevance\).](#)
- F2** Inserted by [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\) \(Text with EEA relevance\).](#)

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