



# ECC Decision (19)03

Harmonised usage of the channels of the Radio  
Regulations Appendix 18 (transmitting frequencies in the  
VHF maritime mobile band)

**8 March 2019**

## EXPLANATORY MEMORANDUM

### 1 INTRODUCTION

The ITU Radio Regulations (RR) Appendix 18 [1] lists the frequencies in the VHF maritime mobile band. The World Radiocommunication Conference-2012 (WRC-12) and the World Radiocommunication Conference-2015 (WRC-15) decided to implement digital data exchange for the maritime mobile service into the VHF maritime mobile band. The implementation of digital data exchange in RR Appendix 18 leads to a new understanding of the related devices. With the exception of the automatic identification system (AIS) on channels AIS1 (161.975 MHz) and AIS2 (162.025 MHz) and digital selective calling (DSC), currently all the remaining listed channels are used for analogue voice communication. With the digital data exchange allocations in future, some channels will be used for data transfer and not for voice communication any longer. New digital radios need to be developed, which is different equipment than the current voice communication radios. As the result, the frequencies in the VHF maritime mobile band will be shared by four different systems: analogue voice telephony, DSC, AIS and digital data exchange.

Analogue voice telephony is the most important form of communication in the maritime mobile service as a safety related service, including port operations service and ship movement service. DSC is used for distress alerts, urgency and safety announcements and routine calls. The AIS is a collision avoidance system to enhance the safety of navigation. Recommendation ITU-R M.1371 [5] includes technical characteristics for AIS using time-division multiple access in the VHF maritime mobile band.

The implementation dates of 1 January 2017 and 1 January 2019 in RR Appendix 18 decided by WRC-12 and WRC-15 gave the possibility of digital data exchange in the VHF maritime mobile band and created confusion about the use of VHF channels. As a result, some manufacturers already placed VHF equipment for analogue voice telephony on the market that does not allow the user to select channels which are currently assigned for port operations services and ship movement services by administrations. This interruption of voice communication between a vessel traffic centre and a vessel might lead to dangerous traffic situations.

The risk of dangerous traffic situations based on different interpretation of the footnotes of RR Appendix 18 was also recognised by the International Maritime Organization (IMO). The Maritime Safety Committee (MSC) of IMO decided in its 98<sup>th</sup> session in June 2017 *"that VHF equipment, without prejudice to the arrangements contained in appendix 18 of the RR, should be updated so that following the first radio survey after 1 January 2024, at the earliest, it meets the arrangements which will be in force by then."* This ensures the GMDSS (Global Maritime Distress and Safety System) communication capability and the availability of appropriate GMDSS radiocommunication equipment. This ECC Decision is intended to give guidance to manufacturers, retailers and users throughout CEPT countries, that the implementation of digital data exchange into the VHF maritime mobile band should take place in CEPT countries within a common timeframe.

Furthermore, this ECC Decision gives guidance for the harmonised usage of the RR Appendix 18 for the terrestrial component of the VHF data exchange systems (VDES).

The VDES has data communications capability and technical characteristics that have the potential to support the harmonised collection, integration, exchange, presentation and analysis of marine information on board and ashore by electronic means to enhance berth-to-berth navigation and related services for safety and security at sea and protection of the marine environment.

### 2 BACKGROUND

WRC-15 has identified the frequency bands corresponding to channels: 24, 84, 25, 85, 26 and 86 of RR Appendix 18 [1] for the utilisation of the VDES described in the most recent version of Recommendation ITU-R M.2092 [3]. Only these channels are available for a global usage for the terrestrial component of the VDES.

For ITU Regions 1 and 3, WRC-15 also identified the frequency bands corresponding to channels: 80, 21, 81, 22, 82, 23 and 83 for the utilisation of the digital systems as described in the most recent version of Recommendation ITU-R M.1842 [4], using multiple 25 kHz contiguous channels. This identification of frequencies allows the utilisation of a regional VDES. This regional utilisation was supported by Asian and African countries.

The channels 80, 21, 81, 22, 82, 23 and 83 may also be used for analogue modulation described in the most recent version of Recommendation ITU-R M.1084 [6] by an administration that wishes to do so. It is subject to not claiming protection from other stations in the maritime mobile service using digitally modulated emissions and subject to coordination with affected administrations.

CEPT administrations recognise the importance of a harmonised channel arrangement in the VHF maritime mobile band listed in RR Appendix 18. Some channels to be used for VDES are presently assigned to coast stations for analogue voice telephony. It is therefore necessary to ensure that changes to assignments for ship movement and port operations service continue to provide satisfactory communications. Specific footnotes of RR Appendix 18 are dealing with the implementation of digital data exchange, amendments of parts in AIS and the usage of analogue voice telephony. In particular this ECC Decision is dealing with the footnotes, which are relevant for ITU Region 1.

The implementation of VHF digital data exchange is mentioned in several footnotes of RR Appendix 18, which oblige administrations to amend the usage of VHF channels and frequency assignments for coast stations in their responsibility. These amendments require coordination by effected administrations.

In June 2017, IMO's Maritime Safety Committee (MSC) published circular MSC.1-Circ.1460-Rev.2 - Guidance on the validity of radiocommunication equipment installed and used on ships [2] stating

*“To ensure GMDSS communication capability and the availability of appropriate GMDSS radiocommunication equipment, MF radiocommunication equipment capable of operating NBDFP as well as VHF equipment, without prejudice to the arrangements contained in appendix 18 of the RR, should be updated so that following the first radio survey after 1 January 2024, at the earliest, it meets the arrangements which will be in force by then”.*

ECC supports the implementation of footnotes for digital data exchange in the VHF maritime mobile band. Based on different options and different implementation dates the development of this ECC Decision was initiated.

ECC identified a need of harmonised action and recognised that:

- relevant footnotes of RR Appendix 18 have to be considered and might be implemented in different ways;
- decisions on implementation of footnotes of RR Appendix 18 need to be taken by ECC;
- a time schedule for the implementation of these footnotes needs to be decided by ECC;
- this ECC Decision takes into account the existing standardisation framework and activities at the worldwide level, and an appropriate frequency arrangement.

### **3 REQUIREMENT FOR AN ECC DECISION**

ECC recognises that there is a compelling need for clear advice on the usage of the frequencies in the VHF maritime mobile band to manufacturers, retailers and users to guarantee the communication between the vessels and ship movement services or port operation services to avoid dangerous traffic situations.

ECC is of the view that the implementation of the footnotes for digital data exchange into the VHF maritime mobile band should take place in CEPT countries within a common timeframe to ensure an effective usage of spectrum.

**ECC DECISION OF 8 MARCH 2019 ON THE HARMONISED USAGE OF THE CHANNELS OF THE RADIO REGULATIONS APPENDIX 18 (TRANSMITTING FREQUENCIES IN THE VHF MARITIME MOBILE BAND) (ECC/DEC/(19)03)**

“The European Conference of Postal and Telecommunications Administrations,

*considering*

- a) that WRC-15 amended the ITU Radio Regulation (RR) Appendix 18 [1];
- b) that in addition to analogue voice telephony, DSC and AIS, digital data exchange will be operated on RR Appendix 18 frequencies;
- c) that RR Appendix 18 footnotes *w)* and *wa)* allow a different usage of VHF channels subject to coordination with affected administrations;
- d) that RR Appendix 18 footnote *m)* allows to operate existing duplex channels as single frequency channels subject to coordination with affected administrations;
- e) that the channels 2027 (161.950 MHz) and 2028 (162.000 MHz) are designated for transmission of the application specific messages (ASM) as ASM 1 and ASM 2;
- f) that the dates of implementation for digital usage indicated in RR Appendix 18 footnotes *m)*, *mm)*, *w)*, *wa)*, *xx)*, *z)* and *zz)* may be difficult to comply with;
- g) that the development of a satellite component for digital data exchange cannot be finalised before WRC-19;
- h) that the Maritime Safety Committee (MSC) of IMO decided that “*VHF equipment, without prejudice to the arrangements contained in appendix 18 of the RR, should be updated so that following the first radio survey after 1 January 2024, at the earliest, it meets the arrangements which will be in force by then*”;
- i) that in EU/EFTA countries the radio equipment that is under the scope of this Decision shall comply with Council Directive 2014/90/EU [8] for marine equipment or the RE Directive [7]. Conformity with the essential requirements of these Directives may be demonstrated by compliance with the applicable harmonised European standard(s) or by using the other conformity assessment procedures set out in these Directives.

**DECIDES**

1. that the **purpose of this ECC Decision** is to:
  - harmonise the use of the frequencies and allow free circulation of equipment operating in the VHF maritime mobile band;
  - ensure an effective usage of spectrum;
  - establish a common framework for a time schedule to implement the footnotes for digital data exchange;
  - establish a common framework for the coordination of coast stations to:
    - a) enable the usage of the indicated channels for digital data exchange;
    - b) enable the usage of the indicated ASM channels;
2. that CEPT administrations designate the frequency bands corresponding to channels: 24, 84, 25, 85, 26 and 86 of RR Appendix 18 for the use of the terrestrial component of the VDES;

3. that CEPT administrations shall not implement a regional VDES on the frequency bands corresponding to channels: 80, 21, 81, 22, 82, 23 and 83 of RR Appendix 18;
4. that CEPT administrations shall implement the decisions on VHF channels as described in Annex 1 of this Decision;
5. that CEPT administrations shall coordinate changes of channels within the time schedule as described in Annex 2 of this Decision;
6. that all stations operating in the territorial sea and inland waters<sup>1</sup> of CEPT administrations or close to national offshore installations which are subject to regulations issued by CEPT administrations shall fulfil the rules of this Decision;
7. that CEPT administrations shall ensure satisfactory communications for ship movement services and port operations service. In doing so, CEPT administrations should give due regard to the information provided in Annex 3;
8. that this Decision **enters into force** on 8 March 2019;
9. that the preferred date for implementation of this Decision shall be 8 September 2019;
10. that CEPT administrations shall ensure that this Decision is brought to the attention of the relevant maritime authorities;
11. that CEPT administrations shall communicate the **national measures** implementing this Decision to the ECC Chairman and the Office when this ECC Decision is nationally implemented.”

*Note:*

Please check the Office documentation database <https://www.ecodocdb.dk> for the up to date position on the implementation of this and other ECC Decisions.

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<sup>1</sup> as defined in the United Nations Convention on the Law of the Sea (UNCLOS 1982)

## ANNEX 1: RELEVANT FOOTNOTES OF APPENDIX 18 (RADIO REGULATIONS 2016) [1]

Annex 1 contains the relevant footnotes, comments on it and the basic decisions of implementation in CEPT countries in particular.

### ▪ **RR Appendix 18 Footnote m)**

*“These channels may be operated as single frequency channels, subject to coordination with affected administrations. The following conditions apply for single frequency usage:*

- *The lower frequency portion of these channels may be operated as single frequency channels by ship and coast stations.*
- *Transmission using the upper frequency portion of these channels is limited to coast stations.*
- *If permitted by administrations and specified by national regulations, the upper frequency portion of these channels may be used by ship stations for transmission. All precautions should be taken to avoid harmful interference to channels AIS 1, AIS 2, 2027\* and 2028\*. (WRC-15)*

*\* From 1 January 2019, channel 2027 will be designated ASM 1 and channel 2028 will be designated ASM 2.”*

Comment to footnote m):

Channels marked with footnote m) may be used in connection with the public switched telephone network (PSTN). Concerned is analogue voice telephony. To split duplex channels for simplex use maybe an advantage for port operations services and ship movement services because ships stations can follow the entire communication, in case of duplex operation only the coast station could be listened by ships. However this does not provide two two-way simplex channels because the “upper leg” may not be used on ships. The simplex use of channels will increase congestion.

#### **Decision on implementation of Footnote m):**

Channel split based on footnote m) shall not be implemented in CEPT countries. All duplex channels marked with footnote m) remain unchanged.

### ▪ **RR Appendix 18 Footnote mm)**

*“Transmission on these channels is limited to coast stations. If permitted by administrations and specified by national regulations, these channels may be used by ship stations for transmission. All precautions should be taken to avoid harmful interference to channels AIS 1, AIS 2, 2027\* and 2028\*. (WRC-15)*

*\* From 1 January 2019, channel 2027 will be designated ASM 1 and channel 2028 will be designated ASM 2.”*

Comment to footnote mm):

This footnote has the same intention/content as footnote m) and is directly combined with footnote m); however Appendix 18 lists the split channels. Footnote mm) is only valid for the “upper leg channels” 2078, 2019, 2079 and 2020.

#### **Decision on implementation of Footnote mm):**

Channels marked with footnote mm) shall not be operated in simplex mode by coast stations in CEPT countries.

Channel split based on footnote mm) shall not be implemented in CEPT countries. All duplex channels marked with footnote mm) remain unchanged.

- **RR Appendix 18 Footnote w)**

*“In Regions 1 and 3:*

*Until 1 January 2017, the frequency bands 157.200-157.325 MHz and 161.800-161.925 MHz (corresponding to channels: 24, 84, 25, 85, 26 and 86) may be used for digitally modulated emissions, subject to coordination with affected administrations. Stations using these channels or frequency bands for digitally modulated emissions shall not cause harmful interference to, or claim protection from, other stations operating in accordance with Article 5.*

*From 1 January 2017, the frequency bands 157.200-157.325 MHz and 161.800-161.925 MHz (corresponding to channels: 24, 84, 25, 85, 26 and 86) are identified for the utilization of the VHF data exchange system (VDES) described in the most recent version of Recommendation ITU-R M.2092. These frequency bands may also be used for analogue modulation described in the most recent version of Recommendation ITU-R M.1084 by an administration that wishes to do so, subject to not causing harmful interference to, or claiming protection from other stations in the maritime mobile service using digitally modulated emissions and subject to coordination with affected administrations. (WRC-15)”*

Comment to footnote w):

This footnote concerns digital data exchange based on Recommendation ITU-R M.2092 [3] on VHF data exchange system (VDES). Recommendation ITU-R M.2092 describes the terrestrial VHF data exchange component (VDE-TER) and the satellite component (VDE-SAT). However RR 2016 do not contain a maritime-mobile satellite service (MMSS) allocation for the VDE-SAT which is described in Recommendation ITU-R M.2092. Nevertheless VDE-SAT can still be operated in these channels under RR No. 4.4.

**Decision on implementation of Footnote w):**

Channels marked with footnote w) are designated to be used for VDES as described in Recommendation ITU-R M.2092. CEPT countries intend to enable the terrestrial component of VDES as described in this Recommendation CEPT administrations will ensure that the designated frequency bands corresponding to channels: 24, 84, 25, 85, 26 and 86 of RR Appendix 18 will be available for the use of the terrestrial component of the VDES. After the implementation period, as shown in Annex 2 of this Decision, on these channels analogue voice telephony shall no longer be permitted in CEPT countries for the maritime mobile service.

- **RR Appendix 18 Footnote wa)**

*“In Regions 1 and 3:*

*Until 1 January 2017, the frequency bands 157.025-157.175 MHz and 161.625-161.775 MHz (corresponding to channels: 80, 21, 81, 22, 82, 23 and 83) may be used for digitally modulated emissions, subject to coordination with affected administrations. Stations using these channels or frequency bands for digitally modulated emissions shall not cause harmful interference to, or claim protection from, other stations operating in accordance with Article 5.*

*From 1 January 2017, the frequency bands 157.025-157.100 MHz and 161.625-161.700 MHz (corresponding to channels: 80, 21, 81 and 22) are identified for utilization of the digital systems described in the most recent version of Recommendation ITU-R M.1842 using multiple 25 kHz contiguous channels.*

*From 1 January 2017, the frequency bands 157.150-157.175 MHz and 161.750-161.775 MHz (corresponding to channels: 23 and 83) are identified for utilization of the digital systems described in the most recent version of Recommendation ITU-R M.1842 using two 25 kHz contiguous channels. From 1 January 2017, the frequencies 157.125 MHz and 161.725 MHz (corresponding to channel: 82) are identified for the utilization of the digital systems described in the most recent version of Recommendation ITU-R M.1842.*

*The frequency bands 157.025-157.175 MHz and 161.625-161.775 MHz (corresponding to channels: 80, 21, 81, 22, 82, 23 and 83) can also be used for analogue modulation described in the most recent version of Recommendation ITU-R M.1084 by an administration that wishes to do so, subject to not claiming protection from other stations in the maritime mobile service using digitally modulated emissions and subject to coordination with affected administrations. (WRC-15)”*

Comment to footnote *wa*):

This footnote concerns digital data exchange based on Recommendation ITU-R M.1842 [4], which describes different data exchange systems excluding VDES. A regional utilisation was supported by Asian and African countries. Only one system is operating in CEPT and is on a national basis only, using frequencies not related to footnote *wa*). Furthermore this Recommendation describes systems to merge two and four 25 kHz channels to achieve 50 or 100 kHz bandwidth using multiple 25 kHz contiguous channels. The aim is to identify the relevant channels to permit the utilisation of a regional VDES.

**Decision on implementation of Footnote *wa*):**

Channels marked with footnote *wa*) will not be used for VDES in CEPT countries. CEPT administrations shall not implement a regional VDES on the frequency bands corresponding to channels: 80, 21, 81, 22, 82, 23 and 83 of RR Appendix 18. The channels 80, 21, 81, 22, 82, 23 and 83 will continue to be used for analogue voice telephony in duplex mode in CEPT countries.

▪ **RR Appendix 18 Footnote *xx*)**

*“From 1 January 2019, the channels 24, 84, 25 and 85 may be merged in order to form a unique duplex channel with a bandwidth of 100 kHz in order to operate the VDES terrestrial component described in the most recent version of Recommendation ITU-R M.2092. (WRC-15)”*

Comment to footnote *xx*):

This footnote concerns VDES as described in Recommendation ITU R M.2092 [3] (see comment to footnote *w*)).

▪ **Decision on implementation of footnote *xx*):**

Channels marked with footnote *xx*) are designated to be used for VDES as described in Recommendation ITU-R M.2092. CEPT countries intend to enable the terrestrial component of VDES as described in Recommendation ITU-R M.2092. CEPT administrations shall ensure that the designated channels 24, 84, 25 and 85 of RR Appendix 18 will be available for the use of the terrestrial component of the VDES. After the implementation period, as shown in Annex 2 of this Decision, on these channels analogue voice telephony shall no longer be permitted in CEPT countries for the maritime mobile service.

▪ **RR Appendix 18 Footnote *y*)**

*“These channels may be operated as single or duplex frequency channels, subject to coordination with affected administrations. (WRC-12)”*

Comment to footnote *y*):

Footnote *y*) marks the same channels as footnote *wa*). Currently these channels are operated in many cases for port operations services or ship movement services in duplex mode in CEPT.

**Decision on implementation of footnote *y*):**

Channels marked with footnote *y*) shall not be operated as single frequency channels in CEPT countries. The channels 80, 21, 81, 22, 82, 23 and 83 of RR Appendix 18 shall continue to be used for analogue voice telephony in duplex mode in CEPT countries.

▪ **RR Appendix 18 Footnote *z*)**

*“Until 1 January 2019, these channels may be used for possible testing of future AIS applications without causing harmful interference to, or claiming protection from, existing applications and stations operating in the fixed and mobile services.*

*From 1 January 2019, these channels are each split into two simplex channels. The channels 2027 and 2028 designated as ASM 1 and ASM 2 are used for application specific messages (ASM) as described in the most recent version of Recommendation ITU-R M.2092. (WRC-15)”*



Comment to footnote z):

This footnote concerns AIS. To avoid an overload of AIS in areas with high traffic, it is intended to transmit some application specific messages (ASM) on the frequencies 161.950 MHz (ASM1) and 162.000 MHz (ASM2) instead. Footnote z) has to be noted in close relationship to footnote zz).

- **Decision on implementation of Footnote z):**

Channels 2027 and 2028 of RR Appendix 18 marked with footnote z) will be used in CEPT countries to transmit the application specific messages (ASM) on the frequencies 161.950 MHz (ASM1) and 162.000 MHz (ASM2). After the implementation period, as shown in Annex 2 of this Decision, in CEPT countries it shall no longer be permitted to use the channels 27 and 28 for analogue voice telephony in duplex mode.

- **RR Appendix 18 Footnote zz)**

*“From 1 January 2019, channels 1027, 1028, 87 and 88 are used as single-frequency analogue channels for port operation and ship movement. (WRC-15)”*

Comment to footnote zz):

This footnote concerns analogue voice telephony. It is closely related to footnote z). The duplex channels 27 and 28 cannot be used for analogue voice telephony any longer. The frequencies 157.350 MHz, 157.375 MHz, 157.400 MHz and 157.425 MHz (corresponding to channels 1027, 1028, 87 and 88) may be used for analogue voice telephony in simplex mode only.

- **Decision on Footnote zz):**

Channels marked with footnote zz) will be used as single-frequency analogue channels for port operation and ship movement in CEPT countries. However the channels 87 and 88 are already designated as single-frequency analogue channels for port operation and ship movement since RR Edition 1998. In CEPT countries it shall no longer be permitted to use the channels 27 and 28 for analogue voice telephony in duplex mode.

## **ANNEX 2: TIME SCHEDULE OF THE IMPLEMENTATION PERIOD**

The following time schedule for the implementation period is based on the footnotes of RR Edition 2016 Appendix 18 [1]. The Maritime Safety Committee (MSC) of IMO decided that “*VHF equipment, without prejudice to the arrangements contained in appendix 18 of the RR, should be updated so that following the first radio survey after 1 January 2024, at the earliest, it meets the arrangements which will be in force by then*”. RR Appendix 18 requests amendments to 1 January 2017 and 1 January 2019. CEPT countries consequently agreed that the implementation for CEPT administrations needs to be completed by 31 December 2023 at latest.

However, this does not imply that vessels cannot be equipped with VDES devices making use of the relevant channels, well before 1 January 2024. The following approach shall be adopted:

1. a “cleaning” period, ensures that after a certain date analogue voice telephony ceases on the channels 24, 84, 25, 85, 26 and 86 and the channels 27 and 28. This means the implementation of the decisions in Annex 1 on footnotes w); xx); z) and zz). This period starts at the adoption of this Decision and continues until 1 January 2023; during the cleaning period use of the channels for digital data exchange can be accepted subject to agreement with affected administrations;
2. after the cleaning period the usage of the relevant channels for the VDES could be used solely for this purpose in the maritime mobile service.

Different frequencies (VHF channels) for different purpose are concerned. The necessary changes for coast stations require coordination between administrations. For different purpose of frequency usage, different matters of urgency could be identified.

### ANNEX 3: CRITERIA FOR A SUCCESSFUL OUTCOME OF THE DECISION

Users should continue to be able to access the operational analogue voice communication services for ship movement and port operations during and after the transition.

The impact of disruption of operational communications, due to the implementation of this Decision, is minimised during and after transition.

Any possible increased congestion, due to the implementation of this Decision, should not negatively impact current ship services and port operations.

A means for assessing congestion and impact on a national level may be needed.

Seafarers are informed in sufficient time of the changes to the radio service provisions so that they can continue to use it.

Matters to be taken into consideration:

- Cost to industry associated with changes to channel assignment;
- Cost to administrations associated with re-planning channel assignments;
- Risks associated with changes;
- Availability of resources to implement and test changes;
- Potential for the burdens of change to fall on a small number of administrations or commercial organisations.

#### ANNEX 4: LIST OF REFERENCES

This annex contains the list of relevant reference documents.

- [1] ITU Radio Regulations Edition 2016 Appendix 18: "Table of transmitting frequencies in the VHF maritime mobile band"
- [2] IMO circular MSC.1-Circ.1460-Rev.2: "Guidance on the validity of radiocommunication equipment installed and used on ships"
- [3] Recommendation ITU-R M.2092: "Technical characteristics for a VHF data exchange system in the VHF maritime mobile band"
- [4] Recommendation ITU-R M.1842: "Characteristics of VHF radio systems and equipment for the exchange of data and electronic mail in the maritime mobile service RR Appendix 18 channels"
- [5] Recommendation ITU-R M.1371: "Technical characteristics for an automatic identification system using time-division multiple access in the VHF maritime mobile band"
- [6] Recommendation ITU-R M.1084: "Interim solutions for improved efficiency in the use of the band 156-174 MHz by stations in the maritime mobile service"
- [7] Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC
- [8] Directive 2014/90/EU of the European Parliament and of the Council of 23 July 2014 on marine equipment and repealing Council Directive 96/98/EC