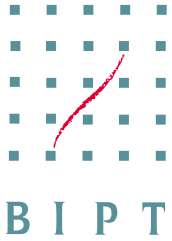


**BELGIAN INSTITUTE FOR POSTAL SERVICES AND TELECOMMUNICATIONS**

# COMMUNICATION BY THE BIPT COUNCIL OF 24 MAY 2018 ON THE FUTURE USE OF ANALOGUE/DIGITAL CHANNELS AS PROVIDED FOR IN RR APPENDIX 18

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## 1. Background

At the latest World Radiocommunications Conferences (WRC-15 and WRC-12) it was decided to identify certain channels in the maritime VHF band (Appendix 18 of the ITU Radio Regulations) for digital applications. As a consequence, in the future, certain channels will only be available for data transfer and no longer for analogue voice communications. New digital radio equipment will be developed. Within the maritime mobile VHF band various systems will coexist: analogue voice telephony, AIS (Automatic Identification System) and digital data exchange. However, analogue voice telephony is and remains the most important form of maritime radio communications and is essential to safe navigation in harbours and for waterways management.

These modifications are part of the VDES (VHF Data Exchange System), a radio communications system. A distinction is made between the regional VDES and the worldwide VDES.

## 2. Problem definition and approach

Certain implementation dates mentioned in the ITU Radio Regulations for digitising the Appendix 18 channels, have already passed. This was cause for confusion at an international level and a number of manufacturers have already started to commercialise new equipment that no longer allows the selection of certain channels, while those channels are still assigned by the national administrations to ship-port authorities and other applications.

The unavailability of those voice channels may create dangerous situations, especially regarding communications between port authorities, VTS services (Vessel Traffic Services) and ships. Insurance companies may possibly refuse to pay compensations if radio channels that are assigned by the national administrations appear to have been unavailable for voice communications.

As the development of new digital applications has been delayed and as the corresponding equipment is not yet generally available on the market, it is of absolutely no use to already adapt the radio equipment to the VDES.

BIPT will not implement the regional VDES: channels 21, 22, 23, 80, 81, 82 and 83, which were identified for this, will not be released. Those channels have to remain available for voice communications.
The worldwide VDES however, will be implemented in the long run.
For that worldwide VDES BIPT plans the following future adjustments:

a. BIPT will clear these channels of the current uses in favour of the VDES. Channels 24, 84, 25 and 85 will be combined into a single 100 kHz channel in order to improve the exchange of data and communications between ship and shore (terrestrial use only). Naturally, no more new uses will be allowed on these channels that deviate from the future VDES.
b. Duplex channels 27 and 28 will be divided into simplex channels 1027, 1028, 2027 and 2028.
c. Channels 2027 and 2028 will become the ASM1 and ASM2 (specific channels for the exchange of “application specific messages”).
d. channels 1027 and 1028 will become analogue simplex channels to be used for port and ship activities.

## 3. European activities

An ECC Decision (Electronic Communications Committee) is currently being prepared that should set the course for CEPT countries (European Conference of Postal and Telecommunications Administrations) for the implementation dates and the actual development of digitising in the maritime VHF band.

The risks of a premature switchover were already recognised by the International Maritime Organisation (IMO) at the end of last year. The IMO sent out a circular letter (IMO Circ. 1460/rev2) on 16 June 2017 setting 01/01/2024 as the end date for the adaptation of the VHF equipment.

The CEPT countries are now preparing a joint decision regarding:

a. temporarily keeping the VHF channels available for voice technology for the worldwide VDES;
b. the non-implementation of the regional VDES in the CEPT countries;
c. the possible implementation of certain footnotes in Appendix 18 of the ITU Radio Regulations.

## 4. Communication

1. BIPT wishes to point out that only the national administrations have the authority to adapt the frequency plan to the international context.

2. VHF channels 24, 25, 26, 84, 85, 86 and 2027 and 2028 have been identified for the **worldwide VDES** (Recommendation ITU-R M.2092) and must for the moment remain available for voice communications in Belgium and on the Westerscheldt. The date on which these channels will be switched over to VDES use will be communicated later. To that effect BIPT will send out a communication as soon as a decision has been taken at the European level. As long as BIPT has not assigned any new channels as VDES channels, the currently assigned channels must remain available for voice communications.

3. The **regional** VDES channels 21, 22, 23, 80, 81, 82 and 83 (Recommendation ITU-R M.1842) will permanently be used in Belgium for voice communications.

Axel Desmedt
Council Member

Jack Hamande
Council Member

Luc Vanfleteren
Council Member

Michel Van Bellinghen
Council Chairman

# Annex: the VDE system or VDES (VHF Data Exchange System)

## 1. VDES components

The WRC-15 (agenda item 1.16) decided that a new system is to be introduced for the exchange of data (the VDES). The VDES was developed in order to create additional capacity, provide for better performance and enable new applications (e-navigation). The concept is that different channels are combined to form a larger bandwidth. This will allow a larger amount of information to be exchanged. This system entails among other things:

- the introduction of specific channels (called ASM1 and ASM2), for the exchange of *application specific messages*;

- the continuation of the existing *Automatic Identification System* (AIS); it is used by ships and by *Vessel Traffic Stations* (VTS). The goal is to identify and locate vessels by means of an electronic exchange of data (among other things the unique identification, the location, the course and the speed). As regards Belgium, AIS is moreover especially important to the vessel traffic on the Scheldt and in the Port of Antwerp. In the context of modernising the GMDSS[1] system it cannot be excluded that the AIS technology is bound to play a more prominent role;

- the combination of 4 channels of 25 kHz (of Appendix 18 channels) into a single 100 kHz channel in order to improve the exchange of data and communications between ship and shore.

At the WRC-15 a consensus was reached on the identification of ASM, the protection of the existing AIS, the identification of the terrestrial component of the VDE system and the international VDE channels. Regarding the satellite component of the VDE system, it was agreed to further investigate the spectrum problem for the satellite component at the WRC-19.

The channels identified by the WRC-15 are the following:

- VDE system (worldwide): 24, 84, 25, 85, 26 and 86. The first 4 channels will be regrouped into a duplex channel of 100 kHz. Recommendation ITU-R M2092 ("*Technical characteristics for a VHF data exchange system in the VHF maritime mobile band*") contains the recommended technical characteristics for the VDE system.

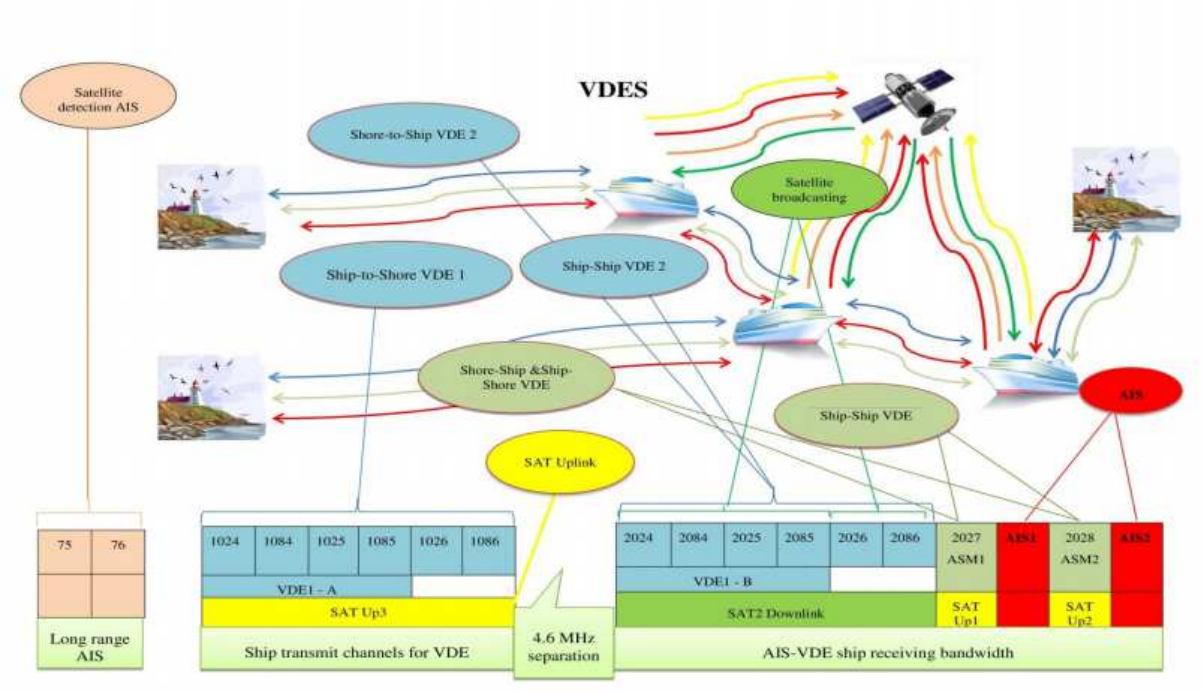
- ASM channels: channel 2027 and 2028 (respectively ASM1 and ASM2). Channels 1027 and 1028 will become simplex channels.

- regional VDES: digital technologies on channels 80, 21, 81, 22, 82, 23 and 83. The ITU-R M1842 Recommendation ("*Characteristics of VHF radio systems and equipment for the exchange of data and electronic mail in the maritime mobile service RR Appendix 18 channels*") contains the recommended characteristics for these digital technologies.

[1] Global Maritime Distress and Safety System.

## 2. Schematic representation of VDES

The following figure is based on Recommendation ITU-R M.2092 ("*Technical characteristics for a VHF data exchange system in the VHF maritime mobile band*"), but was adapted to the WRC-15 decisions. BIPT is expecting Recommendation ITU-R M.2092 to be adapted.




## 3. VDES frequencies

| Technology | Radio frequencies used | Channel number in the Radio Regulations |
|---|---|---|
| AIS1 | 161.975 (25 kHz) | 87B |
| AIS2 | 162.025 (25 kHz) | 88B |
| AIS Long Range 1 | 156.775 (25 kHz) (ships TX only) | 75 |
| AIS Long Range 2 | 156.825 (25 kHz) (ships TX only) | 76 |
| ASM 1 | 161.950 (25 kHz) | 2027 |
| ASM 2 | 162.000 (25 kHz) | 2028 |
| VDE 1 | 157.200 to 157.275 (100 kHz) (Ship TX) *and 157.300 + 157.325 (25 kHz)* | 1024, 1084, 1025 and 1085 combined *+ 1026 and 1086* |
| VDE 2 | 161.800 to 161.875 (100 kHz) (Ship RX) *and 161.900 + 161.925 (25 kHz)* | 2024, 2084, 2025 and 2085 combined *+ 2026 and 2086* |

## Glossary:

| | |
|---|---|
| AIS: | Automatic Identification System |
| ASM: | Application Specific Message |
| CEPT: | European Conference of Postal and Telecommunications Administrations |
| ECC: | Electronic Communications Committee |
| ITU: | International Telecommunication Union |
| VDES: | VHF data exchange system |
| VHF: | Very High Frequency |
| VTS: | Vessel Traffic System |
| RR: | Radio Regulations (ITU) |
| WRC: | World Radio Conference (ITU) |