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| CPG19-5 |
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| Summary:  |
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| Proposals: |
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DRAFT CEPT BRIEF ON AGENDA ITEM 1.9.2

1.9.2 to consider, based on the results of ITU-R studies modifications of the Radio Regulations, including new spectrum allocations to the maritime mobile-satellite service (Earth-to-space and space-to-Earth), preferably within the frequency bands 156.0125-157.4375 MHz and 160.6125-162.0375 MHz of Appendix 18, to enable a new VHF data exchange system (VDES) satellite component, while ensuring that this component will not degrade the current terrestrial VDES components, applications specific messages (ASM) and AIS operations and not impose any additional constraints on existing services in these and adjacent frequency bands as stated in recognizing d) and e) of Resolution 360 (Rev.WRC-15).

# ISSUE

This Agenda item requires:

* to conduct, as a matter of urgency, and in time for WRC-19, sharing and compatibility studies between VDES satellite components and incumbent services in the same and adjacent frequency bands specified in recognizing d) and e) to determine potential regulatory actions, including spectrum allocations to the MMSS (Earth-to-space and space-to-Earth) for VDES applications.

# PRELIMINARY CEPT POSITION

CEPT supports sharing and compatibility studies between the proposed VDES satellite component and the systems in the radiocommunication services allocated in the same and in adjacent frequency bands.

CEPT is of the view that implementability of the VDES satellite component and feasibility of its sharing and compatibility with the systems in the radiocommunication services allocated in the same and adjacent frequency bands without imposing any limitations on those services shall be confirmed by appropriate study results.

Subject to the results of relevant studies, CEPT is considering three options:

* 1. the introduction of a new maritime mobile-satellite (space-to-Earth) service allocation within the frequency bands 160.9625-161.4875 MHz which is not channelized in RR Appendix 18 and the introduction of a new maritime mobile-satellite (Earth-to-space) service allocation for the channels 24, 84, 25, 85, 26 and 86 of RR Appendix 18;
	2. the introduction of a new maritime mobile satellite service for the channels 1024, 1084, 1025, 1085, 1026, 1086 (Earth-to-space) of RR Appendix 18 and for the channels 2024, 2084, 2025, 2085, 2026 and 2086 (space-to-Earth) of RR Appendix 18;
	3. frequency bands out of RR Appendix 18 (for example in the frequency range 162 MHz to 172 MHz) for introduction of VDES satellite component provided that sharing with the incumbent services is feasible.

# BackGrOuNd

The studies associated with WRC-15 AI 1.16 resulted in elaboration of a concept for the VHF data exchange system (VDES) reflected in Recommendation ITU-R M.2092-0. The system combines the current Automatic Identification System (AIS), applications specific messages (ASM) as well as data exchange terrestrial and satellite components. Therewith VDES satellite uplink was proposed to operate in the frequency band 157.1875-157.3375 MHz with downlink in the frequency band 161.7875-161.9375 MHz.

It should be noted that Recommendation ITU-R М.2092 was not adopted at ITU-R Study Group 5 meeting since several Administrations indicated that the presented VDES concept required improvement as it does not provide compatibility with the services having allocations in the considered frequency bands. Therefore this Recommendation was submitted for consideration at the Radiocommunication Assembly 2015 and it was adopted since the material given in the Recommendation requires consideration while working on WRC-15 Agenda item 1.16.

WRC decisions provided for implementation of this concept in Appendix 18 frequency bands except for the data exchange system satellite component. The reason of those decisions consisted in the incomplete studies in sharing with incumbent services in the frequency bands proposed for operation of the VDES satellite component. Therefore the decision was made to conduct further studies on the problem in WRC-19 AI 1.9.2 subject to Resolution 360 (Rev. WRC-15).

At WP5B meeting in November 2016, IALA proposed an alternative frequency plan for VDES satellite component (Doc. 5B/195/Annex 26). Subject to the new frequency plan, channels 1026, 1086, 2026, 2086 (157.2875-157.3375 MHz and 161.8875-161.9375 МHz) are proposed to be used for uplink and to use the frequency band 160.9625-161.4875 MHz for downlink where channels are not identified yet. With this, the satellite would be allowed to listen to channels 1024, 1084, 1025, 1085, 2024, 2084, 2025, 2085 (157.1875-157.2875 MHz and 161.7875-161.8875 MHz) used by VDES terrestrial component similar to operation of AIS1 and AIS 2 channels.

# LIST Of reLevant DocUMeNts

* Recommendation ITU-R M.2092-0. Technical characteristics for the VHF data exchange system in the VHF maritime mobile band;
* Working document towards a Preliminary Draft New Report ITU-R M.[VDES-SAT]. Technical characteristics of the satellite component for the VHF data exchange system in the VHF maritime mobile band (Annex 26 to Document 5B/195);
* Working document to draft CPM Report text on WRC-19 Agenda item 1.9.2 (Annex 5 to Document 5B/195);
* Revised work plan for WRC-19 Agenda item 1.9.2 (Annex 6 to Document 5B/195).

# Actions to be taken

To conduct, subject to Resolution 360 (Rev. WRC-15), sharing and compatibility studies between VDES satellite components and incumbent services in the same and adjacent frequency bands, (in the lower adjacent band from 154 MHz to 156 MHz and in the upper adjacent frequency band from 162 MHz to 164 MHz) including studies in compatibility with the space surveillance radars operating in the frequency band 154-156 in line with No 5225A.

To consider the possible introduction of VDES satellite component in the frequency bands outside of Appendix 18 bands (for example in the frequency range 162 MHz to 172 MHz).

# information from outside CEPT (examples of these are below)

## European Union (date of proposal)

TBD

## Regional telecommunication organisations:

APT (date of proposal)

TBD

ATU (date of proposal)

TBD

Arab Group (April 2017)

Support the ongoing studies in ITU-R on the development of the necessary protection criteria for the satellite receiving equipment of VDES system while ensuring the protection of services allocated to the candidate frequency bands and adjacent bands.

CITEL (July 2017)

CAN

Noting that the proposed alternatives are being discussed, Canada believes that other alternative channel plans must be explored. In order to establish a comprehensive VDES channel plan for all VDES components, Autonomous Maritime Radio Devices (AMRDs) operating within the same frequency band must also be taken into account.

These devices may use AIS technology; digital selective calling (DSC) technology; or transmit synthetic voice messages. Combinations of these technologies can be found in equipment already available on the market. AMRDs are being addressed under Agenda Item 1.9.1. In view of this, VDES channel plans should take into account frequencies for AMRDs.

USA

The United States supports the ITU-R studies prescribed in Resolution 360 (Rev. WRC-15) and these studies should also take into account the protection of existing terrestrial services which operate in these and adjacent frequency bands.

RСС (April 2017)

The RCC Administrations consider that introduction of the VDES satellite component shall not result in imposing constraints on existing and planned systems of services which have allocations in the common and adjacent frequency bands.

## INTERNATIONAL ORGANIZATIONS

IATA (date of proposal)

TBD

ICAO (September 2016)

To ensure that any change to the regulatory provisions and spectrum allocations resulting from this Agenda item do not adversely impact aviation systems, including the capability of search and rescue aircraft to effectively communicate with vessels during disaster relief operations.

IMO (September 2017)

1. Recognizing that the VDES satellite component should not bring any harmful interference:

1.1 modifications should not be required to existing AIS equipment on board existing vessels; and

1.2 an identification of the frequencies for the VDES satellite component should protect the integrity of the original operational purpose of AIS on the existing AIS frequencies.

2. IMO supports the availability of VDES including both terrestrial and satellite components.

SFCG (December 2016)

TBD

WMO and EUMETNET (December 2016)

TBD

## REGIONAL ORGANIZATIONS

ESA (date of proposal)

TBD

Eurocontrol (date of proposal)

TBD

## OTHER INTERNATIONAL AND REGIONAL ORGANISATIONS

EBU (date of proposal)

TBD

GSMA (date of proposal)

TBD

CRAF (July 2017)

This is the AI 1.16 of WRC-15, which was postponed to WRC-19 due to the lack of sufficient studies. CRAF supported the Method C2 and C1 of the CPM15-2 report as long as an attenuation of 85 dB and the pfd mask described in section 3/1.16/4.3 of the report as proposed by the MMSS are implemented for the nearby radio astronomy band. Under such conditions compatibility between MMSS in the band 161.7875-161.9375 MHz and the RAS in the band 150.05-153 MHz will be feasible.