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|  |  Doc. CPG(18)073 ANNEX IV-09B |
| CPG19-7 |
| Hilversum, The Netherlands, 27th - 30th November 2018 |
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| Date issued:  | 30th November 2018 |
| Source:  | Minutes CPG19-7 |
| Subject:  | Draft CEPT Brief on WRC-19 Agenda Item 1.9.2 |
| Group membership required to read? (Y/N)  |
|  |
| Summary:  |
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| Proposal: |
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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 (VDE-SAT) and the systems in the radiocommunication services allocated in the same and in adjacent frequency bands.

CEPT is of the view that implementability of VDE-SAT 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 behave been confirmed by appropriate studies and measurement results.

CEPT supports the introduction of a new primary maritime mobile-satellite (space-to-Earth) service allocation within the frequency band 160.9625-161.4875 MHz, which is not channelized in RR Appendix 18, and the introduction of a new primary maritime mobile-satellite (Earth-to-space) service allocation for the channels 24, 84, 25, 85, 26 and 86 of RR Appendix 18. The coordination mechanism under No 9.14 is introduced through a new footnote in the RR, taking into account the pfd-mask contained in Recommendation ITU-R M.2092. This is in line with Method B of the draft CPM Report (Document CPM19-2/1).

# 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 (VDE-TER) and satellite components (VDE-SAT). Ahead of WRC-15, 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 in June 2015 since some administrations claimed that the VDES concept at that time did 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, where it was adopted since the material given in the Recommendation required consideration while working on WRC-15 AI 1.16.

WRC-15 decided to allocate frequencies to the terrestrial components of VDES as well as the ASM satellite uplink. WRC-15 did not allocate frequencies to VDE-SAT due to incomplete studies on sharing with incumbent services in the frequency bands proposed for operation of VDE-SAT. Resolution 360 (Rev. WRC-15) was updated to invite ITU-R to conduct further studies on sharing between VDE-SAT and incumbent services as part of WRC-19 AI 1.9.2.

The VDE-SAT frequency plan proposed for the WRC-15 contained an allocation to the 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.

At the ITU-R WP 5B meeting in November 2016, IALA proposed an alternative frequency plan for VDE-SAT (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 for VDE-SAT uplink and the frequency band 160.9625-161.4875 MHz are proposed for VDE-SAT downlink. Furthermore, with this new frequency plan, VDE-SAT uplink is also allowed on channels 1024, 1084, 1025, 1085, 2024, 2084, 2025, 2085 (157.1875-157.2875 MHz and 161.7875-161.8875 MHz), but without imposing constraints on VDE-TER operations. This is similar to the satellite reception of AIS on the AIS1 and AIS2 channels.

CEPT is of the view that the alternative frequency plan proposed by IALA is the preferred alternative, as it offers advantages in terms of higher available bandwidth, reduced service interdependency, improved system capacity and link robustness for both the terrestrial and satellite components of the VDES.

Sharing studies between VDE-SAT and incumbent services have progressed well in ITU-R WP 5B. The output from the ITU-R WP 5B meeting in May 2018 (Doc 5B/538 (Annex 27)), presents current results of studies which will be updated at the upcoming ITU-R WP 5B meeting in November.

# 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 27 to Document 5B/538);
* Working document to draft CPM Report text on WRC-19 Agenda item 1.9.2 (Annex 5 to Document 5B/538);
* Revised work plan for WRC-19 Agenda item 1.9.2 (Annex 6 to Document 5B/538).

# Actions to be taken

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

## European Union (date of proposal)

TBD

## Regional telecommunication organisations:

APT (June 2018)

Preliminary Views:

APT Members support the ITU-R studies undertaken in accordance with Resolution 360 (Rev. WRC-15) to identify possible new allocations to the maritime mobile-satellite service for VDES satellite component.

In regards to the possible modification of the Radio Regulations under WRC-19 Agenda Item 1.9.2, APT Members are of the view that:

* Existing allocations and systems in the same and adjacent bands should be protected from harmful interference, and no any additional constraints are imposed;
* The VDES satellite component downlink pfd mask should be developed with appropriate parameters and assumptions contained in ITU-R Recommendations, that have been widely used in sharing studies conducted by ITU-R Study Groups;
* Search and rescue aircraft system operating in maritime frequencies must be protected;
* VDES satellite components downlink transmission should not degrade the terrestrial VDES components, ASM and AIS operation;
* The AIS integrity should be protected, and avoid any modification to existing AIS equipment on board vessels;
* VDES satellite components should not claim protection from harmful interference caused by stations of a land mobile service to which frequencies are already assigned; and
* If the spectrum needs were appropriately justified, new spectrum allocations could be identified to the maritime mobile-satellite service (MMSS) (Earth-to-space and space-to-Earth), with the provision they do not cause harmful interference, and have no claim of protection from incumbent service on a primary basis in the same and adjacent frequency bands.

ATU (September 2018)

The APM19-3 agreed to:

* Support, as a matter of principle, new spectrum allocations to the maritime mobile-satellite service (MMSS) (Earth-to-space and space to Earth), preferably within the frequency bands 156.0125 - 157.4375 MHz and 160.6125 162.0375 MHz of RR Appendix 18, to enable a new VDES satellite component, while ensuring that this component will not degrade the current terrestrial VDES components, ASM and AIS operations and not impose any additional constraints on existing services in these and adjacent frequency bands.

Arab Group (April 2017)

ASMG Position is support:

* Following-up the on-going studies in ITU-R and protecting the current usage of mobile service in the candidate bands without imposing 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);

CITEL (December 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.

30th PCC.II (June 2018):

One country is of the view that additional frequency plans should be explored and consider AMRDs

RCC (October 2018)

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.

The RCC Administrations oppose new allocations to the maritime mobile-satellite service (MMSS) on a primary basis for VDES satellite component in the frequency bands within 156-162 MHz, since the studies conducted on the basis of Recommendations ITU-R M.1801 and M.2092 have shown that VDES space stations are not compatible with stations of fixed and mobile services to which these frequency bands are allocated on a primary basis.

## 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 (February 2018)

No position on the agenda item.

NATO (November 2018)

NATO supports the recognition of GADSS in the RR if required, provided that the proposed associated regulatory provisions will have no impact on NATO systems.

## REGIONAL ORGANIZATIONS

ESA (date of proposal)

TBD

Eurocontrol (November 2018)

EACP Position 1.9

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.

## 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.