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| Subject:  | Draft CEPT Brief on WRC-19 Agenda Item 1.8 |
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| Summary:  |
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| Proposal: |
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DRAFT CEPT BRIEF ON AGENDA ITEM 1.8

1.8 to consider possible regulatory actions to support Global Maritime Distress Safety Systems (GMDSS) modernization and to support the introduction of additional satellite systems into the GMDSS, in accordance with Resolution 359 (Rev.WRC-15);

# ISSUE

Resolution 359 (WRC-15) also invites the WRC-19 to

consider the result of ITU Radiocommunication Sector (ITU-R) studies and take necessary actions, as appropriate, to support GMDSS modernization;

and consider regulatory provisions, if appropriate, based on the ITU-R studies, and taking into consideration the activities of IMO, related to the introduction of additional satellite systems into the GMDSS, including consideration of the MSS allocations used, while ensuring the protection of all incumbent services, including those in adjacent frequency bands, from harmful interference.

These two invites the WRC-19 has been identified for the CPM Report as two different issues

# Preliminary CEPT position

Issue A: Modernisation of GMDSS

CEPT supports the introduction of the HF NAVDAT frequencies, defined in the Recommendation ITU-R M.2058-0, in RR Appendix 17.

CEPT opposes of the introduction of the HF NAVDAT frequencies, defined in the Recommendation ITU-R M.2058-0, in RR Appendix 15 for this WRC.

Issue B: Regulatory action due to the introduction of additional satellite systems into the GMDSS by IMO

CEPT can support regulatory actions to introduce an additional satellite system into the GMDSS only if:

IMO decides that an additional satellite system is accepted to become part of the GMDSS

[the frequency bands used are allocated to the maritime mobile satellite service (for both space to Earth and Earth to space) on a primary basis]

regulatory provisions ensure that the protection of services operating in the frequency bands concerned and in adjacent frequency bands are maintained.

# Background

Issue A:

WRC-12 designated some frequency bands in RR Appendix 17 for digitally modulated emissions in the maritime mobile service (e.g. as described in the most recent version of Recommendation ITU‑R M.1798) from 1st January, 2017 by footnote p). ITU-R issued Recommendation ITU-R M.2058-0 in February, 2014. Six channels respectively within 4 MHz, 6 MHz, 8 MHz, 12 MHz, 16 MHz and 22 MHz frequency bands with footnote p) are recommended to use for HF NAVDAT.

It is feasible technically. However, there are needs to take appropriate actions to give NAVDAT application regulatory status to operate in these bands. Furthermore, just as the same as the MF NAVDAT, the further protection approaches on HF bands need to be considered during the implementation of GMDSS modernization depending on the situation related to NAVDAT recognized in GMDSS, and the related coordination scheme developed. This is also planned to be done in study cycle of WRC-23, according to the progress of activities of IMO. A first action could be achieved at WRC-19 consisting of introducing these HF NAVDAT frequencies in RR Appendix 17.

Issue B:

There is a continuing need in the Global Maritime Distress and Safety System (GMDSS), on a global basis, for improved communications to enhance maritime capabilities. It is also related to enhancement of maritime safety in polar Arctic and Antarctic waters. Such maritime safety enhancement in the GMDSS can be achieved by the continued usage of GSO satellite networks along with the addition of non-GSO satellite networks to extend the GMDSS functions to near polar areas. One system using GSO and non-GSO systems networks (COSPAS SARsat) is already providing some GMDSS functions in the polar area. The International Maritime Organization (IMO) is considering the modernization of GMDSS and has received an application to recognize an existing satellite system (Iridium) as part of the GMDSS, and consequential regulatory actions may need to be considered. Any new GMDSS satellite systems need to provide enhancement of maritime safety, through redundancy or the addition of new functionality while ensuring the protection of incumbent services in accordance with the Radio Regulations, including those in adjacent frequency bands, from harmful interference, and such GMDSS satellite systems operate within the interference environment of existing systems. Studies are being conducted, considering Nos 5.341, 5.359, 5.364, 5.365, 5.366, 5.367, 5.368, 5.369 and 5.372 that provide information on the use of the frequency band 1 616-1 626.5 MHz (or parts thereof), the activities of IMO and the recognition of additional satellite systems for use in the GMDSS, including consideration of the MSS allocations used and the potential impact of possible modifications to the provisions of the Radio Regulations on sharing and compatibility with other services and systems in the frequency band and adjacent frequency bands to support GMDSS modernization.

The frequencies for distress and safety communications for the GMDSS are listed in Appendix 15 (AP15) (Rev.WRC-12) of the Radio Regulations. These frequencies are allocated on a primary basis to the mobile service, including the maritime mobile, aeronautical mobile, and mobile satellite services. Distress alerts and distress traffic are considered to fall under the definition of the safety service. Safety services require special measures to ensure a reliable communication and their freedom from harmful interference (see RR No. 4.10). RR No. 31.2 states that any emission causing harmful interference to distress and safety communications on any of the discrete frequencies identified in RR Appendix 15 is prohibited.

Since 1998 the radio astronomy service (RAS) in the 1 610.6-1 613.8 MHz band has been experiencing harmful interference from MSS operations in the adjacent band 1 613.8-16 26.5 MHz, despite the application of No. 5.372. This interference has been reported to the ITU and is also documented in the form of ECC Reports (171 and 226).

In CEPT, ECC/DEC/(09)02 provides the necessary provisions for the harmonization of the frequency bands 1 610-1 626.5 MHz and 2 483.5-2 500 MHz for MSS systems.

# List of relevant documents

* Recommendation ITU-R M.1184-2: “Technical characteristics of mobile satellite systems in the frequency bands below 3 GHz for use in developing criteria for sharing between the mobile-satellite service (MSS) and other services” (ITU-R Question 201/8)
* Recommendation ITU-R M.1188-1: “Impact of propagation on the design of non-GSO mobile-satellite systems not employing satellite diversity which provide service to handheld equipment” (ITU-R Question 88/8)
* Recommendation ITU-R M.1583-1: “Interference calculations between non-geostationary mobile-satellite service or radionavigation-satellite service systems and radio astronomy telescope sites” (ITU-R Question 236/8)
* Report ITU-R [M.2369-0](http://www.itu.int/pub/R-REP-M.2369): “Use of non-geostationary orbit mobile satellite systems to enhance maritime safety”
* ITU-Documentation (Recommendations, Reports, other)
* Recommendation ITU-R RA.769-2: “Protection criteria used for radio astronomical measurements”
* Recommendation ITU-R RA.1513-1, “Levels of data loss to radio astronomy observations and percentage-of-time criteria resulting from degradation by interference for frequency bands allocated to the radio astronomy on a primary basis”
* Working document toward PDNR ITU-R M.[GMDSS-SATREG] “Introduction of additional mobile-satellite service systems into the GMDSS”

CEPT and/or ECC Documentation (Decisions, Recommendations, Reports)

* ECC Decision (09)02: “The harmonisation of the bands 1610-1626.5 MHz and 2483.5-2500 MHz for use by systems in the Mobile-Satellite Service” approved 26 June 2009, amended 02 November 2012
* ECC Report 171: “Impact of unwanted emissions of IRIDIUM satellites on radio astronomy operations in the band 1610.6-1613.8 MHz” Tallinn, October 2011
* ECC Report 226: “Unwanted emissions of IRIDIUM satellites in the band 1610.6-1613.8 MHz, monitoring campaign 2013” approved 30 January 2015

EU Documentation (Directives, Decisions, Recommendations, other), if applicable

# Actions to be taken

* The following item has been identified to be studied for issue A under Resolution 359, within the CEPT

To continue to monitor the work at IMO in order to identify if there are more elements of the modernisation of the GMDSS, which could be addressed for this WRC.

* The following items have been identified to be studied for issue B under Resolution 359, within the CEPT

The use of an MSS allocation for GMDSS, which has a secondary status in the space to Earth direction.

Regulatory and compatibility issues related to protection of Radio Astronomy from the non-GSO MSS system operating in an adjacent band.

Regulatory issues related to the operation of MSS systems which are not part of the GMDSS in the same band as GMDSS systems.

The radio regulatory conditions under which the non-GSO MSS systems would operate in the GMDSS.

The inconsistency and potential constraint of No. 5.368.

The regulatory status of the non-GSO MSS system, and any potential adverse impact of any change to the regulatory status.

Prepare text for the Draft CPM Report

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

## European Union (date of proposal)

## Regional telecommunication organisations

APT (date of proposal)

ATU (date of proposal)

ASMG (April 2017)

Due to the need for modern communications systems in the field of global maritime distress and safety services (GMDSS) in accordance with Resolution 359 (REV.WRC 15), and due to its important contribution to maritime safety, ASMG supports:

* the consideration of possible regulatory actions to support the modernization of (GMDSS).
* the introduction of additional satellite systems in the GMDSS system while ensuring compatibility and interconnection among the new and the current systems.
* following-up studies to be undertaken by ITU-R on the protection of frequency bands being used in the future.

CITEL (January 2018)

Canada and United States: These administration support appropriate modification of the Radio Regulations such as adding the frequency band 1 616‑1 626.5 MHz to Appendix 15 and modifying the relevant footnotes applying to this frequency band, to provide for introducing additional satellite systems into the GMDSS.

RCC (September 16th, 2016)

The RCC Administrations consider that the IMO position should be taken into account in regard to the GMDSS modernization, including the introduction of the IMO-recognized additional satellite systems, when developing relevant regulatory actions to support such modernization considering protection of existing services and systems.

## International organisations

IATA (date of proposal)

ICAO (September 16)

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

To ensure that any regulatory provisions in response to this agenda item do not adversely impact SARPS compliance of aeronautical mobile-satellite (route) service satellite systems.

IMO (September 17)

IMO invites ITU to:

1. conduct frequency studies, consider revisions to existing instruments and take regulatory actions, as appropriate, to facilitate the implementation of GMDSS modernization;
2. take appropriate regulatory measures to ensure full protection and availability of the frequency bands to be used by new recognized GMDSS satellite service providers for the provision of GMDSS services; and
3. resolve any issues under Resolution 359 (Rev.WRC-15), in relation to the future operation of newly recognized GMDSS satellite service providers.

SFCG (date of proposal)

WMO and EUMETNET (date of proposal)

NATO (January 2018)

This NATO military assessment summary is a common military assessment of the NATO Nations on the potential impacts and benefits of Agenda Item 1.8. It does not constitute a common position of the NATO Nations.

Maritime safety enhancements are critical to military operations. Modernization measures and other enhancements should be able to co-exist with existing standard equipment installed on ships. Sharing and compatibility studies should take into account the unique interference environment on-board vessels and within certain frequency ranges. In addition, compatibility studies need to account for the impact of regulatory changes on incumbent military systems (tactical radio relay) operating in the fixed service to accommodate a potential new GMDSS Service provider in the band 1618.725 - 1626.5 MHz.

## Regional organisations

ESA (date of proposal)

Eurocontrol (date of proposal)

## OTHER INTERNATIONAL AND REGIONAL ORGANISATIONS

EBU (date of proposal)

GSMA (date of proposal)

CRAF (27 June 2017)

As stated in Resolution. 359, the new GMDSS provider must provide protection of incumbent services in accordance with the Radio Regulations, including those in adjacent frequency bands, from harmful interference. CRAF supports the protection of the existing primary RAS allocation in the 1 610.6-1 613.8 MHz band. No action on the modernization of the GMDSS and changes to the RR should be made unless the RAS band is free from harmful interference and acceptable sharing and compatibility criteria are developed with the RAS.