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| Summary:  |
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| Proposal: |
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DRAFT CEPT BRIEF ON AGENDA ITEM 1.9.1

1.9 to consider based on the results of ITU-R studies:

1.9.1 Regulatory actions within the frequency band 156-162.05 MHz for autonomous maritime radio devices to protect the GMDSS and automatic identifications system (AIS), in accordance with Resolution 362 (WRC-15).

# ISSUE

Resolution 362 (WRC-15) invites WRC-19, based on the results of ITU-R studies, to take regulatory actions to prevent unregulated operation of autonomous maritime radio devices to enhance safety of navigation and to ensure the integrity of AIS and of GMDSS which is the only system for distress, urgency, safety and routine communication for general shipping.

Resolution 362 (WRC-15), invites ITU-R to conduct studies, in time for WRC-19, to determine the spectrum requirements within the frequency band 156-162.05 MHz for autonomous maritime radio devices, taking into account the protection of services to which the frequency band is currently allocated.

# Preliminary CEPT position

CEPT is of the view that the operation of autonomous maritime radio devices needs to be harmonized and regulated.

CEPT is of the view that the operation of autonomous maritime radio devices shall not reduce the integrity of AIS and of GMDSS.

CEPT is of the view that the AMRD of Group B shall operate in the bands of RR Appendix 18. In connection with this, CEPT does not support Method B3 to satisfy Agenda item 1.9.1 of WRC-19.

CEPT os also of the view that the power of the AMRD transmitters of Group B shall be limited to a value that ensures their compatibility with radio systems operating in accordance with the existing frequency allocation.

CEPT supports the identification of spectrum for autonomous maritime radio devices within the frequency band 156-162.05 MHz.

# Background

Applications with autonomous maritime radio devices are reflecting a new development in recent time. Due to the rapid technical progress and cost-effective production, more and more of such applications in the maritime environment are created and used in the field.

In the maritime mobile service as defined in No 1.28 the autonomous radio devices are not listed and are therefore not supposed to be operated in this service at this time.

The term autonomous maritime radio device (AMRD) is not part of the ITU terminology database and needs clarification for a wider audience. In particular, this term may not be understood in IMO and a common definition or agreement may be helpful.

ITU-R Working Party 5B concluded on the following definition, which was accepted by IMO (NCSR 5, February 2018):

An AMRD is a mobile station; operating at sea and transmitting independently of a ship station or a coast station. Two groups of AMRD are identified:

1. Group A: AMRD that enhance the safety of navigation,
2. Group B: AMRD that do not enhance the safety of navigation (AMRD which deliver signals or information which do not concern the vessel can distract or mislead the navigator and degrade the safety of navigation).

Only Group A, AMRD that enhance the safety of navigation, should use the frequencies of the current RR Appendix 18. These frequencies have been allocated for the operation of vessels. The restriction on usage of these frequencies guarantees the integrity of GMDSS and AIS.

Group B, AMRD that do not enhance the safety of navigation, but also operate in the maritime environment, should not be permitted to use the channel for digital selective calling (channel 70), the channel for distress, safety and calling (channel 16), the AIS channels (channels AIS 1 and AIS 2), and the channels for inter-ship, port operations and ship movement and public correspondence as listed in the current RR Appendix 18. The intention is to identify special frequencies for the usage of these AMRD in the table of transmitting frequencies in the VHF maritime mobile band. The signals or information originated by this group of AMRD do not concern the operation of vessels.

It is proposed to limit the AMRD transmitters output power of 1 W in the developed Draft Recommendation ITU-R М.[AMRD] however this document does not contain reasons for the limitation.

Considering a) of Resolution 362 (WRC-15) addresses with this agenda item “enhance safety of navigation”. The relevant term is derived from the International Convention for the Safety of Life at Sea (SOLAS), as amended. Within SOLAS, Chapter V is titled “Safety of navigation” and contains all relevant regulations. Consequently, the criterion for distinguishing the two categories of AMRD is the influence on the safety of navigation. Any signal or information originated by an AMRD, which reaches the navigator, may influence the safety of navigation. This includes AIS (signals should be shown on Radar and eventually also on the electronic display and information system (ECDIS)) and VHF (working channels, Ch. 16 and Ch. 70). In any case the navigator has to decide how to proceed. In a positive case the safety of navigation will be enhanced. AMRD which deliver signals or information which do not concern the vessel can distract or mislead the navigator and degrade the safety of navigation.

Although the term “safety of navigation” is used in SOLAS and other IMO documents, there is no definition existing. To evaluate the categories of AMRD it seems to be necessary to explain in the preliminary draft new Report ITU-R M.[AMRD] how “safety of navigation” has to be understood. The regulations listed in SOLAS Chapter V are relevant to achieve safety of navigation.

Consequently, in distinguishing the two groups of AMRD the question has to be answered: is safety of navigation enhanced or rather degraded?

Most likely the AMRD that enhance the safety of navigation should preferably be subject of IMO SOLAS regulations for the presentation of information to the navigators on board vessels. Thus, it should be clearly understood that this is the “Group A AMRD”. The other non-regulated AMRD should be considered as Group B AMRD.

The compatibility studies showed that the output power of the transmitters of the Group B autonomous marine radio devices should be limited in order to avoid unacceptable interference to the operation of land mobile stations.

# List of relevant documents

ITU-Documentation (Recommendations, Reports, other)

* Chairman’s Report Working Party 5B – 5B/411

Annex 22 - Working document towards a preliminary draft new Report ITU-R M.[AMRD],

Annex 23 - Working document towards a preliminary draft new Report ITU-R M.[NEW\_MARNUM] - Autonomous maritime radio devices,

* Chairman’s Report Working Party 5B – 5B/538

Annex 3 - Working document towards draft CPM text on WRC-19 AI 1.9.1,

Annex 4 - Proposed work plan for WRC-19 AI 1.9.1,

Annex 12 - Preliminary draft Revision of Recommendation ITU-R M.493-14 - Digital selective-calling system for use in the maritime mobile service

Annex 15 - Working document towards a preliminary draft revision of Recommendation ITU-R M.585-7 - Assignment and use of identities in the maritime mobile service

Annex 16 - Working document towards a preliminary draft revision of Recommendation ITU-R M.1371-5 - Technical characteristics for an automatic identification system using time division multiple access in the VHF maritime mobile frequency band

Annex 18 - Working document towards a preliminary draft new Recommendation ITU-R M.[AMRD] - Definition, technical and operational characteristics of autonomous maritime radio devices

Annex 29 - Liaison statement to the International Maritime Organization, the International Association of Marine Aids to Navigation and Lighthouse Authorities, the World Meteorological Organization, the Comité International Radio-Maritime and Inmarsat Plc.

* Results of the Questionnaire on the distribution and the applications of autonomous maritime radio devices, R15-WP5B-C-0244!!MSW-E
* Recommendation ITU-R M.493-14 - Digital selective-calling system for use in the maritime mobile service
* Recommendation ITU-R M.585-7 - Assignment and use of identities in the maritime mobile service
* Recommendation ITU-R M.1371-5 - Technical characteristics for an automatic identification system using time division multiple access in the VHF maritime mobile frequency band
* Report ITU-R M.2231-1 - Use of Appendix 18 to the Radio Regulations for the maritime mobile service
* Report ITU-R M.2285-0 - Maritime survivor locating systems and devices (man overboard systems) – An overview of systems and their mode of operation

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

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

# Actions to be taken

Finalize the evaluation of the result of the Circular letter 5/LCCE/64 on autonomous maritime radio devices WRC-19 agenda item 1.9.1 - Questionnaire on the distribution and the applications of autonomous maritime radio devices, 5/LCCE/64. The different applications should be compiled, taking into account the used technology. There might be decisions necessary in which way an application may be used, e. g. is a fishnet buoy an application for the fishermen to find their fishnets or is it an application for collision avoidance?

Finalize the categorization in two groups: Group A: AMRD which should be operated on frequencies of the current App. 18, 2 Group B: AMRD which should not use the channel for digital selective calling (channel 70), the channel for distress, safety and calling (channel 16), the AIS channels (channels AIS 1 and AIS 2), and the channels for inter-ship, port operations and ship movement and public correspondence as listed in the current Appendix 18;

Finalize the studies on numbering/identification;

Contribute to PDN Report ITU-R M.[NEW MARNUM];

Continue work on PDN Recommendation ITU-R M.[AMRD];

Continue work on ECP.

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

## European Union (date of proposal)

## Regional telecommunication organisations

APT (16 March 2018)

APT members support the ITU-R studies on the spectrum needs, technical and operational characteristics, categorization, identifications of AMRDs and its applications, as well as the studies in relation to regulatory actions within the frequency band 156-162.05 MHz while ensuring the protection of the GMDSS and AIS, in accordance with Resolution 362 (WRC-15).

APT Members are also of the view that:

* the term “autonomous maritime radio device” (AMRD) and its intended applications should be properly defined before the studies in relation to regulatory actions, support a definition of AMRDs to be developed in an ITU-R Recommendation;
* AMRDs Group A should be regulated for the use of frequencies and identities of the maritime mobile service;
* Regarding AMRDs Group B, regulation of the use of frequencies, and technical and operational characteristics, should benefit both the user of devices as well as coexistence with maritime safety devices and applications. Identification of additional spectrum within the frequency band 156-162.05 MHz and the numbering issue should be considered;
* any identification of additional spectrum for AMRDs Group B should not cause harmful interference or any impact on the existing services within the frequency band and the adjacent bands. In this regard mitigation technique of interference such as limitation of output power of AMRDs (to 1 watt as an example) should be considered;
* any regulatory action of AMRD Group B within the frequency band 156-162.05 MHz, should also consider the limited numbering resources of MMSI and also consider the implementation transition period when the operation of autonomous maritime radio devices bring in to use;
* Search and rescue aircraft system operating in maritime frequencies must be protected.

ATU (September 2018)

The APM19-3 agreed to:

* Issue A - Autonomous maritime radio devices Group A
* Method A (which is the only method), which proposes that footnote f) of RR Appendix 18 be amended to allow AMRD Group A to operate on frequency channels 156.525 MHz (channel 70), 161.975 MHz (AIS 1) and 162.025 MHz (AIS 2) that for the operation of AMRD Group A.
* Issue B - Autonomous maritime radio devices Group B
* Support, as a matter of principle, that ARMD Group B1 devices should not be permitted to use the frequencies which cause any constraints on the existing mobile services.

Arab Group (April 2018)

* Protection of GMDSS and AIS
* Protection of the existing allocations without any additional constrains.
* Regulating the use of AMRD (Group B) by identifying specific frequencies for its use and reviewing the use of anew numbering scheme different from those in the existing maritime mobile service

CITEL (June 2018)

The United States supports the ITU-R studies prescribed in Resolution 362 (WRC-15) and these studies should also take into account the protection of the GMDSS and AIS.

RCC (October 2018)

* The RCC Administrations consider it reasonable to identify categories (types), technical and operational characteristics of autonomous maritime radio devices in order to develop regulatory actions in the frequency band 156 − 162.05 MHz for the autonomous maritime radio devices to protect GMDSS and AIS. At the same time, results of studies on the compatibility between autonomous maritime radio devices and existing radio systems having allocations in the concerned frequency bands shall be taken into account.
* The RCC Administrations do not oppose using frequency bands of RR Appendix18 for Group A autonomous maritime radio devices intended for maritime safety (frequency bands: 156.5125 - 156.5375 (channel 70 for DSC), 161.9625 - 161.9875 (AIS1 channel), 162.0125 -162.0375 (AIS2 channel)). Such use should comply with the latest version of Recommendation ITU-R M.[AMRD] (Method А).
* The RCC Administrations do not oppose using frequency bands of RR Appendix 18 for Group B autonomous maritime radio devices not intended for maritime safety (frequency band 160.8875 - 160.9125 MHz for AIStechnology (channel 2006)). Such use should comply with the latest version of Recommendation ITU-R M.[AMRD] (Method B1).
* The RCC Administrations do not oppose using frequency bands of RR Appendix18 for Group B autonomous maritime radio devices not intended for maritime safety (frequency bands 161.5125 -161.5375 MHz (channel 2078), 161.5375 - 161.5625 MHz (channel 2019), 161.5625 - 161.5875 MHz (channel 2079) for technologies other than AIS). Such use should comply with the latest version of Recommendation ITU-R M.[AMRD] (Method B2).

## International organisations

IATA (date of proposal)

ICAO (April 2017)

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 (February 2018)

1. The integrity of AIS and the Global Maritime Distress and Safety System (GMDSS) should be protected;
2. autonomous maritime radio devices which enhance the safety of navigation should be regulated for the use of frequencies and identities of the maritime mobile service; and
3. for autonomous maritime radio devices which do not enhance to the safety of navigation, regulation of the use of frequencies, and technical and operational characteristics, should benefit both the user of devices as well as maritime safety. An additional spectrum allocation within the frequency band 156-162.05 MHz and a new numbering scheme which is different from those in the existing maritime mobile service should be considered.

SFCG (date of proposal)

NATO (June 2018)

NATO supports appropriate regulatory actions within the frequency band 156 - 162.05 MHz for autonomous maritime radio devices in order to protect the GMDSS and automatic identifications system (AIS).

The protection of GMDSS or AIS from autonomous maritime radio devices could be beneficial to military ship operations.

WMO and EUMETNET (January 2017)

The World Meteorological Organization has no position (interest) on AI 1.9.1 (January 2017 meeting of WMO Steering-Group on Radio-Frequency Coordination (SG-RFC)).

## Regional organisations

ESA November 2016

TBD

Eurocontrol (November 2018)

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)

GSMA (date of proposal)

CRAF (November 2018)

CRAF supports the protection of existing RAS allocations in the 150.05-153.0 MHz band. No changes should be made to the RR unless acceptable sharing and compatibility criteria are developed with the RAS.