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***Communications for all in East Africa***

**CHAPTER 2**

**AERONAUTICAL AND MARITIME ISSUES**

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| **Input Document to EACO WG Meeting** | **13/08/2021** |
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| **“contributing body/ organization/ rapporteur”** |

**Agenda Item 1.6**

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| ***Part A: Description*** |
| *to consider, in accordance with* ***Resolution 772 (WRC‑19),*** *regulatory provisions to facilitate radiocommunications for sub-orbital vehicles;****Resolution 772 (WRC‑19)****Consideration of* ***regulatory provisions*** *to facilitate the* ***introduction of sub-orbital vehicles***  |
| ***Part B: Key Elements – the notables*** |
| Resolution **772** (**WRC-19**), in preparation for agenda item 1.6 (WRC-23), invites the ITU-R:1 to study **spectrum needs** for communications between stations on board sub-orbital vehicles and terrestrial/space stations providing functions such as, ***inter alia*, voice/data communications, navigation, surveillance and TT&C;**2 to study appropriate **modification, if any, to the Radio Regulations,** excluding any new allocations or changes to the existing allocations in Article **5**, to accommodate stations on board sub-orbital vehicles, whilst avoiding any impact on conventional space launch systems with the following objectives:– to determine the status of stations on sub-orbital vehicles, and study corresponding regulatory provisions to determine which existing radiocommunication services can be used by stations on sub-orbital vehicles, if necessary;– to determine the technical and regulatory conditions to allow some stations on board sub-orbital vehicles to operate under the aeronautical regulation and to be considered as earth stations or terrestrial stations even if a part of the flight occurs in space;– to facilitate radiocommunications that support aviation to safely integrate sub-orbital vehicles into the airspace and be interoperable with international civil aviation;– to define the relevant technical characteristics and protection criteria relevant for the studies to be undertaken in accordance with the bullet point below;– to conduct sharing and compatibility studies with incumbent services that are allocated on a primary basis in the same and adjacent frequency bands in order to avoid harmful interference to other radiocommunication services and to existing applications of the same service in which stations on board sub-orbital vehicles operate, having regard to the sub-orbital flight application scenarios.3 to identify, as a result of the studies above, whether there is a need for access to additional spectrum that should be addressed after WRC-23 by a future competent conference.The [Report ITU-R M.2477-0](https://www.itu.int/pub/R-REP-M.2477-2019), provides information on the current understanding of radio communications for SoVs use, including a description of the flight trajectory, categories of suborbital vehicles, technical studies related to possible avionics systems used by suborbital vehicles, and service allocations of those systems.***What are sub-orbital vehicles (SoV)?**** + A vehicle executing suborbital flight

**What is a sub-orbital flight?*** + The intentional flight of a vehicle expected to reach the upper atmosphere with a portion of its flight path that may occur in space without completing a full orbit around the Earth before returning to the surface of the Earth **(Report ITU-R M.2477-0(09/2019).**

Examples of the operational concepts of suborbital flightSub-orbital vehicles are being developed which are intended **to operate at higher altitudes than conventional aircraft, with a sub-orbital trajectory these sub-orbital vehicles are expected to perform various missions which include:*** + 1. **Space transportation** – cargo, passengers, tourism;
		2. **Scientific research** – space science, biological & physical research, environmental exploration, geoscience etc.;
		3. **Technology testing & demonstration** – promote maturity of space industry, test new technologies;
		4. **Deployment of launchers of satellites;**
		5. **Remote sensing** – collection of earth data;
		6. **Astronauts’ training** – experience of micro-gravity for astronauts training more representative than underwater.

The stations on board sub-orbital vehicles have a need for **voice/data communications, navigation, surveillance and telemetry, tracking and command (TT&C).** In this regard there is a need to ensure that equipment installed on such vehicles can communicate with air traffic management systems and relevant ground control facilities.***Why do we want to facilitate radiocommunications for sub orbital vehicles?**** + **Current situation:**
		1. **Aviation & Satellite systems:** SoV’s can travel intercontinentally within a short period, at higher altitudes & faster speed – this may cause technical & operational issues to current aviation and satellite systems;
		2. There is a **potential for collision between SoV’s and aircrafts which is currently mitigated on a case by case** by airspace authorities;
		3. Some of **the frequency ranges** used currently include aeronautical allocations used by **ATC systems** and thus are considered safety-of-life;

SoV must integrate safely into the same airspace as conventional aircraft during their transition to and from space. |
| ***Part C: Current Status of Band*** |
| SoVs are expected to use several existing radio communication services with the existing coordination processes and procedures. These services include, but may not necessarily be limited to:1. AM(R)S: The aeronautical mobile (route) service, e.g. VHF voice and data communications and ADS-B, when permitted by ICAO SARPs.
2. RNSS: The GNSS systems using 1 164-1 215 MHz and 1 559-1 610 MHz can be used for navigation.
3. MSS: The mobile satellite service in the frequency bands 1 518-1 544 & 1 545 1 559 MHz (space-to-Earth), 1 610-1 626.5 MHz, and 1 626.5-1 645.5 & 1 646.5 1 660.5 MHz (Earth-to-space), and 1 668-1 675 MHz (Earth-to-space) can be used for safety and non-safety applications.
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| ***Part D: Conclusion of the results of studies, if any*** |
| In the **26th meeting of WP5B** which was held in May, 2021, based on the contributions (5B/292, 5B/332, 5B/339) received in this meeting, the drafting group prepared a merged document, the **Working Document Preliminary Draft New Report ITU-R M.[SUB-ORBITAL STUDIES] Regulatory, operational, and technical studies of radiocommunications for suborbital vehicles**. The structure and the analysis were agreed to be adjusted to reflect the current and future applications of suborbital vehicle based on the definition defined during the previous study cycle in Report [ITU‑R M.2477](https://www.itu.int/pub/R-REP-M/publications.aspx?lang=en&parent=R-REP-M.2477). The draft CPM text was not updated due to a lack of contributions and therefore the outcome from the previous WP 5B has been carried forward to the next meeting. However, the work plan was updated to reflect the current and expected progress of the activity.A liaison statement was sent to the contributing groups to inform them about the updated draft Report.This **new Report ITU-R M.[SURBORBITAL STUDIES]** report will be organized into five sections as outlining in Resolution **772 (WRC-19)** for agenda item 1.6 (WRC-23): The five sections there will be as itemized below: Section 1: IntroductionSection 2: Relevant ITU-R Recommendations and Reports.Section 3: To study spectrum needs for communications between stations on board sub‑orbital vehicles and terrestrial/space stations.Section 4: To study appropriate modification, if any, to the Radio Regulations, excluding any new allocations or changes to the existing allocations in Article **5,** to accommodate stations on-board sub-orbital vehicles.Section 5: Summary of studies. |
| ***Part E: Options and Associated Implications*** |
| TBD |
| ***Part F: Proposed East Africa Common View and/or Position*** |
| **EACO** Administrations are invited to:* **Support the proposed invites under Resolution 772.**
* **Support** the ongoing ITU-R studies to develop regulatory provisions to facilitate the operation of sub-orbital vehicles, while ensuring the protection of current civil aviation, space launch systems and radio astronomy.
* **Note** and **recall** that the scope of this agenda item excludes any new allocations or changes to the existing allocations in Article **5.**
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| ***Part G: Recommendations and Way Forward*** |
| EACO administrations to actively participate in WP 5B meetings. |

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| **Input Document to EACO WG Meeting** | **13/08/2021** |
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**Agenda Item 1.7**

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| ***Part A: Description*** |
| *to consider* ***a new aeronautical mobile-satellite (Route) service (AMS(R)S) allocation*** *in accordance with* ***Resolution 428 (WRC‑19)*** *for both the Earth-to-space and space-to-Earth directions of* ***aeronautical VHF communications in all or part of the frequency band 117.975-137 MHz,*** *while preventing any undue constraints on existing VHF systems operating in the AM(R)S, the ARNS, and in adjacent frequency bands;****Resolution 428 (WRC‑19)****Studies on* ***a possible new allocation to the aeronautical mobile satellite (R)*** *service within the frequency band* ***117.975‑137 MHz*** *in order to support* ***aeronautical VHF communications*** *in the Earth-to-space and space-to-Earth* |
| ***Part B: Key Elements – the notables*** |
| **Space-based VHF communication** is a concept in which **aircraft operating in remote regions** and **oceanic areas** provide **communications from the aircraft to air traffic control (ATC) via satellite.** This concept, when implemented, is expected to be a **parallel** and **complementary system** to **satellite reception of automatic dependent surveillance broadcast (ADS-B) data from the on-board aircraft navigation and position fixing systems, including aircraft identification, four-dimensional position (latitude, longitude, altitude and time) and additional data as appropriate.** The **ADS-B** technique is termed **“automatic”** because there is **no intervention from the pilot or interrogation from terrestrial stations,** and “dependent” **because the data is dependent upon on-board systems such as global positioning system and altimeter**.**Space-based VHF Communication Concept**In the **26th meeting of WP 5B which was held in May 2021,** three contributions were received proposing updates to the new ITU-R Report (**Working Document Preliminary Draft New Report ITU-R M.[SPACE-VHF]** **Space-based aeronautical VHF communications in 117.975-137 MHz frequency band)**,with some general background, technical analysis including **budget links with revised parameters and an annex on the scintillation effect.** The answers from ICAO on questions raised in a previous liaison statement by WP 5B were also taken into account. The WD towards a PDN Report ITU-R M.[SPACE-VHF] was agreed to be adjusted after review of the different proposals.Based on one contribution, several liaison statements were agreed to be sent respectively to inform the contribution groups and ICAO on the progress of the activity on this agenda item and to raise some technical questions as further details on scintillation for WP 3L.The draft CPM text was not updated due to a lack of contributions and therefore the outcome from the previous WP 5B is to be carried forward to the next meeting. |
| ***Part C: Current Status of Band*** |
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| Current use of the VHF frequency band 117.975-137 MHz Section IV – Table of Frequency Allocations

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|  Allocation to Services |
| Region 1 | Region 2 | Region 3 |
| 117.975-137 AERONAUTICAL MOBILE (R) 5.111 5.200 5.201 5.202 |

Current Use of the adjacent frequency band 117.975-137 MHzRadiocommunication services operating in the 108-117.975 MHz and 138‑143.6 MHz frequency bands based on the RR Table of Allocations: – Aeronautical radio navigation service – Aeronautical mobile (OR) service – Aeronautical mobile (R) service – Broadcasting service – Fixed service – Land mobile service – Meteorological satellite service – Mobile satellite service – Mobile service – Maritime mobile service – Radio location service – Space operation service– Space research serviceSection IV – Table of Frequency Allocations

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|  Allocation to Services |
| Region 1 | Region 2 | Region 3 |
| 108-117.975 MHz AERONAUTICAL RADIONAVIGATION 5.197 5.197A |
| 137.025-137.175 MHz SPACE OPERATION (space-to-Earth) 5.203C METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 5.204 5.205 5.206 5.207 5.208 |
| 137.175-137.825 MHz SPACE OPERATION (space-to-Earth) 5.203C 5.209A METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209  SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208 |
| 137.825-138 MHz SPACE OPERATION (space-to-Earth) 5.203C METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.209 5.204 5.205 5.206 5.207 5.208 |
| 138-143.6 MHzAERONAUTICAL MOBILE (OR) | 138-143.6FIXEDMOBILERADIOLOCATIONSpace research (space-to-Earth) | 138-143.6FIXEDMOBILESpace research (space-to-Earth)5.207 5.213 |
| 5.210 5.211 5.212 5.214 |

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| ***Part D: Conclusion of the results of studies, if any*** |
| **In the 26th meeting of WP 5B which was held in May 2021**, three contributions were received proposing updates to the Working Document towards a Preliminary Draft New Report [ITU-R M.[SPACE VHF]](https://www.itu.int/md/R19-WP5B-C-0355/en) Space-based aeronautical VHF communications in 117.975-137 MHz frequency band). This WD towards PDNR would provide technical and operational characteristics for the proposed AMS(R)S, and will include also all the compatibility and sharing studies that will be conducted in the ITU-R.The current status for the sharing and compatibility studies is as follows:* The in-band sharing study between AM(R)S and the new AMS(R)S, as indicated by ICAO that there is no need to perform compatibility studies between these two different services, which are technically similar and utilizing the same on-board avionics system (for ATC VHF communications). Although, the ICAO have indicated that they can manage any potential interference between both systems through conventional frequency planning exercises.
* The adjacent compatibility study between systems operating under ARNS and AMS(R)S at the frequency band 108 - 117.975 MHz, the ICAO has outlined that there is no need to perform any compatibility and sharing studies between both AMS(R)S and ARNS, as the ICAO could manage the frequency planning and coordination between both services to ensure compatibility between them.
* The adjacent compatibility with non-ICAO services, should be conducted with respect to the Space – Earth direction only, as the currently operating AM(R)S earth stations (ES) are transmitting at the same direction as the ES of AMS(R)S.
* The adjacent compatibility between AMS(R)S (S-E) and the MSS (S-E) at the frequency bands 137-137.025 MHz and 137.175-137.825 MHz is still under development. Meanwhile, the preliminary assumptions provide that in order to ensure the protection of systems operating under MSS, the unwanted emission level above 137 MHz would need to be attenuated by 45dB compared to the maximum in-band level from the operating AMS(R)S systems below 137 MHz.

These studies could be summarized in the table below:

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| **New Service/ Proposed Allocation** | **Incumbent Service/ Allocated Freq Band** | **Nature of Studies** | **Results** |
|  AMS(R)S(117.975MH –137MHz) |   AM(R)S(117.975MH –137MHz) | In-band sharing | Even though AM(R)S and AMS(R)S would represent two different ITU-R services within the frequency band 117.975-137 MHz, the same on-board cockpit avionics system (for ATC VHF communications) would be used for ground and satellite communications. Therefore it will not be necessary to perform a comprehensive compatibility study between the two services |
|   AMS(R)S(117.975MH –137MHz) |  ARNS(Below 117.975MHz) |  Adjacent, compatibility study |  Similarly (as in the line above), ICAO has outlined that there is also no need to perform a comprehensive compatibility study within ITU-R between the AMS(R)S and ARNS |
|   AMS(R)S(117.975MH –137MHz) |  MSS(137 – 138MHz) |  Adjacent, compatibility study | Condition 1: In order to ensure protection of MSS, the unwanted emission level above 137 MHz of an AMS(R)S system operating below 137 MHz would have to be attenuated by 45 dB compared to its maximum in-band level.Other aspects: Yet to be concluded |
|   AMS(R)S(117.975MH –137MHz) |  SOS(137 – 138MHz) |  Adjacent, compatibility study |  Studies still on-going |
|   AMS(R)S(117.975MH –137MHz) |  SRS(137 – 138MHz) |  Adjacent, compatibility study |  Studies still on-going |
|  AMS(R)S(117.975MH –137MHz) |  MetSat(137 – 138MHz) |  Adjacent, compatibility study |  Studies still on-going |
| AMS(R)S(117.975MH –137MHz) | Radioastronomy (150.05 - 153MHz) |  Adjacent, compatibility study |  Studies still on-going |

Several liaison statements were agreed to be sent respectively to inform the contribution groups and ICAO on the progress of the activity on this agenda item and to raise some technical questions as further details on scintillation for WP 3L.The draft CPM text was not updated due to a lack of contributions and therefore the outcome from the previous WP 5B is to be carried forward to the next meeting. |
| ***Part E: Options and Associated Implications*** |
| TBD |
| ***Part F: Proposed East Africa Common View and/or Position*** |
| EACO administrations are invited to support the ITU-R ongoing technical studies and regulatory procedures in order to improve/enhance the aeronautical communications in oceanic and remote areas, while ensuring the protection of the existing radio communication services, without imposing any operational constraints on existing VHF aeronautical systems or other services operating at the adjacent frequency bands. |
| ***Part G: Recommendations and Way Forward*** |
| The EAC administrations to actively participate in WP5B meetings |

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| **Input Document to EACO WG Meeting** | **13/08/2021** |
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**Agenda Item 1.8**

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| ***Part A: Description*** |
| *to consider, on the basis of ITU‑R studies in accordance with* ***Resolution 171 (WRC‑19),*** *appropriate regulatory actions, with a view to reviewing and, if necessary, revising Resolution* ***155 (Rev.WRC‑19)*** *and No.****5.484B*** *to accommodate the* ***use of fixed-satellite service (FSS) networks by control and non-payload communications of unmanned aircraft systems;*****Resolution 171 (WRC‑19)**Review and possible revision of Resolution 155 (Rev.WRC‑19) and No. 5.484B in the frequency bands to which they apply.***Resolution 155 (Rev.WRC-19)***Regulatory provisions related to earth stations on board unmanned aircraft which operate with geostationary-satellite networks in the fixed-satellite service in certain frequency bands not subject to a Plan of Appendices 30,30A and 30B for the control and non-payload communications of unmanned aircraft systems in non-segregated airspaces. This Resolution **155** (Rev.WRC-19) resolves that assignments to stations of geostationary FSS satellite networks operating in the frequency bands 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space to-Earth), 11.7 12.2 GHz (space-to-Earth) in Region 2, 12.2-12.5 GHz (space-to-Earth) in Region 3, 12.5 12.75 GHz (space-to-Earth) in Regions 1 and 3 and 19.7-20.2 GHz (space-to-Earth), and in the frequency bands 14-14.47 GHz (Earth-to-space) and 29.5-30.0 GHz (Earth-to-space), may be used for unmanned aircraft system (UAS) control and non-payload communication (CNPC) Links in non-segregated airspace, provided that the conditions specified in resolves are met. |
| ***Part B: Key Elements – the notables*** |
| 1. The ongoing studies should consider within its mandates the following topics:
	1. *Define the characteristics and parameter values of UAS CNPC link/Earth*
	2. *Sharing studies with space and terrestrial services*
	3. *Procedural consideration of implementing Resolution 155.*
2. Work progress is still at its early stages with a focus on the first topic. Such topic should be handled firstly according to Resolution 155 (Rev.WRC-19) *Resolves* 19 that states: *that ITU Radiocommunication Sector (ITU‑R) studies on technical, operational and regulatory aspects in relation to the implementation of this resolution shall be completed, together with the adoption of relevant ITU‑R Recommendations defining the technical characteristics of CNPC Links and conditions of sharing with other services.*
3. A study is required to focus on the technical, operational and regulatory aspects in relation to the implementation of Resolution 155 (Rev. WRC-19) taking into account the progress obtained by ICAO in the completion of SARPs on the use of FSS for the UAS CNPC links.
4. Reviewing No. 5.484B and Resolution 155 (Rev. WRC-19) taking into account the results of the above studies.
5. Work on the use of the FSS by Unmanned Aircraft Systems (UAS) **has been ongoing since WRC-15 agenda item 1.5.**
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| ***Part C: Current Status of Band*** |
| * *The operation of unmanned aircraft systems (UAS) requires reliable control and non payload communication (CNPC) links, in particular to relay air traffic control communications and for the remote pilot to control the flight, and that satellite networks may be used to provide these CNPC links beyond line-of-sight.*
* *UAS CNPC links relate to the safe operation of UAS and have to comply with certain technical and regulatory requirements, and will operate in accordance with international Standards and Recommended Practices (SARPs) and procedures established in accordance with the Convention on International Civil Aviation.*
* *The International Civil Aviation Organization (ICAO) is developing SARPs to ensure the technical aspects of using fixed-satellite service (FSS) satellites to support safe and reliable UAS CNPC links.*
* *Conclusion is required on the feasibility of use of the FSS frequency bands* *identified by Resolution 155 (Rev.WRC-19) to support the safe implementation of UAS CNPC links in non-segregated airspace.*
* The frequency bands under consideration include

 **12.5 – 12.75 GHz** (space-to-Earth)**14.0 – 14.47 GHz** (Earth-to-space)**19.7-20.2 GHz** (space-to-Earth) **29.5 – 30.0 GHz** (Earth-to-space)UAS CNPC linksFigure 1Elements of UAS architecture using the FSS |
| ***Part D: Conclusion of the results of studies, if any*** |
| The following studies ITU-R M.[UAS CNPC\_SHAR] need to be addressed for implementation of Resolution **155 (Rev.WRC‑19)**.Sharing studies with space servicesSharing studies with the Fixed-Satellite ServiceGSO FSS networks* **Non-GSO FSS systems**

Non-geostationary-satellite systems in the fixed-satellite service in the respective frequency bands are secondary (see and Article **22.2** footnote **5.484A**).Sharing studies with the other space servicesSharing studies with the Broadcasting-Satellite Service (space-to-Earth)Broadcasting-Satellite Service is allocated primary in 12.5-12.75 GHz in Region 3.Sharing studies with the Mobile-Satellite ServiceMobile-Satellite Service is allocated primary in 19.7-20.1 GHz and 29.5-29.9 GHz in Region 2 and in 20.1-20.2 GHz and 29.9-30 GHz for all regions.Sharing studies with terrestrial servicesSharing studies with the Fixed Service Fixed Service is allocated primary in 10.95-11.2 GHz and 11.45-11.7 GHz in all regions, in 11.7‑12.1 GHz in Region 2, 12.2-12.75 GHz in Region 3, 14-14.3 GHz in some countries, 14.3‑14.4 GHz in Regions 1 and 3, and in 14.4-14.47 GHz in all regions.This work is being documented in the Report, **Review of power flux-density limits in accordance with *resolves* 16 of Resolution 155 (WRC-15)**, [UA\_PFD], 5B/712, Annex 7.Sharing studies with the Mobile ServiceMobile Service is allocated primary in 10.95-11.2 GHz and 11.45-11.7 GHz in all regions, 12.2-12.75 GHz in Region 3, 14.3-14.4 GHz in Region 1 and 3, and in 14.4-14.47 GHz in all regions. Sharing studies with the Radionavigation ServicesRadionavigation Service is allocated primary in 14.0-14.3 GHz band.**In the 26th meeting of WP 5B which was held in November 2021;** * Discussions continued on the principles for UAS CNPC operation and on defining the characteristics and parameter values of UAS CNPC link/Earth. Some progress was made but still not sufficient with respect to the development of draft CPM text. Therefore, the meeting established a correspondence group to work between May 2021 and November 2021 meetings of WP 5B in an attempt to boost the work progress.
* Little progress has been made but not sufficient to allow the group to be in a comfortable position with respect to the development of draft CPM text.
* Developed a Work Plan for the agenda item, progress a supporting document and agree terms of reference for a correspondence group on WRC‑23 AI 1.8 that should help progress the work prior to the next meeting.
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| ***Part E: Options and Associated Implications*** |
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| ***Part F: Proposed East Africa Common View and/or Position*** |
|  EACO Administrations are invited to **support** the review and possible revision of Resolution 155 (Rev.WRC 19) and No. 5.484B in the frequency bands to which they apply. Specifically, support the application of safety of life standards with UAS CNPC links and ensure that the requirements of ICAO with respect to UAS CNPC links operations are considered, as well as ensure the protection of the current systems operating in terrestrial and space services without imposing any undue constraints on it. |
| ***Part G: Recommendations and Way Forward*** |
| EAC administrations to actively participate in WP 5B meetings and in the correspondence group as outlined above. |

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| **Input Document to EACO WG Meeting** | **13/08/2021** |
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**Agenda Item 1.9**

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| ***Part A: Description*** |
| *to review Appendix****27*** *of the Radio Regulations and consider appropriate regulatory actions and updates based on ITU‑R studies, in order to accommodate digital technologies for commercial aviation safety-of-life applications in existing HF bands allocated to the aeronautical mobile (route) service and ensure coexistence of current HF systems alongside modernized HF systems, in accordance with* ***Resolution 429 (WRC‑19);)******Resolution 429 (WRC‑19)****Consideration of regulatory provisions for* ***updating Appendix 27*** *of the Radio Regulations in* ***support of aeronautical HF modernization***Resolution 429 (WRC-19), in the resolves to invite section, invites the ITU-R to conduct and complete in time for WRC-23 the following: * to identify any necessary modifications to Appendix 27 for the aeronautical mobile (route) service between 2 850 and 22 000 kHz noting recognizing c);
* to identify any necessary transition arrangements for the introduction of new digital aeronautical wideband HF systems and any consequential changes to Appendix 27;
* to recommend how new digital aeronautical wideband HF systems can be introduced while ensuring compliance with safety requirements and recognizing e);
* to define the relevant technical characteristics and to conduct any necessary sharing and compatibility studies, taking account noting e), with incumbent services that are allocated on a primary basis in the same or adjacent frequency bands to avoid harmful interference in accordance with recognizing e);
 |
| ***Part B: Key Elements – the notables*** |
| * Appendix 27 include all the provisions governing the use of the frequencies and frequency bands allocated to the AM(R)S in the frequency bands between 2850 to 22000 kHz. These frequency bands are used by AM(R)S systems for both the transmission and the reception, and it is organized with a 3 kHz channel allotment.
* The current HF voice systems suffer from noise and propagation effects that require skilled and knowledgeable radio operators on the ground to provide reliable HF communications. In addition to, the existing HFDL does not have the throughput required to sufficiently satisfy the communication needs.
* HF communication equipage is required by all commercial aircraft requesting oceanic clearance. The new modernized HF communication systems are supposed to enhance the aviation safety of life applications and provide the following benefits to aircraft operators:
	+ Improve the quality and capacity of existing HF systems
	+ Ability to meet RCP 240 requirements
	+ Avionics size, weight, and power reduction
	+ Ease of use
	+ User authentication
* HF radio systems provide long communication ranges for aeronautical systems to support safe, efficient air travel over long-range routes that exceed the communication range provided through ground-based VHF systems. In addition to, regulatory authorities have recognized the use of satellite systems in long-range communications provides diversity and increase the availability and reliability of communications.
* Introduction of new wideband HF systems is supposed to complement existing long-range aeronautical communications links such as L-Band SATCOM. As, HF and SATCOM have different environmental susceptibilities and failure modes (e.g., solar events, rain fade, jamming, satellite failures, ground station failures, etc.) thus, HF will provide a spectrally diverse, terrestrial based long-range communications path supporting high availability aeronautical systems through dissimilar redundancy and increase the useful bandwidth available for aircraft communications.
* The New wideband HF systems will bring the listed benefits to the aviation industry in numerous areas but first and foremost would be Major Air Routes, Polar routes and remote land masses with poor VHF infrastructure.
* Modification of RR Appendix 27 will allow spectrally efficient advanced waveforms, which were not previously considered for use in 3 kHz channel allotments for legacy HF voice and High Frequency Data Link (HFDL). This will allow digital voice for significantly reduced noise and improved clarity, as well as 100+ kbps data rates.
* The use of digital wideband HF radio technologies is the expected major modernization for the aeronautical applications operated in these frequency bands.
* The new modernized HF communication systems should coexist with the existing analog voice and data communication systems. In addition to, ensuring the compatibility with adjacent band primary services.

**The Working Party 5B meeting, held in May 2021;*** Based on the contributions which proposed updates to the new WD towards a PDN Report ITU-R M.[AERO-WIDEBAND-VHF] was agreed to be updated with some updates on the technical characteristics of the aeronautical HF modernization by channel aggregation (contiguous or non-contiguous) and on the background.
* Developed a liaison statement(s) to WP 6A for the purpose of keeping them informed of the progress of the work.
* Additionally, to the WD towards a PD new Report ITU-R M.[AERO-WIDEBAND-VHF], the draft CPM Text and work plan were adjusted based on the contributions.
 |
| ***Part C: Current Status of Band*** |
| * RR Appendix 27, details the international and regional frequency allotment plans for HF channels operating under the AM(R)S exclusive allocations in frequency bands between 2850 to 22000 kHz, and the related provisions governing the use of these frequencies and frequency bands. Moreover, the band is organized with a 3 kHz channel allotment, and contains a total of 427 channels of 3 kHz (435 for region 2) over all frequency bands.
* The table below include the incumbent primary services allocations in the frequency band from 2850 to 22000 kHz.

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| **RR Article 5 radio communication services allocated** |
| Aeronautical Mobile (R) | AMATEUR |
| Aeronautical Mobile (OR) | Land Mobile  |
| FIXED | MARITIME MOBILE |
| MOBILE | STANDARD FREQUENCY AND TIME SIGNAL |
| BROADCASTING | AMATEUR-SATELLITE |
| RADIO ASTRONOMY | - |

 |
| ***Part D: Conclusion of the results of studies, if any*** |
| The working document towards preliminary draft new report [ITU-R M.[AERO-WIDEBAND-HF]](https://www.itu.int/md/R19-WP5B-C-0355/en), presents all the elements and technical characteristics for wideband HF (WBHF) systems. As well as, it will include all the conducted compatibility and sharing studies related to Agenda Item 1.9.**A Brief overview on the latest updates within the report:*** WP5B is pending administrations who which to submit any technical and operational characteristics of their existing systems, until WP5B’s next meeting at November 2021. In order to start conducting the sharing and compatibility studies.
* The report provide an overview on the new wideband HF system, including the proposed system technical characteristics and spectral emission masks.
* The proposal added to the regulatory section indicated that the WBHF signal will comply with the HFDL spectral mask expressed in peak envelope power defined in Recommendation ITU-R M.1458-0. As a result, the power spectral density profile for the WBHF signal should not exceed the current HFDL signal. Which ensure the compatibility and interoperability with existing HF voice and HFDL users on adjacent channels, as well as with incumbent services in the adjacent bands.
 |
| ***Part E: Options and Associated Implications*** |
| * The protection of existing primary services operating at the same and adjacent frequency bands shall be ensured.
* The frequency implementation should be coordinated with ICAO and its regional groups for HF assignments in Flight Information Regions (FIRs). In addition to, the WBHF systems should operate in accordance with the international Standards and Recommended Practices and procedures established by ICAO.
* To use digital HF aeronautical spectrum which would increase the data rates to reach required performance by modern aeronautical systems.
 |
| ***Part F: Proposed East Africa Common View and/or Position*** |
| EAC administrations are invited to support the ITU-R technical and regulatory studies to identify the necessary modifications to RR appendix 27, in order to accommodate digital technologies that are supposed to improve the HF communication systems and enhance aviation safety-of-life applications. * The new proposed HF systems should coexist with the existing analog voice and data communication systems and operate in accordance with the ICAO international Standards and Recommended Practices and procedures.
* Protection of in band and adjacent band services shall be ensured.
 |
| ***Part G: Recommendations and Way Forward*** |
| * Continue follow up and participation in the development of ITU-R Report [Aero-Wideband-HF-Studies] and assist in the sharing and compatibility studies that will be conducted, as well as regulatory considerations.
* To update the position of EAC based on the developments of this Agenda Item
 |
| ***Part H: Other Regional Groups and International Organizations Preliminary Positions*** |
|  1. ASMG – March 2021:

Support the efficient use of the radiofrequency spectrum resources through introducing digital technologies for safety applications in the HF bands allocated to the aeronautical mobile route service, provided that coexistence with current analogue system is ensured.1. CEPT - May 2021:

Supports the modification of the Appendix **27** of RR that would allow new digital wideband HF systems including aggregating contiguous and/or not contiguous channels, if retained, ensuring:* the protection of other primary services operating in band and in adjacent frequency bands and
* coexistence with existing aeronautical analogue voice and data HF systems.
1. CITEL – May 2021:

An Administration supports studies called for by Resolution 429 (WRC-19) to accommodate new digital HF technologies.1. RCC – April 2021:

The RCC Administrations do not oppose modifications to RR Appendix 27, aimed at the use of digital technologies for commercial aviation AM(R)S safety-of-life applications in existing HF bands allocated to the aeronautical mobile (route) service when ensuring coexistence of current HF systems alongside modernized HF systems.1. APT – April 2021:

Support studies with a view to identify any necessary modifications to RR. Appendix 27 to accommodate wideband HF technologies for the aeronautical mobile (route) service (AM(R)S) between 2 850 and 22 000 kHz in accordance with Resolution **429 (WRC-19)** with theneed to avoid harmful interference to Primary services in the same band and adjacent bands in particular existing AM(R)S HF systems.* APT Members recognise that there are differing Wideband HF technologies and are of the view that changes to RR. Appendix 27 should allow new digital wideband HF systems taking into account technology neutrality.
1. ICAO – December 2020:

Support, based on agreed studies, the necessary modification of Appendix 27 to the Radio Regulations that will enable the introduction of HF wideband aeronautical communication systems. Those systems shall be operated in accordance with international Standards and Recommended Practices and procedures established in accordance with the Convention on International Civil Aviation. |

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| **Input Document to EACO WG Meeting** | **13/08/2021** |
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| **“contributing body/ organization/ rapporteur”** |

**Agenda Item 1.10**

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| ***Part A: Description*** |
| *to conduct studies on spectrum needs, coexistence with radiocommunication services and regulatory measures for* ***possible new allocations for the aeronautical mobile service for the use of non-safety aeronautical mobile application****s, in accordance with* ***Resolution 430 (WRC‑19);*****Resolution 430 (WRC‑19)**Studies on frequency-related matters, including **possible additional allocations,** for the possible introduction of **new non-safety aeronautical mobile applications** |
| ***Part B: Key Elements – the notables*** |
| Resolution **430 (WRC-19)** in its *resolves to invite the ITU Radiocommunication Sector*, invites the ITU-R to conduct, and complete in time for WRC-23: 1 studies on **spectrum needs** for new non-safety aeronautical mobile applications for air-air, ground-air and air-ground communications of aircraft systems2 **sharing and compatibility studies** in the frequency band **22-22.21 GHz,** already allocated on a primary basis to the mobile, except aeronautical mobile, service, in order to evaluate the possible revision or deletion of the “except aeronautical mobile” restriction while ensuring the protection of primary services in the considered frequency bands and, as appropriate, in adjacent frequency bands;3 **sharing and compatibility studies** on possible new primary allocations to the aeronautical mobile service for non-safety aeronautical applications in the frequency band **15.4-15.7 GHz,** while ensuring the protection of primary services in the considered frequency bands and, as appropriate, adjacent frequency bands; **The Working Party 5B meeting, held in May 2021 managed to;*** Revise the new WD towards a PDN Report ITU-R M.[NON-SAFETY AMS CHARACTERISTICS AND SHARING STUDIES] with updated parameters for the AMS non-safety, possible scenarios and preliminary sharing studies with fixed service.
* Send a liaison statement to the Working Parties 3K and 3M (copy for information to Working Parties 4A, 5A, 5C, 7C and 7D) for the purpose of providing answers to the questions raised by these contributing groups.
* The draft CPM text and associated work plan were not updated due to a lack of contributions and therefore the outcome from the previous WP 5B is to be carried forward to the next meeting.
 |
| ***Part C: Current Status of Band*** |
| TABLE 1Relevant ITU-R documents containing system characteristics of incumbent services in the frequencyband 15.4-15.7 GHz and 22-22.21 GHz and adjacent frequency bands

| Frequency band (MHz) | Service | Relevant ITU-R documents |
| --- | --- | --- |
| 15.35-15.4 | EARTH EXPLORATION-SATELLITE (passive) |  Recommendation ITU-R RS.1813-1Recommendation ITU-R RS.1028Recommendation ITU-R RS.1029 |
| RADIO ASTRONOMY | Recommendation ITU-R RA.769-2Recommendation ITU-R S.1341-0Recommendation ITU-R SA.509-3Report ITU-R M.2170 |
| SPACE RESEARCH (passive) |  Recommendation ITU-R SA.509-3 Recommendation ITU-R SA.510-2 |
| 15.4-15.43 | RADIOLOCATION | Recommendation ITU-R M.1730-1Report ITU-R M.2170Report ITU-R M.2229Report ITU-R M.2230 |
| AERONAUTICAL RADIONAVIGATION | Recommendation ITU-R S.1340-0Recommendation ITU-R S.1341-0Report ITU-R M.2170Report ITU-R M.2229Report ITU-R M.2230 |
| 15.43-15.63 | FIXED-SATELLITE (Earth-to-space)  |  ITU-R S.1328-3Report ITU-R M.2170Report ITU-R M.2230 |
| RADIOLOCATION | Recommendation ITU-R M.1730-1Report ITU-R M.2229Report ITU-R M.2230 |
| AERONAUTICAL RADIONAVIGATION | Recommendation ITU-R S.1340-0Recommendation ITU-R S.1341-0Report ITU-R M.2229Report ITU-R M.2230 |
| 15.63-15.7 | RADIOLOCATION | Recommendation ITU-R M.1730-1Report ITU-R M.2230 |
| AERONAUTICAL RADIONAVIGATION | Recommendation ITU-R S.1340-0Recommendation ITU-R S.1341-0Report ITU-R M.2230 |
| 22-22.21  | FIXED |  |
| MOBILE except aeronautical mobile |  |
| 22.21-22.5 | EARTH EXPLORATION-SATELLITE (passive) | Recommendation ITU-R RS.1813-1Recommendation ITU-R RS.1028Recommendation ITU-R RS.1029 |
| FIXED |  |
| MOBILE except aeronautical mobile |  |
| RADIO ASTRONOMY | Recommendation ITU-R RA.769-2Recommendation ITU-R SA.509-3Recommendation ITU-R SM.1633 |
| SPACE RESEARCH (passive) | Recommendation ITU-R SA.509-3 |

 |
| ***Part D: Conclusion of the results of studies, if any*** |
| * Studies are still at an early stage
* ITU Working Party 5B-2 to study as per the ITU resolution 430 (WR19):
	1. The characteristics of Aeronautical Mobile Services and
	2. Protection criteria for the Aeronautical Mobile Services.
	3. Propagation models to be used for sharing and compatibility studies with the non-safety AMS

| Frequency band | Incumbent service | Propagation model |
| --- | --- | --- |
| 15,4 -15,7 GHz | ARNS | Rec. ITU-R P.528-5a |
| Radiolocation |
| FSS (Earth-to-space) | Rec. ITU-R P.619-7 |
| EESS (passive) |
| SRS (passive) |
| **22 – 22,21 GHz** | FS | TBDc |
| LMS |
| Radioastronomy |
| EESS (passive) | Rec. ITU-R P.619-7 |

 |
| ***Part E: Options and Associated Implications*** |
| * Study **technical characteristics** of the aeronautical mobile service systems in the frequency range 15.4-15.7 GHz
* Study **Spectrum Emission Mask** of AMS Systems in the frequency band **15.4-15.7 GHz**
1. Recommendation ITU-R S.1340.
2. Report ITU-R M.2170.
* Study **technical and operational characteristics** of the non-safety AMS systems in the frequency band **22-22.21 GHz**
* Study **parameters** of typical fixed service systems in the frequency band **22 -22.1 GHz** (Recommendation ITU-R F.758)

Protection criteria for Radio Astronomy services (Recommendation ITU-R RA.769) |
| ***Part F: Proposed East Africa Common View and/or Position*** |
| EAC Administrations are invited to support the ITU-R studies (Working Party 5B) to ensure the protection of incumbent services as well as the adjacent services, such as defining unwanted emission limits and appropriate protection measures for station of aeronautical mobile service in the frequency bands **15.35-15.4 GHz and 22.21-22.5 GHz** to protect EESS (passive) and radio astronomy service. |
| ***Part G: Recommendations and Way Forward*** |
| EAC administrations are invited to participate in WP 5B meetings in order to among other things to determine the sharing and compatibility of the identified frequency bands. |
| ***Part H: Other Regional Groups and International Organizations Preliminary Positions*** |
| 1. **ASMG** – March 2021:

Follow ITU-R studies to insure the protection of existing in-band services in the adjacent band services.1. **CEPT** - May 2021:

CEPT foresees the need for additional spectrum to fulfil the increasing demand for non‐safety aeronautical applications and is considering a new allocation to AMS for non-safety application in whole range or a part of the frequency bands **15.4‐15.7 GHz** and **22‐22.21 GHz** while:* Any modification of the RR should ensure appropriate protection for the EESS/SRS (passive) and the RAS (taking into account RR No. 5.149) allocated in adjacent frequency band from unwanted emissions of the AMS;
* Ensuring protection for in‐band radiolocation and aeronautical radio-navigation and FSS (Earth‐to‐space) services in the relevant part of the frequency band **15.4 – 15. 7 GHz;**
* Ensuring protection for in‐band fixed and mobile services in the frequency band **22‐22.21 GHz**, noting that the fixed service is allocated in the 21.2‐23.6 GHz frequency range.
1. **RCC** – April 2021:

The RCC Administrations consider that, when identifying possible new allocations to aeronautical mobile service in the frequency band 15.4 – 15.7 GHz as well as when removing constraints on the use of the frequency band **22 – 22.21 GHz** by aeronautical mobile service, it is necessary to:* provide protection of radiolocation and aeronautical radio-navigation services in the frequency band **15.4-15.7 GHz,** of fixed satellite service in the frequency band 15.43-15.63 GHz, and of fixed service in the frequency band **22-22.21 GHz;**
* provide protection of EESS (passive) and radio astronomy service in the frequency band

15.35-15.4 GHz and identify unwanted emissions’ limits of aeronautical mobile service in these frequency bands.1. **APT** – April 2021:
* Support APT Members support ongoing ITU-R studies on spectrum needs, coexistence with radiocommunication services and regulatory measures for possible new allocations for the aeronautical mobile service for the use of non-safety aeronautical mobile applications, in accordance with Resolution **430 (WRC-19);**
* APT Members are of the view that the protection of existing primary services in the

**15.4-15.7 GHz** and **22-22.21 GHz** frequency bands and, as appropriate, in adjacent frequency bands should be ensured.1. **ICAO** – December 2020:

Support ITU-R studies as called for by Resolution 430 (WRC-19) to ensure aviation needs are satisfied |

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| **Input Document to EACO WG Meeting** | **13/08/2021** |
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| **“contributing body/ organization/ rapporteur”** |

**Agenda Item 1.11**

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| ***Part A: Description*** |
| *to consider possible regulatory actions to support the modernization of the Global Maritime Distress and Safety System and the implementation of e‑navigation, in accordance with* ***Resolution 361*** ***Resolution 361 (Rev.WRC‑19)****Consideration* ***of possible regulatory actions*** *to support the modernization of the Global Maritime Distress and Safety System and the* ***implementation of e‑navigation*** |
| ***Part B: Key Elements – the notables*** |
| 1. **GMDSS modernization** is the continuation of the agenda item 1.8, Issue A of WRC-19. The modernization of GMDSS, for which the work undertaken by IMO was not finalized at the time of WRC-19. WRC-19 was able to take some preliminary decision regarding the **NAVDAT** in the **MF and HF bands.**
2. The adoption of the amendments to the 1974 SOLAS Convention chapters III and IV, together with related and consequential amendments to existing instruments other than SOLAS is expected to be finalised in 2022. These amendments will enter into force in 2024 and conclude the modernization of the GMDSS.
3. This Agenda have three issues for consideration:-
	1. **Issue A: GMDSS Modernization**
	2. **Issue B: E-navigation**
	3. **Issue C: Introduction of addition satellite system into GMDSS**

**Issue A: GMDSS Modernization*** In the GMDSS modernization under consideration by the International Maritime Organization (IMO), **MF and HF band radio communication systems will continue to be used.** However, it is difficult to select an appropriate frequency in consideration of communication distance, season, time, geographical location, etc. in MF/HF frequency bands, because no radio communication specialist has been on board since the introduction of GMDSS. **Therefore, it is required to introduce an automatic connection system (ACS) by automatically selecting a frequency.**
* GMDSS uses the **digital selective-calling (DSC) system,** which automatically transmits distress alert in each frequency band (2, 4, 6, 8, 12 and 16 MHz bands) in sequence.
* For the **introduction of ACS to the MF/HF frequency bands** in the marine mobile service, **it is appropriate to use the DSC system that has already been used.**
* Therefore, draft IMO performance standard stipulates that the MF/HF equipment should comprise a facility to establish a connection between stations of the maritime mobile service by simple means using DSC.

Automatic connection system function on MF/HF**Automatic connection system (ACS)** enables to establish a communication link between ship station and ship/coast station by automatically selecting a frequency.**DSC equipment should be provided visual indication that automatic frequency switching by ACS function is enabled.****Issue B: E-navigation**The e-navigation is a concept under study at IMO since the MSC 81 in 2005. The definition of e‑navigation is given by IMO: “E-navigation is the harmonized collection, integration, exchange, presentation and analysis of marine information on board and ashore by electronic means to enhance berth to berth navigation and related services for safety and security at sea and protection of the marine environment.”**Issue C: Introduction of additional satellite systems into the GMDSS***Resolves to invite the 2023 World Radiocommunication Conference 3 of Resolution 361 (Rev.WRC-19) “to consider regulatory provisions, if any, based on the results of ITU-R studies referred to in invites the ITU Radiocommunication Sector below, to support the introduction of additional satellite systems into the GMDSS,”.* |
| ***Part C: Current Status of Band or Issue*** |
| 1. Regarding issue 3: Introduction of additional satellite systems into the GMDSS, there is one additional GSOs MSS system being considered by the IMO for recognition to provide GMDSS uses MSS frequencies in the frequency bands 1 610-1 626.5 MHz and 2 483.5-2 500 MHz.
2. The frequency bands under study is already primary allocations for MSS. For this reason, no new allocation is necessary by WRC-23 in order to accommodate the GMDSS. Meanwhile, what is needed during this study period is to determine the quantity of spectrum, among the frequency bands under consideration.

**The Working Party 5B meeting, held in May 2021;**1. Considered one contribution with the proposals to update the draft CPM text. It was agreed to consider three topics to meet the requirement of global maritime distress and safety system (GMDSS) modernization, which are **removal of narrow band direct printing (NBDP) from the GMDSS, introduction of an automatic connection system for MF and selected HF bands** and **implement AIS-SART as homing equipment for survival craft station to replace RADAR-SART.**
2. A liaison statement was prepared to invite **International Maritime Group (IMO)** to **make comments on these proposals above** on GMDSS modernization and to provide information on desired radiocommunication systems to support e-Navigation. The meeting was informed that next meeting of IMO sub-committee on Navigation, Communications and Search and Rescue (NCSR) may be organized in the first quarter of 2022, therefore 5B will not receive formal response from IMO in November WP 5B meeting this year.
3. A liaison statement was developed to WP 4C and WP 7D to inform the work progress in WP 5B.
4. Send a reply Liason Statement to International Association of Marine Aids to Navigation and Lighthouse Authorities and Comitté International Radio-Maritime on the revision of Recommendation ITU-R M.1371-5.
5. Liason Statements were received from:
* ITU WPs 7D raising the issue that the introduction of additional satellite systems into the Global Maritime Distress Safety System (GMDSS) should consider protection ***of the radio astronomy service using the band 1 610.6-1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services***
* ITU WPs 4C requesting for the clarification on the *resolves* 3 in order to address discrepancies identified between the title of this agenda item and the operative part of Resolution **361 (Rev.WRC-19)**.

**Revision of ITU-R Maritime related Recommendations**. These recommendations include:1. **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.
2. **Recommendation ITU-R M.2058-0** Characteristics of a digital system, named navigational data for broadcasting maritime safety and security related information from shore-to-ship in the maritime HF frequency band.
3. **Recommendation ITU-R M.2092-0** Technical characteristics for a VHF data exchange system in the VHF maritime mobile band
4. **Recommendation ITU-R M. 2010-1** Characteristics of a digital system, named Navigational Data for broadcasting maritime safety and security related information from shore-to-ship in the 500 kHz band
5. **Recommendation ITU-R M.493-15** Assignment and use of identities in the maritime mobile service
6. **Recommendation ITU-R M.541-10** Operational procedures for the use of digital selective-calling equipment in the maritime mobile service
7. **Recommendation ITU-R M.585-8** Assignment and use of identities in the maritime mobile service
8. **Recommendation ITU-R M.2135-0** Technical characteristics of autonomous maritime radio devices operating in the frequency band 156-162.05 MHz

**The preliminary draft new report is work on progress**. This include:**ITU-R M. [UHF\_ONBOARD\_USAGE]** Usage of the frequency bands 457.5125-457.5875 MHz and 467.5125-467.5875 MHz by Maritime mobile service is work on progress. There was no any contribution in this meeting therefore it has been carried forward to the next meeting. |
| ***Part D: Conclusion of the results of studies, if any*** |
| GMDSS modernizationCurrent regulatory status of NBDP for GMDSSTechnical characteristics of NBDP in the MMS are provided by Recommendations ITU-R M.476-5 and ITU-R M.625-4, which are incorporated by reference in the RR. In Recommendation ITU-R M.625-4 direct printing telegraphy is explicitly considered as part of the GMDSS. Further characteristics are given in Recommendation ITU-R M.627 (referenced by RR No. **51.41**).An automatic connection system for MF and HFRecommendations ITU-R M.493 and ITU-R M.541 have been revised in order to allow the introduction of an automatic connection system (ACS) based on DSC for communication in the MF and HF bands. Communication by MF/HF remains an integral part of the GMDSS. The implementation of ACS will ensure simple and reliable access to the required radio links for the mariner. |
| ***Part E: Options and Associated Implications*** |
| Issue A: GMDSS modernizationMethod A1: Removal of NBDP from the GMDSS and Introduction of an Automatic Connection System for MF and selected HF BandsThis method proposes:– The deletion of the NBDP for GMDSS in the RR Appendices **15** and **17** for MF and HF in all bands as NBDP has been deleted by the IMO from the GMDSS – The implementation of an automatic connection system (ACS) for MF and HF in selected bands using DSC technology as indicated by IMO in the related performance standards, taking into account studies performed within ITU-R, especially in [Rev. Recommendation ITU-R M.493-15] and [Rev. Recommendation ITU-R M.541-10]. It is proposed to implement this on the frequencies which had previously been used by NBDP for GMDSS in MF and all HF bands in RR Appendix **17** by a footnote.As NBDP is not in practical use on ships for distress alerting the deletion simplifies the operational use and reduces the burden on the administrations to maintain a system which is no longer in use. Method A2: AIS-SART as homing Equipment for Survival craft stationThis method proposes:– To implement AIS SART as homing equipment frequencies are protected by reference in RR Appendix **15** taking into account studies performed within ITU-R, especially in [Rev. Recommendation ITU-R M.1371-X]. It is proposed to amend RR No. **31.7** that survival craft stations may carry this equipment instead of the RADAR-SART to be in line with the current modification of SOLAS IV.Issue B: E-NavigationNo Method proposed yetIssue C: Introduction of additional satellite systems into the GMDSSNo Method proposed yetOn the Regulatory and procedural considerationsFor Issue A: GMDSS modernizationFor Method A1: Removal of NBDP from the GMDSS and introduction of an Automatic Connection System for MF and selected HF BandsModification of provisions under Article 32, Article 33, Article 47 and Article 51 have been madeFor Method A2: Introduction of the AIS-SART as homing equipment to the survival craft stationModification of provisions under Article 31 have been madeFor Issue B: E-NavigationNo any proposed regulatory text yetFor Issue C: Introduction of additional satellite systems into the GMDSSNo any proposed regulatory text yet |
| ***Part F: Proposed African Common View and/or Position*** |
| EAC Administrations are invited to support the development of possible regulatory procedures for GMDSS modernization, E‑navigation implementation and introducing a new GMDSS satellite system while ensuring the protection of radio astronomy and other incumbent services as well as current GMDSS systems. |
| ***Part G: Recommendations and Way Forward*** |
| 1. To continue making follow-up on the process of revising the recommendations and drafting the new reports to support the *modernization of the Global Maritime Distress and Safety System and the implementation of e‑navigation.*
2. EAC administrations are invited to actively participate in WP 5B and WP 4C meetings.
 |
| ***Part H: Regional Groups and international organizations Preliminary Positions***  |
| 1. **ASMG** – March 2021:

Support the development of possible regulatory procedures for the modernization the GMDSS system and the implementation of e-navigation, and introducing a new GMDSS satellite system while ensuring the protection of other existing services and systems operating in the GMDSS system 1. **CEPT** - May 2021:

**Issue A: Modernisation of GMDSS**CEPT supports the possible regulatory actions needed to implement the GMDSS modernisation in the Radio Regulation based on decisions to be taken in IMO. **Issue B: e‐navigation**CEPT supports, based on decisions to be taken in IMO, the possible regulatory actions needed to implement the e‐navigation in the Radio Regulation, if appropriate. **Issue C: Regulatory actions due to the introduction of additional satellite systems into the GMDSS by IMO**CEPT supports regulatory actions to introduce an additional satellite system into the GMDSS, based on decisions to be taken in IMO. 1. **RCC** – April 2021:

The position is under development.1. **APT** – April 2021:

***Resolves 1:* GMDSS Modernization*** APT Members support possible introduction of automatic connection system (ACS) and international NAVDAT service for the modernization of GMDSS.
* APT Members are of the view that ITU-R studies take into consideration the activities of IMO for GMDSS modernization, such as introduction of NAVDAT system and revised IMO performance standards of GMDSS equipment.

***Resolves 2:* E-navigation*** APT Members support the ITU-R studies and associated regulatory actions, taking into consideration the activities of IMO, for implementation of e-navigation.

***Resolves 3:* Introduction of additional satellite systems into the GMDSS*** APT Members are of the view that the introduction of additional GSO satellite systems into the GMDSS are considered, provided that the results of study on sharing and compatibility with other services in the same and adjacent frequency bands ensure protection of services to which the bands are allocated.
1. **ICAO** – December 2020:

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, including helicopters, 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 systems. |

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| **Input Document to EACO WG Meeting** | **13/08/2021** |
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| **“contributing body/ organization/ rapporteur”** |

**Agenda Item 9.1 Topic(b)**

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| ***Part A: Description*** |
| To consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention; on the activities of the Radiocommunication Sector since WRC 19:Review of the amateur service and the amateur-satellite service allocations in the frequency band 1 240 1 300 MHz to determine if additional measures are required to ensure protection of the radionavigation-satellite (space-to-Earth) service operating in the same band in accordance with **Resolution 774** (WRC 19);**Resolution 774 (WRC‑19)**Studies on technical and operational measures to be applied in the frequency band 1240-1300 MHz to ensure the protection |
| ***Part B: Key Elements – the notables*** |
| RNSS systems using the frequency band 1 240-1 300 MHz are operational, or becoming operational, in various parts of the world, with the aim of supporting a wide range of new satellite positioning services, for example enhanced accuracy and position authentication.Some cases of harmful interference caused by emissions in the amateur service into RNSS (space-to-Earth) receivers have occurred, and resulted in investigations and in instructions to the operator of the interfering station to cease transmissions.The number of RNSS receivers in the frequency band 1 240-1 300 MHz is currently limited in certain regions, but will increase dramatically in the near future with the ubiquitous deployment of receivers used in mass-market applications.The amateur service in the frequency band 1 240-1 300 MHz is currently used for amateur voice, data and image transmission in several countries in Europe and around the globe, and may transmit a variety of emission types including wideband, continuous and/or high equivalent isotopically radiated power (e.i.r.p.) transmissions. |
| ***Part C: Current Status of Band*** |
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| Allocation to services |
| Region 1 | Region 2 | Region 3 |
| 1 240-1 300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) Amateur 5.282 5.330 5.331 5.332 5.335 5.335A |

* The frequency band 1 240-1 300 MHz is allocated worldwide to the RNSS on a primary basis;
* The frequency band 1 240-1 300 MHz is allocated worldwide to the amateur service on a secondary basis;
* The amateur-satellite service (Earth-to-space) may operate in the frequency band 1 260-1 270 MHz under No. 5.282;
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| ***Part D: Conclusion of the results of studies, if any*** |
| *The Studies are ongoing. However, the following is the case:***Summary of the results of ITU-R studies**In accordance with Administrative Circular [CA/251](https://www.itu.int/md/R00-CA-CIR-0251/en), dated 19 December 2019, Working Party (WP) 5A is the responsible group for this topic, and WP 4C is a contributing group. The Administrative Circular also outlines that WP 4C is responsible for developing studies on item 2 of *resolves to invite the ITU Radiocommunication Sector* part of Resolution **774 (WRC‑19)** and sending this to WP 5A.WP 4C is considered to be responsible for conducting the interference studies and studying possible technical and operational measures to ensure the protection of RNSS (space-to-Earth) receivers from amateur and amateur-satellite services within the frequency band 1 240-1 300 MHz.WP 4C has developed a working document toward a preliminary draft new report (WD-PDNRep ITU-R M. [Amateur-RNSS]), available in document [[https://www.itu.int/dms\_ties/itu-r/md/19/wp4c/c/R19-WP4C-C-0162!N11!MSW-E.docx](https://www.itu.int/dms_ties/itu-r/md/19/wp4c/c/R19-WP4C-C-0162%21N11%21MSW-E.docx%20) ] in order to initiate studies called for in “resolves to invite ITU-R 2” of Resolution 774 (WRC‑19). This document will eventually include relevant amateur/amateur-satellite transmitter parameters and interference scenarios agreed with WP 5A, relevant RNSS receiver parameters and protection criteria developed in WP 4C, analysis methodologies employing propagation models discussed with WP 3M, and the results of studies once completed.*The following contributions have been received on this Agenda Item*:**Contributions of International Amateur Radio Union (Annex 1):**As at date, the International Amateur Radio Union contributed four documents, the first one dated on 10 July 2020 in whichit proposes his proposed work plan for WP 5A to address WRC-23 agenda item 9.1, topic b) and covers participation in review of the amateur service and coexistence with the radio navigation satellite service.The second document dated on 1 November 2020 is about the applications and typical operational aspects of the amateur and amateur satellite services operating in the band 1 240-1 300 MHz. The IARU would like to emphasise the following important aspects with regard to their review consulted with a number of national amateur radio societies:* + This review is specific to amateur operations in the band 1 240-1 300 MHz, and builds upon the general information detailed in ITU-R Recommendation M.1732-2.
	+ As far as possible the IARU and national amateur radio societies have consulted to gather published and traceable data pertaining to operating periods and activity levels.

The third document dated 7 April 2021 presents its **preliminary views** as of March 2021 on six WRC-23 agenda items of principal concern: 1.2, 1.12, 1.14, 1.18, 9.1 Topic A, and 9.1 Topic B. These positions have been approved by the IARU Administrative Council and are subject to revision as WRC-23 preparations proceed.The IARU seeks to protect the primary amateur and amateur-satellite service allocations in all the bands that may be affected by WRC-23 agenda items. The IARU does not wish to see any changes or reductions in the primary allocations to the amateur and amateur-satellite services.During many years of operational experience, the secondary amateur and amateur satellite services have successfully co-existed with all the primary services in the range 1 240-1 300 MHz with very few issues. In cases where certain applications (in particular wide bandwidth, high duty cycle applications) could increase the potential for interference, careful spectrum management and national licensing conditions have minimised any risk. Radio amateurs have successfully co-existed and innovated in this frequency range for many years and IARU believes that  the regulatory status of the amateur and amateur satellite services in this range is already clear. Therefore any additional regulatory, operational or technical measures incorporated into the Radio Regulations are unnecessary. Any recommendations resulting from studies under Resolution 774 can be applied on a national basis and should be based on realistic assumptions, proportionate in scope and carefully justified so as not to unnecessarily inhibit development of the amateur services.**Proposal of IARU:**The fourth document dated 20 April 2021 the IARU proposes that the information provided below in **Table 1** be considered for adoption into the working document towards a PDNReport ITU-R M. [AMATEUR.CHARACTERISTICS] and that it would be desirable to highlight the information with WP4C to assist their studies in relation to WRC-23 AI 9.1 topic b).**Table 1**

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| **Frequency range (MHz)** | **Applications** | **Comments** |
| 1 240 –1 260  | Low bandwidth telegraphy, voice and data modes up to around 20 kHz.Amateur TV (ATV using Analogue or Digital technologies). | Organised into channelized groups for voice and data applications in some regions.One 16.75 MHz blockis identified for ATV in this range in Region 1.Two 6 MHz blocks are identified for ATV in Region 2. |
| 1 260 – 1 270 | Satellite uplink band. | In Region 2 simplex ATV is also identified for experimental use in this range. |
| 1 270 –1 296 | Low bandwidth telegraphy, voice and data modes up to around 20 kHz.Amateur TV (ATV using Analogue or Digital technologies). | Organised into channelized groups for voice and data applications in some regions.One 18.994 MHz block is identified for ATV in this range in Region 1.Two 6 MHz blocks are identified for ATV in Region 2. |
| 1 296 – 1 297 | Low bandwidth telegraphy, voice and data modes up to 3 kHz. | Focused on narrowband weak signal applications in all three regions including beacons. No channelization. |
| 1 297 – 1 300 | Low bandwidth voice and data modes up to around 20 kHz. Medium bandwidth data up to 150 kHz bandwidth. | Organized into channelized groups for voice and data applications in some regions. |

Noting that the WP4C working document attached to Document [5A/247](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R19-WP5A-C-0247) has highlighted the frequency ranges for the various RNSS systems operating in the range 1 240 – 1 300 MHz, IARU proposes to provide additional information that shows their relationship in the frequency range to the band plans and applications for the amateur and amateur-satellite services. This is provided below in **Table 2**.**Table 2****Contribution of Switzerland (Confederation of) (Annex 2):**Switzerland (Confederation of) has contributed a document dated 23 October 2020, in which relates the parameters of unmanned amateur radio stations in Switzerland in the frequency range 1240 – 1300 MHZ.  Therefore, Switzerland, proposed to use the provided information in a reply Liaison Statement to Working Party 4C on WRC-23 agenda item 9.1, topic b), in support to the working document towards a preliminary draft new Report M. [Amateur characteristics] and if necessary, in a revision of Recommendation ITU R M.1732. **Contribution of Japan (Annex 3):**Japan has contributed a document dated 13 July 2020, in which Japan has studied in the compatibility study in the frequency band 1 240-1 300 MHz to ensure the protection of the radionavigation-satellite service (space-to-Earth).Therefore, the proposal of Japan was to start developing the working document. After the review at WP5A, they also proposed to send the working document to the other working parties involved in this study for their review.Subsequently, in a second document dated 14 October 2020, Japan proposed liaison statement to Working Party 5A with respect to clarification on the responsibilities for studies on WRC-23 agenda item 9.1 topic b, thus facilitating the work of development of draft CPM text for WRC-23 agenda item 9.1, topic b), Henceforth, WP 4C considered that more detailed responsibilities for WP 4C and WP 5A are better to be defined. For this purpose, WP 4C considers that the working method between WP 4C and WP 5A should be clarified as shown below;**WP4C:** to study technical and operational measures (\*), based on the interference study results using the technical parameters and possible interference scenario of amateur and amateur-satellite services summarized by WP5A. \*: taking into account the different regulatory status, these measures should be intended to be applied to only amateur and amateur-satellite services (not to RNSS). **WP5A:** to integrate the technical and operational measures sent from WP 4C into the draft CPM text, without substantial changes (only editorial modifications are allowed). To study the applicability of these technical and operational measures into amateur and amateur-satellite services, and address such applicability in the draft CPM text, in order to assist the discussion at CPM 23-2 and WRC-23.WP 4C suggests WP 5A to consider this clarification when considering the work plan for WP 5A and ask WP 5A to take appropriate actions. WP 4C looks forward to continued fruitful cooperation with WP 5A regarding this work.**Contribution of Canada (Annex 4):**Canada, in his contributed document dated 14 April 2021 informed that the principal source of interference to the amateur service in Canada is from installations operating under the primary allocation to the radiolocation service. Most of these sources are from airport installations and Canadian amateurs are proficient at managing the interference.Theoretically, interference to RNSS services from the amateur service could take the form of interference to Global Navigation Satellite System (GNSS) receivers processing the signals from the European Galileo system, the Russian GLONASSsystem, the Chinese BeiDou system, the Japanese QZSS system or the planned Korean KPS system all of which use frequencies in the range1 240-1 300 MHz. As more GNSS provide fully operational multi-frequency services, the interference environment could change. To date, there are no reported cases of amateurs in Canada causing interference to RNSS receivers or to any other users in the 1 240-1 300 MHz frequency band.Therefore, Canada supports studying the potential for interference to RNSS (space-to-Earth) receivers from amateur and amateur-satellite services in the frequency band 1 240-1 300 MHz. Based on the results of the study and, if warranted, Canada supports providing possible technical and/or operational measures to prevent any future cases of such interference.**Contribution of China (People’s Republic of) (Annex 5):**In a document dated 14 October 2020, China proposed a plan preliminary draft revision of the Recommendation ITU-R M.1902 on “characteristics and protection criteria for receiving earth stations in the radionavigation-satellite service (space-to-Earth) operating in the band 1 215-1 300 MHz”, so as to reflect the characteristics of all RNSS signals and receivers, even the newer ones, in that band.He pointed out that COMPASS system has been officially providing global services since July 2020, and broadcasts B3 and B3A signals in the band 1 215-1 300 MHz. In order to conduct the compatibility study in the frequency band 1 240-1 300 MHz to protect RNSS (space-to-Earth) receivers from the amateur and amateur-satellite services, it is proposed to revise Recommendation ITU-R M.1902-1 and reflect the characteristics of the receivers which process COMPASS signals in the band 1 215-1 300 MHz in this recommendation. Henceforth, the China proposes to add characteristics and protection criteria for RNSS receivers which process COMPASS B3 and B3A signals in Annex 1 of the recommendation. The categories of COMPASS receivers in this revision contain high-precision receivers, indoor positioningreceivers and general-purpose receivers.Furthermore, in his contribution dated 8 February 2021, some minor updates to Annex 5 to WP 4С Chairman’s Report (Document4C/109). It is proposed to split the column 3 of Table 1 and add a separated column named 3a for High-precision receiver using B3 and B3A. Accordingly, three minor modifications in section 2.3 and section 4 are needed. The revisions of Recommendation ITU-R M.1902-1 is limited to specific receiver types within Annex 1 and follows the typical template format of all of this recommendation. If there are no more substantial changes, it is proposed to elevate the WD-PDRR ITU-R M.1902-1 to DRR status.**Contribution of France (Annex 6):**France submitted three documents dated 14 October 2020 as at date. The first document was a liaison statement to Working Party 3M. It is to be noted that in October 2020 meeting, WP 4C has reviewed and further progressed work initiated by correspondence since its May 2020 meeting in order to develop studies on “resolves to invite ITU-R 2” of Resolution 774 (WRC‑19. WP 4C has developed a working document toward a preliminary draft new report (WD-PDNRep ITU-R M. [Amateur-RNSS]) [available in document [TBD]], which will eventually include relevant amateur/amateur-satellite transmitter parameters and interference scenarios agreed with WP 5A, relevant RNSS receiver parameters and protection criteria developed in WP 4C, analysis methodologies employing propagation models discussed with WP 3M, and the results of studies once completed.At this stage, propagation models proposed for consideration in this working document are free space loss or the Okumura-Hata model described in Rec. ITU-R M.1546. WP4C will update its studies with the use of propagation models proposed by WP 3M when assessing the sharing between the amateur service and the amateur-satellite service with the Radio Navigation Satellite Service in the frequency band 1 240‑1 300 MHz.The second document, WP 4C would like to confirm to WP 5A that a revision of Recommendation ITU-R M.1902 on “characteristics and protection criteria for receiving earth stations in the radionavigation-satellite service (space-to-Earth) operating in the band 1 215-1 300 MHz” has been undertaken, so as to reflect the characteristics of all RNSS signals and receivers, even the newer ones, in that band.In the last document, France proposes to revise the scope and to reorder the initial content of the M. [AMATEUR-RNSS] working document, so as to fully take into account the work plans developed by WP 4C and WP5A respectively.Future contributions are expected from WP 5A on amateur/amateur-satellite characteristics, from WP 3M on propagation models, and within WP 4C on the characteristics of RNSS receivers in 1240-1300 MHz. France considers that these elements should be reflected at an early stage in the M. [AMATEUR-RNSS] working document, as starting assumptions on which exhaustive studies are then based. The assessment of reported interferences which took place in the past should be exploited in a second step, in order to shade some light on the result of studies conducted in a wider context.Beside these editorial considerations, France shares the view of Germany that the result of this work would facilitate administrations when assigning frequencies to stations of the amateur/amateur-satellite services in the frequency band 1 240-1 300 MHz, by providing guidelines to ensure the protection of RNSS receivers. France also agrees on the fact that these guidelines should be provided through a separate ITU-R Recommendation.**Contribution of France, Italy (Annex 7):**In the contribution dated 14 October 2020, France and Italy proposed that a revision of Recommendation ITU-R M.1902-1 should be carried out in a companion contribution to WP 4C, in order to introduce characteristics and protection criteria of HAS/CAS receivers, namely High Accuracy Service (HAS) and Commercial Authentication Service (CAS). The description of a “High-accuracy and authentication receiver using E6-BC signal” is proposed as a new section 2.4 and the corresponding parameters are proposed in a new column 3b within TABLE 1 of the Recommendation ITU-R M.1902-1. Furthermore, they also proposed that to either relabel Column 6 (refer to Recommendation ITU-R M.1902-1) indicating a specific concerned receiver (e.g., QZSS) or to remove it, in the case another column within Table 1 can be considered applicable for the concerned receiver. Henceforth, France and Italy proposed that WP 4C directly adopts this draft revision for transmission to the November 2020 meeting of Study Group 4.Moreover, a revision of Recommendation ITU-R M.1787-3 is proposed in a companion contribution to WP 4C, in order to describe the HAS/CAS services and provide elements on their signal structures.Lastly, in the contribution dated 8 February 2021 note the following:* France proposes to accept all proposed revisions in Document 4C/109 (Annex 9) in order to get a clearer working document towards a preliminary draft new Report ITU-R M. [AMATEUR-RNSS].
* On that basis, France and Italy proposes to update the table of technical characteristics and protection criteria for RNSS systems, and to include characteristics of amateur service and amateur‑satellite service applications contained in Document 4C/119.

 **Contribution of France, Italy and Switzerland (Confederation of) (Annex 8):**In the contributing document dated 21 May 2020, France, Italy and Switzerland (Confederation of) explained that WP4C sends a liaison Statement to WP5A in order to seek information on the relevant characteristics to consider for amateur/amateur-satellite service systems, and on interference scenario into RNSS receivers.Henceforth, it was proposed that a revision of Recommendation M.1902 will therefore be proposed at next WP 4C full meeting in order to capture new services of the EU RNSS system GALLILEO.The contribution dated 8 February 2021; it is proposed in this document to elevate the working document towards a preliminary draft revision of Recommendation ITU-R M.1787-3 (Annex 4 to Document 4C/109) to a preliminary draft revision of Recommendation ITU-R M.1787-3. Therefore, this preliminary draft revision of Recommendation ITU-R M.1787-3 is revised mainly in its Annexes 3 and 11, in order to reflect updates in the characteristics, applications and signal structure of corresponding systems.In another contribution dated 8 February 2021, it is proposed in this document to elevate the working document towards a preliminary draft revision of Recommendation ITU-R M.1902-1 (Annex 5 to Document 4C/109) to a draft revision of Recommendation ITU-R M.1902-1. Henceforth, this draft revision of Recommendation ITU-R M.1902-1 is revised in order to describe and to provide the technical characteristics and protection criteria of new types of receivers for certain RNSS systems.**Contribution of Germany (Federal Republic of) (Annex 9):**Germany submitted two contributions on dated 8 February 2021. Firstly, Germany provided Working Party (WP) 4C and its respective correspondence activity, with a comprehensive measurement report (see [Annex 3 of Document 4C/55](https://www.itu.int/dms_ties/itu-r/md/19/wp4c/c/R19-WP4C-C-0055%21P3%21MSW-E.docx)). The approach and conclusion of this report are to be considered in the further studies. Furthermore, Germany proposes that the technical characteristics of the Geodetic receiver, be taken into account as reference in the studies of WP4C on sharing and compatibility.Secondly, Germany proposes the amendments to the WDPDNRevM.1902-1.**Contribution of Russian Federation (Annex 10):**In the contribution document of Russian Federation dated 18 May 2020, the Russian Federation proposes to send a liaison statement to Working Party 5A and WP 3M with a request to provide the information with a detailed analysis of the various systems and applications used in the allocations to the amateur-satellite and the amateur satellite service in the frequency band 1240-1 300 MHz, necessary to conduct studies on possible technical and operational measures to ensure the protection of RNSS (space-to-Earth) receivers from the amateur and amateur-satellite services in the frequency band 1 240-1 300 MHz, and also with a request to WP 3M to provide the information on radio wave propagation models and their application conditions for conducting studies under issue 9.1.b WRC-23 AI 9.1. |
| ***Part E: Options and Associated Implications*** |
| Studies are still going on and no method has been proposed yet. |
| ***Part F: Proposed East Africa Common View and/or Position*** |
| EAC administrations are invited to support the protection of RNSS (space-to-Earth) receivers from the amateur and amateur-satellite services in the frequency band 1240-1300 MHz |
| ***Part G: Recommendations and Way Forward*** |
| To continue making follow up on the following:-1. The possible technical and operational measures to ensure the protection of RNSS (space-to-Earth) receivers from the amateur and amateur-satellite services in the frequency band 1240-1300 MHz

The detailed review of the different systems and applications used in the amateur service and amateur-satellite service allocations in the frequency band 1240-1300 MHz |
| ***Part H: Other Regional Groups and International Organizations Preliminary Positions*** |
|  1. **Asia-Pacific Telecommunity (APT) – April 2021**

APT Members support ITU-R studies in accordance with Resolution **774 (WRC-19)**, to protect RNSS (space-to-Earth) receivers from the amateur and amateur-satellite services in the frequency band 1 240-1 300 MHz without considering the removal of the amateur and amateur-satellite service allocations. 1. **Arab Spectrum Management Group (ASMG) – April 2021**

Inviting ASMG administrations to contribute to the study of technical and operational measures to ensure the protection of the radionavigation-satellite service (space-to-Earth) from the amateur and amateur-satellite services in the frequency band 1 240 - 1 300 MHz.1. **European Conference of Postal and Telecommunications Administrations (CEPT) – May 2021**

CEPT supports the protection of the RNSS. CEPT supports the development of a new ITU‐R Report or Recommendation to provide guidance towards the implementation of technical and operational measures for the use the frequency band 1240‐1300 MHz by the Amateur and Amateur‐satellite service in accordance with the RR in order to protect the RNSS.1. **Regional Commonwealth in the Field of Communications (RCC) -April 2021**

The RCC Administrations consider that when studying possible technical and operational measures aimed at protecting RNSS receivers from the amateur and the amateur-satellite services in the frequency band 1 240‑1 300 MHz it is reasonable to prioritize the protection of stations in RNSS in this frequency band. |