

PLENARY MEETING

**Addendum 13 to
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Member States of the Inter-American Telecommunication Commission (CITEL)

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 10

{Temporary information note to be deleted before the submission via CPI of this document to the WRC-19 Secretariat: In accordance with Resolution 804 (Rev. WRC-12), Administrations are invited to use the template provided in Annex 2 to that Resolution (TIES-protected) when proposing agenda items for WRCs. This template may be filled out for each of the proposed WRC agenda item and annexed to this document.}

10 to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, in accordance with Article 7 of the Convention.

Introduction

This contribution discusses the concept of space-based VHF voice communication and proposes to consider a future WRC-23 agenda item to enable the appropriate study activity within ITU-R WP 5B regarding the potential of an AMS(R)S allocation in the 118 to 137 MHz frequency band.

Discussion

In order to apply radar-like or other similar reduced separation minima over oceanic and remote areas, appropriate surveillance and communications are required. In 2015, the World Radiocommunication Conference (“WRC-15”) allocated the frequency band 1087.7 – 1092.3 MHz for reception of aircraft Automatic Dependent Surveillance – Broadcast (“ADS-B”) messages by space stations. Following WRC-15, the space-based ADS-B services are been implemented via the fully completed satellite constellation. Space-based ADS-B is expected to perform in the same manner as terrestrial ADS-B sensors without any need for aircraft avionics modification.

However, appropriate communication means is still an issue for oceanic and remote areas, and there is currently no suitable solution to provide Very High Frequency (“VHF”) voice services over these areas. Hence, the proposed consideration of a potential solution using VHF radio relay installed onboard satellites (“space-based VHF”), which would be an effective complimentary

communication service to the space-based ADS-B. The concept is intended to provide VHF capability in remote areas and oceanic regions where normal VHF coverage is non-existent. Moreover, it is intended to be a complimentary extension to terrestrial VHF coverage where possible.

Currently there is no practical and cost-effective solution to provide VHF voice services over oceanic and some remote areas. Although High Frequency (“HF”) voice, satellite voice (“SATVOICE”) and controller-pilot data link communications (“CPDLC”) may be used in lieu of VHF voice, these technologies are currently not considered as direct controller-pilot communications (“DCPC”) fully capable for supporting radar-like or other similar reduced separation minima (e.g. 3, 5 or 10 NM). Moreover, not all aircraft are equipped with SATVOICE and/or CPDLC. Whereas, VHF voice communications relay would meet the required communication performance (“RCP”) for reduced separation minima, without modification to aircraft equipment.

Considering the advancements in satellite technologies as suitable communication equipment carriers, the potential for supporting radar-like or other reduced separation minima using space-based ADS-B in conjunction with space-based VHF voice is quite possible. Accordingly, the aviation community is beginning to work with various communications vendors to conduct design studies and trials/proof-of-concept for satellite mounted transceivers serving as VHF voice communication relay system.

Notwithstanding the above, the space-based VHF concept was discussed during the International Civil Aviation Organization (“ICAO”) Asia/Pacific Air Navigation Planning and Implementation Regional Group (“APANPIRG”) meeting held in September 2018 and the ICAO APANPIRG supported the operating concept for space-based VHF voice services (Conclusion APANPIRG29/18). Further to this, one administration contributed an input document to the 4th Meeting of the APT Conference Preparatory Group for WRC-19 (APT APG19-4) held in Busan, South Korea on 7 – 12 January 2019 to highlight the concept of space-based VHF voice communications that would require study in the ITU-R, and therefore consideration as a future Conference Agenda Item under AI 10.

In addition to the above, the recent ICAO FSMP WG-8 meeting held in January agreed on an amendment to the ICAO Position for WRC-19 to include the requirement for a future WRC agenda item.

ADD IAP/6442A24A13/1

DRAFT NEW RESOLUTION [IAP/10(M)-2023] (WRC-19).

Agenda for the 2023 World Radiocommunication Conference

The World Radiocommunication Conference (Sharm-el-Sheikh, 2019),

* * *

resolves to give the view

that the following items should be included in the agenda for WRC-23:

* * *

2 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, and taking account of the results of WRC-19, to consider and take appropriate action in respect of the following items:

* * *

2.[AMS(R)S VHF] to consider an AMS(R)S allocation for both the uplink and downlink of aeronautical VHF applications, while preventing any undue constraints based on the results of studies with existing VHF systems operating in the AM(R)S in accordance with Resolution [IAP/10(M)- AMS(R)S VHF] (WRC-19.);

Reasons:

ADD IAP/6442A24A13/2

DRAFT NEW RESOLUTION [IAP/10(M)- AMS(R)S VHF] (WRC-19).

Space-based Very High Frequency (VHF) Communications in the frequency band 117.975 – 137 MHz

The World Radiocommunication Conference (Sharm el-Sheikh, 2019),

considering

- a) that space-based aeronautical VHF voice service will enable Direct Controller-Pilot Communication (DCPC) in airspace where it is geographically remote or cost-prohibitive to provide and maintain terrestrial VHF voice services;
- b) that when used in combination with global flight tracking systems, the space-based aeronautical VHF technology can be used to support radar-like separation minima and has the potential to improve airspace capacity and efficiency, particularly for remote and oceanic airspace;
- c) that the technology could also be helpful as a contingency communication infrastructure for airspace impacted by natural disasters, such as flooding and earthquake,

d) that the frequency band for satellite reception of aircraft surveillance and position information has been allocated at WRC-15 to enable global flight tracking services;

e) currently, AM(R)S VHF frequency band (117.975 – 137 MHz) is used by air traffic communication and airline operational communication in terrestrial airspace, VHF channels became saturated in some air traffic congested areas of the world.

recognizing

a) that the VHF band of interest is allocated in the Radio Regulations (RR) for aeronautical applications;

noting

a) that the aeronautical VHF band is the main radio communications band utilized by aircraft and air traffic control centers for air-ground voice communications during en-route, approach and landing;

b) that there are Standards and Recommended Practices (SARPs) developed by ICAO detailing frequency assignment planning criteria for VHF air-ground communication systems;

resolves to invite ITU-R

1 to conduct, in time for WRC-23, any necessary sharing studies for incumbent systems operating in the same and adjacent frequency bands, with the objective of determining any necessary regulatory protection that can be provided while not placing any undue constraints on existing incumbent services;

2 to develop ITU-R recommendations and reports, as appropriate, taking into account *resolves to invite ITU-R 1* above,

further resolves to invite WRC-23

while taking into account the results of the above studies and without placing additional constraints on incumbent services, to consider regulatory provisions necessary, as appropriate.

Reasons: See the following Table.

Subject: Proposal of WRC-19 Agenda Item 10 to consider the identification of VHF frequency bands for space-based aeronautical communications in WRC-23

Origin: the CITEL Member States

Proposal:

To consider an AMS(R)S allocation for both the uplink and downlink of aeronautical VHF communications in the frequency band 117.975 – 137 MHz, while ensuring that no harmful interference is caused or any additional constraints are placed on incumbent services in the same and adjacent aeronautical bands, particularly the AM(R)S in the (117.975 – 137 MHz) band and the ARNS in the (108 – 117.975 MHz) band. The frequency assignment coordination will be performed by ICAO as is per current practice.

Background/reason:

Space-based aeronautical VHF Voice service will enable Direct Controller Pilot Communication (“DCPC”) in airspace where it is geographically remote or cost-prohibitive to provide and maintain terrestrial VHF voice services. When used in combination with air traffic service surveillance systems, the technology can be used to support radar-like separation minima and has the potential to improve airspace capacity and efficiency, particularly for remote and oceanic airspace. The technology can also be helpful as a contingency communication infrastructure for airspace impacted by natural disasters, such as flooding and earthquake.

The frequency band 117.975 MHz – 137 MHz is allocated for Aeronautical Mobile (R) Service. For VHF transceivers to both transmit and receive aeronautical communications onboard satellites, an AMS(R)S allocation will be required in some or all of the frequency band.

Radiocommunication Services concerned:

Aeronautical Mobile (R) Service, Aeronautical Mobile (OR) Service, Aeronautical Radionavigation Services (ARNS), Maritime Mobile service and other services

Indication of possible difficulties:

Sharing studies with existing AM(R)S, ARNS and other services in the adjacent bands

Previous/ongoing studies on the issue:

Not Applicable

Studies to be carried out by:

ITU-R Working Party

with participation of:

Administrations, ITU-R Sector members, ICAO and Aviation Authorities

ITU-R Study Groups concerned:

ITU-R SG 4 and 5

ITU resource implications, including financial implications (refer to CV 126):

This proposed agenda item will be studied as part of the regular ITU-R procedures and planned budget.

Common regional proposal:
[Yes/No]

Multicountry Proposal: [Yes/No]
Number of countries:

Remarks