
PLENARY MEETING

**Addendum 10 to
Document 6238-E
3 September 2019
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Member States of the Inter-American Telecommunication Commission (CITEL)

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 1.10

1.10 to consider spectrum needs and regulatory provisions for the introduction and use of the Global Aeronautical Distress and Safety System (GADSS), in accordance with Resolution **426 (WRC-15)**;

INTRODUCTION

While air travel in recent years has represented some of aviation's safest years in terms of the number of accidents, the tragedy of Malaysia Airlines flight 370 in March 2014 highlighted needed improvements in the global air navigation system requiring urgent attention. To address these improvements, the aviation community embarked on a global effort to develop the concept of a global aeronautical distress and safety system (GADSS).

As a result of expected developments in the implementation of various elements of GADSS, modifications to the Radio Regulations may be required to facilitate emerging needs of the aviation community and related distress and safety agencies. This agenda item was adopted at WRC-15 with sufficient flexibility to address potential modifications to the Radio Regulations required to allow implementation of the GADSS, taking into consideration the incumbent services that may be impacted as a consequence of these potential modifications. Specifically, Resolution **426 (WRC-15)** invited the ITU-R to conduct relevant studies taking into account information provided by ICAO on the requirements for both the terrestrial and satellite components of GADSS.

BACKGROUND

The International Civil Aviation Organization (ICAO) has developed a concept of operations (ConOps) to support the future development of GADSS.

The ConOps¹ describes in particular the following functions:

- Aircraft tracking
 - Typically uses existing technologies to assist in the timely identification and location of aircraft.
 - Provides an automated reporting function every 15 mins or less.
 - Aircraft tracking may be accomplished by multiple different systems over the duration of a flight.
- Autonomous distress tracking.
 - An automated method of position reporting at intervals of one minute or less to support search and rescue (SAR), triggered by indications that an aircraft is in distress which may result in an accident.
 - Distress tracking aims to establish the location of a potential accident site within a 6 nautical mile (11.11 km) radius.
- Post flight localization and recovery.
 - A combination of both the immediate need to locate and rescue possible survivors after an air accident using emergency location beacons and other methods to an accuracy of <1 nautical mile (<1.85 km), and the timely collection of aircraft components and data that will assist in the accident investigation.
- Procedures and information management.
 - The method of data collection and notification of flight tracking data to the relevant SAR, and rescue coordination centres.

The ConOps provides the guidelines for the development of ICAO performance-based standards, outlining specific technical and operational requirements that an aircraft shall meet. It does not identify specific systems proposed to contribute to GADSS. ICAO intends to use systems operating under existing allocations in accordance with the provisions of the RR, including the use of emergency position-indicating radio beacons (termed as emergency locator transmitters in ICAO) operating in the 406-406.1 MHz frequency band.²

ICAO has actively participated in ITU-R Working Party 5B to develop a Report ITU-R M.2436 and CPM text. Both ICAO and ITU-R Working Party 5B have concluded that there are no new spectrum allocations required to implement GADSS. GADSS requirements can be satisfied using existing systems operating within existing aeronautical frequency allocations and distress spectrum (e.g. 406-406.1 MHz) in accordance with the provisions in Article 5 of the Radio Regulations.

In addition, ICAO is of the view that:

- 1) systems being utilized to meet GADSS requirements should not receive any additional priority beyond that accorded by the RR to the radiocommunication service(s) under which those systems operate, and

¹ Version 6.0. In 2017 the ICAO Air Navigation Commission agreed to use Version 6.0 to guide the further development of ICAO performance based standards in order to support the implementation of the ConOps.

² The 406-406.1 MHz frequency band is already identified for the use of emergency position-indicating radiobeacons in the provisions of RR No. **5.266**

2) ICAO does not support regulatory modifications that would require future WRC action in order to update or modify GADSS requirements and/or systems available for satisfying GADSS requirements.

The concept of GADSS is a ‘system of systems’ that comprises different equipment operating in various frequency bands, allocated to various services, in a similar manner to the global maritime distress and safety system (GMDSS).

The draft CPM report, contains three methods to satisfy Agenda Item 1.10. Since no new allocations are sought, the methods do not propose modifications to Article 5 of the Radio Regulations (RR).

In Method A, modifications are proposed to RR Article **30**, along with a new RR Article **34A** to recognize GADSS in the RR. Method A includes a provision in the new Article **34A** that GADSS systems should not be used under RR **4.4**.

Method B proposes different modifications to RR Article **30**, a different new RR Article **34A**, and a Resolution requiring the development of ITU-R Recommendations to list the frequency bands of the systems contributing to GADSS along with their technical characteristics and protection criteria. Method B also states that, for GADSS functions, only frequency bands that already have been allocated on a primary basis and for safety purposes should be used.

Method C proposes no change.

DISCUSSION

The draft IAP in CITEL (Method A in the draft CPM text) contains several proposals to modify the Radio Regulations to recognize GADSS as a distress and safety communication system in Chapter **VII** – Distress and safety communications.

Method A introduces GADSS in Article 30, under Chapter **VII**, and establishes a new Article **34A**. This regulatory approach is based on the existing articles for the global maritime distress and safety system (GMDSS). The addition of a provision in Article 30 would link the performance requirements of GADSS radiocommunications systems, utilized for functions such as aircraft tracking, autonomous distress tracking and post flight localization and recovery, to ICAO. This will indicate that relevant GADSS elements are defined in the various ICAO standards and recommended practices (SARP) contained in the Annexes to the Convention on Civil Aviation. Method A establishes a simple regulatory framework for GADSS, by recognizing GADSS in the ITU Radio Regulations and maintaining the expertise for performance standards in ICAO.

Method B further proposes, in a new Article 34A, that systems meeting GADSS performance requirements may operate in ‘appropriate’ primary radiocommunication services. It also prescribes a WRC Resolution limiting GADSS to frequency bands that are already used for safety purposes, and requiring the development of ITU-R Recommendations for the frequency bands, technical characteristics, and protection criteria for GADSS elements.

The approach in Method B introduces an element of ambiguity in the new Article on GADSS by suggesting radiocommunication services can be used that have ‘appropriate’ allocations in Article **5**, and are already used for safety purposes. Since GADSS is a ‘system of systems’ concept it will likely consist of a combination of terrestrial and satellite systems to achieve functionality. For example, emergency locator transponders (ELT) and emergency position-indicating radio beacons (EPIRB), currently used by the maritime and aeronautical communities, operate in mobile-satellite service allocations. These types of systems may be an element of GADSS in the future for distress alerting, even though they do not operate in traditional frequency bands used for safety purposes.

In addition, the requirement in Method B of establishing ITU-R recommendations on the elements of GADSS would duplicate the work undertaken by ICAO to standardize aeronautical systems in their standards and recommended practices (SARP) documentation. The collaborative relationship between ICAO and the ITU-R eliminates the need for this type of duplication.

To summarize, Method A satisfies Agenda item 1.10 by establishing GADSS in the Radio Regulations as a distress and safety system in Chapter VII.

NOC **IAP/6238A10/1**

ARTICLE 5

Frequency allocations

Reasons: There is no requirement for additional spectrum allocations for GADSS.

ARTICLE 30

General provisions

Section I – Introduction

MOD **IAP/6238A10/2**

30.1 § 1 ~~Nos 30.4 - 30.13, and Articles 31, 32, 33 and 34 of This Chapter~~ contains the provisions for the operational use of the global maritime distress and safety system (GMDSS), whose functional requirements, system elements and equipment carriage requirements are set forth in the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended. ~~This Chapter- These Nos and Articles~~ also contains provisions for initiating distress, urgency and safety communications by means of radiotelephony on the frequency 156.8 MHz (VHF channel 16). ~~(WRC-07).(WRC-19)~~

Reasons: Identifies the specific articles and numbers associated with GMDSS, to allow for an additional article and numbers to address GADSS as part of Chapter VII.

ADD **IAP/6238A10/3**

30.1A Article **34A** of this Chapter contains a general description of the global aeronautical distress and safety system (GADSS), whose functional requirements are set forth in the Annexes to the Convention on International Civil Aviation, as amended. (WRC-19)

Reasons: Includes GADSS as part of Chapter VII Distress and safety communications.

ADD **IAP/6238A10/4**

ARTICLE 34A

Global aeronautical distress and safety system

Reason: Initiates a new article to establish the regulatory framework for GADSS.

ADD **IAP/6238A10/5**

34A.1 The global aeronautical distress and safety system (GADSS) determines performance requirements for the radiocommunication systems utilized for conducting functions such as aircraft tracking, autonomous distress tracking, and post flight localization and recovery. (WRC-19)

Reasons: Refers to the types of functions that may be provided by GADSS.

ADD **IAP/6238A10/6**

34A.2 The type of radiocommunication service(s) to be used by systems contributing to the GADSS depend(s) on the requirements of the specific GADSS function. Radiocommunication systems contributing to the GADSS shall be operated in conformity with the Radio Regulations but shall not be operated under the provisions of No. **4.4**. In addition, the use of a particular system

contributing to the GADSS shall not establish any additional priority or protection in the Radio Regulations for the radiocommunication service under which that system operates. (WRC-19)

Reasons: Radiocommunication services to be used by systems contributing to GADSS should be operated in accordance with the Table of Frequency Allocations.

SUP IAP/6238A10/7

RESOLUTION 426 (WRC-15)

Studies on spectrum needs and regulatory provisions for the introduction and use of the Global Aeronautical Distress and Safety System

The World Radiocommunication Conference (Geneva, 2015),

Reasons: Resolution 426 (WRC-15) is no longer necessary.