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| **Radiocommunication Study Groups** |  |
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| AGENDA ITEM 1.10 |

(**WP 5B / WP 4A, WP 4B, WP 4C, WP 5A, WP 5C, WP 5D, WP 6A, WP 7C,
WP 7B, WP 7D**
(WP 3M))

*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)****;*

Resolution **426 (WRC-15)**: Studies on spectrum needs and regulatory provisions for the introduction and use of the Global Aeronautical Distress and Safety System

# 5/1.10/1 Executive summary

In accordance with Resolution **426 (WRC-15)**, ITU-R considered spectrum needs and regulatory provisions for the introduction and use of the global aeronautical distress and safety system (GADSS).

One method is proposed which states that no changes to Article **5** are required but [other Articles of RR [OR] that Chapter VII [OR] a new chapter [and Chapter VIII]] may need some modifications and additional articles.

# 5/1.10/2 Background

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

The ConOps is the guideline for the development of ICAO performance-based standards, outlining specific technical and operational requirements that an aircraft must meet. Based on these requirements, the aircraft operators will determine which specific system(s) need to be installed on an aircraft.

WRC-15 agreed on Resolution **426** **(WRC-15)** for a new agenda item on GADSS.

Version 6.0 of the ConOps describes in particular the following functions:

– Aircraft tracking under normal conditions

 Typically leverages 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 Concept of operations for the GADSS does not identify specific systems proposed to contribute to GADSS. However, ICAO proposes to use for the GADSS currently existing systems, including safety of life aeronautical systems, operating under existing aeronautical allocations or distress spectrum (e.g. 406.1 MHz) in accordance with the provisions of the RR.

*[Editor’s note: One view was expressed that in case ELT systems are considered to be GADSS systems usable for distress, it would be necessary to specify this by adding an Appendix to the RR and identifying this frequency band for distress for the GADSS.ICAO considers that a change in RR would be necessary to facilitate the autonomous distress tracking.]*

# 5/1.10/3 Summary and Analysis of the results of ITU-R studies

As ICAO has concluded that the GADSS requirements can be satisfied using systems operating within existing aeronautical frequency allocations or distress spectrum, and also that for WRC-19 no additional spectrum allocations are required, then no changes are required to the Radio Regulations Article **5**.

However, changes to other portions of the RR are proposed to facilitate GADSS implementation. In particular, possible changes to portions of RR Chapters VII [and VIII] have been identified.

*[Editor’s note: One view proposes to determine the frequency bands and on-board systems used in GADSS system and to develop the proposals for these frequency bands in order to make the corresponding modification in the appropriate Chapter of RR.]*

# 5/1.10/4 Methods to satisfy the agenda item

There is [one method[s]] to satisfy the agenda item.

## 5/1.10/4.1 Method A

*Invites ITU-R* 1 *b)* of Resolution **426 (WRC-15)** calls for the analysis of the existing allocations to the relevant aeronautical services in order to determine whether any additional spectrum is required.

Regarding this question, no additional spectrum is needed to support GADSS, and as a result no changes to Article **5** of the RR are proposed.

*Invites ITU-R* 2 of Resolution **426 (WRC-15)** calls for studies of the existing regulatory provisions to determine whether it might be necessary to apply additional regulatory measures.

Regarding this question, in order to facilitate its introduction, modification of RR to include GADSS as a distress and safety communications system, included in Chapter VII – Distress and safety communications OR in a new Chapterspecific to GADSS [andChapter VIII –Aeronautical services] is proposed**.**

*[Editor’s note: Views were expressed that ICAO may need to provide the frequency bands and on-board systems used in GADSS system.]*

*[Editor’s note: The addition of a new chapter for the GADSS would also require renaming Chapter VII to make it specific to GMDSS.]*

# 5/1.10/5 Regulatory and procedural considerations

ARTICLE 5

Frequency allocations

NOC

*[Editor’s note: The question to underline the NOC has been raised]*

CHAPTER VII

Distress and safety communications1

[

ADD

30.1A Additional to the GMDSS, some distress and safety communications are used under the global aeronautical distress and safety system (GADSS) whose functional requirements, system elements and equipment carriage requirements are set forth in the convention on International Civil Aviation Organization (ICAO) (see N° **34A**).

OR

MOD

30.1 § 1 Articles **30.4**-**30.13**, **31**, **32**, **33** and **34** of this Chapter contain 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. They also contain provisions for initiating distress, urgency and safety communications by means of radiotelephony on the frequency 156.8 MHz (VHF channel 16). Articles **34A.1**-**34A.5** of this chapter contain provisions for the global aeronautical distress and safety system (GADSS), whose functional requirements, system elements and equipment carriage requirements are set forth in the Convention on International Civil Aviation, as amended.     (WRC‑19)

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*[Editor’s note: The goal of both previous proposals is that the addition of GADSS should not in any way impact the GMDSS and its incorporation in the RR. However, views were expressed that both proposals may be reviewed in order to maintain reference to ICAO only or not.]*

ADD

ARTICLE 34A

Global Aeronautical Distress and Safety System

34A.1 The GADSS determines performance requirements for the radiocommunication systems utilised for conducting several functions, including the following:

– Aircraft Tracking;

– Autonomous Distress Tracking;

– Post Flight Localization and Recovery.

[**34A.2** The performance requirements, system elements and equipment carriage requirements of GADSS are set forth in ICAO Standards and Recommended Practices, Guidance Material and Manuals.]

*[Editor’s note: Views were expressed this proposal may be reviewed in order to maintain reference to ICAO only or not.*]

**[**Option 1:

34A.3 The choice of radiocommunication service to be used by a system contributing to the GADSS is the responsibility of ICAO. [In particular,] for the autonomous distress tracking function, aircraft mayutilize the 406-406.1 MHz frequency band.

OR

Option 2:

34A.3 The radiocommunication systems meeting the GADSS performance requirements may operate in the radiocommunication services having an appropriate allocation in Article **5**. The choice of type of a radiocommunication service to be used and its category of allocation depends on the requirements of the specific GADSS function. [In particular,] for the autonomous distress tracking function, aircraft may utilize the 406-406.1 MHz frequency band.]

*[Editor’s note:*

*Following comments were raised on option 1*

*The original intention of this provision 34.A3 is to state that GADSS can use different types of bands: aeronautical or non-aeronautical, safety or not-safety.*

*Option 1 may be interpreted differently from the original intention, for example:*

*1 That the responsibility for the management of radiocommunication services in the context of GADSS is transferred to ICAO. This may raise concern due to the difference in the responsibility of ICAO and ITU.*

*2 That after identifying a system used for GADSS, ICAO may decide to which service this system belongs. This would not be correct because radiocommunication services are defined in Article 1 of the RR, which gives clear criteria to link specific system to its parent service, and RR modifications is a responsibility of a WRC.*

*3 There is also a risk that a future GADSS system would fit the definition of a specific service but its characteristics will go beyond typical characteristics of this service. Examples of such cases are HAPS in the fixed service or IMT in the mobile service. In this case, ICAO decision for a service is not sufficient and additional ITU sharing studies will be needed.*

*In addition, Option 1 does not say that GADSS should use the appropriately allocated Article 5 spectrum. This potentially opens a door for using any spectrum, including RR* ***4.4*** *operations without appropriate allocation, claiming non-interference non-protected basis. Usually RR* ***4.4*** *should not**be used for a distress and safety service, even under normal flight conditions.]*

[34A.4 The specific requirements for GADSS automated distress and positioning systems related to the authority of the person responsible for the station and the operator’s certificates are listed in the relevant provisions of Articles **36** and **37**.]

[34A.5 For the purposes of these Regulations the category of priority for the autonomous distress tracking function shall be of order 1 with respect to the list of priorities given in No. **44.1**.]

*[Editor’s note: Further study is required on whether other provisions will require modification]*

*[Editor’s note: To see if Resolution* ***426*** *has to be suppressed if no additional work is expected]*