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| CPG19-5 |
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| Summary:  |
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| Proposal: |
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DRAFT CEPT BRIEF ON 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)

# ISSUE

 Resolution 426 (WRC-15) invites ITU-R:

1. to conduct the relevant studies, taking into account information and requirements provided by ICAO for both the terrestrial and satellite components, including:
	1. quantification and characterization of radiocommunication requirements related to GADSS, such as:

data traffic requirements for different system components of GADSS (such as the aircraft tracking, autonomous distress and flight data recovery systems) and their terrestrial and satellite components at each phase of the operation;

information on the radiocommunication requirement related to safety-of-life applications;

performance criteria for terrestrial and satellite systems;

* 1. analysis of the existing allocations to the relevant aeronautical services and determining whether any additional spectrum is required;
	2. studies on sharing and/or compatibility with the existing services;
1. to undertake studies of the existing regulatory provisions to determine whether it might be necessary to apply additional regulatory measures.

It also resolves to invite WRC-19:

1. to take appropriate actions, taking into account the results of ITU-R studies
2. to analyse the necessity for further studies, and consider whether this matter should be brought to the attention of future competent conference.

# Preliminary CEPT position

CEPT recognises

* that the implementation of the GADSS concept would contribute to increasing the effectiveness of the current alerting of search and rescue (SAR) services for civil aviation transportation;
* that ICAO has stated that the GADSS requirements can be satisfied using systems operating within existing frequency allocations, and also that for WRC-19 no additional spectrum allocations are required and no changes to Article 5 are required.

CEPT is of the view

* that systems contributing to the GADSS have to be identified in accordance with ICAO requirements or recommendations provided in SARPs, manuals or guidance material;
* that any changes to the Radio Regulations should be determined on the basis of the GADSS concept developed by ICAO;
* that systems identified to contribute to the GADSS may not necessarily require any additional frequency allocation nor any new or revised regulatory provisions
* that additional regulatory actions for the introduction and use of GADSS, if any, should be identified ensuring sharing and compatibility with systems in incumbent radiocommunication services in the frequency bands proposed for GADSS introduction and in the adjacent frequency bands without imposing any additional constraints on the existing and planned systems.
* that according to the process to implement the GADSS concept an extension of activities towards WRC-23 may need to be considered

# Background

One of the main reasons why the level of safety of air transport remains high is the willingness of the aviation community to learn important lessons from prior events.

On the rare occasions when accidents occur, rescuing survivors has the highest priority, followed by the recovery of fatalities, the wreckage and the flight recorders. Analysis of the data from such recorders is very important in supporting accident investigation which may, through identification of the cause of the accident, contribute towards enhancing safety.

As a result of the investigation into the loss of Malaysia Airlines flight 370 and taking into account the loss of Air France flight 447, the need was identified for the effectiveness of the alerting of search and rescue services to be increased from its current level and for it to be globally consistent. As a result, a concept of operations for a GADSS was established, with the document describing the concept now being in a mature draft form (it is expected that the concept is approved by the end of 2017).

ICAO has developed a Concept of Operations (Version 6.0) for the GADSS which specifies the high level functions needed with a description of users and usages of flight tracking information during all phases of flight, both normal and distress flight conditions including timely and accurate location of an aircraft accident site and recovery of flight data.

To date ICAO has identified changes to its Standards and Recommended Practices to enable the GADSS concept, among which are those establishing:

* the operator’s responsibility to track its aircraft with a 15 minute time interval.
* the need for aircraft in distress to transmit an autonomous distress tracking signal at least every minute.

Studies within ICAO have determined that the GADSS requirements can be satisfied using systems operating within existing frequency allocations. As a result no ITU-R studies regarding spectrum needs have been conducted, and no modifications to Article 5 of the Radio Regulations are required. Whether the changes to the ICAO SARPS may require a change to other Articles within the Radio Regulations (e.g. requiring the autonomous transmission of distress tracking information may require changes to Article 37) is under study.

The consequent objectives of the GADSS Concept of Operation are, on a worldwide scale;

* Ensure timely detection of aircraft in distress

To initiate SAR actions in a timely manner

* Ensure tracking of aircraft in distress and timely and accurate location of end of flight

To accurately direct SAR actions

* Enable efficient and effective SAR operations
* Ensure timely retrieval of Flight Recorder Data

At WP5B meeting in November 2016 it was confirmed that a combination of terrestrial and satellite systems will be used to implement the GADSS concept.

At the 18th WP5B meeting held in May/June 2017 the Document 5В/261 (ICAO) and a new version of Concept of Operations for GADSS (version 6) attached to it were submitted. The analysis of the document showed that there is no information on systems which are proposed to be included in GADSS and there is no information on spectrum needs of GADSS. Section 3.6 of new version of the Concept notes that in order to ensure global interoperability and lawful operation of radio equipment on-board aircraft, the equipment will conform to agreed performance standards, will operate in correct frequency bands, must be licensed by appropriate authorities, and be operated by licensed personnel if appropriate.

A table in the Concept of Operations for GADSS (version 6.0), which is reproduced below, shows which types of frequency bands could be considered for the various categories of functions specified under the GADSS.

Table 1: various categories of specified functions under GADSS

|  |  |
| --- | --- |
| Function | Spectrum Category |
| Normal Tracking | A |
| ATC Surveillance systems | B |
| Distress Tracking | C |
| Flight Recorder Data Retrieval (not used for real-time functions) | A |

 A: any type of spectrum properly allocated[[1]](#footnote-2), on a primary basis, for the function being performed.

 B: only protected aeronautical safety spectrum can be used.

 C: only protected aeronautical safety spectrum, or protected distress spectrum (e.g., 406.1 MHz), can be used.

# List of relevant documents

* ICAO GADSS Concept of operation Version 6.0 (see <https://www.icao.int/safety/globaltracking/Documents/GADSS%20Concept%20of%20Operations%20-%20Version%206.0%20-%2007%20June%202017.pdf>);
* 5В/305 Annex 26 Working Document towards a Preliminary Draft New Report ITU-R M.[GADSS]

# Actions to be taken

To consider whether any regulatory changes are required to Chapter VII (Distress and safety communications) and Chapter VIII (Aeronautical services) in order to facilitate GADSS (Annex 1 contains information on consideration in ICAO on this matter).

# Relevant information from outside CEPT

## European Union (date of proposal)

TBD

## Regional telecommunication organisations

APT (APG19-2 July 2017)

APT Preliminary Views:

* APT Members support the ITU-R studies being undertaken for the introduction and use of Global Aeronautical Distress and Safety System (GADSS) in accordance with Resolution 426 (WRC-15**)**
* APT Members are of the view that the studies on spectrum needs and regulatory provisions required for the implementation of GADSS should take into account the GADSS concept developed and provided by ICAO

ATU (date of proposal)

TBD

Arab Group (20 April 2017)

* Support following-up studies and ensuring the protection of existing services in the case of new allocations are made.

CITEL (December 2017)

CAN, USA, B

The quantification and characterization of the radiocommunications requirements for both the terrestrial and satellite components of GADSS are the responsibility of ICAO;

Based on those requirements, relevant studies should be conducted in the ITU-R to review existing regulatory provisions and determine if additional regulatory changes are needed;

ITU-R studies should be done in coordination with ICAO.

RCC (April 2017)

The RCC Administrations support the need in the development of the Global Aeronautical Distress and Safety System (GADSS).

The RCC Administrations consider that spectrum requirements, frequency bands, regulatory provisions for the introduction and use of GADSS should be identified based on GADSS concept which shall be developed by ICAO and submitted to the ITU. And GADSS shall share the considered and adjacent frequency bands with systems in existing radio services without imposing additional constraints on the existing systems.

The RCC Administrations do not oppose the revision of Resolution 426 (WRC-15) to increase the period of studies on spectrum requirements and regulation for implementation and use of GADSS and transfer this issue to the WRC-23 agenda.

## International organisations

IATA (date of proposal)

TBD

ICAO (September 16)

To support studies to identify any regulatory changes required for the implementation of GADSS in accordance with ICAO requirements, and action by WRC-19 to integrate those changes into the Radio Regulations.

IMO (September 17)

The integrity of the GMDSS should be protected. IMO supports the concept of a Chapter separate from Chapter VII of the Radio Regulations to accommodate the regulatory framework for GADSS.

SFCG (date of proposal)

TBD

WMO and EUMETNET (December 2016)

TBD

## Regional organisations

Nato (June 2017)

This NATO military assessment summary is a common military assessment of the NATO Nations on the potential impacts and benefits of Agenda Item 1.10. It does not constitute a common position of the NATO Nations.

This agenda item currently has no direct impact on NATO military usage, but constraints due to safety aspects, could be added to military systems in existing aeronautical bands.

ESA (date of proposal)

TBD

Eurocontrol (date of proposal)

TBD

## OTHER INTERNATIONAL AND REGIONAL ORGANISATIONS

EBU (date of proposal)

TBD

GSMA (date of proposal)

TBD

CRAF (June 2017)

CRAF supports the protection of existing RAS frequency allocations. No changes should be made to the RR unless acceptable sharing and compatibility criteria are developed to ensure the protection of RAS from future GADSS operations.

1. information on further disCussions which took place during the 5th meeting of the working group of the ICAO Frequency Spectrum Management Panel (FSMP)

During ICAO FSMP #WG 5 meeting, revision and new regulatory provisions in RR were discussed.

Drafting group was formed to combine the material on regulatory provisions. The resulting proposed changes to the ITU-R GADSS report will be proposed for submission to WP5B. Some proposals could not be agreed by the meeting, so an action was given to review the proposed GADSS-related changes to the RR Articles for the next ICAO FSMP WG meeting

- modifications in chapter VII in article 30.1 to introduce the GADSS as a distress system and creation of a new specific article on GADSS (no impact on GMDSS).

30.1 § 1 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;

. initiating distress, urgency and safety communications by means of radiotelephony on the frequency 156.8 MHz (VHF channel 16);

.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‑07)

ADD: new article 34A

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

Reasons: to introduce the definition of the GADSS, clarify its main functions and explain that this is a performance based concept.

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.

Reasons: to underline the fact that the detailed information on GADSS is contained in the ICAO documents, rather than in the ITU RR.

` 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.

Reasons: to clarify that system used under GADSS may operate in different radiocommunication services already having allocation in the RR, not necessarily aeronautical ones. This also indirectly indicates that currently GADSS does not need additional allocations. The specific service and type of spectrum (primary/secondary, aeronautical safety/usual) is selected based on the GADSS function.

 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.

 Reasons: To make a cross-reference with the two newly proposed provisions of Articles 36 and 37, which make exception from the general rules established in these Articles.

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.

Reasons: To reflect the absolute importance of information transmitted by autonomous distress tracking systems.

The FSMP #WG5 meeting could not agree on three topics, so further study is required:

* whether the provisions of Articles 36.1, 36.2, 37.1 and 37 would preclude GADSS including a provision that the aircraft distress tracking function could not be turned off
* whether the provisions of Article 18.4 and 36.3 taking into account the definition in Article 17, would require that aircraft tracking information be encrypted
* whether Article 37.3 would preclude GADSS including, under some conditions, a provision for remote triggering of position reporting.

Modifications to the Conference Preparatory Meeting (CPM) draft text on WRC-19 agenda item 1.10, which was also being developed by WP5B, were suggested and agreed within the FSMP WG.

1. Note: The words “type of spectrum properly allocated” by ICAO are understood to mean that the use of the frequencies are in accordance with the definition of the service in article 1 of the RR to which a frequency in question is allocated. [↑](#footnote-ref-2)