

UNITED STATES OF AMERICA
PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item GFT: *“to instruct WRC-15, pursuant to No. 119 of the ITU Convention, and to include in its agenda, as a matter of urgency, the consideration of global flight tracking, including, if appropriate, and consistent with ITU practices, various aspects of the matter, taking into account ITU-R studies”*

Background Information: The International Telecommunication Union (ITU) 2014 Plenipotentiary Conference (PP-14) adopted Resolution **185** (Busan, 2014) on global flight tracking (GFT) for civil aviation. The Resolution resolved: “to instruct WRC-15, pursuant to No. 119 of the ITU Convention, and to include in its agenda, as a matter of urgency, the consideration of global flight tracking, including, if appropriate, and consistent with ITU practices, various aspects of the matter, taking into account ITU-R studies”. PP-14 further instructed the Director of the Radiocommunication Bureau to complete a Report on GFT for consideration by WRC-15.

The International Civil Aviation Organization (ICAO) Member States and the international air transport industry sector agreed on the near-term priority to track airline flights, no matter their global location or destination. Recognizing that global flight tracking should be pursued as a matter of urgency, two groups were formed: an ICAO ad hoc Working Group to develop a concept of operations to support future development of a Global Aeronautical Distress and Safety System (GADSS), and an industry led group under the ICAO framework called the Aircraft Tracking Task Force (ATTF) to identify near term capabilities for flight tracking using existing technologies. The ATTF has provided a report containing a set of performance-based criteria that could be used to establish a baseline level of aircraft tracking capability. The Report also identified future technologies that could support flight tracking in oceanic and remote airspace such as satellite-based reception of Automatic Dependent Surveillance – Broadcast (ADS-B) from aircraft.

The United States believes that, at its core, GFT is knowing where an aircraft is located at any given point in time. Many technologies could serve to support GFT, and the United States believes that ultimately the characteristics of GFT are the responsibility of ICAO. Furthermore, the United States concurs with the ATTF Report that GFT will likely be a performance-based requirement that is not system specific, and in the end, may be addressed by any number of different aviation systems or a combination of systems. The United States therefore proposes to address GFT for civil aviation at WRC-15 with a two-pronged approach: (1) the addition of a primary aeronautical mobile-satellite (R) service (AMS(R)S) allocation in the frequency band 1 087.7-1 092.3 MHz to facilitate satellite reception of ADS-B as a possible constituent element of GFT; and (2) the addition of an item to the 2019 WRC agenda to address other requirements related to GADSS .

The proposed AMS(R)S (Earth-to-space) allocation would allow reception at the satellite of signals already transmitted from aircraft under the existing aeronautical mobile (R) service (AM(R)S) allocation; and currently received only by terrestrial stations including other aircraft. There would be no emissions from those satellites in the frequency band 1 087.7-1 092.3 MHz. However, there is concern that the aggregate emissions from current systems, which are compatible today with terrestrial incumbents, may cause interference to a satellite due to its

increased field of view compared to a terrestrial station. Studies in the ITU-R are showing that this is not the case.

Proposals:

MOD USA/AI GFT/1

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations

(See No. 2.1)

890-1 300 MHz

| Allocation to services | | |
|------------------------|--|----------|
| Region 1 | Region 2 | Region 3 |
| ... | | |
| 960-1 164 | AERONAUTICAL MOBILE (R) 5.327A AERONAUTICAL RADIONAVIGATION 5.328 <u>ADD 5.XXX</u> | |
| ... | | |

Reasons: Add a primary allocation to the aeronautical mobile-satellite (R) service in the frequency band 1 087.7-1 092.3 MHz to enable satellite reception of automatic dependent surveillance-broadcast (ADS-B) messages transmitted in the aeronautical mobile (R) service in accordance with ICAO standards.

ADD USA/AI GFT/2

5.XXX: The frequency band 1 087.7-1 092.3 MHz is also allocated to the aeronautical mobile-satellite (R) service (Earth- to- space) on a primary basis, limited to space station reception of Automatic Dependent Surveillance-Broadcast emissions from aircraft in accordance with recognized international aeronautical standards. Resolution [ADS-B] shall apply.

Reasons: Add a primary allocation to the aeronautical mobile-satellite (R) service in the frequency band 1 087.7-1 092.3 MHz to enable satellite reception of automatic dependent surveillance-broadcast (ADS-B) messages transmitted in accordance with ICAO standards. A new resolution is required to provide information on AMS(R)S operations in this frequency band. Furthermore, with this provision there is no need to modify Resolution **417 (WRC-12)**.

ADD USA/AI ADS-B/3

RESOLUTION [ADS-B] (WRC-15)

Use of the frequency band 1 087.7- 1 092.3 MHz by the aeronautical mobile-satellite (R) service (Earth to space)

Considering

- a) that the frequency band 960-1 164 MHz is currently allocated to the aeronautical radionavigation service (ARNS) and the aeronautical mobile (R) service (AM(R)S);
- b) that automatic dependent surveillance – broadcast (ADS-B) is defined by the International Civil Aviation Organization (ICAO) as “a means by which aircraft, aerodrome vehicles and other objects can automatically transmit and/or receive data such as identification, position and additional data, as appropriate, in a broadcast mode via a data link”¹;
- c) that the frequency band 1 087.7-1 092.3 MHz is currently utilized for terrestrial transmission and reception of automatic dependent surveillance – broadcast signals in accordance with ICAO standards;
- d) that terrestrial systems, standardised by ICAO, are currently in operation using ADS-B in the 1 087.7-1 092.3 MHz band, involving transmissions from aircraft to terrestrial stations on the ground within line-of-sight and consequently do not provide flight tracking and surveillance in polar, oceanic and remote areas;
- e) that WRC-15 adopted **No. 5.XXX**, allocating the frequency band 1087.7-1092.3 MHz to the aeronautical mobile-satellite (R) service AMS(R)S, limited to reception of ADS-B signals transmitted in accordance with recognized international aeronautical standards;
- f) that the allocation of the frequency band 1 087.7-1 092.3 MHz to AMS(R)S is to extend reception of currently-transmitted ADS-B signals beyond terrestrial line-of-sight, to facilitate reporting position of commercial aircraft located anywhere in the world to air traffic control centres, accomplishing an important element of aviation safety and security;
- g) that International Civil Aviation Organization (ICAO) develops Standards and Recommended Practices (SARPs) for systems enabling position determination and tracking of aircraft for air traffic control and management;
- h) that the frequency band 1 087.7-1 092.3 MHz is also used by non-ICAO aircraft identification systems that have historically operated in this frequency band on a national coordination basis and should be taken into account;
- i) that, because of the complex interference environment in the frequency band 1 087.7-1 092.3 MHz, administrations coordinate and control all users to ensure proper operation of all terrestrial systems,

recognizing

- a) the need for systems operating under the provisions of **No. 5.XXX** to be designed in a manner that will not change aircraft equipment currently operating in accordance with recognized international aeronautical standards, including their associated transmission characteristics;
- b) that Annex 10 to the Convention on International Civil Aviation contains SARPs for terrestrial ADS-B usage;

¹ Annex 10, Volume III, Section 6.

c) that the AMS(R)S systems (Earth-to-space) in the frequency band 1 087.7-1 092.3 MHz are designed so that they can operate with the interference environment as described in considering i),

noting

that the development of performance criteria for satellite reception of ADS-B is the responsibility of ICAO,

resolves

1 that AMS(R)S use of the frequency band 1 087.7-1 092.3 MHz shall operate in accordance with SARPs requirements published in Annex 10 to the Convention on International Civil Aviation;

2. that , taking into account *recognizing c)*, AMS(R)S use of the frequency band 1 087.7-1 092.3 MHz shall not constrain administrations in their responsibilities as described in *considering i)*, and AMS(R)S systems shall not claim protection from systems operating in the aeronautical radionavigation service,

instructs the Secretary-General

to bring this Resolution to the attention of ICAO.