

**XXIII MEETING OF PERMANENT  
CONSULTATIVE COMMITTEE II:  
RADIOCOMMUNICATIONS  
INCLUDING BROADCASTING  
March 17 to 21, 2014  
Cartagena, Colombia**

**OEA/Ser.L/XVII.4.2  
CCP.II-RADIO/doc. XXXX/YY  
20 February 2014  
Original: English**

**AGENDA ITEM 1.17:  
PRELIMINARY PROPOSAL FOR WRC-15**

**(Item on the Agenda: 3.1 (SGT2))**

**(Document submitted by the delegation of the United States of America)**

**Agenda Item 1.17:** *to consider possible spectrum requirements and regulatory actions, including appropriate aeronautical allocations, to support wireless avionics intra-communications (WAIC), in accordance with Resolution 423 (WRC-12)*

**Background Information:** The 2012 World Radiocommunication Conference (WRC-12) in response to a request to consider possible spectrum requirements and regulatory measures in support of wireless avionics communication systems approved Agenda Item 1.17 for WRC-15.

WRC-12 resolved to invite the ITU-R to consider, based on the results of ITU-R studies, possible regulatory actions, including appropriate aeronautical allocations, to support the implementation of WAIC systems, while taking into account spectrum requirements for WAIC and protection requirements for incumbent systems operating in accordance with existing allocations.

Resolution 423 (WRC-12) invites Working Party 5B (WP5B) to consider:

- i. frequency bands within existing worldwide aeronautical mobile service, aeronautical mobile (R) service and aeronautical radionavigation service allocations; and
- ii. additional frequency bands above 15.7 GHz for aeronautical services if spectrum requirements cannot be met in frequency bands studied under *invites ITU-R 3 i*)

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Studies submitted to WP5B show that WAIC systems can be accommodated in the band 4200-4400 MHz provided that mitigation techniques for some applications, provided in [Working document towards a preliminary draft new Report, ITU-R M.[WAIC\_SHARING\_4 200-4 400MHz - Compatibility analysis between wireless avionics intra-communications systems and systems in the existing services in the frequency band 4 200-4 400 MHz. Document 5B/TEMP/241] are utilized. If such mitigation techniques cannot be utilized, then some external WAIC applications might not be compatible with existing aeronautical services.

However, both radio altimeter and WAIC systems are aeronautical applications and regulated by aviation certification authorities. . Additional standardization and aircraft certification efforts must occur within the aviation community in order to guarantee the safe and compatible operation of WAIC and radio altimeter systems.

Therefore, the United States proposes an additional allocation to the Aeronautical Mobile (Route) Service, limited to WAIC systems to the frequency band 4 200-4 400 MHz.

**Proposal:**

**ADD** USA/1.17/1

ARTICLE 5

**Frequency allocations**

**Section IV – Table of Frequency Allocations**

**4 200-4 400 MHz**

Allocation to services		
Region 1	Region 2	Region 3
<b>4 200-4 400</b>	AERONAUTICAL RADIONAVIGATION <a href="#">MOD 5.438</a> <a href="#">AERONAUTICAL MOBILE (R) ADD 5.XXX</a> 5.439 5.440 <a href="#">ADD 5.YYY</a>	

**MOD** USA/1.17/2

**5.438** Use of the band 4 200-4 400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. ~~However, passive sensing in the Earth exploration-satellite and space research services may be authorized in this band on a secondary basis (no protection is provided by the radio altimeters).~~

**ADD** USA/1.17/3

**5.XXX** Use of the frequency band 4 200- 4 400 MHz by the aeronautical mobile (R) service is limited to internationally standardized aeronautical systems for the provision of wireless avionics intra-communications. ~~Such use shall be in accordance with Resolution XXX (WRC 15)~~

**5.YYY** Passive sensing in the Earth exploration-satellite and space research services may be authorized in the band 4200-4400 MHz on a secondary basis (no protection is provided by radio altimeters or by wireless avionics intra-communications).

Reason: To add a primary Aeronautical mobile (route) service (AM(R)S) allocation in the frequency band 4200-4400 MHz to Article 5 of the Radio Regulations. The AM(R)S allocation is limited to WAIC systems via footnote. The Earth exploration-satellite and Space research services maintain their status via footnote.

ADD USA/1.17/4

RESOLUTION XXX-1.17(WRC-15)

Conditions for the use of  
Wireless Avionics Intra-Communications

The World Radiocommunication Conference (Geneva, 2015),

*considering*

a) that the future generations of aircraft are being designed to enhance efficiency, reliability and safety, as well as to be more environmentally friendly;

b) that Wireless avionics intra-communications (WAIC) systems provide radiocommunications between two or more points integrated into or installed on a single aircraft;

c) that WAIC systems do not provide radiocommunications between an aircraft and the ground, another aircraft or satellite;

d) that WAIC systems must operate in a manner that ensures the safe operation of an aircraft;

e) that WAIC systems will operate during all phases of flight, including on the ground;

f) that aircraft equipped with WAIC systems will be operated worldwide and will cross national borders

g) that WAIC systems operating inside an aircraft will receive the benefits of fuselage attenuation to facilitate sharing with other services;

h) that ITU-R Recommendation ITU-R M. [WAIC] provides technical characteristics and operational objectives for WAIC systems;

i) that under some limited circumstances, operational measures might be considered to ensure compatibility between WAIC systems operating in the band 4 200-4 400 MHz and nearby FSS systems operating below 4 200 MHz,

*recognizing*

a) that Annex 10 to the Convention on International Civil Aviation contains Standards and Recommended Practices (SARPs) for aeronautical radionavigation and radiocommunication systems used by international civil aviation;

*resolves*

1) that Wireless avionics intra-communications (WAIC) is radiocommunication between two or more aircraft stations located on a single aircraft; supporting the safe operation of the aircraft;

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2 that the aeronautical mobile (route) service systems operating in the frequency band 4 200 - 4 400 MHz shall not cause harmful interference to, nor claim protection from aeronautical radionavigation service systems in this band;

3 that the aeronautical mobile (route) service systems operating in the frequency band 4 200-4 400 MHz shall meet Standards and Recommended Practices (SARPs) requirements published in Annex 10 to the Convention on International Civil Aviation;

4 that No. 43.1 shall not apply for aeronautical mobile (route) service allocations in the frequency bands identified in Article 5 for WAIC systems;

*instructs the Secretary-General*  
to bring this Resolution to the attention of ICAO.

**SUP** USA/AI 1.17/54

RESOLUTION 423 (WRC-12)

**Consideration of regulatory actions, including allocations, to support  
Wireless Avionics Intra-Communications**

Reason: The required studies have been completed and this resolution is no longer needed.

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