Doc. IWG-4/95 (01.xx.2006)

IWG-4

Draft U.S. Proposal for the work of the conference

Agenda Item 1.6 (Res. 414)*: to consider additional allocations for the aeronautical mobile (R) service in parts of the bands between 108 MHz and 6 GHz, in accordance with Resolution* ***414 (WRC-03)*** *and, to study current satellite frequency allocations, that will support the modernization of civil aviation telecommunication systems, taking into account Resolution* ***415 (WRC-03)****;*

Background Information: This proposal considers additional allocations for the aeronautical mobile (R) service (AM(R)S) in parts of the bands between 108 MHz and 6 GHz, in accordance with Resolution **414 (WRC-03)**.

Existing AM(R)S bands are nearing saturation in high traffic areas. In addition, new applications and concepts in air traffic management put further pressure on existing AM(R)S bands. Resolution **414 (WRC-03)** states that new technologies to support air navigation may not conform to the definition of aeronautical radionavigation in the Radio Regulations. WRC-03 provided a mechanism to implement these new aviation technologies by adding AM(R)S use in the band 108 - 117.975 MHz by footnote **5.197A** in accordance with Resolution **413 (WRC-03)**. One emerging application driving requirements for new AM(R)S spectrum is the integration of command and control for unmanned aircraft (UA) into air traffic services (ATS) airspace. Conversely, AM(R)S spectrum is not appropriate for UA payload data use, such as downlinking information and operational data from the UA.

ITU-R Working Party 8B (WP 8B) and the International Civil Aviation Organization (ICAO) developed a draft operational concept, and technology selection criteria and procedures for new aviation technology. WP 8B and ICAO determined that the new aviation systems require two distinct categories of AM(R)S spectrum. The first category for surface applications could support high data throughput over moderate transmission distances. There is a high degree of reuse of this spectrum. For surface applications, ICAO and WP8B recommended 5 091 - 5 150

MHz as a suitable band. WP 8B is also studying the band 5 091-5 150 MHz under agenda item 1.5 for the purpose of aeronautical mobile telemetry applications.[1]

The second category for bidirectional air to ground applications could support a moderate data throughput over longer propagation distances out to radio line-of-sight. These applications require a number of distinct channels to allow for sector-to-sector assignments. For radio line-of-sight applications, ICAO and WP 8B recommended 960 - 1 024 MHz as a suitable band.

[1] Note that frequencies in the band 108-117.975 MHz are not currently being considered by the U.S. for new aviation technology.

Proposal:

USA/ / 1 MOD

890-1 300 MHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td rowspan="3">890-942
FIXED
MOBILE except aeronautical mobile 5.317A
BROADCASTING 5.322
Radiolocation

5.323</td><td>890-902
FIXED
MOBILE except aeronautical mobile 5.317A
Radiolocation
5.318 5.325</td><td rowspan="3">890-942
FIXED
MOBILE 5.317A
BROADCASTING
Radiolocation

5.327</td></tr>
<tr><td>902-928
FIXED
Amateur
Mobile except aeronautical mobile 5.325A
Radiolocation
5.150 5.325 5.326</td></tr>
<tr><td>928-942
FIXED
MOBILE except aeronautical mobile 5.317A
Radiolocation
5.325</td></tr>
<tr><td>942-960
FIXED
MOBILE except aeronautical mobile 5.317A
BROADCASTING 5.322
5.323</td><td>942-960
FIXED
MOBILE 5.317A</td><td>942-960
FIXED
MOBILE 5.317A
BROADCASTING

5.320</td></tr>
<tr><td>960-1 164</td><td colspan="2">AERONAUTICAL RADIONAVIGATION 5.328
ADD 5.328[C]</td></tr>
</table>

Reasons: To provide allocations to support evolving AM(R)S applications**.**

USA/ / 2 MOD

4 800-5 570 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
4 800-4 990	FIXED MOBILE 5.442 Radio astronomy 5.149 5.339 5.443	
4 990-5 000	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149	
5 000-5 010	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367	
5 010-5 030	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-space) 5.328B 5.443B 5.367	
5 030-5 150	AERONAUTICAL RADIONAVIGATION 5.367 5.444 5.444A **ADD 5.367[A]**	

Reasons: To provide allocations to support evolving AM(R)S applications**.**

USA/ /3 ADD

5.328C The band 960 - 1 024 MHz may also be used by the aeronautical mobile (R) service on a primary basis, limited to systems operating in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **AM(R)S 960** and shall not cause harmful interference to nor claim protection from stations operating in the aeronautical radionavigation service operating in accordance with international aeronautical standards.

Reasons: To provide allocations to support evolving AM(R)S applications**.** Compatibility with regard to existing aeronautical radionavigation service (ARNS) systems will be addressed as a part of standards development for the new AM(R)S system.

USA/ /4 ADD

5.367A The band 5 091-5 150 MHz may also be used by the aeronautical mobile (R) service on a primary basis, limited to systems operating in accordance with recognized international aeronautical standards.

Reasons: To provide allocations to support evolving AM(R)S applications**.** Compatibility with regard to existing aeronautical radionavigation service (ARNS) systems will be addressed as a part of standards development for the new AM(R)S system.

USA/ /5 ADD

RESOLUTION AM(R)S 960 (WRC-07)

Use of the band 960-1 024 MHz by aeronautical services

The World Radiocommunication Conference (Geneva, 2007),

considering

a) the current allocation of the frequency band 960-1 164 MHz to the aeronautical radionavigation service (ARNS);

b) the use of the band 960 - 1 215 MHz by the aeronautical radionavigation service is reserved on a worldwide basis for the operation and development of airborne electronic aids to air navigation and any directly associated ground-based facilities per No. **5.328**;

c) that new technologies are being developed to support communications and air navigation, including airborne and ground surveillance applications;

d) that new applications and concepts in air traffic management which are data intensive are being developed,

recognizing

a) that precedence must be given to the ARNS operating in the frequency band 960 - 1 164 MHz;

b) that, in accordance with Annex 10 of the Convention of the International Civil Aviation Organization (ICAO) on international civil aviation, all aeronautical systems must meet standards and recommended practices (SARPs) requirements;

c) that compatibility criteria between aeronautical mobile (route) service (AM(R)S) systems and the ARNS operating in the frequency band 960-1 024 MHz will be established by ICAO through the development of relevant Standards and Recommended Practices (SARPs) for the communication systems;

d) that all compatibility issues between AM(R)S systems operating in the 960-1024 MHz band and ARNS systems in that band must be addressed and resolved prior to such AM(R)S systems being placed into use,

noting

that no compatibility criteria currently exist between AM(R)S systems proposed for operations in the frequency band 960 - 1 024 MHz and the existing ARNS aeronautical systems in the band,

resolves

1 that the provisions of this Resolution and of No. **5.328C** shall enter into force on [x] November 2007;

2 that any AM(R)S systems planned to operate in the frequency band 960-1 024 MHz shall, as a minimum, have performance standards published in Annex 10 of the ICAO Convention on International Civil Aviation, and that those performance standards will ensure compatibility with ARNS systems operating in accordance with international (ICAO) standards;

3 that any AM(R)S systems operating in the band 960-1 024 MHz shall impose no constraints on the operation and future development of co-band aeronautical radionavigation systems operating in accordance with international (ICAO) standards,

instructs the Secretary-General

to bring this Resolution to the attention of ICAO.

USA/ /6 NOC _____

RESOLUTION 413 (WRC-03)

Use of the band 108-117.975 MHz by Aeronautical Service