

Agenda Item 1.6: *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).*

Resolution 414 (WRC-03)

Background:

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)**.¹ 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 at airports could support high data throughput over moderate (i.e., up to several kilometers) transmission distances. There is a high degree of reuse of this spectrum. This proposal addresses the 5000-5010, 5010-5030, and 5091-5150 MHz bands for that airport surface application. The AM(R)S systems are planned to have characteristics based on IEEE 802.16e standards.

The bands 5 000-5 010 MHz and 5 010-5 030 MHz should be allocated to AM(R)S limited to surface applications at airports on the basis that AM(R)S stations operating in these bands cannot cause harmful interference to, nor claim protection from radionavigation satellite service (RNSS) systems. Analysis shows that compatibility between AM(R)S transmitters and RNSS feeder uplink satellite receivers in the 5 000-5 010 MHz band is practicable under worst case conditions. The analysis has also shown that compatibility with RNSS feeder downlinks in the 5 010-5 030 MHz band can be achieved with geographic separation between operating AM(R)S transmitters and RNSS receivers. Since it may not be practical to implement sufficient geographic separation between AM(R)S transmitters and RNSS service link receivers in the vicinity of AM(R)S-equipped airports there may be a possibility of some incompatibility between the two operations. In these cases, spectrum management measures such as site-specific analysis, consistent with the allocation to AM(R)S in the 5 010-5 030 MHz band, will need to be taken by the responsible administration.

¹ Note that AM(R)S allocations in the band 108-117.975 MHz are only being considered by the U.S. for new aviation navigation surveillance technology consistent with No. **5.197A**.

Geographic separation will ensure AM(R)S systems are compatible with radio astronomy stations operating in the adjacent 4 990-5 000 MHz band. In the few instances where radio astronomy observatories are in relative proximity to airports, local coordination can be employed to resolve any remaining issues.

The 5 091-5 150 MHz band is used by the fixed-satellite service to provide feeder uplinks for non-geostationary mobile-satellite service systems. Studies within WP8B have shown that those feeder links would be protected from interference from new AM(R)S applications proposed for this band. ITU-R has also studied this band under agenda item 1.5 for the purpose of aeronautical mobile telemetry applications. These studies have shown that AM(R)S can share with both the existing fixed satellite service and possible aeronautical telemetry (AMT) systems in the band 5 091-5 150 MHz. No priority over other uses in this band is established for the AM(R)S uses.

The second category for bi-directional 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. The provisions of the new footnote No. **5.XXX** and resolution [AM(R)S], contained in this proposal should enter into force on [10] November 2007. The provisional application of this footnote and associated resolution should be contained in a WRC resolution similar to Resolution **96 (WRC-03)** on the provisional application of certain provisions of the Radio Regulations as revised by WRC-03 and abrogation of certain resolutions and recommendations.

Consistent with development of CPM text, ITU WP 8B discussed that there is a need to account for systems in the aeronautical radionavigation service operating in 960 – 1164 MHz band for which no standards and recommended practices (SARPs) have been developed by the International Civil Aviation Organization (ICAO). The countries operating these systems are identified in 5.312.

Proposals:

USA/1.6/1 **NOC**

Support: United States

75.2-137.175 MHz

Allocation to services		
Region 1	Region 2	Region 3
108-117.975	AERONAUTICAL RADIONAVIGATION	
	5.197 5.197A	

Reasons: No additional allocations are being proposed. AM(R)S allocations in the band 108-117.975 MHz are only being considered by the U.S. for new aviation navigation surveillance technology consistent with No. **5.197A**. ITU-R studies determining the feasibility of extending

AM(R)S use in this band have not been completed. Additionally, ITU-R studies determining compatibility issues between AM(R)S in this band and the broadcasting service in the adjacent band (87-108 MHz) have not been completed.

DIAP/1.6/1 MOD

Support: Canada, United States

[Antigua and Barbuda], [Argentina], [Brazil], [Commonwealth of Bahamas], [Barbados], [Belize], [Bolivia], [Chile], [Colombia], [Costa Rica], [Commonwealth of Dominica], [Ecuador], [El Salvador], [Grenada], [Guatemala], [Guyana], [Haiti], [Honduras], [Jamaica], [Mexico], [Nicaragua], [Panama], [Paraguay], [Peru], [Dominican Republic], [Saint Lucia], [Saint Vincent and the Grenadines], [Saint Kitts and Nevis], [Suriname], [Trinidad and Tobago], [Uruguay], [Venezuela]

890-1 300 MHz

Allocation to services		
Region 1	Region 2	Region 3
890-942 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 Radiolocation	890-902 FIXED MOBILE except aeronautical mobile 5.317A Radiolocation 5.318 5.325	890-942 FIXED MOBILE 5.317A BROADCASTING Radiolocation
	902-928 FIXED Amateur Mobile except aeronautical mobile 5.325A Radiolocation 5.150 5.325 5.326	
5.323	928-942 FIXED MOBILE except aeronautical mobile 5.317A Radiolocation 5.325	5.327
942-960 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322	942-960 FIXED MOBILE 5.317A	942-960 FIXED MOBILE 5.317A BROADCASTING

5.323		5.320
960-1 164	AERONAUTICAL RADIONAVIGATION 5.328 ADD 5.XXX	

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

USA/1.6/2 MOD

Support: United States

4 800-5 570 MHz

Allocation to services		
Region 1	Region 2	Region 3
5 000-5 010	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367 ADD 5.AMR	
5 010-5 030	AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.443B 5.367 ADD 5.AMR	

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

DIAP/1.6/2 MOD

Support: Canada, United States

[Antigua and Barbuda], [Argentina], [Brazil], [Commonwealth of Bahamas], [Barbados], [Belize], [Bolivia], [Chile], [Colombia], [Costa Rica], [Commonwealth of Dominica], [Ecuador], [El Salvador], [Grenada], [Guatemala], [Guyana], [Haiti], [Honduras], [Jamaica], [Mexico], [Nicaragua], [Panama], [Paraguay], [Peru], [Dominican Republic], [Saint Lucia], [Saint Vincent and the Grenadines], [Saint Kitts and Nevis], [Suriname], [Trinidad and Tobago], [Uruguay], [Venezuela]

4 800-5 570 MHz

Allocation to services		
Region 1	Region 2	Region 3
4 800-4 990	FIXED MOBILE 5.442 Radioastronomy 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 <u>ADD 5.ZZZ</u>

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

DIAP/1.6/3 ADD

Support: Canada, United States

[Antigua and Barbuda], [Argentina], [Brazil], [Commonwealth of Bahamas], [Barbados], [Belize], [Bolivia], [Chile], [Colombia], [Costa Rica], [Commonwealth of Dominica], [Ecuador], [El Salvador], [Grenada], [Guatemala], [Guyana], [Haiti], [Honduras], [Jamaica], [Mexico], [Nicaragua], [Panama], [Paraguay], [Peru], [Dominican Republic], [Saint Lucia], [Saint Vincent and the Grenadines], [Saint Kitts and Nevis], [Suriname], [Trinidad and Tobago], [Uruguay], [Venezuela]

5. XXX The band 960 - 1 024 MHz is also allocated to the aeronautical mobile (R) service on a primary basis, limited to systems operating in accordance with recognized international aeronautical standards. Such use also shall be in accordance with Resolution [AM(R)S 960].

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/1.6/3 ADD

Support: United States

5.AMR The bands 5 000-5 010 MHz and 5 010- 5 030 MHz are also allocated to the aeronautical mobile (R) service on a primary basis. Resolution [AM(R)S-RNSS](WRC-07) shall apply.

Reasons: To provide allocations to support evolving AM(R)S surface applications at airports.

DIAP/1.6/4 ADD

Support: Canada, United States

[Antigua and Barbuda], [Argentina], [Brazil], [Commonwealth of Bahamas], [Barbados], [Belize], [Bolivia], [Chile], [Colombia], [Costa Rica], [Commonwealth of Dominica], [Ecuador], [El Salvador], [Grenada], [Guatemala], [Guyana], [Haiti], [Honduras], [Jamaica], [Mexico], [Nicaragua], [Panama], [Paraguay], [Peru], [Dominican Republic], [Saint Lucia], [Saint Vincent and the Grenadines], [Saint Kitts and Nevis], [Suriname], [Trinidad and Tobago], [Uruguay], [Venezuela]

5.ZZZ The band 5 091-5 150 MHz is also allocated to the aeronautical mobile (R) service on a primary basis, limited to surface applications at airports by systems operating in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **[AM(R)S-5GHz]** .

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. The 5 091-5 150 MHz band is used by the fixed-satellite service to provide feeder uplinks for non-geostationary mobile-satellite systems (**5.444A**). ITU-R studies show that these feederlinks would be protected for interference from new AM(R)S applications proposed for this band. No priority over the FSS in this band is established for the AM(R)S uses.

DIAP/1.6/5 ADD

Support: Canada, United States

[Antigua and Barbuda], [Argentina], [Brazil], [Commonwealth of Bahamas], [Barbados], [Belize], [Bolivia], [Chile], [Colombia], [Costa Rica], [Commonwealth of Dominica], [Ecuador], [El Salvador], [Grenada], [Guatemala], [Guyana], [Haiti], [Honduras], [Jamaica], [Mexico], [Nicaragua], [Panama], [Paraguay], [Peru], [Dominican Republic], [Saint Lucia], [Saint Vincent and the Grenadines], [Saint Kitts and Nevis], [Suriname], [Trinidad and Tobago], [Uruguay], [Venezuela]

Draft 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 Annex 10 of the Convention of the International Civil Aviation Organization (ICAO) contains standards and recommended practices (SARPs) for aeronautical radionavigation and radiocommunication systems used by international civil aviation;

c) that all compatibility issues between the ICAO standard Universal Access Transceiver (UAT) and other systems which operate in the band 960-1 024 MHz have been addressed within ICAO,

noting:

that excluding the system identified in recognizing c, 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 prior to operating in the frequency band 960-1 024 MHz any AM(R)S systems shall have Standards and Recommended Practices requirements published in Annex 10 of the ICAO Convention on International Civil Aviation, and that those requirements will ensure compatibility with and not constrain the future development of ARNS systems operating in accordance with international (ICAO) standards;

2 that any AM(R)S systems operating in the band 960-1024 MHz shall not cause harmful interference to, nor claim protection from, and shall not impose constraints on the operation and planned development of aeronautical radionavigation systems operating in accordance with international (ICAO) standards in the same band;

instructs the Secretary-General:

to bring this Resolution to the attention of ICAO.

Reasons: A resolution is needed to indicate the systems allowed under the AM(R)S allocation in the 960-1 024 MHz band and to explain the role of ICAO in developing standards for compatibility between ARNS and AMRS in this band.

DIAP/1.6/6 ADD

Support: Canada, United States

[Antigua and Barbuda], [Argentina], [Brazil], [Commonwealth of Bahamas], [Barbados], [Belize], [Bolivia], [Chile], [Colombia], [Costa Rica], [Commonwealth of Dominica], [Ecuador], [El Salvador], [Grenada], [Guatemala], [Guyana], [Haiti], [Honduras], [Jamaica], [Mexico], [Nicaragua], [Panama], [Paraguay], [Peru], [Dominican Republic], [Saint Lucia], [Saint Vincent and the Grenadines], [Saint Kitts and Nevis], [Suriname], [Trinidad and Tobago], [Uruguay], [Venezuela]

Insert in the resolves of Resolution **[WRC-07]** Provisional application of certain provisions of the Radio Regulations as revised by WRC-07 and abrogation of certain Resolutions and Recommendations:

RR 5.XXX and Resolution **AM(R) 960** shall provisionally apply as of [10] November 2007.

Reasons: Because Resolution and **RR 5.XXX** address compatibility issues that need to be implemented prior to adding AM(R)S uses to the band, the provisions of the new footnote should enter into force on [10] November 2007. The provisional application of this footnote should be inserted in the WRC-07 resolution similar to Resolution **96 (WRC-03)** on the provisional application of certain provisions of the Radio Regulations as revised by WRC-03 and abrogation of certain resolutions and recommendations.

USA/1.6/4 ADD

Support: United States

RESOLUTION [AM(R)S-RNSS] (WRC-07)

Use of the 5 000-5 030 MHz band by the aeronautical mobile (R) service and protection the radionavigation-satellite and the radioastronomy services

The World Radiocommunication Conference (Geneva, 2007),

considering

- a) the current allocation of the frequency band 5 000-5 010 MHz to the aeronautical mobile satellite (R) service (AMS(R)S) subject to agreement obtained under No. **9.21**, the aeronautical radionavigation service (ARNS) and the radionavigation-satellite service (RNSS) (Earth-to-space);
- b) the current allocation of the frequency band 5 010-5 030 MHz to the AMS(R)S subject to agreement obtained under No. **9.21**, the ARNS and the RNSS (space-to-Earth and space-to-space);
- c) that the WRC-07 has made allocations to the aeronautical mobile (R) service (AM(R)S) in the bands 5 000-5 010 MHz and 5 010-5 030 MHz limited to systems operating in accordance with recognized international aeronautical standards;
- d) that the International Civil Aviation Organization (ICAO) is in the process of identifying the technical and operating characteristics of new systems operating in the AM(R)S in the bands 5 000-5 010 MHz and 5 010-5 030 MHz;

e) that compatibility between AM(R)S systems and aeronautical radionavigation systems operating in accordance with international aeronautical standards will be ensured by ICAO,

recognizing

a) that ICAO publishes recognized international aeronautical standards for AM(R)S;

b) that preliminary studies have been conducted within the ITU-R concerning the sharing and compatibility of surface-based AM(R)S systems with planned RNSS systems in the 5 000-5 010 MHz and 5 010-5 030 MHz bands, and compatibility with the radio astronomy service operating in the band 4 990-5 000 MHz;

c) that system characteristics for RNSS and AM(R)S systems planned for the 5 000-5 010 MHz and 5 010-5 030 MHz bands are still evolving;

d) that technical characteristics and operational parameters for the RNSS and AM(R)S have not been fully established by ITU-R and ICAO respectively;

e) that the RNSS needs access to the bands 5 000-5 010 MHz and 5 010-5 030 MHz in the longer term;

f) that spectrum efficiency is enhanced in situations where new applications can be implemented compatibly in heavily occupied bands,

noting

a) that currently only preliminary guidelines are available for the AM(R)S to ensure protection of the RNSS;

b) that the ITU-R is actively developing new Recommendations regarding the technical characteristics and operational parameters for the RNSS,

resolves

1 that the operation of stations in the AM(R)S in the 5 000-5 010 MHz and 5 010-5 030 MHz bands shall not cause harmful interference to, nor claim protection from, RNSS systems;

2 that in the frequency bands 5 000-5 010 MHz and 5 010-5 030 MHz any AM(R)S systems shall operate in accordance with Standards and Recommended Practices (SARPs) requirements published in Annex 10 of the ICAO Convention on International Civil Aviation;

3 that AM(R)S use in the 5 000-5 010 MHz and 5 010-5 030 MHz bands shall be limited to stations operating on the surface of the Earth at airports,

requests ITU-R

1 to study, in the bands 5 000-5 010 MHz and 5 010-5 030 MHz, the technical and operational issues relating to the protection of the RNSS by the AM(R)S;

2 to study the technical and operational issues relating to the compatibility between the radio astronomy service operating in the 4 990-5 000 MHz band and the AM(R)S operating in the bands 5 000-5 010 MHz and 5 010-5 030 MHz;

3 to incorporate in ITU-R Recommendations and/or Reports the results from the studies in *requests ITU-R 1 and 2,*

invites

1 administrations and ICAO to supply technical and operational characteristics for the AM(R)S necessary for compatibility studies, and to participate actively in the studies;

2 administrations to supply technical and operational characteristics and protection criteria for the RNSS necessary for compatibility studies, and to participate actively in the studies,

instructs the Secretary-General

to bring this Resolution to the attention of ICAO.

DIAP/1.6/7 ADD

Support: Canada, United States

[Antigua and Barbuda], [Argentina], [Brazil], [Commonwealth of Bahamas], [Barbados], [Belize], [Bolivia], [Chile], [Colombia], [Costa Rica], [Commonwealth of Dominica], [Ecuador], [El Salvador], [Grenada], [Guatemala], [Guyana], [Haiti], [Honduras], [Jamaica], [Mexico], [Nicaragua], [Panama], [Paraguay], [Peru], [Dominican Republic], [Saint Lucia], [Saint Vincent and the Grenadines], [Saint Kitts and Nevis], [Suriname], [Trinidad and Tobago], [Uruguay], [Venezuela]

RESOLUTION [AM(R)S-5 GHz] (WRC-07)

Compatibility between the aeronautical mobile (R) service and fixed-satellite service (Earth-to-space) in the band 5 091 -5 150 MHz

The World Radiocommunication Conference (Geneva, 2007),

considering:

- a) that the current allocation of the 5 091 - 5 150 MHz band to the fixed-satellite (FSS) (Earth-to-space), is limited to feeder links of non-geostationary satellite (non-GSO) systems in the mobile-satellite service (MSS) ;
- b) the current allocation of the frequency band 5 000-5 150 MHz to the aeronautical mobile-satellite (R) service is subject to agreement obtained under No. **9.21**. This band is also allocated to the aeronautical radionavigation service (ARNS);
- c) that this conference has allocated the 5 091-5 150 MHz band for the aeronautical mobile (R) service limited to systems operating in accordance with recognized international aeronautical standards,
- d) that this conference has allocated the 5 091-5 150 MHz band to the aeronautical mobile service (AMS) limited to secure and confidential communications between aircraft and ground, principally during unlawful interference to aircraft;
- e) that ICAO is in the process of identifying the technical and operating characteristics of new systems operating in the AM(R)S in the band 5 091-5 150 MHz;
- f) that one AM(R)S system, to be used by aircraft operating on the airport surface, has demonstrated compatibility with the FSS in the 5 091-5 150 MHz band;

g) that ITU-R studies have examined potential sharing among AMS applications and have shown that the aggregate interference from aeronautical security, aeronautical telemetry and AM(R)S should total no more than 3% $\Delta T/T$,

recognizing:

a) that precedence is to be given to the microwave landing system (MLS) in accordance with No. **5.444** in the frequency band 5 030-5 150 MHz;

b) that Resolution **114 (WRC-03)** applies to the sharing conditions between the fixed-satellite and aeronautical radionavigation service in the 5 091-5 150 MHz band;

c) that the International Civil Aviation Organization publishes standards for aeronautical mobile (R) systems,

noting:

a) that ITU-R studies describe methods for ensuring compatibility between the AM(R)S and FSS operating in the band 5 091-5 150 MHz,

b) that the use of the band 5 091-5 150 MHz by the AM(R)S needs to ensure protection of the current or planned use of this band by the FSS (Earth-to-space),

resolves:

1. that administrations, in making assignments to stations in the aeronautical mobile (R) service shall take into account the International Civil Aviation (ICAO) Standards and Recommended Practices (SARPS).

2. that the coordination distance with respect to stations in the fixed satellite service (FSS) operating in the band 5091-5150 MHz shall be based on ensuring that the received signal at the AM(R)S station from the FSS transmission does not exceed -143 dBW/MHz, where the required basic transmission loss shall be determined using the methods described in Recommendations ITU-R P.525-2 and ITU-R P.526-9.

3. that the $\Delta T/T$ aggregate interference into FSS space station receivers from AM(R)S stations shall be limited to xx%²;

invites,

administrations and ICAO to supply technical and operational criteria necessary for sharing studies for the aeronautical mobile (R) service, and to participate actively in such studies,

instructs the Secretary-General,

to bring this Resolution to the attention of ICAO

DIAP/1.6/8

NOC

² NOTE : xx equals 2% if an allocation to aeronautical mobile service for the use of aeronautical mobile telemetry in the band 5 091 – 5 150 MHz is made by WRC-07 under Agenda Item 1.5, and 3% otherwise.

Support: Canada, United States

[Antigua and Barbuda], [Argentina], [Brazil], [Commonwealth of Bahamas], [Barbados], [Belize], [Bolivia], [Chile], [Colombia], [Costa Rica], [Commonwealth of Dominica], [Ecuador], [El Salvador], [Grenada], [Guatemala], [Guyana], [Haiti], [Honduras], [Jamaica], [Mexico], [Nicaragua], [Panama], [Paraguay], [Peru], [Dominican Republic], [Saint Lucia], [Saint Vincent and the Grenadines], [Saint Kitts and Nevis], [Suriname], [Trinidad and Tobago], [Uruguay], [Venezuela]

RESOLUTION 413 (WRC-03)

Use of the band 108-117.975 MHz by Aeronautical Service

Reasons: No additional allocations are being proposed that require Resolution **413** to be modified to ensure compatibility with existing services in lower adjacent band. If such proposals are made by the WRC it would be appropriate to review Resolution **413**.

Resolution 415 (WRC-03)

“Current satellite frequency allocations and the modernization of civil aviation telecommunications systems”

Background:

Existing aeronautical mobile (R) service bands are nearing saturation in high traffic areas. In addition, new applications and concepts in air traffic management put further pressure on existing aeronautical mobile bands. In particular, the 117.975 - 136 MHz band is extremely congested due to increased aeronautical mobile use in the band. For the aforementioned reasons, and since there are no operational or planned AMS(R)S systems in this band, the secondary allocation to AMS(R)S in RR No. **5.198** should be suppressed.

With ever increasing speed, existing and new communications systems are being based on Internet related protocols and services. Access to these services with sufficient bandwidth is becoming essential for all forms of telecommunications. Communications with aircraft are not exempt from this growing dependence on Internet applications. Aircraft owners and operators are realizing that without this access aeronautical operations will be hindered from gaining the efficiencies and benefits that these types of service offer. Internet usage is fast becoming dependent on broadband connectivity. A demonstrated viable means of providing this connectivity for mobile platforms on an intercontinental basis is through satellite channels.

The ITU-R recognized that the use of the 14.0-14.5 GHz band for Aeronautical Mobile-Satellite Service (AMSS) on a Secondary basis was compatible with current Fixed-Satellite Service (FSS) systems and was supported by studies leading up to WRC-03. Additional studies in the ITU-R also confirmed compatibility with other Services in the 14.0-14.5 GHz range. At WRC-03, the decision was made to expand the secondary MSS allocation in the 14-14.5GHz band to include AMSS (Earth-to-space). In addition, although there were no changes made to the *Radio Regulations* for a corresponding downlink,*(new text)* there were some discussions at the 14th Plenary Meeting of WRC-03 confirming use of the associated 10/11/12 GHz *(new text)* downlink (space-to-Earth) bands to facilitate this service. This decision has enabled the use of Internet applications by aircrews and passengers.

The 14.0-14.5 GHz AMSS (Earth-to-space) secondary allocation is currently being used operationally by aircraft earth stations globally. At the same time and due to the FSS spectrum pairing arrangement the 10/11/12 GHz (space-to-Earth) frequency bands are currently being used operationally for transmissions to these aircraft earth stations. It should be noted that the AMSS systems operate within the envelope of FSS technical requirements and coordination agreements reached for specific FSS satellite networks. The downlink (space-to-Earth) transmissions to AMSS earth stations are not treated any differently from those to FSS earth stations in the primary FSS services.

It should also be noted that (*new text*) the intended AMSS services operating within the FSS range of frequencies, are not to be used for provision of safety-of-life services or the AMS(R)S services, as defined in accordance with categories 1 to 6 of Article **44** of the *Radio Regulations*.

Proposals:

USA/1.6/5 MOD

Support: United States

75.2-137.175 MHz

Allocation to services										
Region 1			Region 2			Region 3				
....										
117.975-137			AERONAUTICAL MOBILE (R)							
			5.111 SUP	5.199	5.200	5.201	5.202	5.203	5.203A	5.203B
....										

Reasons: The modification of the table is due to the suppression of **5.198**.

DIAP /1.6/9 **NOC**

Support: Brazil, Canada, United States, Uruguay

[Antigua and Barbuda], [Argentina], [Commonwealth of Bahamas], [Barbados], [Belize], [Bolivia], [Chile], [Colombia], [Costa Rica], [Commonwealth of Dominica], [Ecuador], [El Salvador], [Grenada], [Guatemala], [Guyana], [Haiti], [Honduras], [Jamaica], [Mexico], [Nicaragua], [Panama], [Paraguay], [Peru], [Dominican Republic], [Saint Lucia], [Saint Vincent and the Grenadines], [Saint Kitts and Nevis], [Suriname], [Trinidad and Tobago], [Venezuela]

ARTICLE 5

Frequency allocations, 10.7 – 12.75 GHz

USA/1.6/6 **SUP**

Support: United States

5.198 *Additional allocation:* the band 117.975-136 MHz is also allocated to the aeronautical mobile-satellite (R) service on a secondary basis, subject to agreement obtained under No. **9.21**. (WRC-97)

Reason: The secondary allocation by footnote to AMS(R)S is no longer needed.

DIAP/ 1.6/10 **NOC**

Support: Brazil, Canada, United States, Uruguay

[Antigua and Barbuda], [Argentina], [Commonwealth of Bahamas], [Barbados], [Belize], [Bolivia], [Chile], [Colombia], [Costa Rica], [Commonwealth of Dominica], [Ecuador], [El

Salvador], [Grenada], [Guatemala], [Guyana], [Haiti], [Honduras], [Jamaica], [Mexico], [Nicaragua], [Panama], [Paraguay], [Peru], [Dominican Republic], [Saint Lucia], [Saint Vincent and the Grenadines], [Saint Kitts and Nevis], [Suriname], [Trinidad and Tobago], [Venezuela]

5.504A

Reasons: Current FSS allocations can support expansion of broadband satellite services on-board aircraft, consistent with their current allocations and regulations; as a result, neither additional spectrum, nor any changes to the Radio Regulations are necessary.
