UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK AT THE CONFERENCE

Agenda Item 1.4: to consider, based on the results of ITU-R studies, any further regulatory measures to facilitate introduction of new aeronautical mobile (R) service (AM(R)S) systems in the bands 112-117.975 MHz, 960-1 164 MHz, and 5 000-5 030 MHz in accordance with Resolutions 413 (Rev. WRC-07), 417 (WRC-07) and 420 (WRC-07)

Background Information: ITU-R studies indicate the need to modify Resolution 417 (WRC-07) on the use of the band 960-1 164 MHz by the aeronautical mobile (R) service to ensure coexistence with the incumbent safety of life systems. Aeronautical mobile (route) service (AM(R)S) systems are critical for various air traffic and flight safety communications. Some of the communications systems and services in the 960-1 164 MHz band include traffic information, automatic dependent surveillance-broadcast, and flight information. These systems provide easily accessible air traffic information to multiple air traffic managers at the same time, thus allowing for more efficient airspace use by allowing more planes to fly in closer routes.

International Civil Aviation Organization (ICAO) aeronautical radionavigation service (ARNS) systems, as well as ARNS systems that are not standardized by ICAO, operate in this band and are critical to safety of life operations. These systems allow for aircraft to fly safely by accurately determining flight paths during all phases of flight including take off and landing, and increase the pilot’s awareness of close aircraft by scanning the area surrounding the plane. Radionavigation-satellite service (RNSS) systems, which operate in the adjacent band 1 164-1 215 MHz, must also operate in an environment free of harmful interference from emissions in the 960-1 164 MHz band.

Given the importance of both AM(R)S and ARNS systems for safety of life operations in the 960-1 164 MHz band and the need to safeguard the RNSS systems in the adjacent 1 164-1 215 MHz band, this proposal advocates placing equivalent isotropically radiated power (e.i.r.p) limits on AM(R)S systems below 1 164 MHz to ensure compatibility and protection from harmful interference among the various safety of life systems. This proposal supports Method B1 of the draft CPM Report.
Proposal:

MOD USA/AI 1.4/1

RESOLUTION 417 (Rev.WRC-0712)

Use of the band 960-1 164 MHz by the aeronautical mobile (R) service

The World Radiocommunication Conference (Geneva, 200712),

considering

a) that WRC-07 has allocated the band 960 to 1 164 MHz to the aeronautical mobile (R) service (AM(R)S) in order to make available this frequency band for new AM(R)S systems, and in doing so enabled further technical developments, investments and deployment;
b) the current allocation of the frequency band 960-1 164 MHz to the aeronautical radionavigation service (ARNS);
c) the use of the band 960-1 215 MHz by the ARNS 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;
d) that new technologies are being developed to support communications and air navigation, including airborne and ground surveillance applications;
e) that the new allocation of the frequency band 960-1 164 MHz to the aeronautical mobile (R) service is intended to support the introduction of applications and concepts in air traffic management which are data intensive and which could support data links that carry safety critical aeronautical data;
f) that in countries listed in No. 5.312 the frequency band 960-1 164 MHz is also used by systems in the ARNS for which standards and recommended practices (SARPs) have not been developed nor published by the International Civil Aviation Organization (ICAO);
g) that, furthermore, the frequency band 960-1 164 MHz is also used by a non-ICAO system operating in the ARNS that has characteristics similar to those of ICAO standard distance measuring equipment;
h) that this allocation was made knowing that studies are ongoing with respect to the technical characteristics, sharing criteria and sharing capabilities;
i) that the frequency band 117.975-137 MHz currently allocated to the AM(R)S is reaching saturation within certain areas of the world, therefore that band would not be available to support additional medium- and long-range data communications;
j) that, additional information is needed on the new technologies which will be used, other than the AM(R)S system identified in recognizing e), the amount of spectrum required, and the characteristics and sharing capabilities/conditions. Therefore, studies are urgently required on which AM(R)S systems will be used, the amount of spectrum required and the characteristics and conditions for sharing with ARNS systems,

recognizing

a) that precedence must be given to the ARNS operating in the frequency band 960-1 164 MHz;
that Annex 10 to the Convention on International Civil Aviation contains SARPs for aeronautical navigation and radiocommunication systems used by international civil aviation;

that all compatibility issues between the ICAO Standard Universal Access Transceiver (UAT) operating under an AM(R)S allocation and other systems which operate in the same frequency range excluding the system identified in considering f), have been addressed;

that in the frequency band 1 024-1 164 MHz the sharing conditions are more complex than in the band 960-1 024 MHz,

noting that, excluding the system identified in recognizing e), no compatibility criteria currently exist between AM(R)S systems proposed for operations in the frequency band 960-1 164 MHz and ICAO-standardized the existing aeronautical systems in the band will be developed in ICAO.

resolves

1 that any AM(R)S system operating in the frequency band 960-1 164 MHz shall meet SARPs requirements published in Annex 10 to the ICAO Convention on International Civil Aviation;

2 that any AM(R)S systems operating in the band 960-1 164 MHz with aircraft station operating within 934 km or/and ground stations operating within 465 km from the border of the territory of [Armenia, Azerbaijan, Belarus, Bulgaria, Russian Federation, Georgia, Hungary, Kazakhstan, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine] 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 (see considering f)) in the same band of these countries unless otherwise agreed;

3 that compatibility studies between AM(R)S systems operating in the band 960-1 164 MHz and ARNS systems in considering f) and g) need to be conducted to develop sharing conditions to ensure that the conditions of resolves 2 are satisfied, and that ITU-R Recommendations are developed as appropriate;

3 that administrations authorizing AM(R)S systems in the band 960-1 164 MHz are urged to take into account the sharing conditions as concluded in Report ITU-R M.[AM(R)S 1GHZ SHARING] on the coexistence with system indicated under considering g);

4 that the result of the studies pursuant to resolves 3 shall be reported to WRC-11 and the decision should be taken by WRC-11 to review, if appropriate, regulatory provisions in resolves 2 taking into account protection requirements of ARNS systems identified in considering f) and g) and the need for global facilitation of AM(R)S operating in accordance with ICAO standards;

4 that administrations intending to implement AM(R)S in the band 960-1 164 MHz, in order not to cause harmful interference to the radionavigation-satellite service in the band 1 164-1 215 MHz, shall utilize the criteria set forth below:

— any ground station operating under the AM(R)S allocation in the band 960-1 164 MHz, shall limit its equivalent isotropically radiated power (e.i.r.p.) to the values presented in the following table:

<table>
<thead>
<tr>
<th>Emissions in the band 960-1 164 MHz</th>
<th>Emissions in the band 1 164-1 215 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Total e.i.r.p. in the band 960-1 164 MHz as</td>
<td></td>
</tr>
</tbody>
</table>
- any aircraft station operating under the AM(R)S allocation in the band 960-1 164 MHz shall limit its equivalent isotropically radiated power (e.i.r.p.) to the values presented in the following table:

<table>
<thead>
<tr>
<th>AM(R)S centre frequency</th>
<th>Emissions in the band 960-1 164 MHz</th>
<th>Emissions in the band 1 164-1 215 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 146.45-1 164 MHz</td>
<td>1 164-1 197.6 MHz</td>
<td>1 197.6-1 215 MHz</td>
</tr>
<tr>
<td>Linearly decreasing</td>
<td>−90.8 dBW in any 1 MHz of the band 1 164-1 197.6 MHz</td>
<td>−90.8 dBW in any 1 MHz of the band 1 197.6-1 215 MHz</td>
</tr>
<tr>
<td></td>
<td>−84 dBW in any 1 MHz of the band 1 164-1 197.6 MHz</td>
<td>−92.4 dBW in any 1 MHz of the band 1 197.6-1 215 MHz</td>
</tr>
</tbody>
</table>

5— that frequencies in the band 960-1 164 MHz shall not be used by an AM(R)S system, except for the AM(R)S system identified in recognizing c), until all potential compatibility issues with the ARNS and, as necessary, the radionavigation-satellite service (RNSS) in the adjacent band have been resolved, also taking into account recognizing d).

5 that compatibility between any AM(R)S systems in the band 960-1 164 MHz and systems in considering g) is a matter to be dealt with by ICAO;

invites administrations and ICAO, for the purposes of conducting the ITU-R studies mentioned in resolves 3 and 5, to provide to ITU-R the technical and operational characteristics of systems involved;

invites ITU-R

1—— to conduct studies in accordance with resolves 3 and 5 on operational and technical means to facilitate sharing between AM(R)S systems operating in the band 960-1 164 MHz and ARNS systems identified in considering f) and g);

2—— to conduct studies in accordance with resolves 5 on operational and technical means to facilitate sharing between AM(R)S systems operating in the band 960-1 164 MHz and the RNSS operating in the band 1 164-1 215 MHz;

3—— to report the results of the studies to WRC-11;

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

Reasons: This proposal enables AM(R)S and ARNS systems, critical to flight safety and human life, to operate compatibly in the 960-1 164 MHz band. Finally, requiring e.i.r.p limits protects RNSS in bands above 1 164 MHz from potential harmful interference from AM(R)S in bands below 1 164 MHz.