

Ms. Mindel De La Torre
Chief of the International Bureau
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Dear Ms. De La Torre:

The National Telecommunications and Information Administration (NTIA), on behalf of the Executive Branch agencies, approves the release of the attached draft Executive Branch proposals for WRC-12 agenda items 1.4 and 1.21. For agenda item 1.4, NTIA proposes i) no change to the bands 108-117.975 MHz and 5010-5030 MHz; and ii) a primary allocation to the aeronautical mobile (route) service in the band 5000-5010 MHz with an associated resolution. The reason for the no change proposal for the band 5010-5030 MHz is that neither the aeronautical mobile (R) service (AM(R)S) operational environment nor the radionavigation-satellite service (RNSS) signal characteristics are sufficiently defined to finalize ITU-R compatibility studies between the two services. This WRC-12 proposal does not mean that Federal agencies oppose a U.S. domestic allocation to the AM(R)S in the band 5 010-5 030 MHz. In fact, the Federal agencies support such a domestic allocation, and suggested text for a U.S. footnote for consideration by NTIA.¹ I expect that NTIA will pursue this domestic allocation during the WRC-12 domestic implementation process.

For agenda item 1.21, NTIA proposes a primary allocation to the radiolocation service in the band 15.4-15.7 GHz. NTIA also proposes footnotes concerning the protection of the existing aeronautical radionavigation and the adjacent band radio astronomy services.

NTIA considered the Federal agencies' input toward the development of U.S. proposals for WRC-12. NTIA forwards this package for consideration and review by your WRC-12 Advisory Committee. Dr. Darlene Drazenovich is the primary contact from my staff.

Sincerely,

(Original Signed October 4, 2010)

Karl B. Nebbia
Associate Administrator
Office of Spectrum Management

Enclosure

¹ The footnote agreed by the Federal agencies reads as follows, "US_5.1-5.3 - The band 5010-5030 MHz is also allocated to the aeronautical mobile (R) service (AM(R)S) limited to stations operating in accordance with international civil aviation standards and supporting surface applications at airports. In making assignments for this band, attempts shall first be made to satisfy the AM(R)S requirements in the bands 5000-5010 MHz and 5091-5150 MHz. AM(R)S systems used in the band 5 010-5 030 MHz shall be designed and implemented to be capable of operational modification if receiving harmful interference from the radionavigation service. Finally, notwithstanding Article 4, No. 4.10, stations in the AM(R)S operating in this band shall be designed and implemented to be capable of operational modification to reduce throughput and/or preclude the use of specific frequencies in order to ensure protection of radionavigation-satellite service systems operating in the band 5010-5030 MHz."

UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK OF 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: WRC-12 agenda item 1.4 provides an opportunity to complete the studies requested in Resolution 413 (WRC-07) and propose to WRC-12 any additional regulatory measures to facilitate the introduction of new AM(R)S systems in the bands 112 – 117.975 MHz. The International Civil Aviation Organization (ICAO) will address compatibility of the AM(R)S with ICAO standardized systems. The ITU is addressing compatibility with in-band and adjacent band non-ICAO systems identified in Resolution 413 (WRC-07). Due to the introduction of AM(R)S systems in the 112-117.975 MHz band, the ITU-R conducted studies on compatibility between analogue broadcasting and AM(R)S systems. These studies indicate that no harmful interference to analogue FM broadcasting receivers below 108 MHz will arise from the introduction of AM(R)S systems in the band 112-117.975 MHz. The studies concluded that both services can operate compatibly. The ITU-R will pursue compatibility studies with digital broadcasting systems below 108 MHz under ITU-R study group activities and outside the WRC process; therefore, this proposal modifies Resolution 413 (Rev.WRC-07) to account for the completed ITU-R study work.

WRC-12 agenda item 1.4 also *resolves*, under Resolution 420 (WRC-07), to investigate, if necessary, the feasibility of a new allocation to AM(R)S in the frequency bands in 5 000 – 5 030 MHz for surface applications at airports, provided that requirements for those applications cannot be satisfied in the 5 091 – 5 150 MHz band, and that those applications are compatible with the radionavigation-satellite service (RNSS) in the 5 000 – 5 030 MHz band and the radio astronomy service (RAS) in the adjacent 4 990 – 5 000 MHz band. ITU-R Report M.2120 concluded that new surface applications at airports require approximately 60-100 MHz of AM(R)S spectrum in the 5 000 – 5 150 MHz band. Some administrations support a spectrum requirement of approximately 60 MHz. This requirement cannot be fulfilled entirely within 5 091 – 5 150 MHz. ITU-R studies concluded that compatibility between planned AM(R)S and RNSS feeder link and telemetry, tracking, and commanding (TT&C) stations in the 5 000-5 010 MHz band is feasible under worst-case conditions. However, to avoid interference to AM(R)S systems, feeder link and TT&C stations and the AM(R)S systems need to maintain separation distances determined based on system characteristics and local conditions such as terrain, building obstruction, and airport layout. Current GPS feeder link and TT&C stations are fixed; however, in the future these stations may be transportable and located near airports. If systems cannot maintain the required separation distances, certain AM(R)S channels in the 5 000 – 5 010 MHz band may not be useable at those geographic locations.

This contribution does not propose an AM(R)S allocation in the 5010 – 5030 MHz band because neither the AM(R)S operational environment nor the RNSS signal characteristics are sufficiently

defined to finalize ITU-R compatibility studies between the two services.

Proposal:

ARTICLE 5
Frequency allocations

Section IV – Table of Frequency Allocations
(See No. 2.1)

NOC USA/AI 1.4/1

75.2-137.175 MHz

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

Reasons: Any modifications to the 108-117.975 MHz band may place additional constraints on the broadcasting service in the 87-108 MHz band.

MOD USA/AI 1.4/2

5 000-5 010 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	

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

NOC USA/AI 1.4/3

5 010-5 030 MHz

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

Reasons:

Neither the AM(R)S operational environment nor the RNSS signal characteristics are sufficiently defined to finalize ITU-R compatibility studies between the two service. Therefore, no allocation is proposed for the AM(R)S in this band.

ADD USA/AI 1.4/4

5.AMR The band 5 000-5 010 MHz is also allocated to the aeronautical mobile (R) service. Such use shall be in accordance with Resolution [USA/AI1.4/1-5 GHZ AM(R)S] (WRC-12).

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

MOD USA/AI 1.4/5

RESOLUTION 413 (Rev.WRC-12)

Use of the band 108-117.975 MHz by the aeronautical mobile (R) service

The World Radiocommunication Conference (Geneva, 2012),

considering

h) that WRC-07 has modified the allocation of the band 112-117.975 MHz to the aeronautical mobile (R) services (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;

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invites ITU-R

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to study any compatibility issues between the broadcasting and AM(R) services in the band 108-117.975 MHz that may arise from the introduction of appropriate digital sound broadcasting systems, described in Recommendation ITU-R BS.1114, and to develop new or revised ITU-R Recommendations as appropriate;

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Reasons: Editorial modifications to the resolution are consequential to the no change proposal in the band 108-117.975 MHz.

ADD USA/AI 1.4/6

RESOLUTION [USA/1.4/1-5 GHZ AM(R)S] (WRC-12)

Use of the 5 000-5 010 MHz band by the aeronautical mobile (R) service and protection of the radionavigation-satellite and the radio astronomy services

The World Radiocommunication Conference (Geneva, 2012),

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) that this Conference has made an allocation to the aeronautical mobile (R) service (AM(R)S) in the band 5 000-5 010 MHz limited to systems operating in accordance with recognized international aeronautical standards;
- c) 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 band 5 000-5 010 MHz;
- d) that compatibility between AM(R)S systems and ARNS systems operating in accordance with international aeronautical standards is ensured by ICAO,

recognizing

- a) that ICAO publishes recognized international aeronautical standards and recommended practices (SARPs) for AM(R)S;
- b) that ITU-R studies demonstrate the compatibility of surface-based AM(R)S systems with planned RNSS systems in the band 5 000-5 010 MHz, and with the radio astronomy service operating in the band 4 990-5 000 MHz;

- c) that the RNSS will need access to the band 5 000-5 010 MHz for feeder links in the longer term;
- d) that spectrum efficiency is enhanced in situations where new applications can be implemented compatibly in bands to be used by multiple services;
- e) that restriction of the AM(R)S to surface applications at airports results in conditions such that compatibility with the radio astronomy service can be assured through geographic separation and/or coordination as necessary,

noting

- a) that ITU-R is developing new recommendations regarding the technical characteristics and operational parameters for the RNSS in the band 5 000-5 010 MHz;
- b) that the use of the band 5 000-5 010 MHz by the AM(R)S needs to ensure protection of the current and planned use of this band by the RNSS,

resolves

- 1 that stations in the AM(R)S operating in the band 5 000-5 010 MHz shall meet SARPs requirements published in Annex 10 of the ICAO Convention on International Civil Aviation and the maximum instantaneous equivalent isotropically radiated power for the aggregate transmissions in any given direction from all AM(R)S at a single airport operating in the 5 000-5 010 MHz band shall not exceed 40.3 dBm/10 MHz below 5 degrees elevation, or 37.1 dBm/10 MHz at or above 5 degrees elevation, which will ensure protection of RNSS systems operating in this band;
- 2 that AM(R)S use in the band 5 000-5 010 MHz shall be limited to surface applications at airports;
- 3 that administrations, in making assignments, shall attempt to first satisfy the requirements for the AM(R)S in the band 5 091-5 150 MHz before making AM(R)S assignments in the 5 000-5 010 MHz band;
- 4 that the AM(R)S systems used in the 5 000-5 010 MHz band shall be designed and implemented to be capable of operational modification if receiving harmful interference from the radionavigation service;
- 5 that, notwithstanding No. **4.10**, in the case where transmissions from RNSS earth stations exceed AM(R)S interference thresholds, AM(R)S stations operating in the band 5 000-5 010 MHz shall cease their use of certain frequencies when sufficient geographic separations cannot be maintained;
- 6 that if the separation distance for AM(R)S stations operating in the band 5 000-5 010 MHz with respect to stations in the RAS operating in the band 4 990-5 000 MHz is less than 150 km, site-specific compatibility studies including local conditions shall be undertaken in order to ensure that the RAS is protected,

invites ICAO

to take account of the power limits in *resolves* 1 when developing SARPS for AM(R)S systems in the 5 000-5 010 MHz band,

instructs the Secretary-General

to bring this Resolution to the attention of ICAO.

Reasons: A resolution is needed to establish conditions of the proposed use of the band 5 000-5 010 MHz by the AM(R)S and to explain the role of administrations, ITU-R, and ICAO in developing technical and operational parameters, and compatibility studies, in order to ensure protection of the RNSS and RAS from emissions of the AM(R)S in this band.

SUP USA/AI 1.4/7

RESOLUTION 420 (WRC-07)

Consideration of the frequency bands between 5 000 and 5 030 MHz for aeronautical mobile (R) service surface applications at airports

Reasons: ITU-R studies with respect to this resolution are complete.

UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.21: *to consider a primary allocation for radiolocation services in the band 15.4-15.7 GHz, taking into account the results of ITU-R studies, in accordance with Resolution 614 (WRC-07)*

Background Information: Resolution 614 (WRC-07) calls for WRC-12 to consider a new primary radiolocation service allocation in the band 15.4-15.7 GHz to provide additional spectrum for new radar systems to increase image resolution and range accuracy. These advanced radars require wider emission bandwidths than currently available. Operation of these radars must not adversely affect other co-primary services in the band, or the radio astronomy service in the adjacent band 15.35-15.40 GHz.

ITU-R studies demonstrate compatibility between the radiolocation service and other services allocated in the 15.4-15.7 GHz band. Report ITU-R M.2170 addresses compatibility between radiolocation and radionavigation, fixed satellite systems in this band and radio astronomy in the 15.3-15.4 GHz adjacent band. These latter studies demonstrate that sharing between these types of systems in the band 15.4-15.7 GHz is feasible, provided the systems maintain appropriate separation distances. The ITU-R studies used technical characteristics and protection criteria of System 6 in Recommendation ITU-R M.1730 to represent the radiolocation radars proposed for the band 15.4-17.3 GHz. Recommendation ITU-R M.1372 identifies interference mitigation techniques that ensure compatibility among radar systems operating in different radiodetermination services. Additionally, Report ITU-R M.2076 contains further mitigation techniques for interference from radiolocation radars into radionavigation radars operating in the 9 GHz band.

This proposal does not preclude consideration of additional AMS(R)S or AM(R)S allocations in this band under WRC-12 agenda item 1.3 or a similar agenda item for WRC-16, if necessary.

Proposal:

ARTICLE 5
Frequency allocations

Section IV – Table of Frequency Allocations
(See No. 2.1)

MOD USA/AI1.21/1

15.4-18.4 GHz

Allocation to services		
Region 1	Region 2	Region 3
15.4-15.43	AERONAUTICAL RADIONAVIGATION <u>RADIOLOCATION 5.RLS 5.YYY</u> 5.511D	
15.43-15.63	FIXED-SATELLITE (Earth-to-space) 5.511A AERONAUTICAL RADIONAVIGATION <u>RADIOLOCATION 5.RLS 5.YYY</u> 5.511C	
15.63-15.7	AERONAUTICAL RADIONAVIGATION <u>RADIOLOCATION 5.RLS 5.YYY</u> 5.511D	

Reasons: This allocation will provide additional spectrum for new advanced radar systems. This additional bandwidth will provide an increase in image resolution and range accuracy.

ADD USA/AI1.21/2

5.RLS In the band 15.4-15.7 GHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, stations operating in the aeronautical radionavigation service.

Reasons: This footnote minimizes the impact to incumbent services through use of spectrum management practices to preclude interference with existing services.

ADD USA/AI1.21/3

5.YYY In order to protect the radio astronomy service in the band 15.35-15.4 GHz, radiolocation stations operating in the 15.4-15.7 GHz band shall not exceed the power flux density level of -156 dB(W/m²) in the 15.35-15.4 GHz, at any radio astronomy observatory site for more than 2% of the time.

Reasons: This footnote minimizes the impact to incumbent services through use of spectrum management practices to preclude interference with existing services.