

Annex 1

Extracts from the Rules of Procedure

9.41 – 9.42

1 The Board has closely studied the situation and the reasons that led to the adoption of the coordination arc (CA) principle at WRC-2000 and in particular Nos. 9.41 and 9.42. In doing so, it was guided by *recognizing* and *considering* of Resolution 55 (WRC-2000), by Article 9 in general, and by Nos. 9.36, 9.36.2 and Appendix 5.

2 The Board has accordingly arrived at the following conclusions regarding the application of the provisions of No. 9.41 by an administration which considers that its name should have been identified under No. 9.36 in the context of a request for coordination stemming from the application of No. 9.7 (including for cases not having to do with application of coordination arc):

2.1 Once an administration has been identified and included in the coordination requirements of a particular assignment published in a coordination special section, coordination is to be effected between administrations (not between networks) who decide, based on Appendix 5, which networks they wish to take into account in their bilateral discussions. The list of satellite networks published under No. 9.36.2 is intended for information purposes only, and thus should not be considered as exhaustive. Administrations identified on the basis of CA can, while applying No. 9.52 and without having to apply No. 9.41, bring into the bilateral coordination discussions any of their networks located outside of the coordination arc which meet the $\Delta T/T > 6\%$ criterion. In this case, no action is undertaken by the Bureau under No. 9.42.

2.2 Administrations not identified by CA are entitled, based on the $\Delta T/T > 6\%$ criterion, to be included in coordination, in application of Nos. 9.41 and 9.42. Requests under No. 9.41 must be substantiated by $\Delta T/T > 6\%$ calculations. To minimize the administrative burden on the Bureau and administrations, it shall be deemed sufficient for an administration wishing to be added in a coordination request under No. 9.41 to provide $\Delta T/T > 6\%$ calculations for only one pair of assignments for each satellite network to be further considered in the coordination process (a pair consisting of one assignment of the published network and one assignment of the network of the requesting administration); the Bureau will then examine all assignments of the specific networks of the requesting administration and then establish coordination requirements for all the assignments of the network referred to in the publication vis-à-vis the requesting administration under No. 9.42 commensurate with the results of such examination.

3 In case of continuing disagreement between the administration of the published network and an administration involved in coordination under Nos. 9.7 or 9.42, which cannot be resolved between them at coordination stage, the two administrations may communicate to the Bureau a mutually agreed list of networks to be taken into account for examination under No. 11.32A at notification stage. If the two administrations cannot agree on such a list, the Board decided that examination under No. 11.32A at notification stage will be carried out with respect to all networks of the latter administration, indicated in application of § 2 of this Rule, whose assignments, identified in accordance with § 1 of Appendix 5, have $\Delta T/T$ greater than 6%.

Annex 2

Proposed Modifications to Some Provisions of the Radio Regulations

MOD

²¹ **9.36.2** In the case of coordination under Nos. 9.7, 9.7A and 9.7B, the Bureau shall also identify the specific satellite networks or earth stations with which coordination needs to be effected. (See also No. 9.42.1.) ~~In the case of coordination under No. 9.7 the list of the networks identified by the Bureau under No. 9.27 is for information purposes only, to help administrations comply with this procedure.~~

Reason: To make the list of affected networks an exhaustive, official list for the coordination under 9.7 and therefore avoid unnecessary discussions between administration concerning the status of the assignments/networks which are to be included or not in the bilateral coordination negotiations. According to the addition proposed under No. 9.42.1 hereafter this list will be updated after each action under Nos. 9.41-9.42, and at the end of this procedure, will be made available to the administrations as an exhaustive and official list of networks with which coordination needs to be effected.

MOD

9.41 Following receipt of the BR IFIC referring to requests for coordination under Nos. 9.7 to 9.7B, an administration believing that it should have been included in the request or the initiating administration believing that an administration or any of its networks identified under No. 9.36 in accordance with the provisions of No. 9.7 (GSO/GSO) (items 1) to 8) of the frequency band column), No. 9.7A (GSO earth station/non-GSO system) or No. 9.7B (non-GSO system/GSO earth station) of Table 5-1 of Appendix 5 should not have been included in the request, shall, within four months of the date of publication of the relevant BR IFIC, inform the initiating administration or the identified administration, as appropriate, and the Bureau, giving its technical reasons for doing so, and shall request that its name and the complete associated list of its networks be included or that the name of the identified administration or any of its networks be excluded, as appropriate.

Reason: To allow the initiating administration to propose changes not only to the list of administrations identified by the BR but also to the list of networks associated with these administrations. To require that an administration that wants to be included in the coordination, but has not been identified by the BR, also identify all of its specific networks to be considered.

ADD

9.41A Following receipt of the BR IFIC referring to requests for coordination under Nos. 9.7 to 9.7B, an administration already identified under No. 9.36 as an affected administration, may propose changes to the list of its networks provisionally identified by the BR. In particular, if this administration considers that the value of $\Delta T/T$ calculated by the method in § 2.2.1.2 and 3.2 of Appendix 8 exceeds 6% for some other network(s) outside the coordination arc in addition to those included in the provisional list of networks under No. 9.36.2, it may request the inclusion of this (these) other network(s) in the list. This administration shall, within four months of the date of publication of the

relevant BR IFIC, inform the initiating administration and the Bureau of any proposed changes to the list established under No. 9.36.2, giving its technical reasons for doing so.

Reason: To make available for administrations already identified as affected administration under No. 9.36 (because of their networks within the coordination arc) the possibility of adding networks outside the coordination arc provided the trigger level of ΔTIT is exceeded for these networks and of proposing any other changes to the list of networks identified by the BR.

MOD

9.42 The Bureau shall study ~~the~~ information received under Nos. 9.41 and 9.41A on the basis of Appendix 5 and shall inform both administrations of its conclusions. Should the Bureau agree to include or exclude, as appropriate, the administration and/or associated networks in the request, it shall publish an addendum to the publication under No. 9.38^{22A}

Reason: To make explicit reference to the two preceding provisions as now both are concerned and that inclusions and exclusions to the list may refer to administrations and/or networks.

Reason: To update the list originally established under No. 9.36.2 with the inclusions and/or exclusions of administrations and/or networks submitted by administrations under Nos. 9.41 and 9.41A and considered justifiable after studied by the BR under No. 9.42. The administration may use this list in their coordination negotiations as an exhaustive list of networks with which coordination has to be effected.

ADD

9.43A The list of networks identified for those administrations not responding under No. 9.41A within the time limit specified therein shall be regarded as definitive.

Reason: To make explicit that lack of a reply from an administration under No. 9.41A will be understood by the BR as agreement of that administration with its inclusion in the provisional list as well as with the associated list of its networks.

Appendix 5 (Table 5-1)

MOD

| Reference of Article 9 ² | | Remarks |
|-------------------------------------|-------|---|
| No. 9.7 GSO/GSO | | With respect to the space services listed in the threshold/condition column in the bands in 1), 2), 3), 4), 5), 6), 7) and 8), an administration may request, pursuant to No. 9.41 to be included in requests for coordination, or under <u>No.9.41A to include into it additional networks</u> , indicating the networks for which the value of $\Delta T/T$ calculated by the method in § 2.2.1.2 and 3.2 of Appendix 8 exceeds 6%. When the Bureau, on request by an affected administration, studies this information pursuant to No. 9.42, the calculation method given in § 2.2.1.2 and 3.2 of Appendix 8 shall be used |

Reason: To add a reference to the new provision No. 9.41A which allows those administrations already identified as affected administration under No. 9.36 (because of their networks within the coordination arc) to add networks outside the coordination arc, provided the trigger level of $\Delta T/T$ is exceeded for these networks.

² It is to be noted that in the above simplified presentation only the first and last columns of table 5-1 of Appendix 5 are shown. The other columns of this table are not to be modified.

DOCUMENT WAC/045(01.09.09)

United States of America DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 8.2: *to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, taking into account Resolution 806 (WRC 07).*

Background information

In Resolution 806 (WRC-07), "Preliminary agenda for the 2015 World Radiocommunication Conference," WRC-07 included preliminary Agenda Item 2.2 dealing with the review of the use of the band 5091-5150 MHz by the fixed-satellite service (FSS) for feeder links to non-GSO, mobile-satellite service systems.

At WRC-95, allocation was made to the fixed-satellite service in the 5091-5150 MHz band for feeder links to non-GSO mobile-satellite service systems, in the Earth-to-space direction, on a primary basis under No. 5.444A.

The 5091-5150 MHz band was originally designated for expansion of the international standard Microwave Landing System (MLS) and Recommendation ITU-R S.1342 describes a method for determining coordination distances between international standard MLS stations operating in the band 5030-5090 MHz and FSS stations providing Earth-to-space feeder links in the 5091-5150 MHz band.

At WRC-07, an additional allocation was made, in the 5091-5150 MHz band, to the aeronautical mobile service (AMS) for use by aeronautical telemetry for flight test, aeronautical mobile (route) service and aeronautical security applications. Compatibility between the newly allocated aeronautical mobile service planned usage and the existing fixed-satellite service usage was demonstrated by extensive studies carried out by the ITU-R in the lead up to WRC-07.

This allocation is currently used by the HIBLEO-4FL network and has been used compatibly with other services since 1998. The extensive studies undertaken in preparation for WRC-07 resulted in the creation of No. 5.444B and Resolutions 748(WRC-07), 418(WRC-07) and 419(WRC-07) and demonstrated compatibility between the fixed-satellite service and the aeronautical mobile (route) service, the planned usage by the aeronautical mobile service used for aeronautical mobile telemetry for flight test, and aeronautical security transmissions, respectively.

The operator of the HIBLEO-4FL network has embarked on the replenishment of its satellite constellation with the expected entry into service of new spacecraft during 2010. As these new spacecraft will be replacements for existing equipment, they will also utilize the 5091-5150 MHz range for feeder links in the Earth-to-space direction. The replacement satellites are expected to remain in service beyond the year 2025.

As a result of these developments, continued FSS use of the 5091-5150 MHz band for feeder links of the MSS, Earth-to-space, is required. Taking into account the time constraints contained in No. 5.444A, it is necessary to comply with Resolution 114 (WRC-03) prior to 2018.

Recognizing the considerable effort expended in studying the compatibility between feeder links, Earth-to-space, for MSS systems and the Aeronautical Mobile Service in preparation for WRC-07, and since the interference budgets and scenarios studied before remain the same for the HIBLEO-4FL replacement spacecraft, study of technical and operational issues can and should be limited to the sharing of this band between new systems of the aeronautical radionavigation service and the FSS providing feeder links of the non-GSO systems in the MSS.

The continued use of this allocation by feeder uplinks is of great importance in providing continuing service by MSS systems to developing countries, under-served areas and critical response in the event of natural disasters and other civil emergencies.

Proposal:
Agenda Item 8.2

RESOLUTION 806 (WRC-07)
**Preliminary agenda for the 2015 World
Radiocommunication Conference**

NOC USA/xx/1
2.2 to review the use of the band 5 091-5 150 MHz by the fixed-satellite service (Earth-to-space) (limited to feeder links of the non-GSO mobile-satellite service) in accordance with Resolution **114 (Rev.WRC-03)**;

Reasons: Maintaining this item on the Agenda for the 2015 World Radiocommunication Conference will allow studies of compatibility between the aeronautical radionavigation service and FSS feeder links of non-GSO mobile-satellite service systems and allow uninterrupted operation of MSS systems into the future.

**ATTACHMENT 2
to FCC Public Notice DA 09-1994**

**Draft Proposals formulated and approved within the National
Telecommunications and Information Administration:**

Document WAC/037(01.09.09)

Mr. John Giusti
Acting Chief of the International Bureau
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Dear Mr. Giusti:

The National Telecommunications and Information Administration (NTIA), on behalf of the Executive Branch Agencies, approves the release of three draft Executive Branch proposals for WRC-11 agenda items 1.5, 1.19 and 1.22.

NTIA developed a new resolution to support agenda item 1.5. This resolution provides a mechanism to rationalize electronic news gathering (ENG) spectrum usage by maintaining a database of country specific ENG bands with required technical and operational requirements for deployment. NTIA proposes no change (NOC) for agenda item 1.19. Software defined radio and cognitive radio system technologies can be introduced without changes to the International Telecommunication Union (ITU) Radio Regulations. NTIA also proposes no change (NOC) for agenda item 1.22. Short-range device usage does not require changes to the ITU Radio Regulations.

These draft proposals consider the Federal agencies' input toward the development of U.S. Proposals for WRC-11. This package is forwarded for your consideration and review by your WRC-11 Advisory Committee. Dr. Darlene Drazenovich is the primary contact from my staff.

Sincerely,

(Original Signed July 22, 2009)

Karl B. Nebbia
Associate Administrator
Office of Spectrum Management

Enclosures

UNITED STATES OF AMERICA
DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.5: *To consider worldwide/regional harmonization of spectrum for electronic news gathering (ENG), taking into account the results of ITU-R studies in accordance with Resolution 954 (WRC-07)*

Background Information: WRC-07 established Resolution **954 (WRC-07)**, which “invites ITU-R to carry out studies of ENG regarding possible solutions for global/regional harmonization in frequency bands and tuning ranges, taking into account: available technologies to maximize efficient and flexible use of frequency; system characteristics and operational practices which facilitate the implementation of these solutions.” Resolution **954 (WRC-07)** calls for studies to determine to what extent harmonization of spectrum can be achieved for ENG services.

The contents of Report ITU-R BT.2069 make it clear that four distinct categories of ENG applications exist in support of the broadcasting service.¹ The harmonization and rationalization of spectrum for each of these applications should be considered separately, as their spectrum requirements are distinctly different, and the potential for spectrum re-use is also distinctly unique.

Spectrum harmonization provides many benefits but may not be feasible given the disparate use of spectrum by the many countries and the differing broadcasting standards in use in the three ITU Regions. Instead, a mechanism for spectrum rationalization may be more productive in allowing foreign broadcaster’s knowledge of and access to, the needed spectrum in a given country/region to ensure that international news-worthy events can be covered.

Proposal:

ADD USA/AI 1.5/1

DRAFT RESOLUTION [USA-1.5-ENG] (WRC-11)

Spectrum Management Guidelines for Electronic News Gathering (ENG)²

The World Radiocommunication Conference (Geneva, 2011),

considering

that some administrations may have different operational needs and spectrum requirements for electronic news gathering, depending on the circumstances;

¹ The four categories of applications (Field Use, Field Transmission, Fleet Transmission, and Mobile Repeaters) are a generalization of the specific applications found in Section 3.1 on page 5 of Report ITU-R BT.2069-1.

² For the purpose of this Resolution, ENG represents all applications ancillary to broadcasting, such as terrestrial electronic news gathering, electronic field production, TV outside broadcasting, wireless radio microphones, and radio outside production and broadcast.

recognizing

- a) that broadcasting ancillary services can be utilized as part of an administration's telecommunications/information and communication technologies (ICTs) systems in service of management in emergency and disaster situations for early warning, prevention, mitigation, and relief;
- b) that Recommendation ITU-R M.1824 provides system characteristics of television outside broadcast, electronic news gathering (ENG) and electronic field production (EFP) in the mobile service for use in sharing studies;
- c) that Recommendation ITU-R F.1777 provides system characteristics of television outside broadcast, electronic news gathering and electronic field production in the fixed service for use in sharing studies;
- d) that Report ITU-R BT.2069 provides spectrum usage and operational characteristics of terrestrial ENG, television outside broadcast (TVOB) and EFP systems,

noting

- a) that when an international news-worthy event happens, broadcasters often have little to no lead time in which to prepare for deployment;
- b) that there is a critical requirement to perform immediate spectrum management actions, including frequency coordination, sharing and spectrum reuse, within an administration where an international news-worthy event takes place;
- c) that the identification of frequency availability within individual administrations within which equipment could operate, or the use of spectrum-flexible equipment that allows for operation in various spectrum access scenarios, may ease the interoperability and/or networking, with mutual cooperation and consultation, especially in international news-worthy events that draw broadcasters regionally or globally,

noting further

that it is in the interest of administrations and their broadcasters to have access to updated information on national spectrum planning for ENG use,

resolves

- 1 to encourage administrations to consider global and/or regional frequency bands/ranges for ENG when undertaking their national planning and to communicate this information to the broadcasting community;
- 2 to encourage and assist the broadcasting community in developing a database of available frequencies, technical and operational requirements, and spectrum authorization points of contact as appropriate for global usage of ENG systems,

instructs the Director of the Radiocommunication Bureau

- 1 to assist the broadcasting community in coordinating their ENG usage for regional/global international news-worthy events by maintaining a link on the ITU-R website to a community database of currently available ENG frequencies, ENG technical and operational requirements, and spectrum authorization points of contact as appropriate;
- 2 to report on the progress on this Resolution to subsequent World Radiocommunication Conferences,

urges administrations

- 1 to provide the broadcasting community with the relevant information concerning their national ENG frequency allocations, ENG spectrum management practices, and appropriate governmental points-of-contact for ENG usage within their administration;
- 2 to assist the broadcasting community in keeping the database up to date on an ongoing basis by notifying the broadcasting community of any modifications to the information requested above.

Reasons: Information on ENG usage around the world, which the broadcasters can maintain in a database, would enable broadcasters to obtain access as necessary. Resolution [USA-1.5-ENG] provides a mechanism to rationalize ENG spectrum usage by maintaining a database of country specific ENG bands with required technical and operational requirements for deployment. This will provide foreign newscasters with the needed information to ensure that they deploy with equipment that will operate within a given country and allow broadcasters to seek approval for spectrum use. It will also provide manufacturers with a knowledge base of required spectrum parameters that will enable them to build common-use equipment that will leverage economies-of-scale for the worldwide ENG market.

UNITED STATES OF AMERICA
DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.19: *to consider regulatory measures and their relevance, in order to enable the introduction of software-defined radio and cognitive radio systems, based on the results of ITU-R studies, in accordance with Resolution 956 (WRC-07)*

Background Information: Resolution 956 (WRC-07), complementary to WRC agenda item 1.19, considers a number of means for implementing software-defined radio and cognitive radio system technologies. These include the possible use of a worldwide harmonized cognitive supporting pilot channel and the usefulness of having means to assist in the determination of local spectrum usage, such as wireless or wired access to a database or to other networks to support access and connectivity, and therefore support the use of these systems. Resolution 956 (WRC-07) also notes that without additional means, it may not be possible for a radio system to discover receive-only usage. Receive-only systems would include those operating in Earth exploration-satellite (passive) and radio astronomy allocations.

Various ITU-R groups have generally agreed that the SDR/CRS technologies could potentially be implemented in stations as part of any radiocommunication service, except perhaps in some passive remote sensing services. This finding points to the lack of practicality in adding generic provisions for SDR and CRS technologies in the Radio Regulations.

The Constitution (CS) of the ITU, No. 197, stipulates that “all stations, whatever their purpose, must be established and operated in such a manner as not to cause harmful interference to the radio services or communications of other Member States or of recognized operating agencies, or of other duly authorized operating agencies which carry on a radio service, and which operate in accordance with the provisions of the Radio Regulations.” No need for any additional provisions in the Radio Regulations to enable the introduction of CRS and SDR technologies in stations of any radiocommunication service has been identified. Furthermore, there is no need for similar or redundant provisions in the Radio Regulations to guarantee that these technologies will not deprive stations in any radiocommunication service, using any other technology, from operating in their allocated and assigned bands in accordance with the existing Radio Regulations.

Proposal:

ARTICLE 1

Terms and definitions

NOC USA/AI 1.19/1

Reasons: No changes to Article 1 (Terms and definitions) of the Radio Regulations are necessary to enable the introduction of SDR and CRS technologies. This is consistent with CPM Method A (no regulatory changes required for SDR).

ARTICLE 5

Frequency allocations

NOC USA/AI 1.19/2

Reasons: No changes to Article 5 (Frequency allocations) of the Radio Regulations are necessary to enable the introduction of SDR and CRS technologies. This is consistent with CPM Method A (no regulatory changes required for SDR).

UNITED STATES OF AMERICA
DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.22: *Examine the effect of emissions from short-range devices on radiocommunication services, in accordance with Resolution 953 (WRC-07)*

Background Information: The United States implements a flexible regulatory regime in the ISM and certain other bands, setting basic technical requirements that facilitate spectrum sharing among license-exempt and short-range devices while minimizing constraints on product designs. This regime has led to the implementation of a variety of license-exempt and short-range devices.

The United States believes that the regulation of short-range devices is primarily a national matter. Based on experience with implementation of short-range devices, there is no need for any modification to the international Radio Regulations to accommodate them.

Proposal:

ARTICLE 1

Terms and definitions

NOC USA/AI 1.22/1

Reasons: The regulation of short-range devices is primarily a national matter and does not require any modifications to the Radio Regulations. There is no need for international regulation of such devices.

ARTICLE 5

Frequency allocations

NOC USA/AI 1.22/2

Reasons: The regulation of short-range devices is primarily a national matter and does not require any modifications to the Radio Regulations. There is no need for international regulation of such devices.

Document WAC/038(01.09.09)

Mr. John Giusti
Acting Chief of the International Bureau
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Dear Mr. Giusti:

The National Telecommunications and Information Administration (NTIA) on behalf of the Executive Branch Agencies, approves the release of draft Executive Branch proposal for WRC-11 agenda item 1.3. NTIA proposes a modification to the 5 030-5 091 MHz band to support the safe operation of unmanned aircraft systems. The Federal agencies may have additional input on proposals for this agenda item as studies within the International Telecommunications Union progress.

NTIA considered the Federal agencies' input toward the development of U.S. proposals for WRC-11. NTIA forwards this package for your consideration and review by your WRC-11 Advisory Committee. Dr. Darlene Drazenovich is the primary contact from my staff.

Sincerely,

(Original Signed July 24, 2009)

Karl B. Nebbia
Associate Administrator
Office of Spectrum Management

Enclosure

UNITED STATES OF AMERICA
DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.3: *To consider spectrum requirements and possible regulatory actions, including allocations, in order to support the safe operation of unmanned aircraft systems (UAS), based on the results of ITU-R studies, in accordance with Resolution 421 (WRC-07)*

Background Information: Unmanned aircraft systems (UASs) enable the remote piloting of aircraft over short range and significant distances within or out-of-sight of the remote pilot. These flight operations currently take place in segregated airspace, to ensure the safety of the air vehicle and other airspace users.

Some administrations expect deployment of UASs throughout the airspace structure. As UAS deployment increases, it will be impractical for some users to deploy in segregated airspace. Some UASs will need to integrate with the current airspace users in a safe and seamless manner. To accomplish integration into non-segregated airspace, UASs will require high integrity communication links between the unmanned aircraft (UA) and remote control centers capable of relaying the necessary air traffic control (ATC) messages and flight critical aircraft information. The UAS pilot will need sense and avoid functions for situational awareness.

The International Civil Aviation Organization (ICAO) future communications study may be able to identify technologies with some capability to meet the requirements for command and control, including the relaying of ATC communications. The aeronautical mobile (R) service (AM(R)S) and aeronautical mobile-satellite (R) service (AMS(R)S) are the appropriate services to accommodate command and control and ATC radiocommunications. The ITU-R is examining existing aeronautical allocations to satisfy spectrum requirements prior to studying new allocations.

Command & Control

In non-segregated airspace, the remote pilot must reliably monitor the status of the UA, pass control instructions to their UA, and interact with the appropriate air traffic controllers monitoring airspace within which their UA is flying. A line-of-sight link might provide these capabilities for UA flying and maneuvering in a localized area. A combination of a terrestrial radio and satellite network could provide these capabilities to UA flying trans-horizon.

Relay of Air Traffic Control (ATC) Communications

Safe operation of manned or unmanned aircraft depends on ATC communications. Pilots act based on ATC instructions. When the pilot is remote (not in the aircraft) the pilot and ATC must maintain a communication channel to relay information from a radio in the aircraft to the pilot on the ground. Early concepts assume that this function, if digitized, could be part of the command and control links.

Sense and Avoid

The safe flight operation of UA necessitates advanced techniques to detect and track nearby aircraft, terrain, and obstacles to navigation. Unmanned aircraft must avoid these objects in

a manner equivalent to that of a manned aircraft. The remote pilot will need to be aware of the environment within which the aircraft is operating, be able to identify the potential threats to the continued safe operation of the aircraft, and take the appropriate action. The radiodetermination service allocations could potentially accommodate the sense and avoid function. The ITU-R is examining existing aeronautical radionavigation service (ARNS) allocations for suitable bandwidth prior to studying new ARNS allocations. The UAS industry is studying the suitability of various technologies for sense and avoid.

Payload

Resolution 421 (WRC-07) *Resolves 1* specifically excludes the allocation of spectrum at WRC-11 for payload applications. However, *invites ITU-R 3* does call for the development of an ITU-R report or recommendation on how to accommodate the radiocommunication requirements for UAS payloads. The purpose of this agenda item is not to seek new spectrum allocations to meet payload requirements.

This agenda item seeks to identify the spectrum requirements necessary to support the safe operation of UASs in current and future airspace structures. Spectrum for UAS for safety and regularity of flight in non-segregated airspace will need AM(R)S, AMS(R)S, or ARNS allocations in order to receive the sufficient status and protection from harmful interference.

The 5 030-5 091 MHz band is an appropriate band to satisfy the terrestrial, line-of-sight, spectrum requirements for the command and control of UASs in non-segregated airspace. Currently, there is minimum usage in this band worldwide. The lack of an existing or planned microwave landing system deployment in the United States ensures availability of appropriate aeronautical spectrum for a terrestrial line-of-sight UAS system in the 5 030-5 091 MHz band.

Proposal:

ARTICLE 5

Frequency allocations

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

MOD USA/AI 1.3/1

4 800-5 570 MHz

| Allocation to services | | |
|------------------------|--|----------|
| Region 1 | Region 2 | Region 3 |
| 5 030-5 091 | AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE (R) 5.367 5.444 | |

Reasons: To provide an AM(R)S allocation to support line-of-sight control links for unmanned aircraft (UA).

Document WAC/40(01.09.09)

Mr. John Giusti
Acting Chief of the International Bureau
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Dear Mr. Giusti:

The National Telecommunications and Information Administration (NTIA) on behalf of the Executive Branch agencies, approves the release of draft Executive Branch proposals for WRC-11 agenda items 1.2, 1.6 (Res. 955), 1.23, and 1.24.

NTIA proposes no change (NOC) for agenda items 1.2, 1.6 (Res. 955), and 1.23. Under agenda item 1.24, NTIA proposes a 50 MHz extension of the current meteorological-satellite service allocation in the 7 750 – 7 850 MHz band. This additional spectrum will provide the necessary bandwidth for the transmission of un-coded raw instrument data.

NTIA considered the Federal agencies' input toward the development of U.S. proposals for WRC-11. NTIA forwards this package for your consideration and review by your WRC-11 Advisory Committee. Dr. Darlene Drazenovich is the primary contact from my staff.

Sincerely,

(Original Signed August 11, 2009)

Karl B. Nebbia
Associate Administrator
Office of Spectrum Management

Enclosures

UNITED STATES OF AMERICA
DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.2: *taking into account the ITU-R studies carried out in accordance with Resolution 951 (Rev. WRC-07), to take appropriate action with a view to enhancing the international regulatory framework*

Background Information: Agenda item 1.2 originated at WRC-03 as agenda item 7.1, Resolution 951 (WRC-03), "Options to improve the international spectrum regulatory framework." The Director's Report to WRC-07 includes the results of the ITU-R studies in response to Resolution 951 (WRC-03). The conference concluded that it was necessary for the ITU-R to evaluate various options. These options include maintenance of the current practice (no change to the international spectrum regulatory framework), the review and possible revision of existing service definitions, introduction of a new provision in the Radio Regulations enabling substitution between assignments of specific services, and introduction of composite services in the Table of Frequency Allocations. Resolution 951 (Rev. WRC-07) details these options and provides the guidelines for implementation of this resolution.

To date, ongoing ITU-R studies contained in the Working Document towards Preliminary Draft New Report on Enhancing the International Spectrum Regulatory Framework (Annex 3 to Doc. 1B/88), do not conclude that there is a need to change the current international spectrum regulatory framework.

Proposal:

NOC USA/A11.2/1

Reasons: ITU-R studies do not conclude that there is a need for changes to the international spectrum regulatory framework. Maintaining the current international spectrum regulatory framework provides flexibility to enable new technologies and convergence of services. This is consistent with CPM method A (no change to the Radio Regulations are necessary to satisfy the agenda item).

UNITED STATES OF AMERICA

DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

Agenda Item 1.6: *to review No. 5.565 of the Radio Regulations in order to update the spectrum use by the passive services between 275 GHz and 3 000 GHz, in accordance with Resolution 950 (Rev.WRC 07), and to consider possible procedures for free-space optical-links, taking into account the results of ITU R studies, in accordance with Resolution 955 (WRC 07)*

Background Information: Agenda item 1.6 addresses two distinct issues. The content of this proposal addresses only the consideration of possible procedures for free-space optical links (Resolution 955 (WRC-07)).

Resolution 955 (WRC-07) considers possible procedures for free-space optical links. Free space communication links operating above 3 000 GHz have been in existence for many years. No. 1005 of the Annex to the ITU Convention indicates that the term radiocommunication is limited to “electromagnetic waves of frequencies arbitrarily lower than 3 000 GHz, propagated in space without artificial guide.” In 2002, the Plenipotentiary Conference adopted Resolution 118 (Marrakesh) which resolves that “world radiocommunication conferences can include in agendas for future conferences, items relevant to spectrum regulation of frequencies above 3 000 GHz and take any appropriate measures, including revision of the relevant parts of the Radio Regulations.” The outcome of the 2010 Plenipotentiary Conference might affect this agenda item should that conference change or remove the upper limit of 3 000 GHz in the radio wave definition.

Because emitters used in near-infrared, free-space links have extremely narrow beamwidth, and terrestrial emitters can only cause interference over very short distances, cases of terrestrial interference will be very rare and easily resolved on a local basis. Moreover, interference between inter-satellite links would also be rare due to directed and narrow beamwidths, and the vast geometry of space.

The ITU-R has not conducted studies related to procedures for the use of free space optical links; therefore, there is no need to modify the Radio Regulations.

Proposal:

NOC USA/AI 1.6 (Res. 955)/1

RESOLUTION 955 (WRC-07)

Consideration of procedures for free-space optical links

Reasons: There is no evidence to suggest procedures for free space optical links are needed.

UNITED STATES OF AMERICA
DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.23: *to consider an allocation of about 15 kHz in parts of the band 415-526.5 kHz to the amateur service on a secondary basis, taking into account the need to protect existing services*

Background Information: The maritime mobile service is a primary user of the frequency band under consideration for this agenda item. No. **5.82A** advises, "The use of the band 495-505 kHz is limited to radiotelegraphy." No. **5.82B** advises, "Administrations authorizing the use of frequencies in the band 495-505 kHz by services other than the maritime mobile service shall ensure that no harmful interference is caused to the maritime mobile service in this band or to the services having allocations in the adjacent bands, noting in particular the conditions of use of the frequencies 490 kHz and 518 kHz, as prescribed in Articles **31** and **52**." NAVTEX services operate on 490 kHz and 518 kHz per Resolution **339 (Rev. WRC-07)**. The band 495-505 kHz provides international harmonization and necessary maritime propagation characteristics for global harmonization of maritime services.

The maritime community also has emerging requirements for globally harmonized interoperable maritime spectrum in support of safety and security requirements in 415-526.5 kHz.

Proposal:

NOC USA/AI 1.23/1

ARTICLE 5

Frequency allocations

Reasons: No changes to Article 5 (Frequency allocations) of the Radio Regulations are necessary. The maritime community supports the use 415-526.5 kHz for the existing maritime services. This also meets the emerging requirements for globally harmonized interoperable maritime spectrum in support of safety and security requirements in 415-526.5 kHz.

UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.24: *to consider the existing allocation to the meteorological-satellite service in the band 7 750-7 850 MHz with a view to extending this allocation to the band 7 850-7 900 MHz, limited to non-geostationary meteorological satellites in the space-to-Earth direction, in accordance with Resolution 672 (WRC-07)*

Background Information: The estimated data rates for the next generation of non-geostationary meteorological satellites (MetSat), circa 2018-2020, are expected to be on the order of about 225 - 230 Mbps. This data rate requires 150 MHz of spectrum to provide the necessary bandwidth for the transmission of un-coded raw instrument data. Extension of the current 100 MHz meteorological-satellite service allocation into the band 7 850 – 7 900 MHz will provide a contiguous 150 MHz (7 750-7 900) to meet this requirement. Sharing within the proposed 50 MHz extension involves the same radiocommunication services that currently share the band 7 750 – 7 850 MHz with MetSat (limited to NGSO) on a co-primary basis.

Compatibility analyses (Document 7B/121 Annex 08) performed by WP 7B between MetSat and fixed service concluded that the potential extension band 7 850-7 900 MHz can be shared under the same conditions as the current 7 750-7 850 MHz allocation.

Proposal:

ARTICLE 5

Frequency allocations

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

MOD USA/A11.24/1

7 250-8 500 MHz

| Allocation to services | | |
|-------------------------------|---|-----------------|
| Region 1 | Region 2 | Region 3 |
| 7 750-7 850/7 900 | FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) <u>MOD 5.461B</u> MOBILE except aeronautical mobile | |
| 7 850-7 900 | FIXED MOBILE except aeronautical mobile | |

MOD USA/A11.24/2

5.461B The use of the band ~~7 750-7 850~~7 900 MHz by the meteorological-satellite service (space-to-Earth) is limited to non-geostationary satellite systems.

Reasons: To extend the current MetSat allocation by 50 MHz to 7 900 MHz with consequential change to the footnote.
