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;

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[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

<u>**NOC**</u> 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

<u>NOC</u> 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

<u>NOC</u> 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/AI1.2/1

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/AI1.24/1

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) MOD 5.461B MOBILE except aeronautical mobile	
~~**7 850-7 900**~~	~~FIXED~~ ~~MOBILE except aeronautical mobile~~	

MOD USA/AI1.24/2

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.