UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and
Information Administration
Washington, D.C. 20230

August 14, 2008

Ms. Helen Domenici
Chief of the International Bureau
Federal Communications Commission
445 12th Street SW
Washington, D.C. 20554

Dear Ms. Domenici:

The National Telecommunications and Information Administration (NTIA), on behalf of the Executive Branch agencies, has approved the release of a package of Draft Executive Branch Preliminary Views for 2011 World Radiocommunication Conference (WRC-11). These draft preliminary views consider the Federal agency inputs toward the development of U.S. Proposals for WRC-11. The enclosure contains preliminary views for the following agenda items:

a) Agenda Item 1.5 (Resolution **954 (WRC-07)** – Harmonization of spectrum for use by terrestrial electronic news gathering systems);
b) Agenda Item 1.6 (Resolution **950 (WRC-07)** – Consideration of the use of the frequencies between 275 and 3 000 GHz);*
c) Agenda Item 1.8 (Resolutions **731 (WRC-2000)** and **732 (WRC-2000) –** Consideration of the progress of ITU-R studies concerning the technical and regulatory issues relative to the fixed service in the bands between 71 GHz and 238 GHz, taking into account Resolutions **731 (WRC-2000)** and **732 (WRC-2000)**;
d) Agenda Item 1.11 (Space Research Service (Earth-to-space) systems within the band 22.55-23.15 GHz);
e) Agenda Item 1.12 (Resolution **754 (WRC-07)** – Consideration of modification of the aeronautical component of the mobile service allocation in the 37-38 GHz band for protection of other primary services in the band**)**;
f) Agenda Item 1.13 (Resolution **551 (WRC-07)** – Use of the band 21.4-22 GHz for broadcasting-satellite service and associated feeder-link bands in Regions 1 and 3);
g) Agenda Item 1.19 (Resolution **956 (WRC-07)** – Regulatory measures and their relevance to enable the introduction of software-defined radio and cognitive radio systems);
h) Agenda Item 1.20 (Resolution **734 (WRC-07)** – Studies for spectrum identification for gateway links for high-altitude platform stations in the range from 5 850 to 7 075 MHz); and

*This preliminary view only addresses the first part of the agenda item (passive services between 275 – 3 000 GHz), hereafter referred to as Agenda Item 1.6 (Res 950). The second part of the agenda item (free-space optical links), referred to as Agenda Item 1.6 (Res 955), is addressed in a separate document.

i) Agenda Item 1.22 (Resolution **953 (WRC-07)** – Protection of radiocommunication services from emissions by short-range radio devices).

This package is forwarded for your consideration and review by your WRC-11 Advisory Committee. Darlene Drazenovich of my staff is the primary contact for NTIA.

Sincerely,

Karl B. Nebbia
Associate Administrator
Office of Spectrum Management

Enclosure

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

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)**

ISSUE: To review the needs of ENG systems, to decide if harmonization is possible, and in what potential bands such harmonization is appropriate. This issue may also lead to requests from administrations for consideration of additional spectrum allocations.

BACKGROUND: The issue of spectrum for ENG applications has been a long-standing issue within the ITU and has been prominent for several WRC study cycles. WRC-07 decided to include an agenda item that would look at possible global/regional harmonization. The need for global/regional harmonization must also take into account advances in technology, which may account for operations that are more efficient.

There are several different broadcasting services, which operate under the umbrella of ENG and each will have its own unique requirements for harmonization based on deployment, technical parameters, and user density.

U.S. VIEW: The United States supports reviewing the requirements developed in WP 6A to determine if harmonization is feasible on a regional/global basis for ENG systems. The United States supports studies on technologies that maximize efficient and flexible use of frequencies at the national level in lieu of global/regional identification of frequency bands. If such harmonization is required and feasible, the United States supports focusing on studying the impact of identifying in the RR harmonized spectrum for ENG systems. Such identification should focus on bands where ENG systems have already been identified in ITU-R recommendations in the fixed and mobile services to determine which are appropriate, given the needs of the differing ENG systems (covered by this agenda item and Resolution **954 (WRC-07))** while protecting existing services. (August 7, 2008)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

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)**†

ISSUE: The purpose of Resolution **950 (Rev. WRC-07)** is to review No. **5.565**, excluding frequency allocations, in order to update spectrum use between 275 and 3 000 GHz by the passive services. Currently, No. **5.565** describes the need for passive observations of spectral line emissions and spectral windows in various bands throughout the 275 – 1 000 GHz range by the radio astronomy service (RAS), the Earth exploration-satellite service (passive) (EESS), and the space research service (passive) (SRS). The footnote also describes the potential for additional spectral line and continuum bands in this range to be identified in the future. Resolution **950 (Rev. WRC-07)** extends its range of consideration to 275 – 3 000 GHz for RAS, EESS (passive), and SRS (passive) use, and invites ITU-R to conduct studies toward modifying No. **5.565**.

BACKGROUND: The current Table of Frequency Allocations establishes allocations at frequencies between 9 kHz and 275 GHz. No allocations presently exist above 275 GHz, although an entry in the Table for the range 275 – 1 000 GHz contains a reference to No. **5.565**:

> **5.565** The frequency band 275-1 000 GHz may be used by administrations for experimentation with, and development of, various active and passive services. In this band a need has been identified for the following spectral line measurements for passive services:
>
> – radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;
>
> – Earth exploration-satellite service (passive) and space research service (passive): 275-277 GHz, 294-306 GHz, 316-334 GHz, 342-349 GHz, 363-365 GHz, 371-389 GHz, 416-434 GHz, 442-444 GHz, 496-506 GHz, 546-568 GHz, 624-629 GHz, 634-654 GHz, 659-661 GHz, 684-692 GHz, 730-732 GHz, 851-853 GHz and 951-956 GHz.
>
> Future research in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations

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†This preliminary view only addresses the first part of the agenda item (passive services between 275 – 3 000 GHz), hereafter referred to as Agenda Item 1.6 (Res 950). The second part of the agenda item (free-space optical links), referred to as Agenda Item 1.6 (Res 955), is addressed in a separate document.

are urged to take all practicable steps to protect these passive services from harmful interference until the date when the allocation Table is established in the above-mentioned frequency band. (WRC-2000)

Passive services currently utilize portions of the 275 – 3 000 GHz range for scientific observation of both spectral line and continuum emissions. Resolution **950 (Rev. WRC-07)** resolves to review No. **5.565** to update the spectrum use between 275 and 3 000 GHz by the passive services, but specifically excludes allocations in this range.

U.S. VIEW: The United States supports the modification of No. **5.565** to include all appropriate bands of interest to RAS, EESS (passive), and SRS (passive) in the range 275 – 3 000 GHz based upon studies being conducted in Study Group 7. (August 7, 2008)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

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DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 1.8: to consider the progress of ITU-R studies concerning the technical and regulatory issues relative to the fixed service in the bands between 71 GHz and 238 GHz, taking into account Resolutions **731 (WRC-2000)** and **732 (WRC-2000)**

ISSUE: The intent of this agenda item is to study compatibility between passive and active services and develop sharing criteria for co-primary active services in bands above 71 GHz. In particular, it is important to study the spectrum requirements for active services for which the technology will be commercially available at a future date. Based on proposals and documentation available at WRC-07 it is likely that some administrations may seek to develop sharing criteria for the radio regulations in the form of pfd limits on space service downlinks.

BACKGROUND: WRC-2000 adopted Resolutions **731** and **732** as part of the conference decisions on the allocation of frequency bands above 71 GHz to the Earth exploration-satellite (passive) and radio astronomy services resulting in an overall rearrangement of the allocation tables in Article **5** of the Radio Regulations. These resolutions became necessary because the ITU-R was not able to fully evaluate for the active services (e.g., fixed, mobile, radiolocation, etc.), the new arrangement of their allocations vis-à-vis the passive allocations or each other. Therefore, the conference decided to adopt these two resolutions providing for further study and possible action in the future when active services technology and emerging requirements become better known. Since that time, millimeter wave spectrum above 71 GHz has become the subject of increasing interest for commercial use due to its unique propagation characteristics and the wide bandwidth available for carrying telecommunications traffic. New technologies are now emerging that offer the possibility of using these higher frequency bands for fixed wireless applications, taking advantage of the wide bandwidths available to support applications such as extremely high speed data transmission (e.g., data rates in the 1 to 10 Gbps range) for short distance (e.g., < 1-2 km). Several administrations have made or are making provisions for such wideband terrestrial fixed wireless applications.

In a somewhat unique set of circumstances, WRC-07 did not adopt a Resolution to define this agenda item. Therefore, the definition and scope of the agenda item is unclear.

U.S. VIEW: The United States supports ITU-R studies concerning the fixed service bands between 71 and 238 GHz. The United States supports protection of the existing services allocated within this frequency range. (August 7, 2008)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 1.11: to consider a primary allocation to the space research service (Earth-to-space) within the band 22.55-23.15 GHz, taking into account the results of ITU-R studies, in accordance with Resolution **753 (WRC-07)**

ISSUE: Resolution **753 (WRC-07)**, "Use of the band 22.55-23.15 GHz by the space research service," calls for consideration of sharing between space research service systems operating in the Earth-to-space direction and the fixed, inter-satellite, and mobile services in the band 22.55-23.15 GHz, with a view to consider the inclusion of the sharing criteria within the Radio Regulations and appropriate modifications to the Table of Frequency Allocations.

BACKGROUND: CITEL proposed this agenda item to WRC-07 in order to fulfill a requirement for space research service (SRS) uplink spectrum. SRS missions in near-Earth-orbit, including missions in transit to the moon and at or near the moon, will operate downlink (space-to-Earth) transmissions in the 25.5-27.0 GHz SRS allocation. This 1.5 GHz wide downlink band will be used for both scientific data retrieval and voice/video communication with the Earth. However, there is a need for a companion uplink (Earth-to-space) band to provide the mission data, command and control links for these missions. Due to the potential for many concurrent exploration-related systems and the large bandwidth requirements of these systems, especially those supporting manned missions, an uplink bandwidth of up to 600 MHz will be needed. Allocating sufficient primary SRS frequency spectrum in the 22.55-23.15 GHz band will provide the space exploration initiatives adequate uplink (Earth-to-space) bandwidth capacity in a band that is paired with the inter-satellite service and thus is a reasonable companion to the primary SRS 25.5-27.0 GHz space-to-Earth band.

Resolution **753 (WRC-07)** calls for sharing studies between SRS (Earth-to-space) and the fixed, inter-satellite and mobile services in the band 22.55-23.15 GHz to determine appropriate criteria which will provide for sharing between a new SRS (Earth-to-space) allocation and the existing services in the 22.55-23.15 GHz band. These sharing studies have been initiated in ITU-R Working Party 7B, the responsible group for CPM studies in support of WRC-11 agenda item 1.11.

U.S. VIEW: The United States supports a new SRS (Earth-to-space) primary allocation in the band 22.55-23.15 GHz taking into account the results of ITU-R studies. (August 7, 2008)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

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DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 1.12: to protect the primary services in the band 37-38 GHz from interference resulting from aeronautical mobile service operations, taking into account the results of ITU-R studies in accordance with Resolution **754 (WRC-07)**

ISSUE: Resolution **754 (WRC-07)**, "Consideration of modification of the aeronautical component of the mobile service allocation in the 37-38 GHz band for protection of other primary services in the band," calls for consideration of the compatibility of the aeronautical mobile service (AMS) with other primary services in the band 37-38 GHz in order to determine appropriate compatibility criteria for inclusion within the Radio Regulations or an appropriate modifications to the Table of Frequency Allocations.

BACKGROUND: Space research service (SRS) earth station receivers are being implemented in the 37-38 GHz band to support manned missions, for both near Earth and deep space distances. Use of the wider bandwidth available in the 37-38 GHz band is required to support the increasing data requirements of planned manned missions.

Preliminary analysis within ITU-R Working Party 7B has shown that aeronautical mobile stations (assuming parameters from lower bands) are capable of causing unacceptable levels of interference for significant periods whenever they are within-line-of-sight of an SRS receiving earth station. In particular, SRS earth station receivers operating in the 37-38 GHz band have a very low interference threshold. Protection criteria applicable to these SRS Earth stations operating with either deep space or non-deep-space missions are contained in ITU-R recommendations. The operation of an aeronautical mobile station exceeding the protection criteria of the SRS for an extended period could jeopardize the success of a manned or scientific space mission. WRC-07 approved this agenda item based on information that no aeronautical mobile systems operate or plan to operate in the 37-38 GHz band.

CITEL proposed this agenda item at WRC-07 with the intent to exclude the AMS from the 37-38 GHz band in order to protect the other services using this band, particularly the space research service. Preliminary studies in the ITU have shown that sharing with traditional AMS systems is not feasible if they were to operate in the band. However, since WRC-07 adopted this agenda item, the aviation industry is considering several candidate bands, which includes the 37-38 GHz band, for a newly identified airborne application. If studies show this application can operate without exceeding applicable interference thresholds, it may be feasible to establish sharing criteria that protects the other primary services in the band 37-38 GHz.

Resolution **754 (WRC-07)** calls for sharing studies between the AMS and the SRS, fixed service, FSS and MS in the band 37-38 GHz to determine appropriate criteria to ensure the protection of the other primary services from AMS operations in the band 37-38 GHz.

U.S. VIEW: The United States supports sharing studies in the band 37-38 GHz to determine appropriate compatibility criteria for the AMS. If the studies show that sharing is feasible with particular AMS applications, support the establishment of sharing criteria that both protects the other primary services in the band 37-38 GHz, as well as allows for such compatible AMS applications. However, if the studies show that sharing is not feasible, support the suppression of the AMS from the 37-38 GHz band. (August 8, 2008)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 1.13: to consider the results of ITU-R studies in accordance with Resolution **551 (WRC-07)** and decide on spectrum usage of the 21.4-22 GHz band for the broadcasting satellite service and the associated feeder link bands in Regions 1 and 3

ISSUE: **Resolution 551 (WRC-07)**, "Use of the band 21.4-22 GHz for the broadcasting-satellite service and associated feeder-link bands in Regions 1 and 3," calls for continuation of technical and regulatory studies on harmonization of spectrum usage, including planning methodologies, coordination procedures or other procedures, and broadcasting-satellite service (BSS) technologies in the 21.4-22 GHz band and associated feeder-links, considering that *a priori* planning is not necessary and should be avoided if it prevents flexible use of the band and that interim arrangements are on a first-come, first-served basis. Resolution **551 (WRC-07)**, also calls for WRC-11 to review the results of the studies and decide the usage of the 21.4-22 GHz band and the associated feeder link bands in Regions 1 and 3.

BACKGROUND: Region 1 and 3 countries proposed this item for the WRC-11 agenda. WARC-92 allocated the band 21.4-22 GHz in regions 1 and 3 to the BSS on a primary basis beginning April 1, 2007. In Regions 1 and 3, the BSS shares with the fixed service (FS) and mobile service (MS), which are also allocated in the band on a primary basis; in Region 2 the band is allocated only to the FS and MS on a primary basis. No. **5.530 (WRC-07)** subjects the BSS allocation to the provisions of Resolution **525 (WRC-07)**, the Annex of which sets out interim procedures for the introduction of BSS high definition television (HDTV) systems in this band. While Resolution **525 (WRC-07)** subjects BSS (HDTV) systems to applicable procedures under Articles **9** and **14**, it exempts them from coordination procedures with terrestrial systems under **RR 9.11** until definitive procedures are established by the next conference. Resolution **525 (WRC-07)** also specifies that other services operating in the band may do so on condition of not causing harmful interference to BSS (HDTV) systems and that they cannot claim protection from such systems, thus effectively making the BSS (HDTV) systems "super-primary" in this band in Regions 1 and 3. In addition, footnote No. **5.347A** states that **Resolution 739 (WRC-07)**, that calls for administrations to take all reasonable steps to ensure compatibility with radio astronomy observations in bands adjacent or neighboring to certain satellite downlink bands, applies to this band. Table 1 of **Resolution 739** (the list of band pairs that is applicable to geostationary satellite systems) includes the pair 21.4-22.0 GHz (BSS) and 22.21-22.5 GHz (radio astronomy service).

U.S. VIEW: The United States supports the protection of existing services from in-band interference and unwanted emissions. (August 8, 2008)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

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)**

ISSUE: Resolution **956 (WRC-07)** calls for studies into the potential need for regulatory measures regarding software-defined radio (SDR) technologies and/or cognitive radio systems (CRS), and specifies that the results of these studies should be reviewed at WRC-11 for possible action. The resolution also specifies potential issues with cognitive radio systems, including the possible need for a worldwide pilot channel for "harmonization" of such systems.

BACKGROUND: Agenda item 1.19 originated from various proposals at WRC-07. One proposal focused on cognitive radio and the possibility of a worldwide allocation for a "cognition supporting pilot channel (CPC)" – essentially, a pilot channel which would provide radio systems with cognitive capabilities with information regarding locally-available radio spectrum. Another proposal suggested more general studies regarding both cognitive radio and software-defined radio technologies. The ITU-R has not reviewed the studies mentioned in Resolution **956 (WRC-07)** *considering (j)* regarding a CPC and allocation database.

U.S. VIEW: The United States supports ITU-R studies within Working Party 1B on the relevance of regulatory measures for software-defined radio and cognitive radio systems. The United States does not support regulatory measures leading to allocations, including identification footnotes, for software-defined radio and cognitive radio systems, as these are technologies, each with its own attributes, and not radiocommunication services. In addition, the United States encourages administrations to contribute technical studies to other ITU-R working parties regarding SDR and CRS technologies, their functionalities, the key technical characteristics, requirements, performance, and benefits to the various ITU-R services. As these technologies may be used in conjunction with unlicensed/short range device (SRD) systems, it may be important to follow studies on WRC-11 agenda item 1.22 on SRD. (August 7, 2008)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 1.20: To consider the results of ITU-R studies and spectrum identification for gateway links for high altitude platform stations (HAPS) in the range between 5 850-7 075 MHz in order to support operations in the fixed and mobile services, in accordance with Resolution **734 (Rev.WRC-07)**

ISSUE: Different segments of the 5 850-7 075 MHz frequency band are utilized for fixed, fixed-satellite, and mobile services. Resolution **734 (WRC-07)** proposes to study spectrum identification for gateway links for high-altitude platform stations in the range from 5 850 to 7 075 MHz. The study effort is to identify two channels of 80 MHz each for gateway links for HAPS in the range from 5 850 to 7 075 MHz, in bands already allocated to the fixed service, while ensuring the protection of existing services.

BACKGROUND: Previous WRC efforts (WRC-97, WRC-2000) had undertaken initiative to examine HAPS types of applications in various frequency bands. Due to the fact that all previous studies were carried out in frequency bands significantly higher than 5 850-7 075 MHz, new electromagnetic compatibility (EMC) studies will have to be initiated and conducted. The EMC studies will have to address HAPS ability to coexist with mobile, fixed satellite services as well as with radiolocation service, which exists in adjacent frequency bands.

Land-based and maritime radiolocation systems operate in the lower adjacent frequency band. Fixed, mobile, and fixed-satellite systems also operate in the 5 850-7 075 MHz band. Remote sensing systems operate in the 6 475-7 075 MHz band.

U.S. VIEW: The United States supports the studies for potential HAPS identification in the 5 850 – 7 075 MHz band. Identification of any spectrum for HAPS in the 6 GHz band should ensure protection of all services in the 5 850-7 075 MHz band, as well as in adjacent bands. (August 7, 2008)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

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DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 1.22: to examine the effect of emissions from short-range devices on radiocommunication services, in accordance with Resolution **953 (WRC-07)**

ISSUE: Resolution 953 (WRC-07) invites the ITU-R to study the emissions from short-range devices (SRDs), and in particular radio-frequency identification devices (RFIDs), inside and outside the ISM bands. It further emphasizes the need to ensure adequate protection of radiocommunication services from SRD emissions.

BACKGROUND: Short-range devices have been studied in the past in both Working Parties 1A and 1B. ITU-R Question 213/1, "Technical and operating parameters and spectrum requirements for short-range devices" was adopted in 1997, resulting in Recommendation ITU-R SM.1538, "Technical and operating parameters and spectrum requirements for short range radiocommunication devices" in 2001. The ITU-R revised this recommendation in 2003 and in 2006, and work on further revisions continues in Working Party 1B.

Resolution **953 (WRC-07)** mentions ultra-wideband systems in *Considerings (b) and (d)*. Such devices have been studied extensively in Task Group 1/8, resulting in the production of four Recommendations: ITU-R SM.1754 (Measurement techniques of ultra-wideband transmissions), SM.1755 (Characteristics of ultra-wideband technology), SM.1756 (Framework for the introduction of devices using ultra-wideband technology) and SM.1757 (Impact of devices using ultra-wideband technology on systems operating within radiocommunication services).

Resolution **953 (WRC-07)** notes all of these recommendations in *Recognizing (a)*.

The primary change in direction between the current Resolution and past work seems to be the focus on the effect of emissions from short-range devices in general on radiocommunications, rather than technical characteristics of such devices and regulatory regimes or the emissions from a specific type of device.

U.S. VIEW: The United States views the regulation of short-range devices as primarily a national matter. The United States supports studies into the characteristics of short-range devices, including emissions and the effects of those emissions on radiocommunication services. (August 7, 2008)
