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

SEP 29 2005

Mr. Donald Abelson
Chief of the International Bureau
Federal Communications Commission
445 12th Street SW
Washington, D.C. 20554

Dear Mr. Abelson:

The National Telecommunications and Information Administration (NTIA), on behalf of the Executive Branch Agencies, has approved the release of additional Executive Branch proposals for WRC-07. These proposals considers the federal agency inputs toward the development of the U.S. Proposals for WRC-07.

The enclosed document contains two U.S. proposals for agenda item 7.2. These proposals are forwarded for your consideration and review by your WRC-07 Advisory Committee. Jim Vorhies of my staff is the primary contact for NTIA.

Sincerely,

Fredrick R. Wentland
Associate Administrator
Office of Spectrum Management

Enclosure

United States of America

DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

Agenda Item 7.2: 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 **802 (WRC-03),**

Background Information: At WRC-2003, a primary space research service (space-to-Earth) allocation in the band 25.5-27.0 GHz was added to the Table of Allocations to support a wide range of space research missions.

It is envisioned that future exploration missions to the Moon and Mars will be robotic for the foreseeable future and manned in the long-term. Prior to 2015, there will be extensive robotic missions, examining the lunar terrain, environment and potential landing sites.

To support the SRS missions in near Earth orbit, including missions in transit to the moon and at or near the moon, downlink (space-to-Earth) transmissions will operate 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, it is envisioned that a total uplink bandwidth of up to 500 MHz will be needed.

The 22.55-23.55 GHz band is used by tracking and data relay satellite systems to communicate with user satellites (forward links) via an existing primary inter-satellite service allocation. These forward links are paired with inter-satellite return links in the 25.25-27.5 GHz band. In addition, the 22.55-23.55 GHz band is both far enough from the 25.5-27.0 GHz band to provide adequate frequency separation and wide enough to accommodate a 500 MHz sub-band, while allowing adequate bandwidth to protect existing systems. Thus the 22.55-23.55 GHz band is the logical companion band to provide the necessary uplink bandwidth and by using the same band as for communication in the Earth-to-space direction, it provides a degree of redundancy and coverage that may prove vital for future missions.

Proposal:

USA/ / 1 MOD

RESOLUTION 803 (WRC-~~03~~07)

~~Preliminary~~ Aagenda for the 2010 World Radiocommunication Conference

The World Radiocommunication Conference (Geneva, 200~~3~~7),

USA/ / 2 ADD

2.XB to consider the addition of up to a 500 MHz primary space research service (Earth-to-space) allocation in the 22.55-23.55 GHz band, taking into account the results of ITU-R studies and recognizing the need to protect existing systems in the band.

Reasons: Allocating sufficient primary space research service frequency spectrum in the 22.55-23.55 GHz band will provide the space exploration initiatives adequate uplink (Earth-to-space) bandwidth capacity in a band that is linked for the inter-satellite service and thus is a reasonable companion to the primary space research service 25.5-27.0 GHz space-to-Earth band.

USA/ / 3 ADD

RESOLUTION USXXX (WRC-07)

Use of the Band 22.55-23.55 GHz by the Space Research Service

The World Radiocommunication Conference (Geneva, 2007),

considering

a) that there is growing interest by space agencies around the World in the comprehensive exploration of the Moon;

b) that the lunar exploration missions, examining the terrain, environment and potential landing sites, will be robotic for the foreseeable future and manned in the long-term;

c) that a primary space research service (space-to-Earth) allocation in the band 25.5-27.0 GHz was added to the Table of Allocations to support a wide range of space research missions;

d) that space research service (space-to-Earth) transmissions in the 25.5-27.0 GHz band will be used to support space research service missions in near Earth orbit, including missions in transit to the moon and at or near the moon;

e) that the space research service (space-to-Earth) transmissions in the 25.5-27.0 GHz band will be used for both scientific data retrieval and voice/video communication with the Earth;

f) that there is a need for a companion uplink space research service (Earth-to-space) band to provide the mission data, command and control links for the lunar exploration missions;

g) that due to the potential for many concurrent exploration related systems and the large bandwidth requirements of these systems, especially those supporting manned missions, it is envisioned that a total uplink bandwidth of up to 500 MHz will be needed;

h) that the 22.55-23.55 GHz band is both far enough from the 25.5-27.0 GHz band to provide

adequate frequency separation and wide enough to accommodate a 500 MHz sub-band, while allowing adequate bandwidth to protect existing systems;

i) that the 22.55-23.55 GHz band is used by tracking and data relay satellite systems to communicate with user satellites (forward links) via the existing primary inter-satellite service allocation;

j) that the 22.55-23.55 GHz band is the logical companion band to provide the necessary uplink bandwidth and by using the same band as for communication in the Earth-to-space direction, it provides a degree of redundancy and coverage that may prove vital for future missions;

recognizing

1 that the band 22.55-23.55 GHz is allocated to the fixed, inter-satellite and mobile services;

2 that the inter-satellite forward links in the 22.55-23.55 GHz band are paired with inter-satellite return links in the 25.25-27.5 GHz band;

3 that sharing between space research service (Earth-to-space) and the fixed, inter-satellite and mobile services may be feasible in the band 22.55-23.55 GHz;

resolves

1 to invite ITU-R to conduct sharing analyses between space research service systems operating in the Earth-to-space direction and the fixed, inter-satellite and mobile services in the band 22.55-23.55 GHz to define appropriate sharing criteria with a view to allocating up to 500 MHz in the band 22.55-23.55 GHz for the space research service in the Earth-to-space direction;

2 to recommend that WRC-10 review the results of the studies under *resolves* 1 and consider the inclusion of the sharing criteria within the Radio Regulations and appropriate modifications to the Table of Frequency Allocations, based on proposals from administrations;

invites administrations

to contribute to the sharing studies between the space research service and the fixed, inter-satellite and mobile services in the 22.55-23.55 GHz band;

invites ITU-R

to complete the necessary studies, as a matter of urgency, taking into account the present use of the allocated band, with a view to presenting, at the appropriate time, the technical information likely to be required as a basis for the work of the Conference;

instructs the Secretary-General

to bring this Resolution to the attention of the international and regional organizations concerned.

Reasons: Consequential change required by the addtion of new agenda item 2.XB to the Agenda for WRC-10.

United States of America

DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

Agenda Item 7.2 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 **802 (WRC-03)**,

Background Information: In the Preliminary Agenda for WRC-2010, agenda item 2.2 states: "to consider frequency allocations between 275 GHz and 3 000 GHz taking into account the result of ITU-R studies in accordance with Resolution **950 (WRC-03)**;"

Studies in the ITU-R, most notably WP1A, WP3J, WP3M, WP4A, WP7B, WP7C, WP7D, WP8A, WP9B, have very clearly identified the interest within the active and passive services in using frequencies in the spectral region above 275 GHz. Resolution **950 (WRC-03)** has allowed for the submission of details on systems operating in this range into the Master International Frequency Register (MIFR). However, there is no registered use to date by any of the active services. On the other hand, the radio astronomy, Earth exploration-satellite (passive) and the space research (passive) services all make extensive use of this spectral region. Within the radio astronomy service, several administrations have already made significant infrastructure investments in radio astronomy sites around the world. This extensive use of this spectral region by the passive services along with the lack of use of the same by the various active services indicates that the general consideration of frequency allocations between 275 and 3000 GHz is premature and such consideration would likely take up a great deal of resources in preparing for the 2010 Conference. As an alternative, reviewing and revising No. **5.565** would be desirable while at the same time require far less preparation by administrations for the 2010 Conference.

Proposal:

USA/ / 1 MOD

RESOLUTION 803 (WRC-~~03~~07)

~~Preliminary~~ Aagenda for the 2010 World Radiocommunication Conference

The World Radiocommunication Conference (Geneva, 200~~3~~7),

USA/ / 2 SUP

~~2.2 to consider frequency allocations between 275 GHz and 3 000 GHz taking into account the result of ITU-R studies in accordance with Resolution 950 (WRC-03);~~

USA/ / 3 ADD

2.X to review and revise No. **5.565** with a view to identifying additional frequencies for passive services in the spectral region from 275 – 3000 GHz, taking into account the results of ITU-R studies in accordance with Resolution 950.

Reasons: The extensive use of this spectral region by the passive services along with the lack of use of the same by the various active services indicates that the general consideration of frequency allocations between 275 and 3000 GHz is premature and such consideration would likely take up a great deal of resources in preparing for the 2010 Conference. As an alternative, reviewing and revising No. **5.565** would be desirable while at the same time require far less preparation by administrations for the 2010 Conference.

USA/ / 4 MOD

RESOLUTION 950 (WRC-~~03~~07)

Consideration of the use of the frequencies between 275 and 3 000 GHz

The World Radiocommunication Conference (Geneva, 2003),

considering

a) that, in the Table of Frequency Allocations, frequency bands above 275 GHz are not allocated;

b) that, notwithstanding *considering a)*, No. **5.565** makes provision for the use of the frequency band 275-1 000 GHz for ~~the~~ experimentation with, and development of various passive services and all other services and recognizes the need to conduct further ~~experimentation and~~ research;

c) that No. **5.565** also makes provision for the protection of passive services until, and if, such time as the Table of Frequency Allocations may be extended;

d) that, in addition to the spectral lines identified by No. **5.565**, research activities in the bands above 275 GHz may yield other spectral lines of interest, such as those listed in Recommendation ITU-R RA.314;

e) that within various Radiocommunication Study Groups, studies on systems between 275 and 3 000 GHz, including system characteristics of suitable applications, are being considered;

f) that the present use of the bands between 275 and 3 000 GHz is mainly related to the passive services, however, with anticipated technology development, the bands may become increasingly important for suitable active service applications;

g) that sharing studies in ITU-R among passive services and all other services operating in frequencies between 275 and 3 000 GHz have not been completed,

recognizing

a) that propagation characteristics at frequencies above 275 GHz, such as atmospheric absorption and scattering, have a significant impact on the performance of both active and passive systems and need to be studied;

b) that it is necessary to investigate further the potential uses of the bands between 275 and 3 000 GHz by suitable applications,

noting

a) that significant infrastructure investments are being made under international collaboration for the use of these bands between 275 and 3 000 GHz, for example, the Atacama Large Millimetre Array (ALMA), a facility under construction that will provide new insights on the structure of the universe;

b) that Radiocommunication Bureau Circular Letter CR/137 identified additional information for the Bureau to record characteristics of active and passive sensors for Earth exploration-satellite service and space research service satellites, in frequency bands below 275 GHz,

further noting

a) that a process and format similar to that provided in *noting b)* could be used to record systems operating in the 275 to 3 000 GHz band;

b) that recording active and passive systems operating in the 275 to 3 000 GHz band will provide information until the date when, and if, it is determined that changes to the Radio Regulations are needed,

resolves

~~1 to consider at WRC-10 frequency allocations between 275 GHz and 3 000 GHz taking into account the result of the ITU-R studies;~~

~~2~~ that administrations may submit for inclusion in the Master International Frequency Register details on systems which operate between 275 and 3 000 GHz and which may be recorded by the Radiocommunication Bureau under Nos. **8.4**, **11.8** and **11.12**,

invites ITU-R

to conduct the necessary studies in time for consideration by WRC-10 with a view to the modification of No. **5.565** ~~or the possible extension of the Table of Frequency Allocations above 275 GHz, including advice on the applications suitable for such bands~~,

instructs the Director of the Radiocommunication Bureau

to accept submissions referred to in *resolves* ~~2~~, and to record them in the Master International Frequency Register.