IWG 3/029R1
Date: 06 January 2010

UNITED STATES OF AMERICA

DRAFT PROPOSAL FOR WRC-12

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)***

BACKGROUND: 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. A number of concurrently operating exploration-related systems are envisioned. Allocating sufficient primary space research service 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 space research service 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. It recognizes the need to protect all of the services in the band 22.55-23.55 GHz. Sharing studies are ongoing in ITU-R Working Party 7B and Working Party 4A.

In ITU-R WP 7B, a Draft New Recommendation ("DNR") is under development which provides characteristics of three types of SRS stations planned for deployment. SRS proponents expect that no more than eight such stations will be deployed throughout the world. The DNR mentioned above reveals that these stations will require no more than 24 MHz of bandwidth each (some less), for a total spectrum requirement of about 192 MHz[1]. (see PRELIMINARY DRAFT NEW RECOMMENDATIONITU-R SA.[SRS 23 GHZ CHAR], Annex 9 to Document 7B/181, 29 September 2009).

No. **5.149** identifies two Radio Astronomy frequencies at 22.81-22.86GHz and 23.07-23.12GHz which need to be protected. As the proposed use is Earth-to-space this can easily be accomplished by proper separation distances. As a result, no spectrum separation is necessary

[1] This total is straight multiplication of the maximum bandwidth per system and the number of systems. It does not take into account possibilities for frequency reuse which may lower the total spectrum requirement.

for these frequencies. However, as noted in the Recognizings 1) through 4) of Resolution **753(WRC-07)** the protection requirements of all potentially affected services need to be met. These can be met if the new SRS allocation is limited to 300 MHz in the lowest portion of the 22.55-23.15 GHz band (i.e., 22.55 - 22.85 GHz). Limiting the SRS allocation to the 22.55 – 22.85 GHz band provides frequency separation to assist in SRS compatibility with other services potentially impacted in the allocation. Further, it is consistent with the government's long held policy on efficient spectrum management.
[http//:www.ntia.doc.gov/reports/2008/FederalStrategicSpectrumPlan2008.pdf]

Proposal

Article 5

Frequency Allocations

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

MOD USA/1.11/1

22-24.75 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
22.55-22.85	FIXED INTER-SATELLITE 5.338A MOBILE SPACE RESEARCH SERVICE 5.149	

Deleted: 23.55

MOD USA/1.11/2

22.85-23.55	FIXED INTER-SATELLITE 5.338A MOBILE 5.149	

Deleted: 22.55

Reason: This allocation proposal fulfills the requirements of the agenda item and ensures protection of all services in the allocation 22.55-23.15 GHz.