

IWG-3 Draft U.S. Proposal on WRC-03 Agenda Item 1.39

United States of America

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.39: "to examine the spectrum requirements in the fixed-satellite service bands below 17 GHz for telemetry, tracking and telecommand of fixed-satellite service networks operating with service links in the frequency bands above 17 GHz"

Background information:

WRC-03 agenda item 1.39 identifies the need to examine the spectrum requirements in the FSS service bands below 17 GHz for Telemetry, Tracking & Command (TT&C) of FSS networks operating in the frequency bands above 17 GHz.

Some fixed-satellite service (FSS) systems utilize the existing Space Operation Service allocations (all of which are below 3 GHz) for TT&C while others use part of the FSS band allocations to perform this function (FSS (space-to-Earth) for space telemetry and tracking carriers, FSS (Earth-to-space) for telecommand). Propagation conditions and spectrum availability are of primary consideration when implementing TT&C subsystems, which must meet high reliability criteria. Transmissions above 17 GHz experience higher free-space and rain attenuation losses than those below 17 GHz. Under the ITU regulatory structure, FSS systems may use any FSS allocation to perform TT&C functions.

Working Parties 4A and 4B have performed various studies in response to agenda item 1.39. WP 4B is investigating the reliability and availability requirements of TT&C systems operating with service links in frequency bands above 17 GHz. WP 4A has compiled technical and operational characteristics of TT&C subsystems, considered the TT&C spectrum requirements of systems operating above 17 GHz and evaluated the potential coordination implications.

The results of studies in WP 4A show that it may be difficult to implement TT&C in-band for service links above 17 GHz since these operations are required to be reliable and the performance of TT&C links above 17 GHz is limited by a number of factors. With respect to potential constraints on the bands below 17 GHz, the following factors facilitate the coordination of TT&C carriers and minimize constraints: TT&C carriers occupy a small portion of the satellite bandwidth and through appropriate frequency planning they are usually accommodated, and; TT&C earth stations usually employ large antennas which reduces interference susceptibility and the input power requirements. At its October 2001 meeting, WP 4A determined that currently, the bands below 17 GHz appear to offer the flexibility to accommodate these additional spectrum requirements for TT&C.

Considering the above, the studies to-date do not indicate that any new regulatory provisions or procedures would be required to meet the spectrum requirements for the operation of TT&C below 17 GHz for FSS systems with service links above 17 GHz.

Proposal:

USA/xx/1

ARTICLE S1

Terms and definitions

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Section III – Radio services

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NOC S1.23 *space operation service: A radiocommunication service concerned exclusively with the operation of spacecraft, in particular space tracking, space telemetry and space telecommand.*

These functions will normally be provided within the service in which the *space station* is operating.

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Reasons: The current regulatory situation provides sufficient and appropriate flexibility to accommodate the spectrum requirements for the TT&C of systems with service links operating above 17 GHz. It is considered that no regulatory or procedural action is required under this agenda item.

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NOC

ARTICLE S5

Frequency allocations

Reasons: The current regulatory situation provides sufficient and appropriate flexibility to accommodate the spectrum requirements for the TT&C of systems with service links operating above 17 GHz. It is considered that no regulatory or procedural action is required under this agenda item. This proposal does not preclude modifications to Article S5 under other agenda items.