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Excerpts

WRC-2003 AGENDA ITEM ISSUES FOR CHAPTER 2

(Item on the Agenda: 4.1)

**(Document submitted chapter 2 coordinator for the preparation
of the WRC-2003)**

Chapter 2: Mobile, mobile-satellite and space science services

The Agenda Items covered herein are Agenda Items 1.3, 1.5, 1.6, 1.11, 1.12, 1.16, 1.20, 1.31, 1.33 and 1.38 (8.3) as it was developed in Panama.

Agenda Item 1.33 - to review and revise technical, operational and regulatory provisions, including provisional limits in relation to the operation of high altitude platform stations within IMT-2000 in the bands referred to in No. S5.388A, in response to Resolution [221] (WRC-2000);

Background:

A high altitude platform station (HAPS) is defined in No. **S1.66A** as “a station located on an object at an altitude of 20 to 50 km and at a specified, nominal, fixed point relative to the Earth”. Thus, HAPS may offer a new means of providing IMT-2000 services with minimal network infrastructure since they are capable of providing service to a large footprint together with a dense coverage.

The bands 1 885-2 025 MHz and 2 110-2 200 MHz are identified in No. **S5.388** as intended for use on a worldwide basis for IMT-2000. The use of HAPS as base stations within the terrestrial component of IMT-2000 is optional for administrations, and that such use should not have any priority over other terrestrial IMT-2000 use. Furthermore, in accordance with No. **S5.388** and Resolution **212 (Rev.WRC-97)**, administrations may use the bands identified for IMT-2000, including the bands referred to in this resolution, for stations of other primary services to which they are allocated. These bands are allocated to the fixed and mobile services on a co-primary basis.

The ITU-R has studied sharing and coordination between HAPS and other stations within IMT-2000, has considered compatibility of HAPS within IMT-2000 with some services having

allocations in the adjacent bands, and has established Recommendation ITU-R M.1456. However, additional ITU-R study is needed to consider compatibility of HAPS within IMT-2000 with some other services that share portions of these bands on a co-primary basis. Based on the above considerations, Resolution **221 (WRC-2000)** defined provisional pfd limits as described in the following paragraphs.

For the purpose of protecting certain stations operating within IMT-2000 in neighbouring countries from co-channel interference, a HAPS operating as a base station to provide IMT-2000 shall not exceed a provisional co-channel power flux-density (pfd) of $-121.5 \text{ dB (W/(m}^2 \cdot \text{MHz))}$ at the Earth's surface outside an administration's borders unless agreed otherwise by the administration of the affected neighbouring country.

A HAPS operating as a base station to provide IMT-2000, in order to protect fixed stations from interference, shall not exceed the following provisional values of out-of-band pfd at the Earth's surface in the bands 2 025-2 110 MHz:

- $-165 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for angles of arrival (θ) less than 5° above the horizontal plane;
- $-165 + 1.75 (\theta - 5) \text{ dB (W/(m}^2 \cdot \text{MHz))}$ for angles of arrival between 5° and 25° above the horizontal plane; and
- $-130 \text{ dB(W/(m}^2 \cdot \text{MHz))}$ for angles of arrival between 25° and 90° above the horizontal plane.

The ITU-R did not address sharing and coordination between HAPS and some existing systems, particularly PCS (personal communications service), MMDS (multichannel multipoint distribution service) and systems in the fixed service which are currently operating in some countries in the bands 1 885 – 2 025 MHz and 2 110 – 2 200 MHz. Therefore, Resolution **221** invited the ITU-R to complete additional regulatory, operational and technical studies on sharing criteria for HAPS with other systems in the bands 1 885 – 1 980 MHz, 2 010 – 2 025 MHz and 2 110 – 2 170 MHz in Regions 1 and 3 and 1 885 – 1 980 MHz and 2 110 – 2 160 MHz in Region 2, and in adjacent bands in order to review and, if necessary, revise these provisional pfd limits. Additionally, Resolution **221** asked for consideration of appropriate regulatory and technical provisions to allow bilateral co-ordination of HAPS in an IMT-2000 system with affected neighbouring administrations.

Issues

1. What are the additional regulatory, operational and technical sharing criteria for HAPS with other systems in the bands 1885-1980 MHz, 2010-2025 MHz and 2110-2170 MHz in Regions 1 and 3 and 1885-1980 MHz and 2110-2160 MHz in Region 2?
2. What revisions are required to Resolutions [221](WRC-2000)?
3. What are the appropriate regulatory and technical provisions of HAPS within a terrestrial IMT-2000 system to take into account the bilateral coordination with affected neighbouring administrations the operation and growth of existing and planned systems in the fixed and mobile services having allocations on a primary basis?

Preliminary Views:

Canada Views: The band 1 850 - 1 990 MHz is currently used by PCS (personal communications service) and some existing fixed systems.. A number of fixed systems have been licensed in the band 2 110 - 2 150 MHz and this band may also be available for mobile systems in the future. Furthermore, the band 2 150 – 2 160 MHz is currently used in Canada by the fixed service for MCS/MDS (multipoint communications systems/multipoint distribution television systems). Therefore, studies in Canada are currently underway to determine the sharing criteria, emission parameters and operational methods required to protect current radio systems and evolving mobile systems from HAPS. In addition, traditionally, terrestrial-to-terrestrial coordination with other administrations has been a domestic or bilateral issue and consequently, coordination criteria has not been specified in the Radio Regulations.