CEPT Brief on Agenda Item 1.19

Agenda item 1.19: *to consider the results of the ITU-R studies regarding spectrum requirements for global broadband satellite systems in order to identify possible global harmonised FSS frequency bands for the use of Internet applications, and consider the appropriate regulatory/technical provisions, taking also into account No. 5.516B of the Radio Regulations.*

Issue

This agenda item covers the following issues:

1. to consider the results of the ITU-R studies on global broadband satellite systems possibly to determine the spectrum requirements for the provision, on a worldwide basis, of satellite high-speed Internet services;
2. to identify, to the extent practicable, the globally/regionally harmonized frequency bands that may be used for the implementation of high-speed Internet,
3. to consider regulatory/technical provisions, as necessary, for the introduction of such applications taking into account the needs in particular of developing countries and those with sparsely populated areas.

Preliminary CEPT position

CEPT does not see the need for any regulatory changes to be made by WRC-07.

The reason is that the existing FSS allocations, including those identified for HDFSS applications in RR 5.516B, are capable of accommodating a wide range of satellite based multimedia applications including internet access. In fact, access to the internet using FSS satellite systems is currently being implemented in a number of FSS bands which are allocated on a global and regional basis.

Background

The Arab League proposed this agenda item at WRC-03 and the following background information has been extracted from this proposal (ARB/27A39/7). Bridging the “digital divide” is perceived as one of the top priorities for the international community today. One possible way to reduce this imbalance, and accelerate the delivery of information and communications technologies (ICT) throughout the world, could be to implement a technical and regulatory environment that aims to promote the provision of high-speed Internet namely in developing countries, including the least-developed countries, the land-locked and island countries, and economies in transition. Satellite communications have the advantage of being able to provide broadband services within a reasonable time-frame.

The proposed environment could hinge on the development of a global market for terminal equipment and broadband through adoption of a common technical standard, identification of orbital resources and frequency spectrum for the satellite systems willing to provide high-speed Internet, and implementation of a minimal regulatory environment.

The Radiocommunication Assembly (RA-03) approved a new Question (269/4), requesting ITU-R to study:

– the frequency spectrum requirements for the provision, on a worldwide basis, of high-speed Internet;
– the frequency bands that could be identified in the short-, medium- and long-term for the provision of high-speed Internet;

– the technical and operational characteristics that could facilitate the mass production of simple (VSAT) terminal equipment at affordable prices.

Satellite telecommunications technology has the potential to accelerate the availability of high-speed Internet. In addition, the international nature of satellite services benefits from international harmonization in the use of frequencies, and open and interoperable standards for user terminal equipment. For the purposes of global operations and economies of scale, there may be benefits to co-operate on common technical and frequency system parameters

Radio Regulation **5.516B** The following bands are identified for use by high-density applications in the fixed-satellite service:

17.3-17.7 GHz	(space-to-Earth) in Region 1
18.3-19.3 GHz	(space-to-Earth) in Region 2
19.7-20.2 GHz	(space-to-Earth) in all Regions
39.5-40 GHz	(space-to-Earth) in Region 1
40-40.5 GHz	(space-to-Earth) in all Regions
40.5-42 GHz	(space-to-Earth) in Region 2
47.5-47.9 GHz	(space-to-Earth) in Region 1
48.2-48.54 GHz	(space-to-Earth) in Region 1
49.44-50.2 GHz	(space-to-Earth) in Region 1
and	
27.5-27.82 GHz	(Earth-to-space) in Region 1
28.35-28.45 GHz	(Earth-to-space) in Region 2
28.45-28.94 GHz	(Earth-to-space) in all Regions
28.94-29.1 GHz	(Earth-to-space) in Region 2 and 3
29.25-29.46 GHz	(Earth-to-space) in Region 2
29.46-30 GHz	(Earth-to-space) in all Regions
48.2-50.2 GHz	(Earth-to-space) in Region 2

This identification does not preclude the use of these bands by other fixed-satellite service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in these Radio Regulations among users of the bands. Administrations should take this into account when considering regulatory provisions in relation to these bands. See Resolution **143 (WRC-03)**. (WRC-03)

ITU activity

WP 4A has responsibility for this issue. At the April 2004 meeting of WP 4A, two contributions (Documents 4A/37 (USA) and 4A/41 (Spain)) were received containing elements to commence the work of WP 4A under agenda item 1.19. Document 4A/37 is a preliminary study that was presented to examine the possibilities for providing access to the Internet by a high data-rate via satellite. The contribution contains some preliminary discussion of possible band pairs for the Internet applications (other bands not mentioned in the document are certainly to be discussed), uplink and downlink characteristics are developed, and per-satellite capabilities are calculated.

At the October meeting of WP4A, a working document (4A/134 Annex 8) toward CPM text was developed. This recognised that "Internet applications are being implemented in (FSS) bands being used and planned for use on a worldwide basis at 4/6 GHz, 11/14 GHz, and 20/30 GHz. It is expected that this use will continue to grow, and will accelerate as requirements are defined. There is a diverse set of applications being implemented. Internet applications are being developed and implemented today without the need for any changes to the Radio Regulations tailored to specific applications."

At the May/June 2005 meeting of WP4A, two contributions (4A/166 (UK) and 4A/167 (Canada)) were received. Document 4A/166 is a study examining the possibilities for providing high data-rate access to the internet via FSS systems using USATs. Suitable existing FSS band pairs are considered, uplink and downlink characteristics are developed and per-satellite capacities calculated. Document 4A/167 proposes revisions to draft CPM text on agenda Item 1.19, recognising that the most efficient use of FSS bands can be achieved if there are no restrictions on the types of FSS applications that can be used.

The study in Document 4A/166 was further developed at the Nov 2005 meeting of WP4A in document 4A/234 (UK), which addresses a number of minor aspects. USA and Canada identified the need for future studies examining: internet access by larger VSAT-type earth stations; and use of a large VSAT hub providing access to users by RLAN means.

At the March 2006 meeting of working party 4A , CPM text for WRC-07 agenda item 1.19 (internet access via satellite) was modified, to reflect the ongoing studies on technical and operational aspects of FSS systems which could provide internet access. In addition to the 'no change' method to satisfy the agenda item, Syria proposed a Method B - "*Another view is that proper modification to No. 5.516B of the Radio Regulations is required to respond to WRC-07 Agenda item 1.19*". Footnote RR 5.516B lists bands identified for HDFSS. Further details on second method was expected at the next WP 4A meeting in September 2006.

A number of further studies on internet access via satellite were provided to the September 2006 meeting of WP 4A. As a consequence, two draft new ITU-R Recommendations were finalised and sent to Study Group 4 for adoption and approval. The first Recommendation, ITU-R S. [HDFSS], provides characteristics of actual HDFSS systems. The second Recommendation, ITU-R S. [BBIAS], gives a number of example possibilities for providing global broadband internet access by FSS systems. No studies were provided to WP 4A to support the proposed Method B (modification of RR 5.516B) in the draft CPM text on WRC-07 Agenda Item 1.19. In absence of any studies, the proposed Method B was deleted. The final draft CPM text (Document 4A/TEMP/210) identifies one method to satisfy agenda item 1.19, i.e. that studies requested in the agenda item have been provided in draft new Recommendations ITU-R S. [HDFSS] and ITU-R S. [BBIAS]. The CPM text also notes that the identification of specific FSS frequency bands for internet applications will not improve, nor will it facilitate the provision of these applications.

WP4B has developed two new ITU-R Recommendations, one on technical characteristics of air interfaces for global broadband satellite systems (ITU-R S.1709) and one on Performance enhancements of transmission control protocol (TCP) over satellite networks (ITU-R S.1711). These were adopted and approved in April 2004. WP4B is also developing other ITU-R Recommendations in relation to IP transmission over satellite networks. The proposed subject areas for these new Recommendations are: Quality of Service; multicast protocols; and optimisation of system scale and required bandwidth per user.

In January 2007, SG4 formally adopted and approved two ITU-R Recommendations developed by WP4A in support of WRC-07 Agenda Item 1.19. These are:

- Recommendation ITU-R S.1782: "Possibilities for global broadband internet access by FSS systems"; and
- Recommendation ITU-R S.1783: "Technical and operational features characterizing high-density applications in the fixed-satellite service (HDFSS)".

CPM07 approved the draft CPM text for agenda item 1.19, which is in line with the CEPT position. The CPM text was updated editorially to make correct reference to the two new Recommendations recently adopted and approved by SG4.

European Union interest

In November 2003, the EC published a White Paper on space policy "***Space: a new European frontier for an expanding Union An action plan for implementing the European Space policy*** ":

http://www.europa.eu.int/comm/space/whitepaper/whitepaper/whitepaper_en.html

In the White Paper, the EC proposed the implementation of an extended European Space Policy to support the achievement of the European Union's policy goals. One of the specific activities identified to support the EU policies and objectives is "Bridging the digital divide". The aim is to use the potential of a number of broadband technologies, including satellite communications, to provide widespread high speed internet availability and usage throughout the enlarged European Union. In the White Paper, the EC recommended that a Forum is set up to analyse how to bridge the digital divide.

The EC published the findings and conclusions of this Digital Divide Forum in the following report:

http://europa.eu.int/information_society/eeurope/i2010/digital_divide/index_en.htm

NATO (February 2007)

NATO Military Position

In the band 17.3-17.7 GHz, the existing provisions for the radiolocation service (allocated on a secondary basis) represent Alliance military interests. The present balance in the band should be kept. Existing national utilisation is noted.

List of relevant documents

- Recommendation ITU-R S.1782: "Possibilities for global broadband internet access by FSS systems".
- Recommendation ITU-R S.1783: "Technical and operational features characterizing high-density applications in the fixed-satellite service (HDFSS)".

Proposals from outside CEPT

Arab League

The Arab League proposed this agenda item at WRC-03, see (ARB/27A39/7).

RCC

RCC believes that the existing RR provisions regarding the FSS systems do not hinder the development of global satellite systems providing the wideband Internet access in different bands allocated to FSS. RCC Administrations consider that identification of frequency bands for these purposes is not required at present.

Creation of global broadband satellite systems for Internet-applications should not affect on orbital-applications should not affect on orbital-frequency resource of national assignments stipulated by the Plan contained in RR Appendix **30B**.

APT Preliminary views

APT members support:

- the objectives of this agenda item to bring available, through economical ground terminals, broadband satellite systems for Internet applications on a global scale;

- continued studies on the above topic within ITU-R.

Taking into account that the current Radio Regulations can fully accommodate the ability of FSS systems to provide Internet access and that Resolution 143 (WRC-03) provides relevant guidance, APT members are of the view that no change is required in the current Radio Regulations in response to this agenda item.

CITEL

CITEL has now developed draft proposal for the preparation of WRC-07 which supports NOC.

CITEL believes that there are many existing and planned systems in a number of different FSS frequency bands fully capable of providing broadband/Internet applications on a global basis. They are in use and will continue to be used on a worldwide basis in the 4/6 GHz, 11/14 GHz, and 20/30 GHz allocations. The identification of specific FSS frequency bands for Internet applications will not improve or facilitate the provision of these applications. Consequently, no changes to the Radio Regulations are necessary in order to accommodate Internet applications in the FSS. Administrations are encouraged however, to contribute towards ITU-R Reports or Recommendations that would provide guidance, as appropriate, on technical and operational aspects of providing Internet applications over satellite systems. Such action is part of the normal activity of the ITU-R and will be sufficient to address this agenda item. No changes are required to Art. 5 Table of Frequency Allocations, nor any regulatory or procedural action be taken by WRC-07 in response to this agenda item.

With regard to this agenda item, administrations of Argentina, Brazil, Canada, Costa Rica, Guatemala, Mexico, Paraguay, Peru, US and Uruguay propose **NOC** to **Article 5.**

EUMETNET

EUMETNET believes that this agenda item is rather wide open since no specific frequency bands are mentioned.

EUMETNET would support new allocation for Internet Access via Satellite applications provided that compatibility with meteorological bands is ensured.

Actions to be taken

Monitor positions and proposals of other groups such as the Arab League, APT and CITEL.