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IMT Frequency Spectrum Issues in the Asia Pacific Region: Country and Regional Efforts

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Asia Pacific Telecommunity

- The Asia Pacific Telecommunity (APT), an Intergovernmental Organization, was founded on the joint initiatives of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and the International Telecommunication Union (ITU). The APT was established in Bangkok in July 1979. APT serves as the focal organization for ICT in the region
- The APT has 34 member countries, 4 associate members and 121 affiliate members.
- APT assists members in preparing for ITU Global conferences such as Plenipotentiary Conferences (PP), World Telecommunication Development Conferences (WTDC), World Radiocommunication Conferences (WRC), World Summits on the Information Society (WSIS), World Telecommunication Standardization Assemblies (WTSA) as well as various other ITU meetings.
- APT is also involved in promoting regional harmonization of programmes and activities in the region.

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APT Objectives and Principal Organs

- The objective of the Telecommunity is to foster the development of telecommunication services and information infrastructure throughout the region with a particular focus on the expansion thereof in less developed areas.
- The General Assembly is the supreme organ of the Asia Pacific Telecommunity (APT) and it is composed of all the Members and Associate Members of the Telecommunity. It meets in ordinary session every three years and in extraordinary session when circumstances require.
- The Management Committee is composed of all Members and Associate Members which meets once a year. It pursues the policies and principles of the General Assembly, and supervises the Secretariat's function, reviews and approves work program, annual budget and accounts and draws up regulations, etc.
- The Secretary General and Deputy Secretary General assisted by the other officials of the Secretariat, carry out the duties established by the Management Committee and the General Assembly.

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APT Radiocommunication Activities

- The radiocommunication sector has been recognized as one of the major areas of APT activities. The APT community realizes the important role of radiocommunications in assisting the development of nations and their societies. The ever increasing requirements for mobility, for increasing bandwidth for new services, for new means of communicating, for improved availability of information and for the adoption of new approaches to public protection and safety communications are reflected in demands for spectrum, technological development and relevant regulatory provisions within the radiocommunication sphere. APT Wireless activities are covered in two major Work Programs.
- APT Conference Preparatory Group for WRCs (APG): APG, one of the most successful work programs in APT, has been playing a significant and successful role to harmonize the regional views to ITU World Radiocommunication Conferences (WRCs) for many years.
- APT Wireless Forum (AWF): AWF assists the region to make the best possible use of the newly acquired knowledge in wireless technologies and to facilitate the efficient use of the spectrum resources by developing regional harmonization initiatives.

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APT Wireless Forum

- The APT Wireless Forum (AWF) covers aspects of IMT systems as well as various aspects of emerging wireless systems to meet the upcoming digital convergence era for the Asia-Pacific region. It is assisting the process of providing cost effective radiocommunications solutions and facilitating the transfer of technology.
- The Terms of References of the APT Wireless Forum are as follows:
 - ◆ Share and discuss information of emerging radio technologies, stimulate research and development and promote related telecommunication business within the Asia-Pacific region Pursue effective solutions in the Asia-Pacific region to meet the rapid movements towards digital convergence
 - ◆ Provide regular channels to discuss and study spectrum sharing methodologies, spectrum harmonization and to provide advice that countries' can use in frequency band planning
 - ◆ Develop technical and radio regulatory solutions based on emerging and conventional wireless technologies including satellite technologies to meet APT member's needs
 - ◆ Possible output can be recommendations and technical reports, etc.

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APT Wireless Forum (2)

- The principle objectives of the AWF are:
 - ◆ To promote new wireless applications
 - ◆ To add value, and not duplicate, the work being undertaken by other relevant APT programs, and to work closely with other APT programs promoting a harmonized vision of wireless communications systems and services in the Asia-Pacific region to meet the emerging digital convergence era
 - ◆ To provide cost effective and timely radiocommunications solutions;
 - ◆ To facilitate the transfer of technology
- The APT Wireless Forum is composed of the Chairman, two vice-Chairmen, Working Groups, Task Groups and a Forum Coordinator. Currently there are three Working Groups and two Task Groups who report to the Chairman.
- Working Groups: Spectrum Working Group (WG-Spec) , IMT Working Group (WG-IMT) , Convergence Working Group (WG-CONV)
- Task Groups: Task Group on Modern Satellite Applications (TG-SAT), Task Group on Intelligent Transportation System (TG-ITS)

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APT Wireless Forum (3)

- AWF meets twice a year – the next meeting will be held in the Republic of Korea from 12 to 16 September, 2010
- The two groups most associated with IMT activities are the Spectrum Working Group (WG-Spec) and the IMT Working Group (WG-IMT)
- In WG-Spec, the following sub-groups deal with matters either directly or indirectly related to IMT:
 - ◆ Sub Working Group 1: Sharing Studies and UHF Digital Dividend
 - ◆ Sub Working Group 2: Public Protection and Disaster Relief (PPDR) Issues
 - ◆ Sub Working Group 4: Broadband Wireless Access
 - ◆ Sub Working Group 7: Software Defined Radio and Cognitive Radio Systems
- WG-IMT :
 - ◆ Reviews activities on the future development of IMT-2000 and IMT-Advanced being discussed in ITU-R Working Party 5D (IMT Systems) in order to help AWF member's preparation for meetings of WP5D
 - ◆ Reviews and exchanges views on service and technology related aspects of the future development of IMT-2000 and IMT-Advanced to ascertain their applicability to the APT Region

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Spectrum Working Group Activities

- Sub-Working Group 1 has two main tasks, as follows:
 - ◆ To undertake sharing studies, including reviewing existing available sharing studies (both in ITU-R texts and from other sources), and prepare associated AWF Reports on sharing scenarios identified within the AWF. Sub-WG1 will continue to update a report on "Studies on the Co-Existence between IMT-2000 Technologies and Between IMT-2000 Technologies and Other Wireless Access Technologies in Adjacent and Near-Adjacent Frequency Bands."
 - ◆ To review spectrum matters concerning the UHF spectrum which will be available after the final transition from analogue to Digital TV transmissions, the so called "Digital Dividend Spectrum".
- The latest version of the sharing studies report is available at <http://www.apt.int/AWF-RECREP> - see APT/AWF/REP-04 (Rev.1)
- Sharing studies activities will also respond to items in the Bali Action Plan developed by Ministers from APT member states in November 2009. In Policy Objective C (Facilitate effective convergence of services), Key Strategy 2 (collaborate regionally where possible to harmonize the radio frequency bands allocated for broadband ICT application and services) it was noted that APT should "include a session on frequency sharing".

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Spectrum Working Group Activities (2)

The terms of reference for the work on the "Digital Dividend" are:

- To review the availability of spectrum resulting from the introduction of digital terrestrial television broadcasting in the band 470-806 MHz and the potential alternative uses of the spectrum so released
- To develop recommended harmonized approaches for the introduction of new wireless technologies, services and application in released spectrum, including preferred frequency bands and associated technical characteristics.
- Sub-WG1 developed an APT Report on "'UHF Band Usage and Considerations for Realizing the UHF Digital Dividend" - available at <http://www.apt.int/AWF-RECREP> . The objectives of this Report were:
 - ◆ To provide information to administrations and review the availability of spectrum resulting from the introduction of digital terrestrial television broadcasting in the band 470-806 MHz and the potential alternative uses of the spectrum so released.
 - ◆ To facilitate the development of recommended harmonised approaches for the introduction of new wireless technologies, services and applications in the released spectrum, including applicable frequency sub-bands and associated technical characteristics.

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Spectrum Working Group Activities (3)

- Following the approval of the Report, Sub-WG1 is now working on the development of an APT Report/Recommendation relating to harmonization of a UHF frequency band plan for the band 698–806 MHz.
- In this respect, Sub-WG1 identified a number of issues for further study and, at the AWF-7 meeting, a Correspondence Group was established to work on such studies.
- At the AWF-8 meeting (held in March 2010 in Tokyo) the results of these studies were reviewed and a number of important decisions were taken. In particular an agreement was reached on the FDD channel arrangement as follows:
 - ◆ A centre band gap of 8 MHz may not be supported by current filter technology employed in handsets and it may be practical to choose a value of 10 or 11 MHz;
 - ◆ A pragmatic way forward is to adopt a 2 x 45 MHz plan for FDD; and
 - ◆ The remaining spectrum should be arranged taking into account the concerns expressed at the meeting, which have been listed in the Correspondence Group Terms of Reference (document AWF-8/OUT-07R1), and the results of further studies.

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Spectrum Working Group Activities (4)

- Further studies were considered necessary and a set of Terms of Reference for the next phase of CG activity have been established.
- These ToR will now cover:
 - Consideration of frequency arrangements for both a FDD and a TDD option
 - Considerations related to the guard band requirements for both the FDD and TDD options, in particular:
 - ◆ between mobile and broadcasting around the 698 MHz band edge,
 - ◆ between mobile and other services around the 806 MHz band edge.
 - Consideration of the duplex direction for the FDD option
 - All this with the view of minimizing the number of band plan options under consideration in order to maximize the potential for regional harmonization
 - The detailed work plan for this next phase of CG work is now developed – those interested can sign up with the APT secretariat (Mr. Forhadul Parvez, parvez@apt.int)
- CG to report to the AWF-9 meeting (Republic of Korea, 12 to 16 September, 2010)

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Spectrum Working Group Activities (5)

- Sub-Working Group 2 deals with PPDR. In particular, Sub-WG2 considers and makes proposals on frequencies for harmonized PPDR use in countries in the Asia-Pacific region.
- An APT Report on "Possible Harmonized Use of Bands 406.1-430 MHz, 806-824/851-869 MHz, 4940-4990 MHz, 5850-5925 MHz for PPDR Application in some APT Countries" is available – see <http://www.apt.int/AWF-RECREP>
- An APT Recommendation on "Use of the Band 4940-4990 MHz for Public Protection and Disaster Relief (PPDR) Applications" is also available from the same web page.
- Sub-WG2 closely follows work on PPDR in ITU-R Working Party 5A. WP5A has developed a Draft New Recommendation ITU R M.[LMS.PPDR.UHF] – "Frequency arrangements for public protection and disaster relief (PPDR) radiocommunication systems in UHF bands in accordance with Resolution 646 (WRC-03)". This important advance will now be submitted to ITU-R Study Group 5 for adoption at the SG5 meeting to be held in November, 2010. This text is of particular importance to the Asia Pacific region.

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Spectrum Working Group Activities (6)

- Sub-Working Group 4 develops material on issues associated with Broadband Wireless Access. In particular, the group has developed APT/AWF Reports on:
 - ◆ The Coexistence of Broadband Wireless Access Networks in the 3400 - 3800 MHz Band and Fixed Satellite Service Networks in the 3400 - 4200MHz Band
 - ◆ Characteristics and Requirements for Broadband Wireless Access Systems
 - ◆ APT Frequency Arrangement on 2300-2400 MHz for IMT/BWA
- These reports are available at <http://www.apt.int/AWF-RECREP>
- Sub-Working Group 7 is commencing to develop material on issues associated with Software Defined Radio (SDR) and with Cognitive Radio Systems (CRS).
- At the AWF-9 meeting, Sub-WG7 will discuss the detailed schedule of deliverables and draft a Questionnaire on SDR and CRS. In order to facilitate this work, APT members will be requested to submit issues of concern to them on SDR and CRS.

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IMT Working Group Activities

- The IMT Working Group is chaired by Mr. Akira Hiroike (ARIB, Japan)
- At the AWF-8 meeting a number of interesting documents were presented on IMT related activities. These included:
 - ◆ Overview of Recent ITU-R WP5D Activities
 - ◆ IMT-Advanced Progress from Dresden to Turin WP5D meetings
 - ◆ Information on the Current Status of CJK B3G Working Group
 - ◆ Progress towards standardization of Machine-to-Machine(M2M) communications
 - ◆ Standardization Activities of IMT-Advanced in 3GPP
 - ◆ Standardization Activities in IEEE Related to IMT-Advanced and Next Generation Wireless Systems
 - ◆ Trends of Mobile Communication Systems in Japan
 - ◆ Development of TD/LTE in China
 - ◆ Development of IMT-2000 in Vietnam
- Relevant documents available at <http://www.apt.int/2010-AWF8-DOCS-INP>

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IMT Working Group Activities (2)

- WG-IMT has developed a working document towards a draft new report on mobile band usage . The WG will improve this working document and plans to complete its work at the AWF-9 meeting to be held in September 2010 in the Republic of Korea
- At the AWF-9 meeting WG-IMT will also conduct an information gathering exercise by receiving a report (so-called country report) from each country, which describes the latest status of introduction/deployment of IMT system and related services, etc., and review gathered information

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Further APT Radiocommunication Activities Related to IMT

- The APT Conference Preparatory Group for WRCs (APG) deals with WRC agenda items which may involve IMT. For example:
 - ◆ WRC-07 dealt with agenda item 1.4 - *to consider frequency-related matters for the future development of IMT 2000 and systems beyond IMT 2000 taking into account the results of ITU R studies in accordance with Resolution 228 (Rev.WRC 03)*
 - ◆ WRC-12 is to deal with agenda item 1.17 - *to consider results of sharing studies between the mobile service and other services in the band 790-862 MHz in Regions 1 and 3, in accordance with Resolution 749 (WRC 07), to ensure the adequate protection of services to which this frequency band is allocated, and take appropriate action*
- Spectrum access issues are always of interest when considering the future development of IMT and agenda items relating to spectrum identification for IMT systems may well be considered for WRCs being held after WRC-12
- As a related issue the Asia-Pacific Telecommunity Standardization Program (ASTAP) Working Group on ITU-T Issues may consider network aspects related to IMT systems

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Thank you for your attention

Any questions?

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