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1 February 2011

WAC Informal Working Group (IWG)-2

United States of America

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 8.2

Note need to align introduction to align with agenda item and Resolution language

8.2 *to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, taking into account Resolution 806 (WRC-07),*

Introduction

Currently approximately 5 billion of the world's estimated 6.8 billion people are connected to global telecommunication networks via mobile terminals. Mobile telephony and mobile broadband demand and consumption have been growing at an unprecedented pace. Currently, 3G technologies are providing services to more than one billion subscribers worldwide and, by 2013, the number of 3G subscribers is projected to reach approximately 2.4 billion. Estimates of worldwide wireless data traffic indicate that it grew by 5,800 percent during the two year period from 2006 to 2008 with a decreased rate of 4,500 percent forecast over the next few years. Current projections indicate that by 2014 monthly worldwide mobile data traffic will exceed the total for all of 2008. This strong demand creates an ever-expanding market for 3G-based devices, including 3G feature phones, smartphones, PDAs, tablets, e-readers, gaming devices, consumer electronics devices, and laptops.

For the majority of individuals in developing countries, the first, and the only access to the Internet, is via mobile networks. The projected increase in demand for higher data rate services with quality of service to the global mobile broadband consumer that is comparable to the wired office and home environments will place increasing pressure on finding spectrum resources to support the growth of a variety of mobile applications.

The mobile broadband manufacturing industry is evolving towards next generation highly efficient radiocommunication technologies, coupled with an all-IP open Internet network architecture. Through technological innovations such as MIMO and adaptive beam forming antenna systems, the efficiency of spectrum usage has continuously improved. However, the evolution of the technologies will not provide all the necessary capacity to meet the growing demand.

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Comment [A1]: The document should not cite information about any one operator, but should provide general trend data that supports its proposed agenda item.

Deleted: One 3G carrier in the United States reported in February 2010 that its mobile broadband traffic had grown more than 5,000 percent over the past three years

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Comment [A2]: This is a presumptive statement being made on behalf of another group of people – namely consumers.

Deleted: Other mobile broadband consumers will demand a user experience that is similar to services and applications that they currently experience in wired office and home environments

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For these reasons the United States proposes that the ITU-R undertake studies to determine the amount of spectrum needed to support mobile broadband systems, including IMT, and report the results of these studies to the next WRC for its regulatory actions as required, including identification and allocation of new frequency bands.

Attachment

Comment [A3]: This paragraph is superfluous in nature with many of the points covered by the previous paragraph.

Deleted: The foundation to permit realization of this vision relies on forward looking regulatory policies, implementing technological advances enabling operators to further increase their capability and capacity within their licensed spectrum, reducing operator and user costs to achieve global affordability and enhancing access to the spectrum needed to support the mobile broadband world of the future

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ATTACHMENT

Proposal for an additional agenda item to consider spectrum requirements, regulatory provisions, and allocations to support mobile broadband systems, including the terrestrial component of International Mobile Telecommunications

Subject: Determination of the amount of spectrum needed to support the development of mobile broadband systems, including IMT, and modification of the Radio Regulations as required, including identification and allocation of new frequency bands, if required.

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Origin: United States of America

Proposal: The United States proposes that the ITU-R undertake studies to determine the amount of spectrum needed to support mobile broadband systems, including IMT, and report the results of these studies to the next WRC for regulatory actions as required, including identification and allocation of new frequency bands.

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Background/reason: Currently approximately 5 billion of the world's estimated 6.8 billion people are connected to global telecommunication networks via mobile terminals. Mobile telephony and mobile broadband demand and consumption have been growing at an unprecedented pace. Currently, 3G technologies are providing services to more than one billion subscribers worldwide and, by 2013, the number of 3G subscribers is projected to reach approximately 2.4 billion. Estimates of worldwide wireless data traffic indicate that it grew by 5,800 percent during the two year period from 2006 to 2008 with decreased rate of 4,500 percent forecast over the next few years. Current projections indicate that by 2014 monthly worldwide mobile data traffic will exceed the total for all of 2008. This strong demand creates an ever-expanding market for 3G-based devices, including 3G feature phones, smartphones, PDAs, tablets, e-readers, gaming devices, consumer electronics devices, and laptops.

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The mobile broadband manufacturing industry is evolving towards next generation highly efficient radiocommunication technologies, coupled with an all-IP open Internet network architecture. Through innovations like MIMO and adaptive beam forming antenna systems, interference mitigation, multiple and aggregated carriers, power control, repeaters and scheduling schemes, etc., efficiency of spectrum usage is continuously improving. However, there are practical limitations to the ability to increase spectrum efficiency.

Deleted: It is envisioned that future IMT service offerings will open up new opportunities for connectivity, allowing consumers to be situation-conscious, to multi-task, and to access a wide range of telecommunication services supported by packet-based mobile and fixed networks.

For these reasons the United States proposes that the ITU-R undertake the studies called for in Resolution [Proposed 2016] below to determine the amount of spectrum needed to support the development of mobile broadband systems, including IMT, and report the results of these studies to the next WRC for its regulatory actions as required, including identification and allocation of new frequency bands.

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Radiocommunication services concerned: Mobile, Fixed, Broadcasting, Satellite, Radiolocation

Indication of possible difficulties: Any spectrum likely to be considered as candidates to support mobile broadband systems is equally likely to be encumbered by other mobile, fixed, broadcast, radiolocation and satellite services.

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Previous/ongoing studies on the issue: Work has been conducted in the past (Reports ITU-R M.2072 and M.2078) and is currently ongoing within Working Party 5D to document the trends and spectrum requirements to support IMT systems for the next 10 years (2012-2022). [\[revise to include WP5A studies too\]](#)

Studies to be carried out by: WP5A	with the participation of: Study Groups 1, 3, 4 and 6
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ITU-R Study Groups concerned: 5

ITU resource implications, including financial implications (refer to CV126): Work can be completed within the existing resources of the ITU-R Study Groups, placing no additional burden on ITU-R

Common regional proposal: No **Multicountry proposal:** No
Number of countries:

Remarks

RESOLUTION 803 (Rev.WRC-12)

Agenda for the 2016 World Radiocommunication Conference

The World Radiocommunication Conference (Geneva, 2012),

...

ADD USA/#A###/#

#.XYZ to determine, based on ITU-R studies, the spectrum requirements for mobile broadband wireless applications and possible regulatory actions, including identification and allocation of additional spectrum in the 400 MHz to 3400 MHz frequency band to the mobile service on a primary basis as required, to accommodate the further development of mobile broadband wireless access (BWA) systems, including IMT, in accordance with Resolution [USA-0#] (WRC-12)

Reasons: to provide access to additional spectrum to meet projected consumer demand for high-data rate, high-quality mobile services.

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RESOLUTION [USA-0#](WRC-12)

Consideration of spectrum requirements, regulatory provisions, and allocations to support terrestrial mobile broadband wireless access (BWA) systems in the 400 MHz – 3400 MHz band

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The World Radiocommunication Conference (Geneva, 2012),

considering

- a) that, at the end of 2009, there were an estimated 640 million mobile and 490 million fixed broadband subscriptions [reference?];
- b) that there may be a need for additional suitable spectrum worldwide to meet the projected increase in demand for BWA applications,
- c) that the ITU recognizes International Mobile Telecommunications (IMT) systems, as broadband wireless access systems;

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d) that BWA systems have been in operation since the year 2000 and are available in most countries of the world;

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e) that the technical characteristics of broadband wireless access systems are specified in ITU-R and ITU-T Recommendations, including ITU-R M.1801;

Deleted: <#>that mobile broadband and IMT services are available in most countries of the world;¶
<#>that Question ITU-R 238-1/5 addresses broadband wireless access systems for the mobile service;¶
<#>that Question ITU-R 229-2/5 addresses the future development of IMT;¶
<#>that Question ITU-R 77-6/5 addresses the needs of developing countries in the development and implementation of mobile radiocommunication technology;¶

f) that International Mobile Telecommunications (IMT) encompasses both IMT-2000 and IMT-Advanced collectively as described in Resolution ITU-R 56;

g) that the technical characteristics of IMT are specified in ITU-R and ITU-T Recommendations, including Recommendation ITU-R M.1457 which contains the detailed specifications of the terrestrial radio interfaces of IMT-2000 and Recommendation ITU-R M.[IMT.RSPEC] which contains the detailed specifications of the terrestrial radio interfaces of IMT-Advanced;

h) that there is a long lead time between the identification of frequency bands by World Radiocommunication Conference and the deployment of systems in those bands; [does this mean available bands are not currently utilized?]

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i) that for global operation and economies of scale, it is desirable to agree on harmonized or common operational, technical parameters and spectrum for BWA;

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j) that where mobile BWA systems, including IMT, are deployed there has been continuing significant growth in the number of users and in the quantity and rate of data carried [provide reference];

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k) that the development of mobile BWA systems calls for higher data rates than can be provided by currently deployed systems;

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noting

a) that the radio interfaces of the mobile broadband systems defined in ITU Recommendations ITU-R M.1457, ITU-R M.1801, and ITU-R M.[IMT.RSPEC] are expected to evolve within the framework of ITU-R beyond those initially specified, to provide enhanced services and services beyond those envisaged in their initial implementations;

Deleted: <#>that it is therefore timely to study demand, technical, spectrum and regulatory issues related to the future development of mobile BWA broadband systems, including IMT;¶

recognizing

a) that, at WARC-92, 230 MHz of spectrum was identified for IMT-2000 in the bands 1885-2025 MHz and 2110-2 200 MHz, including the bands 1 980-2010 MHz and 2170-2200 MHz for the satellite component of IMT-2000, in No. 5.388 and under the provisions of Resolution 212 (Rev.WRC-07); at WRC-07, the frequency band 3 400-3 600 MHz was identified for use by IMT systems in a number of countries in Regions 1 and 3 pursuant

Deleted: <#>that ITU-R has envisaged that new enhancements of IMT will be developed, which will closely interwork and be interoperable with currently operating IMT systems;¶
<#>that interoperability between different IMT radio interfaces is desirable;¶

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to Nos. 5.430A, 5.432A, 5.432B and 5.433A; at WRC-07, the frequency band [include list of already identified IMT bands]

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- b) that the bands listed in recognizing a) can be used to deploy IMT as well as other BWA systems;
- c) that it is important to ensure compatibility with existing services and to ensure that those services are not unduly constrained, especially with regard to their further development, by the implementation of BWA systems in any particular frequency band;
- d) that ITU-R has already conducted compatibility studies between FSS and BWA systems and FSS and IMT systems, as contained in Reports ITU-R S.2199 and M.2109 respectively, that shows these systems are not compatible;

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Deleted: <#>the time necessary to develop and agree on the technical, operational, spectrum and regulatory issues associated with the continuing enhancement of mobile services;¶

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Deleted: <#>the need, particularly in many developing countries and countries with large geographic areas, for the cost-effective implementation of rural broadband services; ¶
 <#>the increasing importance of ubiquitous coverage and the particular advantages of lower frequency bands for these purposes;¶
 <#>that bands at higher frequencies are also required in order to provide sufficient bandwidth to meet future demand;¶
 <#>the desirability of making any new frequency bands adjacent to, or in close proximity to, existing bands;¶
 resolves ¶
 that WRC-16 consider, based on the results of ITU R studies:¶
 1 the spectrum requirements and possible regulatory actions, including additional allocations

Resolves,

1 to conduct studies on spectrum requirements for BWA, including whether existing mobile service allocations, including those identified for IMT applications, are sufficient to satisfy validated spectrum requirements;

2 to identify additional spectrum within the 400 MHz to 3400 MHz band, if deemed necessary from the studies in Resolves 1), for BWA;

3 to conduct sharing and compatibility studies between BWA and existing services within the 400 MHz to 3400 MHz band, taking into account safety and operational requirements of existing services in the 400 MHz to 3400 MHz frequency range;

4 to develop technical and/or regulatory provisions to protect and avoid undue constraints on incumbent services, especially with regard to the further development of these services, that operate within or adjacent to the bands identified for possible allocation to the Mobile service under this agenda item under Resolves 3), above;

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Deleted: y technical and operational issues relating to the development of mobile broadband systems, including IMT, and develop Recommendations as required;¶

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4 to report, in time for WRC-16, the results of studies on the spectrum requirements and, if required, to identify potential frequency bands, in the 400 to 3400 MHz band that may be suitable for the further development of BWA systems, including IMT applications;

Deleted: 3 to consider amendments to provisions of the Radio Regulations necessary to provide for the development of mobile broadband systems, including IMT, to support the requirements identified in invites ITU-R 1 and 2 above at WRC-16;¶

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invites the Director of the Telecommunication Development Bureau

to draw the attention of the Telecommunication Development Sector to this Resolution,

invites administrations

to participate in the studies by submitting contributions to ITU-R.