

UNITED STATES OF AMERICA

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.1: *to consider additional spectrum allocations to the mobile service on a primary basis and identification of additional frequency bands for International Mobile Telecommunications (IMT) and related regulatory provisions, to facilitate the development of terrestrial mobile broadband applications, in accordance with Resolution 233 (WRC-12)*

Background Information: Mobile broadband access has become a key driver of global economic growth, job creation and competitiveness. In developing countries, where mobile wireless is often the only means to achieve ubiquitous broadband access, it has become an economic imperative. Africa, for example, has experienced the highest growth, with mobile-broadband penetration increasing from 2% in 2010 to 11% in 2013.¹ This dramatic growth in mobile-broadband traffic, with mobile video comprising over 50% and growing², has resulted in an acute need for additional spectrum. The 2012 World Radiocommunication Conference recognized this need and adopted WRC-15 Agenda Item 1.1, in an effort to address the looming spectrum shortage for the mobile broadband services.

In considering the global spectrum requirements under WRC-15 Agenda Item 1.1, it is important to acknowledge, as reflected in *recognizing d* of Resolution **233 (WRC-12)**, that the spectrum below 1 GHz is exceptionally suited for mobile broadband applications. In particular, the unique propagation characteristics of the bands below 1 GHz allow for wider area coverage which in turn requires less infrastructure and facilitates service delivery to rural or sparsely populated areas, as reflected in *recognizing c* of Resolution **233 (WRC-12)**.

The 470-806/862 MHz frequency range is allocated to the broadcasting service on a primary basis in all three Regions and used predominantly for the delivery of broadcast television. Broadcasting continues to be an important service as broadcast television stations provide information and video programming that is responsive to the needs and interests of the communities they serve. Moreover, broadcast television itself continues to evolve to keep pace with technological and marketplace changes. Many television broadcasters now pursue a three-screen approach, sharing their programming online and on mobile devices, in addition to providing it over the air. In fact, providing mobile access to broadcast television content is a compelling factor in the development of future DTTB systems.

In this regard, efforts are also underway in the United States and worldwide to develop the next generation of terrestrial broadcast systems. One such initiative, the Future of Broadcast Television Initiative (FoBTv) is a worldwide effort to define requirements, recommend technologies and request standardization for such systems. A key element of any next generation broadcast system recognized by the FoBTv Initiative is: “The importance of mobility in future broadcast systems and the desire for mobile, handheld and portable devices to be capable of working across borders ...”. Within the United States, work on the development of these next generation standards has already begun. “The Advanced Television Systems Committee (ATSC) has received 11 initial proposals from 20 organizations for the Physical Layer of the new “ATSC 3.0” broadcast television standard.” “A primary goal of the ATSC 3.0 Physical Layer is to provide TV service to both fixed and mobile devices. Key considerations include efficiency and robust service, increased data rates to support new services such as Ultra High-Definition services, and enabling a smooth transition from existing systems for both broadcasters and consumers.”³

¹ <http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2013-e.pdf>

² http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.html

³ <http://atsc.org/cms/>

The importance of broadcasting in emergencies has been recognized and highlighted in a recent draft ITU Report.⁴ As stated in this report, “television broadcasting is a critically important medium for information dissemination to the public in times of emergencies. The intrinsic one-to-many broadcast architecture and the geographic diversity of terrestrial broadcast transmission facilities provide high service reliability during crises of all types. ... The case studies in this report represent only a few of countless examples that attest to the global importance of terrestrial broadcasting, helping to protect and save lives during local, national and international emergencies.”⁵

Potential interference between broadcasting and mobile operations also needs to be taken into account.

The protection of the broadcasting service is an important consideration. Preliminary studies submitted to ITU-R Joint Technical Group 4-5-6-7 indicate that co-frequency sharing in the UHF band between IMT and DTTB may require significant cross-border separation distances on a case-by-case basis. In this regard, the United States emphasizes the application of No. **9.21**, which would require explicit coordination agreement for implementation of mobile systems. To address these interference concerns, the United States proposes the mandatory application of No. **9.21**, which would require explicit coordination agreement for implementation of mobile systems.

Recognizing the growing need for mobile spectrum below 1 GHz, the current deployment and future development of broadcasting systems, and the differing national priorities of the member states as regards UHF broadcasting, it is necessary for WRC-15 to adopt a regulatory solution that would:

- (a) Enable administrations to preserve and protect broadcasting and other services in the UHF range,
- (b) Consider ways to facilitate the development of future broadcasting systems, and
- (c) Allow administrations flexibility to address the mobile spectrum shortage consistent with their domestic requirements.

To achieve these objectives, the United States proposes modifications to the Radio Regulations that would add an allocation to the mobile services and identification for IMT in the range 470-694/698 MHz except for the 608-614 MHz band in Region 2. The United States also proposes retention of the primary allocation to the Broadcasting Service in the 470-890 MHz frequency range, including the mandatory application of No. **9.21**, which would ensure that the existing services, such as broadcasting, maintain coordination priority (i.e., remain super-primary) vis-à-vis IMT systems.

⁴ www.itu.int/go/ITU-R/RWP6A-2013

⁵ See, Proposed Draft New Report on the Importance of Terrestrial Broadcasting in Providing Emergency Information to the Public, Document 6/156-E, Document 6A/301-A, 28 October 2013, at p. 12.

Proposal:

ARTICLE 5
Frequency allocations
Section IV – Table of Frequency Allocations
(See No.2.1)

MOD USA/1.1/1

460-890 MHz

Allocation to services		
Region 1	Region 2	Region 3
470-790 BROADCASTING <u>MOBILE ADD 5.317A, ADD 5.YYY</u>	470-512 BROADCASTING Fixed <u>MOBILE ADD 5.317A, ADD 5.YYY</u> Mobile 5.292 <u>MOD</u> 5.293	470-585 FIXED MOBILE <u>ADD 5.317A, ADD 5.YYY</u> BROADCASTING 5.291 5.298
	512-608 BROADCASTING <u>MOBILE ADD 5.317A, ADD 5.YYY</u> <u>MOD</u> 5.297	
	608-614 RADIO ASTRONOMY Mobile-satellite except aeronautical mobile-satellite (Earth-to-space)	610-890 FIXED MOBILE 5.313A <u>MOD</u> 5.317A <u>ADD 5.YYY</u> BROADCASTING
	614-698 BROADCASTING Fixed <u>MOBILE ADD 5.317A, ADD 5.YYY</u> Mobile <u>MOD</u> 5.293 5.309 5.311A	
5.149 5.291A 5.294 5.296 5.300 5.304 5.306 5.311A 5.312 5.312A	698-806 MOBILE 5.313B <u>MOD</u> 5.317A BROADCASTING Fixed <u>MOD</u> 5.293 5.309 5.311A	
790-862 FIXED MOBILE except aeronautical mobile 5.316B <u>MOD</u> 5.317A BROADCASTING 5.312 5.314 5.315 5.316 5.316A 5.319	806-890 FIXED MOBILE <u>MOD</u> 5.317A BROADCASTING	
862-890 FIXED MOBILE except aeronautical mobile <u>MOD</u> 5.317A BROADCASTING 5.322		

5.319 5.323	5.317 5.318	5.149 5.305 5.306 5.307 5.311A 5.320
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Reasons: Globally harmonized allocations to the mobile service in the 470-698 MHz frequency range would enable introduction of innovative broadband services while preserving access to spectrum for the existing services, such as broadcasting. A new allocation to the mobile service would provide administrations with the flexibility to maximize spectrum utilization. Under the proposed allocation arrangements, administrations may continue to operate existing services, such as broadcasting, or utilize portions of the UHF band for the implementation of new mobile broadband applications, such as IMT, as they deem appropriate based on their domestic priorities, taking into account potential interference considerations.

MOD USA/AI 1.1/2

5.317A Those parts of the band ~~470-698~~ 960 MHz ~~in Region 2 and the band 790-960 MHz in Regions 1 and 3~~ which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) – see Resolutions 224 (Rev.WRC-12) and 749 (Rev.WRC-12), as appropriate. This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (Rev. WRC-125)

Reasons: Globally harmonized allocations to the mobile service in the 470-960 MHz frequency range would enable introduction of innovative broadband services, such as IMT, while preserving access to spectrum for the existing services, such as broadcasting. The new allocation to the mobile service would provide administrations with the necessary flexibility to maximize spectrum utilization consistent with their domestic timetables, requirements and objectives.

MOD USA/AI 1.1/3

5.293 *Different category of service:* in Canada, Chile, Cuba, the United States, Guyana, Honduras, Jamaica, Mexico, Panama and Peru, the allocation of the bands 470-512 MHz and 614-806 MHz to the fixed service is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. ~~In Canada, Chile, Cuba, the United States, Guyana, Honduras, Jamaica, Mexico, Panama and Peru, the allocation of the bands 470-512 MHz and 614-698 MHz to the mobile service is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21~~ In Argentina and Ecuador, the allocation of the band 470-512 MHz to the fixed ~~and mobile~~ services is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. (Rev. WRC 125)

Reasons: Consequential change. Proposed allocation to Mobile service supersedes allocation(s) by footnote.

MOD USA/AI 1.1/4

5.297 *Additional allocation:* in Canada, Costa Rica, Cuba, El Salvador, the United States, Guatemala, Guyana, Honduras, Jamaica and Mexico, the band 512-608 MHz is also allocated to the fixed ~~and mobile~~ services on a primary basis, subject to agreement obtained under No. 9.21. (Rev. WRC-0715)

Reasons: Consequential change. Proposed allocation to Mobile service supersedes allocation(s) by footnote

ADD USA/AI 1.1/5

5.YYY The operation of stations in the mobile service for the implementation of International Mobile Telecommunications (IMT) in the frequency band 470-694 MHz in Region 1, in 470-608 MHz and 614-698 MHz in Region 2, and in 470-698 MHz Region 3 shall be subject to agreement obtained under No. **9.21**. (WRC-15)

Reasons: The application of No. **9.21** requires the explicit agreement of the affected administrations. The mandatory application of No. **9.21**, therefore, would ensure the protection of incumbent systems such as broadcasting vis-à-vis IMT systems. The above provision would also facilitate the development of future broadcasting systems. Global harmonization is an important factor for broadcast television services and will become even more so as mobile broadcast services are implemented that will facilitate the use of portable television broadcast devices.
