

**1st ITU INTER-REGIONAL WORKSHOP
ON WRC-15 PREPARATION
(Geneva, 4 – 5 December 2013)**

**Mobile and Amateur
Issues**

**Panel-1 Discussions on
WRC-15 Agenda items
1.1, 1.2**

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**GENEVA, SWITZERLAND
4-5 DECEMBER 2013**

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- *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);*

- *Agenda item 1.2*

- *to examine the results of ITU R studies, in accordance with Resolution 232 (WRC 12), on the use of the frequency band 694-790 MHz by the mobile, except aeronautical mobile, service in Region 1 and take the appropriate measures;*

- **JTG 4-5-6-7:**

- Joint Task Group 4-5-6-7 established as the responsible group for the WRC-15 Agenda Items 1.1 and 1.2.
- JTG 4-5-6-7 is to conduct its work as a self-sufficient group and does not need to liaise the results of its studies to the other working parties

- **Concerned Working Parties (inc 5A & 5D and 6A)**
 - with respect to the sharing studies being undertaken by JTG 4-5-6-7 in relation to Resolution 232 (WRC-12), technical and operational characteristics and protection requirements from the concerned Working Parties, as well as spectrum requirements from Working Parties 5D and 6A are to be submitted to the JTG before 31 December 2012
 - with respect to the sharing studies being undertaken by JTG 4-5-6-7 in relation to Resolution 233 (WRC-12), technical and operational characteristics, protection requirements and information on current and planned use from the concerned Working Parties, as well as spectrum requirements from the Working Parties 5A and 5D are to be submitted to the JTG preferably by 31 July 2013;

■ Spectrum Requirements

- From WP 5D - Estimated additional spectrum requirements for **IMT** by the year **2020**;

User density settings	Total spectrum requirements (MHz)	Region 1**		Region 2		Region 3	
		Already identified (MHz)*	Additional spectrum requirements (MHz)*	Already identified (MHz)	Additional spectrum requirements (MHz)	Already identified (MHz)*	Additional spectrum requirements (MHz)*
Low	1 340	981-1 181	159-359	951	389	885-1 177	163-455
High	1 960	981-1 181	779-979	951	1 009	885-1 177	783-1 075

Note * The values in these columns have ranges since some of the frequency bands are identified for IMT only in some countries in Regions 1 and 3 as per RR Nos. 5.317A, 5.430A, 5.432A, 5.432B, and 5.433A.

Note ** The values for Region 1 are based on the assumption that the lower edge of the frequency band identified in RR No 5.312A remains at 694 MHz.

- From WP 5A - The minimum spectrum requirement for **non-IMT** mobile broadband applications using the **5 GHz** frequency range in the year **2018** is estimated at **880 MHz**. This figure includes spectrum already utilised by broadband RLANs operating in the 5 GHz band range

■ Suitable Frequency Ranges

- The following frequency ranges have been indicated as suitable for the future possible deployment of **IMT**
 - 410 – 430 MHz
 - 470 – 790 MHz
 - 1 000 – 1 700 MHz
 - 2 025 – 2 110 MHz
 - 2 200 – 2 290 MHz
 - 2 700 – 5 000 MHz
 - 5 350 – 5 470 MHz
 - 5 850 – 6 425 MHz
- The following frequency ranges have been indicated as suitable for the implementation of **Radio Local Area Networks (RLANS)**
 - 5 350 – 5 470 MHz
 - 5 725 – 5 850 MHz;

■ Potential Candidate Bands

- Resolution 233 (WRC-12) calls for ITU-R to study potential candidate frequency bands. The bands currently under study in JTG-4-5-6-7 are as follows:
 - 470 – 694/698 MHz
 - 1 300 – 1 527 MHz
 - 1 695 – 1 710 MHz
 - 2 025 – 2 110 MHz
 - 2 200 – 2 290 MHz
 - 2 700 – 2 900 MHz
 - 3 300 – 3 400 MHz
 - 3 400 – 4 200 MHz
 - 4 400 – 4 900 MHz
 - 4 800 – 5 000 MHz
 - 5 350 – 5 470 MHz
 - 5 725 – 5 850 MHz
 - 5 925 – 6 425 MHz
- It is envisaged that potential candidate frequency bands in the draft CPM text will be drawn from this list based on administrations' proposals and analysis of the results of studies
- Finalisation of the results of sharing and compatibility studies on potential candidate frequency bands is due at the 5th meeting of JTG 4-5-6-7 in February 2014

■ Lower Band Edge

- Resolution 232 (WRC-12) indicates that the lower edge of the (694 – 790 MHz) allocation is subject to refinement at WRC 15; and invites ITU-R to study the spectrum requirement for the mobile service and for the broadcasting service in this frequency band, in order to determine as early as possible the options for the lower edge
- Joint Task Group 4-5-6-7 has received many contributions supporting a confirmation of the lower edge at 694 MHz and on the usage of GE06 DTTB channel 48.
- In addition, JTG 4-5-6-7 has taken note of the GE06 Plan modification activities based on a lower edge at 694 MHz in parts of Region 1, in particular by ATU and ITU.
- It is currently suggested that the draft CPM text proposes to WRC-15 that the lower edge be confirmed at 694 MHz whilst protecting the GE06 DTTB channel 48 and below through appropriate technical and regulatory mechanisms based on the results of the studies
- Further work to provide a link between spectrum requirements and the lower band edge is envisaged at the 5th meeting of JTG 4-5-6-7 in February 2014

■ **Sharing and compatibility studies**

➤ Adjacent band studies

- Studies are underway to determine the appropriate limits on mobile terminal emissions to protect DTTB reception in channel 48 and below
- Currently there is no consensus in JTG 4-5-6-7 on whether the out-of-band limit in 3GPP for band 28 (starting at 703 MHz) provides sufficient protection to DTTB reception
- Studies are taking account of both minimum coupling loss and Monte Carlo analysis though there are still divergent views on the details of the Monte Carlo approach

➤ Co-channel studies

- Studies are underway and take account of neighbouring countries' use of other radiocommunication services in the 700 MHz band, e.g. broadcasting and aeronautical radionavigation

➤ Solutions for accommodating applications ancillary to broadcasting

- Studies are underway to investigate solutions for accommodating applications ancillary to broadcasting requirements

➤ Mobile band plan

- Studies currently underway in WP 5D but this is reliant on lower band edge and terminal out-of-band emissions studies in JTG 4-5-6-7

■ JTG 4-5-6-7 Work Plan

➤ February 2014 (Fifth meeting)

- Agenda item 1.1 Finalize the results of sharing and compatibility studies on potential candidate frequency bands
- Agenda item 1.2 Finalize the results of sharing and compatibility studies in the frequency band 694-790 MHz
- Drafting of CPM Text (Focusing on finalization of all sections except executive summary)

➤ July 2014 (Sixth and final meeting)

- Completion of CPM Text

■ Further Information

- Please see the Chairman's Report of the Fourth Meeting of JTG 4-5-6-7 and its Annexes – Document 4-5-6-7/393