

Spectrum for mobile broadband wireless access

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Outline

- ITU-R Studies for WRC-15 on IMT
- Working Party 5D related items:
 - Spectrum identified for IMT
 - Proposed frequency ranges
 - Initial views on spectrum requirements
 - Input to JTG 4-5-6-7 on AI 1.2
 - Schedule of meetings
- Joint Task Group 4-5-6-7 related items:
 - Terms of reference
 - Structure
 - Work plan
 - Inter-sessional activities
 - Schedule of meetings





ITU-R Studies for WRC-15 on IMT

Agenda items for WRC-15 (Res. 807 (WRC-12)):

1.1 - Res. 233 (WRC-12)

- consider additional spectrum allocations to MS on a primary basis
- identify additional frequency bands for IMT
- related regulatory provisions to facilitate development of terrestrial mobile broadband applications

1.2 - Res. 232 (WRC-12)

examine the results of ITU-R studies on the use of the frequency band 694-790 MHz by the mobile, except aeronautical mobile, service in Region 1 and take appropriate measures;

Spectrum requirements for the mobile service

including suitable frequency ranges, and other specific requirements including channelling arrangements
(WP 5D)

Spectrum sharing and compatibility with other services

including consolidation of draft CPM text
(JTG 4-5-6-7)

Working Party 5D related items can be found on:

<http://www.itu.int/ITU-R/index.asp?category=study-groups&rlink=rwp5d&lang=en>



WP 5D

Spectrum identified for IMT

Frequency bands identified for IMT in the Radio Regulations (RR):

Band (MHz)	RR Footnotes identifying the band for IMT
450 – 470	5.286AA
698 – 960	5.313A, 5.317A
1 710 - 2 025	5.384A, 5.388
2 110 - 2 200	5.388
2 300 - 2 400	5.384A
2 500 - 2 690	5.384A
3 400 - 3 600	5.430A, 5.432A, 5.432B, 5.433A

WP 5D

Proposed frequency ranges

Description	Freq. ranges (MHz)	Inputs to WP 5D
< 1 GHz	470-694	470-598
		598-608
		608-614
		614-694
	694-790	694-790
~ 1.5 GHz	1000-1700	1000-1300
		1300-1375
		1375-1400
		1400-1427/1427.9
		1427/1427.9-1452
		1452-1462.9
		1462.9-1475.9
		1 475.9-1492
		1492-1510/1510.9
		1510/1510.9-1518
		1518-1525
		1525-1559
		1559-1610
		1610-1660.5
		1660.5-1668
1668-1675		
1675-1700		

WP 5D

Proposed frequency ranges

Description	Freq. ranges (MHz)	Inputs to WP 5D
~ 2 GHz	2025-2110	2025-2090
		2090-2110
	2200-2290	2200-2215
		2215-2290
3-5 GHz	2700-3400	2700-2900
		2900-2930
		2930-3100
		3100-3200
		3200-3300
		3300-3400
	3400-5000	3400-3492.5
		3492.5-3542.5
		3542.5-3575
		3575-3600
		3600-3800
		3800-4200
		4200-4400
		4400-4900
4900-5000		



WP 5D

Proposed frequency ranges

Description	Freq. ranges (MHz)	Inputs to WP 5D
> 5 GHz	5350-5470	5350-5470
	5850-6425	5850-5925
		5925-6425
> 6 GHz	13.4 – 14.0 GHz	13.4 – 14.0 GHz*
	18.1 – 18.6 GHz	18.1 – 18.6 GHz*
	27.0 – 29.5 GHz	27.0 – 29.5 GHz*
	38.0 – 39.5 GHz	38.0 – 39.5 GHz*

*Still under further consideration in WP 5D



WP 5D

Initial views on spectrum requirements

- ✓ Review of the methodology (Rec. ITU-R M.1768-1)
- ✓ WP 5D members are considering the following Total/Additional spectrum requirements (in MHz):

by 2014: 275^{*-};

by 2015: 600-800^{**-};

by 2017: 300^{*-};

by 2020: 1081/300^{*-}, 1065/385^{*-}, 2020^{**-}, 1700-2100^{**-},
1240^a/1880^{b**}, 1600-1800^{*} or (300)+200^{*}

*Using an original methodology
a for lower user density

**Using Rec. ITU-R M.1768
b for higher user density



WP 5D

Estimated spectrum requirements

- ✓ Based on the methodology of (Rec. ITU-R M.1768-1)
- ✓ Calculated for RATG 1 (pre-IMT, IMT-2000 and enhancements) and RATG 2 (IMT-Advanced)
- ✓ RATG: Radio access technique group

Total spectrum requirements for both RATG 1 and RATG 2 in the year 2020

	Total spectrum requirements for RATG 1	Total spectrum requirements for RATG 2	Total spectrum requirements RATGs 1 and 2
Lower user density settings	440 MHz	900 MHz	1 340 MHz
Higher user density settings	540 MHz	1 420 MHz	1 960 MHz



WP 5D

Input to JTG 4-5-6-7 on Agenda item 1.2

Frequency arrangements/spectrum requirements
in the band 694-790 MHz

WP 5D Questionnaire – see Doc. 5D/300 Attachment 1 to
Attachment 4.5

Various channelling arrangements are under consideration (for
harmonisation) with:

- ✓ Conventional FDD duplex arrangement (uplink below
downlink), or downlink only;
- ✓ IMT uplink transmissions starting around
694 MHz, 696 MHz, 701 MHz, 703 MHz and 718 MHz.

Some of the options can be found in Doc. 5D/300 Attachment 4.6



WP 5D

Input to JTG 4-5-6-7 on Agenda item 1.2

Sharing parameters

- Provided list of IMT technical parameters for use in sharing
studies under Agenda item 1.2 – Doc. 4-5-6-7/49
- Specification-related parameters for the frequency band 694
– 790 MHz
- Deployment-related parameters
 - Base station characteristics / Cell structure
 - User terminal characteristics



WP 5D

WP 5D schedules

• Meetings currently scheduled for WP 5D:

	Date	Venue
1	30 Jan – 6 Feb 2013	Geneva
2	10-17 Jul 2013	Japan
3	9-16 Oct 2013	Geneva
4	Mid-Feb 2014*	TBD
5	Mid-Jun 2014*	TBD
6	Mid-Oct 2014*	TBD

*Dates to be confirmed

- Avoid parallel meetings with concerned WP's
- Meetings to precede and be co-located to JTG 4-5-6-7 meetings
- Invitations from Administrations to host meetings are welcome.



Joint Task Group 4-5-6-7 related items

<http://www.itu.int/ITU-R/index.asp?category=study-groups&rlink=jtg4-5-6-7&lang=en>



JTG 4-5-6-7

Background and Terms of Reference

- Decision to create JTG 4-5-6-7 – CPM-15-1 (CA/201, Annex 10)
- Chairman: Thomas Ewers, Germany
- CPM text on WRC-15 Agenda items 1.1 and 1.2 → CPM-15 (August 2014)
- Sharing studies taking into account:
 - Spectrum requirements for MS, including suitable frequency ranges from WP 5D
 - Spectrum requirements, technical and operational characteristics, performance objectives and protection requirements of other services from other Working Parties

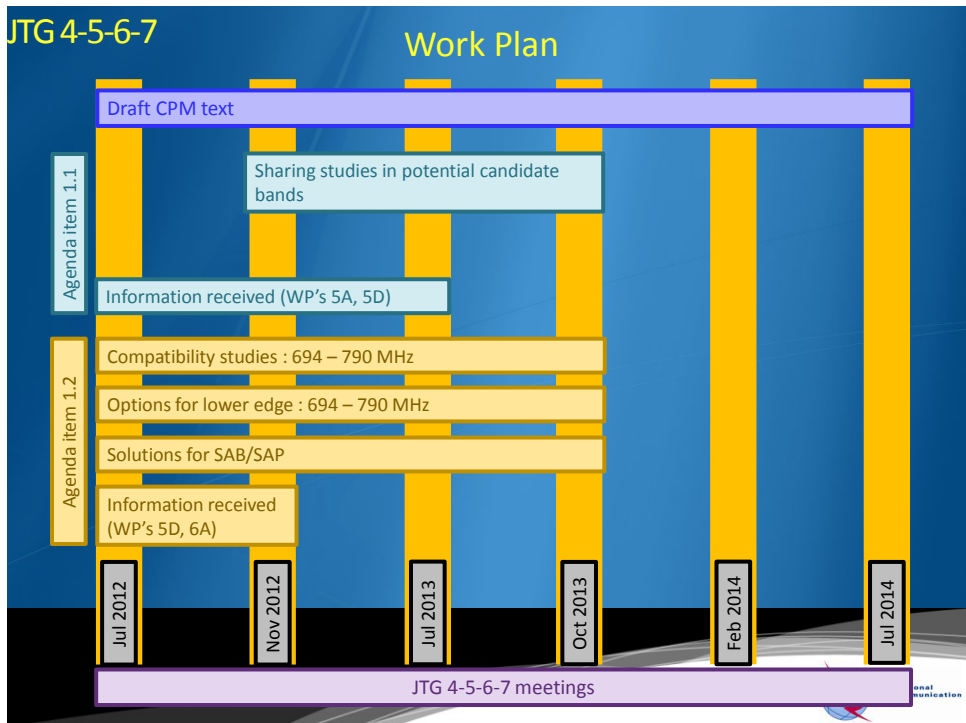
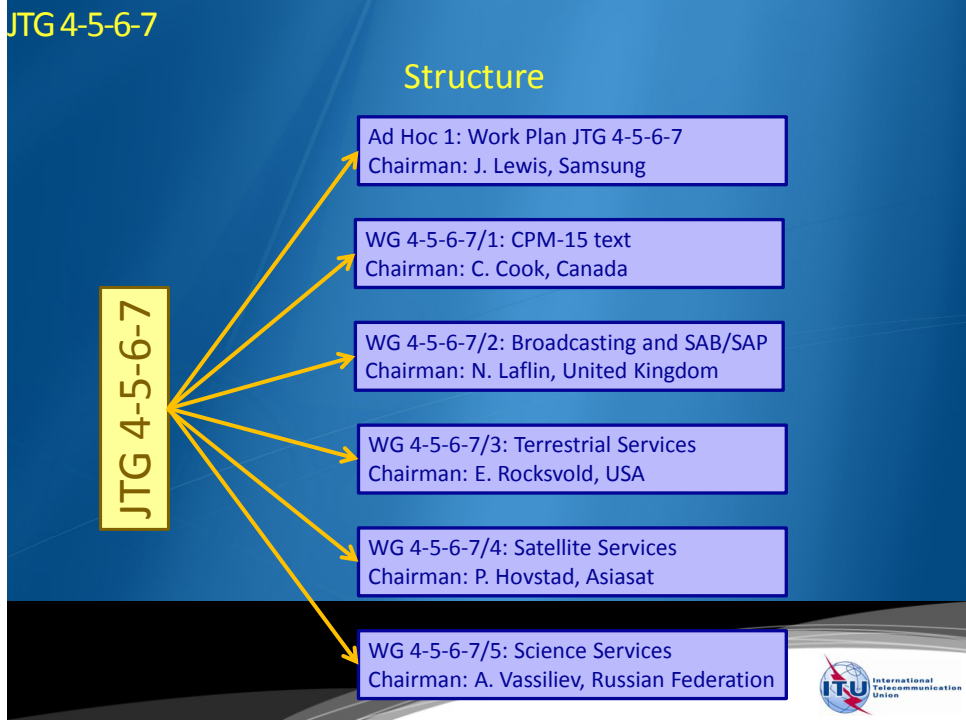


JTG 4-5-6-7

Interaction with other concerned Working Parties

- Collect necessary information from WP's and SG's
- JTG 4-5-6-7 is self-sufficient – no need to liaise results to other Working Parties
- **Urgent** sharing studies - Agenda item 1.2
 - Technical and operational characteristics, protection requirements from concerned Working Parties, and **WP 5D and 6A** to provide spectrum requirements before **31 December 2012**
- Sharing studies – Agenda item 1.1
 - Technical and operational characteristics, protection requirements and information on current and planned use from concerned Working Parties, and **WP 5A and 5D** to provide spectrum requirements preferably before **31 July 2013**





JTG 4-5-6-7

Inter-sessional activities (1/2)

Rapporteur Group on WG 2 Task 1.2.3 – Solutions for SAB/SAP in relation to Res.232 (A.I. 1.2)

- Report to JTG 4-5-6-7 on solutions for SAB/SAP
- Interference considerations to accommodate services applications ancillary to broadcasting
- Develop text for the CPM Report on this matter
- Rapporteur: M. Fehr (Germany)
- <https://extranet.itu.int/rsg-meetings/jtg4-5-6-7/rg-sab-sap/default.aspx>



JTG 4-5-6-7

Inter-sessional activities (2/2)

Correspondence Group on WG2 - Task 1.2.2

- Study sharing and compatibility between MS and BS under A.I. 1.2
- Report on activities to JTG 4-5-6-7
- Convener: A. Refik (France)
- https://extranet.itu.int/rsg-meetings/jtg4-5-6-7/cg_task_1_2_2/default.aspx



JTG 4-5-6-7

JTG 4-5-6-7 schedules

- Meetings currently scheduled for JTG 4-5-6-7:

	Date	Venue
1	23 - 27 July 2012	CICG, Geneva
2	21 - 28 November 2012	CICG, Geneva
3	22 - 31 July 2013	South Africa, East London
4	17 - 25 October 2013	CICG, Geneva
5	20 - 28 February 2014*	TBD
6	21 - 31 July 2014*	TBD

*Dates to be confirmed

- Avoid parallel meetings with concerned WP's
- Meetings to follow and be co-located with WP meetings
- Large number of expected participants poses problems to host all meetings in Geneva
- Invitations from Administrations to host meetings are welcome.



Thank you!



Additional information on satellite component of IMT-Advanced



WP 4B

- The work related to satellite component of IMT-Advanced is being conducted in ITU-R Working Party 4B.
- All related information can be found at:

<http://www.itu.int/ITU-R/index.asp?category=study-groups&mlink=rsg4-imt-adv-sat/en>



WP 4B

- In particular, information on the visions of the satellite component of IMT-Advanced can be found in Report ITU-R M.2176-1.
- Working Party 4B intends to complete the development of radio interface specification Recommendation(s) describing the technology for the satellite component of IMT-Advanced by the end of 2013. For the time being the current working document can be found in Annex 6 to Document 4B/55.

