

# INTERNATIONAL TELECOMMUNICATION UNION



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**Circular letter**  
**6/LCCE/78**

11 May 2012

**To Administrations of Member States of the ITU, Radiocommunication  
Sector Members, ITU-R Associates participating in the work of  
Radiocommunication Study Group 6 and ITU-R Academia**

**Subject:** Questionnaire on spectrum requirements for terrestrial television broadcasting in connection with WRC-15 Agenda item 1.2

**References:** Administrative Circular CA/201

1 Consistent with the directives set forth by Administrative Circular [CA/201](#) and in accordance with the outcomes of the first session of the Conference Preparatory Meeting 15-1, ITU-R Working Party 6A seeks estimates from Member States and Sector Members of current and future spectrum requirements for terrestrial television broadcasting in Region 1 and Iran.

2 One particular question that will be addressed by the JTG 4-5-6-7 is to confirm the lower edge of the allocation to the mobile service made at WRC-12 from 694-790 MHz. As a result Working Party 6A realizes the JTG 4-5-6-7 needs to be fully informed about the implications to the broadcasting service consequential to that decision.

3 The following questionnaire, which is being sent to all Administrations and Sector Members in Region 1 and Iran, is designed to gather information on spectrum use in the band 694-790 MHz for television broadcasting.

4 Administrations and Sector Members are also invited to make more detailed inputs addressing the matter of current and future spectrum requirements for television broadcasting to the next meeting of WP 6A.

5 Administrations and Sector Members are requested to submit responses to [brsgd@itu.int](mailto:brsgd@itu.int) or [rsg6@itu.int](mailto:rsg6@itu.int) by 31 July 2012.

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At the request of the Chairman of Study Group 6 the attached questionnaire is published for consideration of the Administrations of Member States, Sector Members and Associates, as appropriate. The Radiocommunication Bureau does not make any engagement nor assume any responsibility with respect to the content of the attachment or any follow-up action as may be required.

**Distribution:**

- Administrations of Member States of the ITU and Radiocommunication Sector Members participating in the work of Radiocommunication Study Group 6
- ITU-R Associates participating in the work of Radiocommunication Study Group 6
- ITU-R Academia
- Chairman and Vice-Chairmen of Radiocommunication Study Group 6
- Secretary General of the ITU, Director of the Telecommunication Standardization Bureau, Director of the Telecommunication Development Bureau

## QUESTIONNAIRE ON SPECTRUM REQUIREMENTS FOR TERRESTRIAL TELEVISION BROADCASTING IN CONNECTION WITH WRC-15 AGENDA ITEM 1.2

This questionnaire can be completed online at the following web page:

<https://extranet.itu.int/rsg-meetings/sg6/wp6a/Lists/DTTB%20Questionnaire/overview.aspx>

Login as: **Username:** (your TIES username)@ties.itu.int  
**Password:** (your TIES password)

NOTE - Electronic versions of Annexes 1, 2 & 2 can be found under QUESTIONNAIRE in the WP 6A Share Folder on the WP 6A Sharepoint site.

**Name of the Administration/Sector Member:**

**Ofcom UK**

**2a Southwark Bridge Road, London SE1 9HA**

**Contact person: Steve Ripley**

**E-mail address: [steve.ripley@ofcom.org.uk](mailto:steve.ripley@ofcom.org.uk) Telephone number: +44- (0)20-7783-4382**

- 1
- a) What standards have you adopted for digital terrestrial television broadcasting?
  - b) Have you started introduction of digital terrestrial television services?
  - c) If yes, please provide further detail on the number of multiplexes in use, their technical specifications, the percentage of geographic area or population they are intended to cover and the total spectrum use to inform WP 6A.

A proposed format for detailed responses is provided in Annex 1.

**Reply:**

**a) DVB-T and DVB-T2.**

**b) Yes, since 1998.**

**c) See Annex 1.**

- 2
- a) Have you commenced analogue television switch-off?
  - b) If you have any such plans, when do you expect to have completed the analogue switch-off process?

**Reply:**

**a) Yes, since 2008.**

**b) By end 2012.**

- 3
- a) What is the percentage of viewer uptake of terrestrial television in your country, including those whose service provider uses terrestrial broadcast re-transmission (e.g. in cable networks)?

- b) If possible, please also provide details of the number or proportion of users who receive television primarily by terrestrial means.

**Reply:**

**a) The UK Government has required the Public Service Broadcasters to achieve coverage equivalent to what they achieved in analogue form prior to switchover. The DTT multiplexes carrying the PSB services are available to 98.5% of UK households.**

**b) Approximately 11 million households receive terrestrial television on their primary television set. We estimate that 80% - 90% of secondary sets make use of terrestrial television, which equates to a further 27 to 30m sets.**

- 4 a) Indicate how many analogue television transmitters use channels in the frequency sub-band 694-790 MHz (as indicated in Resolution **232 (WRC-12)**).  
b) How many are in the remaining part of the UHF band.

**Reply:**

**a) After October 2012, there will be no analogue TV transmitters operating in the UK**

**b) After October 2012, there will be no analogue TV transmitters operating in the UK**

- 5 a) What frequencies/channels are currently used or intended to be used by digital terrestrial television broadcasting in your country? Please distinguish between those in use and those intended to be used.  
b) If allotments/SFNs are in use, a sketch map of frequency allocations could be included, with an accompanying table of allocations, as shown in Annex 2. Otherwise, it might be possible to show main transmitters and channels, grouped in layers, in a table.  
c) Please indicate how many digital television assignments/allotments use channels in the frequency sub-band 694-790 MHz (as indicated in Resolution **232 (WRC-12)**, and  
d) How many are in the remaining part of the UHF band.

**Reply:**

**a) All of the broadcasting channels in the range 470-790 MHz will be in use by digital terrestrial television broadcasts by the end of 2012 with the exceptions (i) 606-614 MHz which is reserved for PMSE use and (ii) 550-606 MHz which is already coordinated for digital terrestrial television and we are considering options for its use**

**b) see Annex 2**

**c) 1342 DTT transmitters plus 37 low power self help transmitters**

**d) 2379 DTT transmitters plus 104 low power self-help transmitters.**

**Also 317 assignments using 550-606MHz**

- 6 a) Are those frequency bands also shared with other primary services?  
b) If yes, please give details of those systems and their spectrum use.

**Reply:**

**a) No.**

- 7
- a) Are those frequency bands also shared with secondary services such as PMSE (Programme Making and Special Events), radio astronomy or wind-profile radar?
  - b) If yes, please give details of those systems and their spectrum use.

**Reply:**

**a) PMSE has access to the band 694 – 790 MHz on a coordinated licensed basis.**

**In 2011 there were 12750 individual assignments within the band 694-790MHz for wireless microphones, in ear (personal) monitors, talkback and audio links. Assignments are a mixture of short term assignments covering a number of days and annual assignments that support ongoing PMSE activities such as stage shows and broadcasting.**

**b) The total numbers of PMSE licences in 2011 is as follows across the UHF Bands IV/V in the UK.**

**These are the number of individual coordinated assignments and do not include ch69/ch38 UK shared licences**

**470-854 MHz – 55123 assignments**

**470-862 MHz – 57344 assignments**

**694-790 MHz – 12750 assignments**

**790-862 MHz – 18888 assignments (which would need to be moved to other interleaved spectrum at the end of this year assuming the same level of use).**

- 8
- a) Do you foresee the adoption or expansion of television services broadcast using second-generation systems such as DVB-T2?
  - b) If yes, please give indicative details of the planned transition, including any simulcast period.

**Reply:**

**a) One of the UK's six multiplexes already operates using DVB-T2. A seventh multiplex in Northern Ireland only will also operate using DVB-T2. It is likely that the remaining multiplexes will migrate to using DVB-T2 at some point in the future when the uptake of compatible receivers is sufficiently great. It is estimated that there were 4.4 million DVB-T2 receivers in use in the UK at the end of 2011, compared with a total population of approximately 60m receivers.**

**b) There are currently no plans or timescales in place for when the remaining multiplexes might adopt DVB-T2.**

- 9
- a) Do you foresee a requirement for new and enhanced services, including HD and 3D television, on the terrestrial television platform?
  - b) If yes, please give indicative details of the number and nature of services planned, and if known, the expected timeframe for their introduction.

**Reply:**

**a) Yes. HD services are already carried on one of the UK multiplexes. One broadcaster is carrying out occasional trial broadcasts of 3D programmes.**

**b) Four HD services are currently fully operational and capacity for a fifth service has recently become available. 3D services are at the trial stage and it is too soon to say whether or when regular broadcasts of 3D might begin.**

- 10**      a) Are there plans in your country to launch more multiplexes in the future?  
b) If yes, how many more and when? Please also indicate the expected timeframe for their introduction.

**Reply:**

**a) Yes.**

**b) We expect to license a multiplex carrying local TV services in various locations across the UK which we expect to commence broadcasting in 2013. We are also considering the possible future uses of the frequency band 550-606 MHz which is already coordinated for digital terrestrial TV use but will be clear from 2013.**

- 11**      a) What is the amount of spectrum you foresee that will be required for terrestrial television broadcasting, if plans in Questions 8, 9 and 10 are to be supported, and services identified in Questions 6 and 7 are to be taken into account? Please indicate the modes of transmission that will be used, and timeframes.  
If appropriate, a suggested form to express these requirements is shown in Annex 3.

**Reply:**

**a) The UK is giving consideration to this matter, but until further work has been completed, it is too soon to respond to this point.**

**Ofcom has recently consulted on possible approaches to the long term strategy for UHF spectrum. Ofcom is currently considering the responses it received and expects to issue a statement in the Autumn of 2012. Further details on the consultation are available at <http://stakeholders.ofcom.org.uk/consultations/uhf-strategy/>**

## ANNEX 1

Question 1: *What standards have you adopted for digital terrestrial television broadcasting? Have you started introduction of digital terrestrial television services? If yes, provide further detail on the number of multiplexes in use, their technical specifications, the percentage of geographic area or population they are intended to cover and the total spectrum use.*

Country	No of multiplexes	System & modulation	FEC	GI	Reception mode <sup>1</sup>	Capacity per multiplex (Mb/s)	Current percentage population coverage	Intended percentage population coverage	Content per multiplex	Total capacity (Mb/s)	Total spectrum bandwidth used or intended for implementation (MHz) <sup>2</sup>	Any additional comments (e.g. duration of licences)
G	2	DVB-T, 64-QAM	2/3	1/32	Fixed	24.1	96.5%	>98.5% of UK	8-9 SD MPEG2	170 Mbit/s (national) plus 19 Mbit/s (local/regional)	256 Plus a further 56 ready coordinated for TV use	Public service multiplexes licensed until 2022 <sup>3</sup>
	1	DVB-T2, 256-QAM	2/3	1/128	Fixed	40.2	96.5%	>98.5% of UK	5 HD MPEG-4			Public service multiplex licensed until 2026
	3	DVB-T, 64-QAM	3/4	1/32	Fixed	27.1	88%	>90% of UK	11 SD MPEG-2			Commercial multiplexes licensed until 2022/2026 <sup>4</sup>
	1	<i>DVB-T, QPSK (provisional)</i>	3/4	1/32	<i>Fixed</i>	<i>Approx 9</i>	<i>0%</i>	<i>ca. 50% of UK</i>	<i>3 SD MPEG-2</i>			<i>Provisional details for expected local multiplex. Licence anticipated to run from 2013 to 2025</i>
	1	<i>DVB-T2, QPSK</i>	2/3	1/128	<i>Fixed</i>	<i>Approx 10</i>	<i>0%</i>	<i>78% of Northern Ireland</i>	<i>3 SD MPEG-4</i>			<i>Provisional details for expected multiplex serving Northern Ireland. Licence</i>

<sup>1</sup> E.g. fixed, portable outdoor/mobile, portable indoor.

<sup>2</sup> Refer Sections 2 and 3 on page 1 of this circular.

<sup>3</sup> One multiplex is not licensed by Ofcom but is authorised under the BBC's Royal Charter. That multiplex is not subject to a 2022 licence term.

<sup>4</sup> One multiplex is licensed until 2022 and two until 2026.

												<i>to run from Q4 2012 to 2024</i>
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## ANNEX 2

If allotments/SFNs are in use, a sketch map of frequency allocations could be included, with an accompanying table of allocations, as shown in Annex 2.

Otherwise, it might be possible to show main transmitters and channels, grouped in layers, in a table.

**The UK DTT networks are based principally upon a multi-frequency plan with a few strategic local or regional SFNs where necessary.**



### ANNEX 3

Suggested form of presentation of reply to Question 11: *What is the minimum amount of spectrum you foresee that will be required for digital terrestrial television broadcasting in Bands IV & V, if plans in Questions 8, 9 and 10 are to be supported, and services identified in Questions 6 and 7 are to be taken into account? Please indicate the modes of transmission that will be used, and timeframes.*

One example methodology showing how spectrum requirements can be calculated from the different parameters using a set of assumptions can be found in Doc. [6A/59](#) submitted to WP 6A and which is currently under debate in this Working Party.

A sample response is shown for guidance only.

#### **Please see the same response to Q11**

**The UK is giving consideration to this matter, but until further work has been completed, it is too soon to respond to this point.**

**Ofcom has recently consulted on possible approaches to the long term strategy for UHF spectrum. Ofcom is currently considering the responses it received and expects to issue a statement in the Autumn of 2012. Further details on the consultation are available at <http://stakeholders.ofcom.org.uk/consultations/uhf-strategy/>**

Country	No of multiplexes	System & modulation	FEC	GI	Reception mode <sup>5</sup>	Capacity per multiplex (Mb/s)	Intended percentage population coverage	Content per multiplex	Total capacity (Mb/s)	Total spectrum bandwidth needed (MHz) <sup>6</sup>	Any additional comments including time frames

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<sup>5</sup> E.g. fixed, portable outdoor/mobile, portable indoor.

<sup>6</sup> Refer Sections 2 and 3 on page 1 of this circular.