



Radiocommunication Bureau

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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 or 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: Institut Luxembourgeois de Régulation

For sector members please indicate the geographical area over which you operate:

Contact person: Roland THURMES

E-mail address: roland.thurmes@ilr.lu

Telephone number: +35245884524

- 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.

Reply:

According to the entries in the GE06 plan and the MIFR, Luxembourg disposes in total of 7 multiplexes in the UHF band (470-862MHz):

Channel 21, 24 and 27 are national assignments, while channel 41, 51, 54 and 62 are national allotments.

The digital switchover to DVB-T has been completed in August 2006.

Please note that due to the size of the country 1 channel corresponds to 1 national layer.

Only channel 21, 24 and 27 are currently in operation (1 transmitter site: Dudelange).

Channel 62 is located within the band of the first Digital Dividend (790-862MHz). As this band will be used according to the harmonised conditions such as defined in EC Decision 2010/267/EU for terrestrial mobile service in the near future, channel 62 will no longer be available for terrestrial broadcasting services in Luxembourg.

Further information can be found in Annex1.

- 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:

Analogue switch-off has been completed in August 2006.

- 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:

The overall market share in Luxembourg for TV reception, expressed in number of subscriptions, is as follows :

- cable: 133.000 (56.5%)
- IP-TV: 22.000 (9.4%)
- Satellite: 70.000 (29.8)
- terrestrial by DVB-T: 10.000 (4.3%) (including all potential kinds of reception, fixed from roof antenna or USB- sticks in Laptops for portable use)

Total number : 235.000

Please note that the number related to DVB-T reception is estimated, as no subscription is necessary (free to air).

The governmental strategy for ultra-high broadband includes as well IP-TV as one of the services to be offered by fibre connection. As a consequence, a considerable growth of subscription to IP-TV is expected in the upcoming years.

In case you only consider terrestrial broadcasting (satellite not including), i.e. cable + IP-TV + DVB-T, the percentage of reception for DVB-T is about 6%.

In case, you would need further information on statistics, please refer to our website (only available in french):

http://www.ilr.public.lu/communications_electroniques/statistiques/rapp_statistiques_ILR/rapport_STAT_2011_Final.pdf

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- 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) + b) There are no analogue transmitters anymore in operation in Luxembourg in the whole UHF band (470-862MHz).

- 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) Channel 21, 24 and 27 are currently in use in DVB-T. The remaining channels 41, 51 and 54 might be used in future, but there is no concrete planning foreseen for the time being.

b) see Annex 2

c) According to GE06 entries, Luxembourg has channels/allotments 51 and 54 in the band 694-790MHz. However, these channels are currently not in use.

d) In the remaining lower part of the band (i.e. 470-694MHz), there are 4 channels (21, 24, 27 and 41). 3 of these channels (21, 24, 27) are currently in use. Channel 41 is used for test purposes.

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- 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:

No, these bands (470-790MHz) are only shared with secondary services.

- 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:

Yes, according to our NTFA, the band 470-790MHz is shared with SAP/SAB and wireless microphones. As for those kind of applications no licences are required, we do not exactly know which and to what extend these equipments are currently used.

- 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:

There are no specific projects to migrate to DVB-T2 by the national broadcaster in a short or middle terms. However, they believe at least with regard to the extension of CH21 to national coverage, they could migrate within a period of 5 years to DVB-T2. This is also a question of market demand.

- 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:

There are currently no plans, at least for short or middle term, to extend the current platforms to 3D. Please note that only 1 TV program is transmitted in HD (see Annex 1 details).

- 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:

For the time being, there is no plan to implement additional multiplexes.

- 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:

As there are no exact plans to upgrade the current platforms nor to offer additional multiplexes, we are not able to foresee a request for additional spectrum.

Due to these reasons, Annex 3 is not filled.

ANNEX 1

Suggested form of presentation of reply to 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 CHANNEL	System & modulation	FEC	GI	Reception mode ¹	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) ²	Any additional comments (e.g. duration of licences)
LUXEMBOURG	21	DVB-T, 64-QAM	2/3	1/4	Fixed	3.5	40.0%	95%	1 SD MPEG2	41.8	not known yet	Free-to air service, licensed until 2020
	24	DVB-T, 64-QAM	2/3	1/16	Fixed	18.8	95.0%	95.0%	6 SD MPEG2			Free-to air service, licensed until 2020
	27	DVB-T, 64-QAM	2/3	1/16	Fixed	19.5	95.0%	95.0%	2 SD MPEG2 1HD MPEG4			Free-to air service, licensed until 2020
	41	[DVB-T2, tbc]	[tbc]	[tbc]	Portable outdoor/mobile	[tbc]	[tbc]	[tbc]	[tbc]			
	51	[DVB-T2, tbc]	[tbc]	[tbc]	idem	[tbc]	[tbc]	[tbc]	[tbc]			
	54	[DVB-T2, tbc]	[tbc]	[tbc]	idem	[tbc]	[tbc]	[tbc]	[tbc]			

¹ E.g. fixed, portable outdoor/mobile, portable indoor.

² Refer Sections 2 and 3 on page 1 of this circular.

ANNEX 2

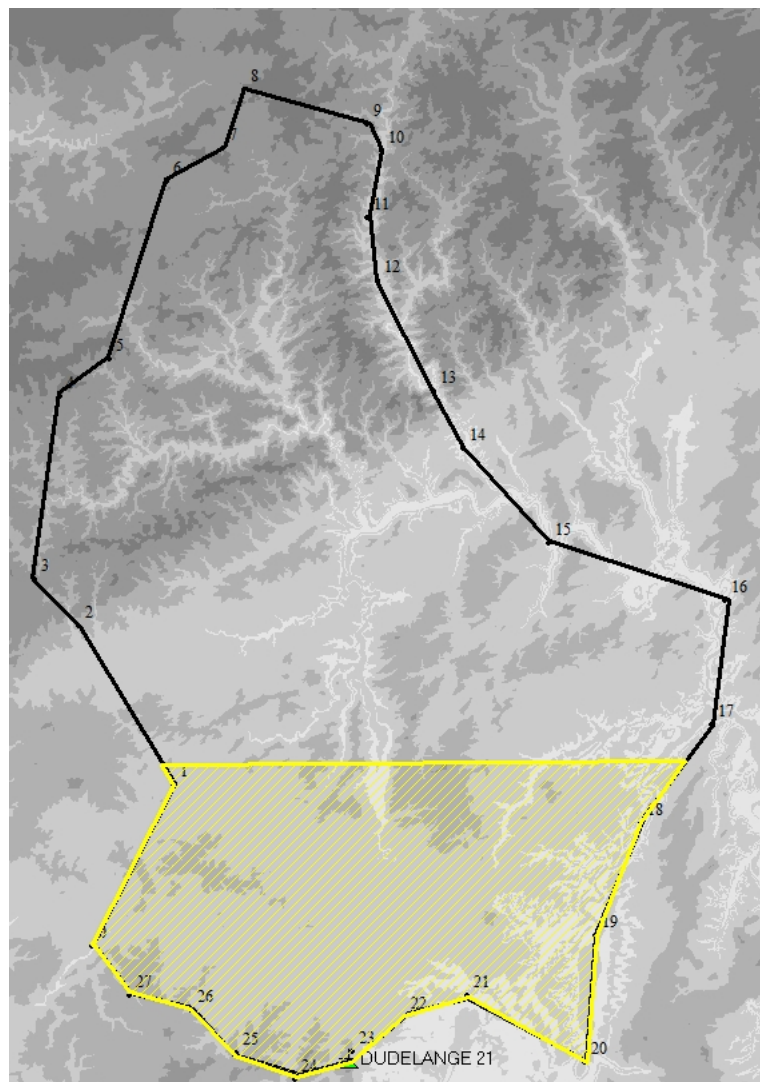
Suggested presentation of reply to Question 5: *What frequencies/channels are currently used or intended to be used by digital terrestrial television broadcasting in your country? Please distinguish between those in use and those intended to be used.*

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.

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 how many are in the remaining part of the UHF band.

Area	Layer 1	Layer 2	Layer 3	Layer 4	Layer 5	Layer 6	Layer 7
see picture below	21						
whole country		24					
whole country			27				
whole country				41			
whole country					51		
whole country						54	
							62, no longer available, due to Digital Dividend1



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.

Country	No of multiplexes	System & modulation	FEC	GI	Reception mode ³	Capacity per multiplex (Mb/s)	Intended percentage population coverage	Content per multiplex	Total capacity (Mb/s)	Total spectrum bandwidth needed (MHz) ⁴	Any additional comments including time frames
XX	6	DVB-T2, 256-QAM	2/3	1/128	Fixed	40.20	99.2%	7 HD MPEG4	187.0		1 now, 5 more from 2020
	2	DVB-T2, 16-QAM	1/2	1/8	Fixed	13.1	90%	2 HD MPEG4			1 in 2013, 1 more from 2020
YY	4	DVB-T2, 64-QAM	2/3	1/4	Portable indoor	22.6	60%	15 SD MPEG4	90.4		1 from 2013 2 more from 2015, 1 more from 2020
ZZ	4	DVB-T2, 256-QAM	2/3	1/128	Fixed	40.20	99.2%	7 HD MPEG4	160.8		1 from 2013 2 more from 2015, 1 more from 2020

³ E.g. fixed, portable outdoor/mobile, portable indoor.

⁴ Refer Sections 2 and 3 on page 1 of this circular.