

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

**Name of the Administration/Sector Member:** Communications Regulatory Authority of the  
Republic of Lithuania

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

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- 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:** [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:** [Complete analogue switch-off is scheduled in the night of 29.10.2012.](#)

- 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:** [The proportions are the following: 40% users receive television by terrestrial means and 58% users receive cable television which inter alia re-transmits the terrestrial television programs in majority of cases.](#)

- 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:** 24 analogue television transmitters use channels in the frequency sub-band 694-790 MHz.  
73 analogue television transmitters are in the remaining part of the UHF band.

- 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:** For frequencies/channels that are currently used or intended to be used by digital terrestrial television broadcasting in Lithuania see Annex 2.

Frequency sub-band 694-790 MHz is being used or is planned to be used in 16 allotments plus 9 standalone assignments. It is used in 33 DVB-T stations for the time being.

Remaining part of UHF band (excluding 790-862 MHz) is being used or is planned to be used in 40 allotments plus 12 standalone assignments. It is currently used in 40 DVB-T stations.

- 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:** Frequency bands used for digital terrestrial television broadcasting are not shared with other primary services in Lithuania. They are impacted by the use of frequencies for aeronautical radionavigation service in some neighbouring countries.

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

**Reply:** The frequency band 470-790 MHz is also available for PMSE (Radio microphones) in Lithuania. Light licensing regime for regulation is applied.

- 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 plans on switchover to DVB-T2. However commercial digital television operators do not exclude the possibility of such transition at some point of time in the long term.

- 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:** Major national broadcasters are planning to introduce at least 1 HD program each in 2-3 years term. Since the interest of viewers to watch HDTV is high, constantly growing requirement for HD television is foreseen with spectrum requirement for simulcast of about 5 HD programs emerged in 2-5 years.

- 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:** In addition to 4 countrywide multiplexes already launched, three more multiplexes are expected to be launched this or next year. For one VHF multiplex, realistic term is 2015. About 15 local DVB-T multiplexes is expected be launched at the end of this year.

- 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:** There is high requirement to retain

See Annex 3.

## ANNEX 1

Suggested form of presentation of reply to Question 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, 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.*

A sample response is shown for guidance only.

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 (eg duration of licences)
LTU	4	DVB-T, 64-QAM	3/4	1/4	Fixed	22.4	96.3%	99%	10 SD MPEG4	115-135 without taking into account 3 new national muxes (tbc) and 16 local muxes roughly constituting one additional layer throughout the country	360 MHz distributed among different regions plus 28 in VHF band	Licences are about to be extended until 2022
	1	DVB-T, 64-QAM	2/3	1/32	Fixed	24.1	41.2%	–	3 HD MPEG4			Local multiplex, licensed until Q4 2012
	1	DVB-T, 64-QAM	2/3	1/8	Fixed	22.1	21.3%	–	9 SD MPEG4			Local multiplex, licensed until 2015
	1	DVB-T, 64-QAM	3/4	1/32	Fixed	27.1	8.5%	–	8 SD MPEG4			Local multiplex, licensed until 2021
	16	DVB-T, QPSK-64 QAM	tbc	tbc	Fixed	7-24	–	various regions	tbc			Local multiplexes, licences will be issued in Q3 2012, valid until 2022
	1	DVB-T, 16-QAM expected	tbc	1/4	Fixed	about 15	–	99.7%	SD+HD MPEG4			Public service multiplex to be launched in 2012-2013, licenced until 2031
	2	DVB-T, 64-QAM	3/4	1/4	Fixed	22.4	–	80-90%	expected HD MPEG4			Licences will be issued in Q3 2012, valid until 2022
	1	DVB-T/T2, tbc	tbc	tbc	tbc	tbc	–	tbc	tbc			Expected VHF national multiplex

<sup>1</sup> Eg. Fixed, Portable outdoor/Mobile, Portable indoor.

<sup>2</sup> See Sections 2 and 3 on cover page.

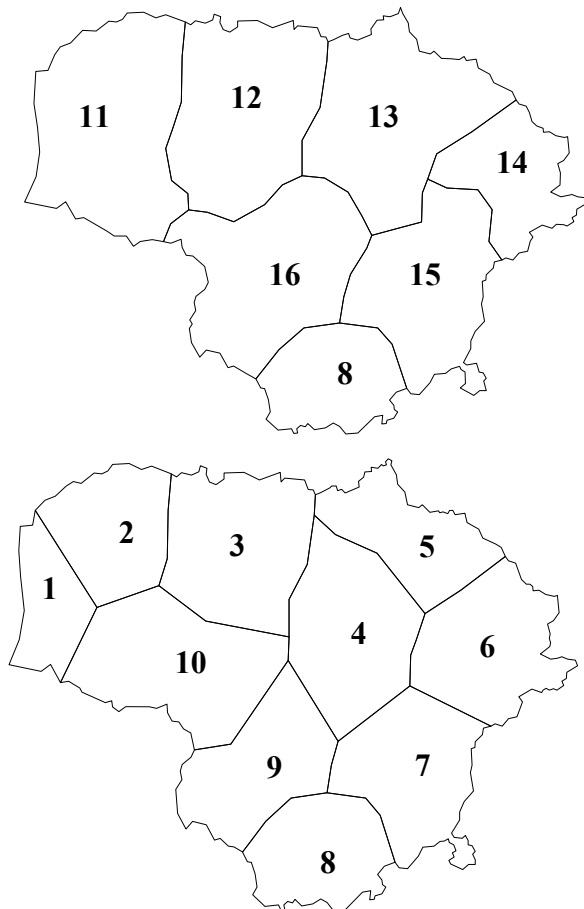
5  
ANNEX 2

Suggested presentation of reply to Question 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.*

Channels in use are in **bold**.



Area	Layer 1	Layer 3	Layer 5	Layer 6	Layer 7
<b>11</b>	<b>60</b>	46	38	50	29
<b>12</b>	22	51	41	24	34
<b>13</b>	49	<b>36</b>	25	42	32
<b>14</b>	28	45	33	52	35
<b>15</b>	<b>57</b>	<b>50</b>	31	43	48
<b>16</b>	<b>44</b>	<b>59</b>	39	28	21
<b>8</b>	<b>47</b>	30	25	52	40

Area	Layer 2	Layer 4
<b>1</b>	36	<b>53</b>
<b>2</b>	42	56
<b>3</b>	57	55
<b>4</b>	58	37
<b>5</b>	<b>54</b>	37
<b>6</b>	22	30
<b>7</b>	26	38
<b>8</b>	27	23
<b>9</b>	<b>33</b>	45
<b>10</b>	27	23

Currently additional channels are temporarily used:

Layer 1: **22, 26, 39, 58, 61**

Layer 2: **38, 48, 62, 63, 64**

Layer 3: **65**

Layer 4: **21, 30, 60**

Channels for local broadcasters: 22, 24, 24, 30, 37, 40, 41, 45, 46, 49, 54, 55, 56, 58, 60

## ANNEX 3

Suggested form of presentation of reply to Question 11: *a) 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 showing how spectrum requirements can be calculated from the different parameters using a set of assumptions can be found in [Document 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 <sup>3</sup>	Capacity per multiplex (Mb/s)	Intended Percentage Population Coverage	Content per Multiplex	Total Capacity (Mb/s)	Total Spectrum Bandwidth needed (MHz) <sup>4</sup>	Any additional comments including time frames
LTU	4	DVB-T, 64-QAM	3/4	1/4	Fixed	22.4	90-95%	10 SD MPEG4	200	320 MHz in UHF plus 28 MHz in VHF allowing to implement a frequency reuse pattern for 9 layers throughout the country	in operation
	2	DVB-T, 64-QAM	3/4	1/4	Fixed	22.4	80-90%	10 SD/3 HD MPEG4			in 2013
	1	DVB-T, 16-QAM	2/3	1/4	Fixed	13.2	99,7%	2 SD+1 HD MPEG4			in Q4 2012
	1	DVB-T2, 256-QAM	2/3	1/128	Fixed	40.20	90%	7 HD MPEG4			from 2015
	1	DVB-T				about 20	90%	SD/HD			in Q4 2012 for local broadcasters

<sup>3</sup> Eg. Fixed, Portable outdoor/Mobile, Portable indoor.

<sup>4</sup> See Sections 3 and 4 on cover page.