

INTERNATIONAL TELECOMMUNICATION UNION



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 Members 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.

François Rancy
Director, Radiocommunication Bureau

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: *Ministry of Transport, Information Technology and Communications*

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

Contact person: *Mrs. Kalina Dimitrova, Director of Communications Directorate*

E-mail address: kivanova@mtitc.government.bg

Telephone number: +359 2 949 2314

- 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:

Bulgaria has adopted DVB-T standard for digital terrestrial television broadcasting. The first DVB-T network was launched in 2004 for testing purposes for the area of Sofia-city. Further licensed DVB-T networks have not started providing services yet, except for 3 national networks of 2 undertakings which were licenced in 2009 and 2010 and the networks of which have almost already been deployed. The technical specifications of all multiplexes, as well as the percentage of population they are planned to cover, are given in 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:

The analogue switch-off process shall be completed till 01.09.2013 according to the Law on Electronic Communications. We have also a Plan for introduction of digital terrestrial television broadcasting (DVB-T) in the Republic of Bulgaria (as of 13 July 2012) which

establishes the stages, conditions and terms for analogue switch-off. The Plan is also elaborated in fulfillment of Law provisions.

- 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 detailed survey, conducted in 2011, has shown that a bit more than 21% of households in Bulgaria receive terrestrial television; around 55% belong to cable networks.

- 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:

The number of analog transmitters that use frequencies in sub-band 694-790 MHz is 118. Only one analog transmitter uses a channel from the upper 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:

The Communications Regulation Commission has granted licences for 6 national multiplexes (Layer 1 - 6), as shown in Annex 2. The development of the first 3 DVB-T networks with national coverage is in progress. In addition to those specified in Annex 2, there is another local TV network for the area of Sofia-city, using channel 64, as mentioned in Section 1. According to the provisions of the Law on Electronic Communications (amended 29.12.2011), one more authorisation for DVB-T network with national coverage should be granted (Layer 7).

Bulgaria has 38 allotments and 80 assignments in sub-band 694-790 MHz, as well as 28 allotments and 12 assignments in sub-band 790-862 MHz, all recorded in GE06 Plan.

- 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:

The bands 726-758 MHz, 766-814 MHz and 822-862 MHz are also allocated and used for Aeronautical Radionavigation service on a primary basis. The band 822-862 MHz is allocated for Land Mobile service on a primary basis too, but such service is not operable.

- 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:

The band 470-862 MHz is also allocated on a secondary basis and used on a tuning range basis for Radio microphones.

- 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:

The implementation of DVB-T2 has not been considered yet.

- 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:

Neither obligations nor restrictions with relation to the type of services like HD or 3D television are stipulated and currently such requirements are not foreseen to be adopted.

- 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:

See the reply referred to Section 5. Regarding the timeframe as soon as possible taking into account that the switch-off date is September 1st, 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: N/A

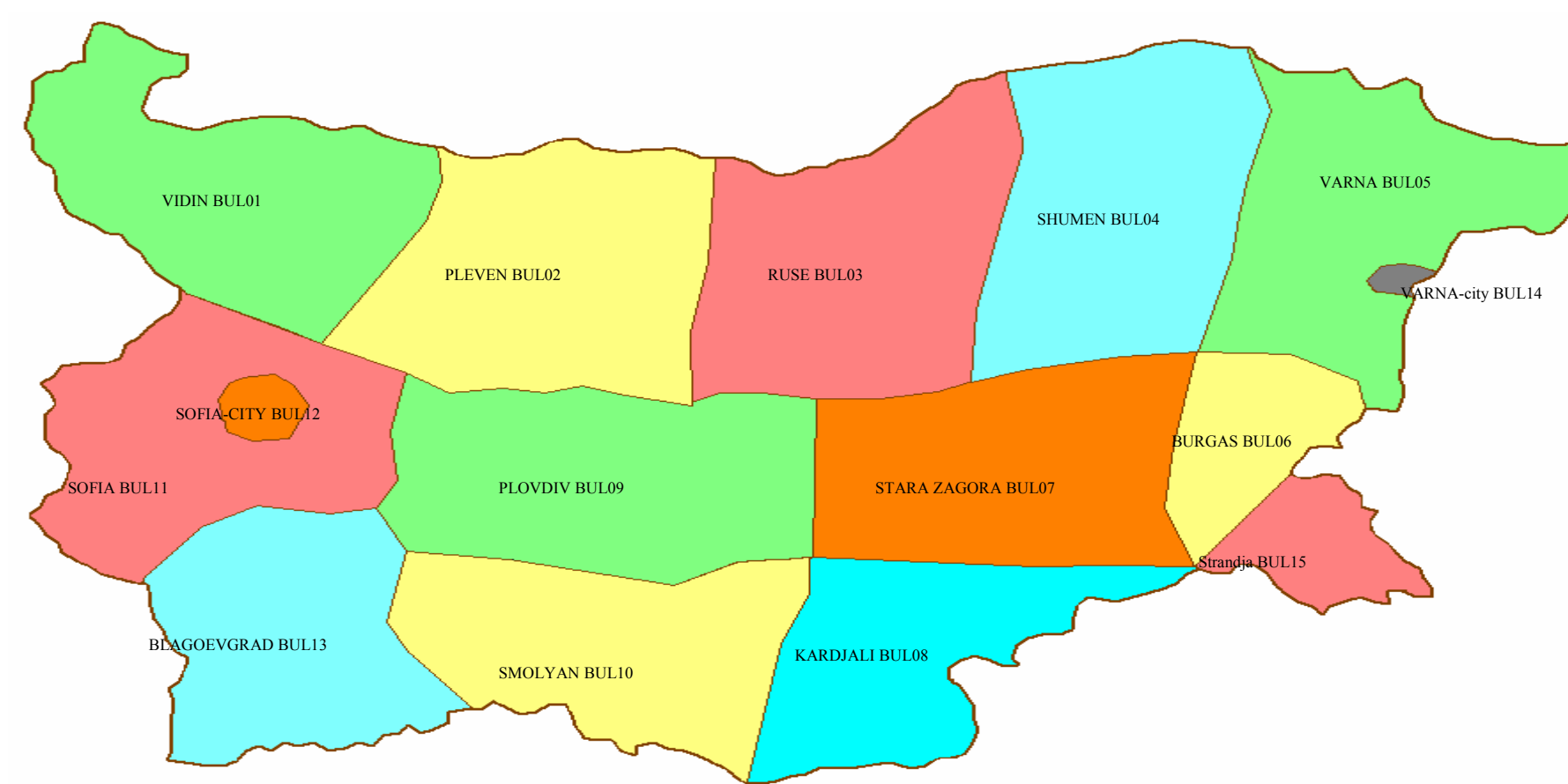
ANNEX 1

Country	No of multiplexes	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)
Bulgaria	1	DVB-T, 16-QAM	2/3	1/16	Portable indoor	15.61	Sofia-city	Sofia-city	6 SD, MPEG 4	135.07 plus one new mux (tbc)	680	Local multiplex Licensed until 2015
	2	DVB-T, 64-QAM	2/3	1/4	Portable outdoor/mobile	19.91	85%	97%	[tbc], MPEG 4			National multiplexes Licensed until 2024
	1	DVB-T, 64-QAM	2/3	1/4	Portable outdoor/mobile	19.91	85%	97%	[tbc], MPEG 4			Public service national multiplex Licensed until 2025
	3	DVB-T, 64-QAM	2/3	1/4	Portable outdoor/mobile	19.91	-	97%	[tbc], MPEG 4			National multiplexes after ASO Licensed for 15 years
	1	[DVB-T, tbc]	[tbc]	[tbc]	[tbc]	[tbc]	[tbc]	[tbc]	[tbc]			Expected national multiplex after ASO

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

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

ANNEX 2



Area	Layer 1	Layer 2	Layer 3	Layer 4	Layer 5	Layer 6	Layer 7
BUL 01	32	49	53	26	30	45	46
BUL 02	51	57	41	29	38	40	22
BUL 03	26	49	58	21	27	45	64
BUL 04	28	40	51	24	39	52	41
BUL 05	22	29	27	33	35	50	60
BUL 06	42	49	55	25	30	48	44
BUL 07	22	37	64	31	34	50	47
BUL 08	26	42	45	21	60	48	29
BUL 09	25	35	41	32	30	39	43
BUL 10	34	49	58	28	38	55	57
BUL 11	23	40	52	34	48	53	36
BUL 13	31	29	33	25	42	45	46