

Pursuant to Article 69, paragraph 5 of the Law on Audio and Audiovisual Media Services ("Official Gazette", No. 184/13, 13/14, 44/14, 101/14 and 132/14), the Council of the Agency, at its session held on 17 February 2015, adopted a:

PLAN FOR PURPOSE AND DISTRIBUTION OF THE CAPACITIES OF DIGITAL TERRESTRIAL MULTIPLEX OF A PUBLIC ELECTRONIC COMMUNICATIONS NETWORK OPERATOR OBLIGED TO PERFORM TRANSMISSION OF BROADCASTERS' PROGRAMME SERVICE

I. SCOPE

Article 1

This Plan determines the purpose and distribution of transmission capacities of a digital terrestrial multiplex of a public electronic communications network operator which is obliged to perform transmission of programme services for broadcasters.

Article 2

The purpose and distribution are made pursuant to the Law on Audio and Audiovisual Media Services, the Law on Electronic Communications and the provisions of the Final Acts of the Regional Conference on radio communications on planning of digital terrestrial broadcasting services in parts of Regions 1 and 3, in the frequency bands 174- 230 MHz and 470-862 MHz (hereinafter referred to as 'RRC-06'), as well as the Regional Agreement on Implementation of the Final Acts of RRC-06 of the International telecommunication Union (ITU).

II. DEFINITIONS

Article 3

Certain terms used in this Plan shall have the following meaning:

1. **Allotment zone** is a geographical area defined by geographic points, so-called 'test points' representing the boundaries of the zone.
In the allotment zone planning of a principle frequency allocation within the zone shall be applied. The assigned frequencies shall be in accordance with RRC 06.
2. **Broadcasting activity at the regional level** is broadcasting performed by a broadcaster providing viewership of at least 80% of the population of an area of the allotment zone.
3. **Digital terrestrial multiplex (MUX)** is a standardized flow of a sequence of signals containing television and radio programme services, additional services and other supporting information and data and which is broadcasted to the end users via a terrestrial radiofrequency channel.
4. **Digital terrestrial system** is an electronic communications network that broadcasts the content of a digital terrestrial multiplex to the end users by terrestrial radio communication.

5. **Free-to-air** is broadcasting of unencrypted radio and television services intended for the public.
6. **EPG**- Electronic programme guide is a feature allowing information on the schedule of the content of television services and direct access to the content
7. **MPEG** - (*Moving Picture Expert Group*) – Standards for digital video compression.
8. **SD** – (*Standard Definition*) – Standard definition of an image.
9. **HD** – (*High Definition*) – High definition of an image.
10. **DVB-T** – (*Digital Video Broadcasting Terrestrial*) – Terrestrial digital broadcasting.
11. **API** – (*Application Programme Interface*) - Application programme interface (API) is a software interface between applications offered by broadcasters or providers of services and facilities of a modern digital television equipment for digital television and radio services

III. PURPOSE OF DIGITAL TERRESTRIAL MULTIPLEXES

Article 4

For digital broadcasting of radio and television programme services four (4) multiplexes have been envisaged.

The multiplexes MUX4 and MUX5 were assigned to be used by PE Makedonska Radiodifuzija (Macedonian Broadcasting) and are intended for digital broadcasting of the public programme services of PE Makedonska Radiotelevizija (Macedonian Radio Television).

The multiplexes MUX6 and MUX7 are intended for free-to-air digital broadcasting of radio and television programme services of trade broadcasting companies which have obtained a licence for radio or television broadcasting by the Agency for Audio and Audiovisual Media Services for listening or viewing at the state and regional level.

IV. DISTRIBUTION OF TRANSMISSION CAPACITIES OF A DIGITAL TERRESTRIAL MULTIPLEX

Article 5

PE Macedonian Broadcasting for the multiplexes MUX4 and MUX5 and the public communication network operator for the multiplexes MUX6 and MUX7 are obliged to fulfil the technical characteristics of the DVB-T network (EN 300 744) and to provide coverage with a signal of at least 80% of the population in the Republic of Macedonia, that is - the population of the respective region.

The minimum transmission capacity of the multiplexes MUX4, MUX5, MUX6 and MUX7 is 22 Mbps, for each individual multiplex.

Article 6

The transmission capacity of the multiplexes MUX4, MUX5, MUX6 and MUX7 should ensure the transmission of television programme services in standard definition (SDTV) and high definition (HDTV) by the standard for audio and video coding (coding of picture and sound) ITU-T H.264 | ISO/IEC 14469 or MPEG-4 AVC).

Article 7

For the content of television services in standard definition (SDTV) data flow from 1,5 - 2,5 Mbps is required, including the transfer of additional services.

For the content of television services in high definition (HDTV) data flow from 4-8 Mbps is required, including the transfer of additional services.

The technical parameters for audiovisual content in standard definition (SD) and high definition (HD) are shown in Appendix 1.

Article 8

Digital multiplex operators are obliged to provide electronic programme guide (EPG) for each television programme service based on the data obtained by the broadcasters.

Article 9

Operators of digital multiplexes provide transfer of the following additional services:

- Multiple language subtitling, provided by trade broadcasting companies;
- Multiple channel tone provided by trade broadcasting companies;
- Teletext provided by trade broadcasting companies;
- Open API.

Article 10

The capacity of a single MUX (of at least 22 Mbps) is sufficient for transmission of ten (10) television programme services in standard definition or three (3) television programme services in high definition.

Article 11

The schedule of television programme services of broadcasters in the electronic programme guide (EPG) for MUX6 and MUX7 shall be determined by the Agency for Audio and Audiovisual Media Services annually, according to the level of broadcasting (national or regional) and data on the share of ratings. First will be the programme services of the public broadcaster "Macedonian Radio Television", then the programme services of the broadcasting companies at the state level, which are broadcasted via a transmission capacity of digital terrestrial multiplex, followed by the programme services of trade broadcasting companies at the regional level, broadcasted via a transmission capacity of digital terrestrial multiplex, according to official data for the ratings from the previous year.

V. AREAS OF DISTRIBUTION AND MULTIPLEXES

Article 12

Pursuant to the Law on Audio and Audiovisual Media Services, the zones of distribution defined in RRC-06 are considered areas of broadcasting at regional level except the area of distribution D1 – Crn Vrv for the multiplexes MUX6 and MUX7. For the multiplexes MUX6 and MUX7 the distribution area D1 – Crn Vrv is divided into two broadcasting regions - Skopje and Veles, that is the area of regional broadcasting Skopje and area of regional broadcasting Veles. The area of broadcasting at the regional level Skopje includes the City of Skopje and the municipalities of Chucher Sandevo, Arachinovo, Ilinden, Petrovac, Zelenikovo, Studenichani and Sopsishte. The area of broadcasting at the regional level Veles includes the municipalities of Veles, Chaska, Sveti Nikole, Lozovo, Gradsko, Rosoman, Negotino and part of the municipality of Kavadarci.

In Appendix 2 the areas of broadcasting at the regional level have been provided.

Appendix 3 presents the distribution of multiplexes in the areas of broadcasting.

Article 13

The public programme services of PE Macedonian Radio Television and the programme services of the trade broadcasting companies that broadcast programme at a state level, are broadcasted in all areas of distribution.

The programme services of trade broadcasting companies that broadcast programme regionally are broadcasted in the area of broadcasting for which they have obtained a broadcasting license.

VI. TRANSITIONAL AND FINAL PROVISIONS

Article 14

As of the day of the entry into force of this Plan, the Plan for the purpose and distribution of transmission capacities of digital terrestrial multiplex ("Official Gazette" No.168/12 and 73/13) shall cease to be valid.

Article 15

This Plan shall enter into force on the eighth day following its publication in the "Official Gazette of the Republic of Macedonia", and shall be published after receiving the consent of the Government of the Republic of Macedonia.

**No. 01-1268/1
17 February 2015
Skopje**

**Agency for Audio and
Audiovisual Media Services
President of the Agency Council,**

Lazo PETRUSHEVSKI, handwritten signature

Appendix 1. **Technical parameters for audiovisual content with standard definition (SD) and with high definition (HD):**

	SD	HD (1080)
Speed of video frame	25 Hz p (progressive) / 50 Hz i (interlaced)	25 Hz p (progressive) /50 Hz i (interlaced)
Image format	4:3 or 16:9	16:9
Resolution	720 x 576	1280 x 720 /1920 x 1080
Sampling audio frequency	48 kHz	48 kHz
Stream of data	1,5 – 2,5 Mbps	4 – 8 Mbps

Appendix 2. BROADCASTING REGIONS



Appendix 3. **DISTRIBUTION OF MULTIPLEXES IN BROADCASTING REGIONS**

		PE Makedonska Radiodifuzija (Macedonian Broadcasting)		Operator of public electronic communications network	
Designation	Name od zone (region)	MUX 4	MUX 5	MUX 6	MUX 7
D 1	Crn Vrv/ Skopje	23	52	33	45
D 1	Crn Vrv/ Veles	23	52	40	47
D 2	Stracin	37	42	50	56
D 3	Turtel	24	39	38	55
D 4	Boskija	34	41	57	54
D 5	Pelister	22	37	38	42
D 6	Mali Vlaj	26	36	44	50
D 7	Stogovo	28	43	35	31
D 8	Popova Shapka	27	36	41	50

Agency for Audio and Audiovisual Media Services