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KOMISIONI I PAVARUR I MEDIAVE
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STRATEGY

FOR TRANSITION TO DIGITAL TERRESTRIAL

BROADCASTING IN THE REPUBLIC OF KOSOVA

March 2015

Komisioni i Pavarur i Mediave/Nezavisna Komisija za Medije/Independent Media Commission, Rr.Ul.Str. Perandori Justinian Nr. 14 Qyteza, Pejton, 10000 Prishtinë-Prištin- Pristina/Kosovë-Kosovo, Tel: (+381) (0) 38 245 031, Fax: (+381) (0) 38 245 034, E-mail: Info@kpm-ks.org; www.kpm-ks.org

CONTENTS

Komisioni i Pavarur i Mediave/Nezavisna Komisija za Medije/Independent Media Commission, Rr.Ul.Str. Perandori Justinian Nr. 14 Qyteza, Pejton, 10000 Prishtinë-Prištin- Pristina/Kosovë-Kosovo, Tel: (+381) (0) 38 245 031, Fax: (+381) (0) 38 245 034, E-mail: Info@kpm-ks.org; www.kpm-ks.org

Komisioni i Pavarur i Mediave/Nezavisna Komisija za Medije/Independent Media Commission, Rr.Ul.Str. Perandori Justinian Nr. 14 Qyteza, Pejton, 10000 Prishtinë-Prištin- Pristina/Kosovë-Kosovo, Tel: (+381) (0) 38 245 031, Fax: (+381) (0) 38 245 034, E-mail: Info@kpm-ks.org; www.kpm-ks.org

Introduction

Strategy for digitalization determines comprehensively, the process of transition of terrestrial television broadcasting from analog to digital terrestrial broadcasting. In this process are involved all stakeholders (media industry, relevant state institutions, civil society, etc.).

Strategy for digitalization clearly defines the strategic development directions, obligations and timeframes of transition of terrestrial broadcasting from analog to digital, to full compliance with the standards of the International Telecommunication Union (ITU) and the European Commission.

Digital television broadcasting will provide the citizens of the Republic of Kosova better quality of TV signal reception, greater capacity for variety of program content delivery, more television programs, new services for users with disabilities and for senior citizens, additional services, portable and mobile programme reception, as well as convergence of media and telecommunications services. Digitalization brings new opportunities for service providers to provide program content to the needs of certain groups of Kosovo society, provide interactivity, the potential to provide services on demand and above all, lower broadcasting costs.

Broad public will benefit from more efficient utilization of the frequency spectrum, exploitation of the digital dividend of the spectrum for technological implementation of new services, promotion of technological development and new job opportunities from improved competition and opportunity to expand the creativity in terms of service delivery as well as preservation of cultural identity.

Frequency plan for digital terrestrial television broadcasting was approved at the Geneva Conference, known as RRC-06, in 2006

The result of RRC-06 Conference is the Final Acts of the Regional Radiocommunication Conference for Planning of the Digital Terrestrial Broadcasting Service in parts of Regions 1 and 3, in the frequency bands 174-230 MHz and 470-862 MHz (RRC-06) and two frequency plans; GE-06A for analogue and GE-06D for digital terrestrial television. Both plans are in use since 2006 but because both include frequencies of the same spectrum, the analogue plan is protected from digital plan. This means that while analogue broadcasters recorded in the main register are still in operation, the digital broadcasting in that frequency band can not be used. This protection is guaranteed by ITU until 17th of June 2015 when the transition period of digital broadcasting will end and the GE-06A plan will not be implemented. Therefore, the analogue terrestrial television networks should be upgraded to digital technology which will change the way that viewers receive the audiovisual media services in the future.

From the results of the Agreement RRC-06 to the territory of the Republic of Kosovo were assigned 8 channels (multiplexes/MUX) and 2 broadcasting points, but leaving almost half of the territory of the Republic of Kosova out of coverage with digital terrestrial television signal.

The plan of 2006 should be modified to ensure full coverage for the whole territory of the Republic of Kosova.

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The Government of the Republic of Kosova shall take all the necessary measures to negotiate with International Telecommunication Union (ITU) for the membership of the Republic of Kosova in this international organization. However, until the accession of the Republic of Kosova in ITU will be used the present plan which should be modified and coordinated with the neighbouring countries because the ITU requires consensus of member states for modification of the GE-06 plan. The process of modification should be completed before June 17, 2015.

Because of the technological changes, a new legal framework should be established. In the process of transition to digital broadcasting, many stakeholders should be involved such as Government with its constituent institutions, media regulator, audiovisual service providers as well as citizens, with the purpose of successful realization of this national strategy that hereinafter shall be called "Strategy for transition to Digital terrestrial broadcasting in the Republic of Kosova".

This strategy defines appropriate actions at creating the legal framework, the spatial frequency plan for digital terrestrial television broadcasting, setting limits and advanced standards for program contents and the proposal of socio-economic support for the citizens of the Republic of Kosova, respectively the proposal for subsidies for the opportunity to access digital TV programs without additional cost for the strata with low economic standard as set out by the competent authorities. The implementation of this strategy provides better quality and efficient broadcasting of television and other audiovisual contents of great value for end users.

The strategy for analogue switch- off and transition to digital broadcasting in the Republic of Kosova is prepared by the IMC and will be adopted by the Government, as foreseen by the Law on IMC.

Strategy drafted and approved by the IMC will be succeeded by the Law for the transition to digital broadcasting, drafted by the Ministry of Economic Development (MED) and approved by the Assembly of the Republic of Kosova.

The law on digitalization shall determine the method and conditions for digital terrestrial broadcasting, the procedures for switch over from analogue to digital broadcasting, planning, development and using of networks, the right to multiplex access for digital terrestrial broadcasting and other matters of importance for transition to digital broadcasting.

The law should have provisions for switch off process of analogue broadcasting and transition to digital terrestrial broadcasting and provisions on the rights and obligations during the switchover period (ASO). The purpose of new regulation should be to maintain the efficient use of radio frequency spectrum pursuant to international and national legal acts for electronic communications, audiovisual media services with available technological capacities.

Legal provisions which regulate the field of electronic communication (Law on electronic communication) and legal provisions which regulate media (Law on IMC) should be implemented by the respective institutions to the matters relating to digital broadcasting.

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Definitions

Independent Media Commission is the independent body for the regulation, management and oversight of the broadcasting frequency spectrum and regulates the rights and responsibilities of legal entities who provide audio and audiovisual media services, which are defined in the Law on Independent Media Commission (hereinafter 'IMC'); .

Digitalization - a transition process from analogue radio diffusive broadcasting to digital.

The overall broadcaster capacity of the multiplex means the largest amount of data and digital signals that can be transmitted during a certain unit of time under certain parameters and technical standards;

Multiplex is a standardized set of digital signals, expressed in Mb / s (mega-bits-for-second), which contains several TV programs and / or radio and / or other data, which are transmitted and emitted at the same time and in the complete manner as composite signal;

Media service provider - a natural or legal person with an editorial responsibility for selection of the audio or audiovisual program contents of the audiovisual media service and which determines how they will be organized.

Multiplex operator is a legal entity that provides the technical infrastructure for distributing terrestrial digital programs and additional services for digital broadcasting of data;

Network operator - any legal entity, which provides any type of programme broadcasting network or a broadcasting service to the public and possesses the corresponding license.

National Plan of Radio-Frequency is a document that defines the frequency bands for different services and basic conditions for frequency allocation and delivering, in order to ensure effective utilization of the radio-frequency spectrum and avoid interference.

Digital TV Receiver is a device for receiving, decoding and transforming the digital television signal into a suitable form for reproduction of image, sound and other data, which can be a separate device, located inside the TV, or in another device.

Access to the multiplex means the service provided by the multiplex operator through an electronic communications network;

Radio- diffusive broadcasting - broadcasting service of radio and television programs via a terrestrial antenna, electronic communications network, or satellite, in encrypted form or not, to be received by the public;

Analog radio-diffusive broadcasting transmission and reception of analog television and / or radio signal through terrestrial broadcasters, in accordance with relevant international standards**;**

Digital terrestrial radio-diffusive broadcasting is transmitting and receiving of digital TV signal and / or radio through terrestrial broadcasters, in accordance with relevant international standards;

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Standard Definition Television (SDTV) is the service of picture and sound of quality standard, in accordance with the relevant recommendations of the International Telecommunication Union (ITU recommendations);

High Definition Television (HDTV) is a service that offers picture and sound of a higher quality than standard quality, by adding the number of analysis lines per picture, by changing the method of picture analysis, by increasing the proportion of picture dimensions to 16: 9, and by changing the colormetrics characteristics of the picture, in accordance with the relevant recommendations of the International Telecommunication Union (ITU recommendations).

Nonlinear broadcasting is provision of the audio and/or audiovisual program service for reception, on individual request and at the moment chosen by the user

Linear broadcasting is provision of the audio and/or audiovisual program service for simultaneous reception from listeners and / or viewers.

Free broadcasting is broadcast, for receiving of which fee is not paid to the entity that provides this service.

National television - audiovisual media service licensed by the IMC which through coordinated frequency network in accordance with the frequency plan of the Republic of Kosova for terrestrial broadcasting, covers with radio television signal about 90% of the population of the Republic of Kosova.

Regional television – is an audiovisual media service licensed by the IMC, which covers with radio television signal through frequency, 15-30% of the population of the Republic of Kosova.

Local television – is an audiovisual media service licensed by the IMC, which provides radio television signal coverage, through frequency, up to 15% of the population of the Republic of Kosova.

Drafting of the strategy

Work on drafting the Strategy for transition to digital terrestrial broadcasting in the Republic of Kosova started in 2010 through working groups led by the Independent Media Commission (IMC), as the competent institution for the regulation and management of frequency spectrum and licensing of audiovisual media services in the Republic of Kosova.

Working Groups are divided into:

- Working Group on Legal Issues,
- Working Group on Program Content Issues,
- Working Group on Technical Issues,
- Working Group on Social-Economic Issues, and
- Working Group on Information and Awareness.

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The working groups were composed of members representing different institutions as well as media industry. All working groups were chaired by IMC members.

INDEPENDENT MEDIA COMMISSION

Broadcasting regulatory authority in the Republic of Kosova

Independent Media Commission (IMC) was established by the Assembly of Kosova in 2005 by the Law no. 02 / L-15 on Independent Media Commission and Broadcasting.

IMC is also defined as a constitutional category. Under Article 141 of the Constitution of the Republic of Kosova, the Independent Media Commission is an independent body that regulates the broadcasting frequency spectrum in the Republic of Kosova, licenses public and private broadcasters, establishes and implements broadcasting policies and exercises other competencies prescribed by law.

Law no. 02 / L-15 is amended and the new Law on Independent Media Commission no. 04 / L-44 came into force in April 2012. The competencies and authority of the IMC remain the same. IMC is composed of members of the Commission, Executive Office and Board of Appeals.

IMC, based on the Law on Independent Media Commission no. 04 / L-44 is an independent body for regulation, management, and supervision of the broadcasting frequency spectrum. IMC regulates the rights, obligations and responsibilities of natural and legal persons that provide audio and audiovisual media services.

According to the new Law on IMC No.04/L-44, IMC prepares the strategy for the transition from analogue terrestrial broadcasting to digital broadcasting in the Republic of Kosova, which is approved by the Government.

Law on digitalization will determine clear conditions and criteria, to ensure a competitive and successful process of transition from analogue terrestrial television broadcasting to digital one based on the strategy on digitalization.

MEDIA SECTOR IN KOSOVA

Television channels with terrestrial broadcast

In Kosova there are 3 TV channels on terrestrial broadcast with national coverage and 17 TV channels on terrestrial broadcast with local and regional coverage.

Channels with national terrestrial coverage are *Radio Television of Kosova*, television channel of public broadcaster (RTK1), as well as *TV 21* and *Koha Vizion* (KTV) licensed as commercial private television channels.

Public broadcaster - *Radio Television of Kosova*, the first program *(RTK1)*, broadcasts 24 hours a day, covering 62.7% of Kosovo's territory and 80% of the population through terrestrial broadcasting. Whereas the second program of the public broadcaster *(RTK 2)*, established under the Law no. 04 / L-

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046 for Radio Television of Kosova, is licensed by the IMC as Program Service Provider for broadcast of the program in Serbian language and operates since June 2013 with 24 hours program per day. Signal of RTK 2 is carried only in cable networks.

Private broadcasters with national terrestrial coverage, *Radio Television 21* (*RTV21*) and *Koha Vizion* (*KTV*), have reached almost the same coverage as the public broadcaster *RTK 1*.

All three televisions with national coverage broadcast program also through cable network and via satellite.

The company named Kosovo Terrestrial Transmission Network (KTTN) performs broadcasting services for the needs of 3 national televisions (*RTK1, TV21 and KTV*) and 4 national radio stations (public Radios, *Radio Kosova 1* and *Radio Kosova 2*, and private radios *Radio 21* and *Radio Dukagjini).*

Private commercial broadcasters with regional and local terrestrial coverage: *TV Besa, TV Ballkan, TV Dukagjini, TV Festina, TV Herc, TV Iliria, TV Liria, TV Mir, TV Mitrovica, TV Most, TV Opinion, TV Prizreni, TV Puls, TV Syri Vision, TV Tema, TV Vali* and *TV Zoom* operate by using private broadcasting sites/networks. All regional and local televisions together cover 68.14 % of the territory of the Republic.

Despite the fact that a considerable number of TV channels operate on terrestrial analogue network, there are regions of Kosova which have no access to television signals.

The biggest problem remains on the necessary non-use for the television broadcast of Golesh Peak, one of the main sites for broadcasting in the Republic of Kosova. The upper part of this broadcasting site which is 1019 m above the sea level is used only for military purposes by KFOR forces, while the lower part, which is 969 m above the sea level, has been allowed to be used only for broadcasting in the FM bandfor four broadcasters with national coverage: two *RTK* channels: *Radio Kosova 1* and *Radio Kosova 2* and two private channels: *Radio 21* and *Radio Dukagjini*, including here also conveyance of FM and TV signals for Zatriq.

If TV stations could broadcast from the upper site of Golesh Peak, the coverage on the whole territory of the Republic of Kosova would increase up to 90%.

With the reactivation of this broadcasting site, by using also repeaters, the Dragash region which does not have access to terrestrial analogue television signals of Kosovo could also be covered.

Although the IMC has licensed a number of local broadcasters in Prizren and Dragash, there is no coverage with qualitative signal for the majority of citizens in this part of Kosova. The only way how the population of Dragash can ensure access to audiovisual media services is through satellite and cable platforms.

Besides Dragash, also in some other parts of Mitrovica region (Skenderaj, Zveçan, Leposaviç and Zubin Potok), Podujeva region (Orllan), Kaçanik, Hani i Elezit, and Anamorava region (Pogragjë) there is no

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qualitative reception of the TV signal of public broadcaster (*RTK 1*). It is a legal obligation of *RTK 1* to fulfill its public responsibility to cover the whole territory of the Republic of Kosova and ensure access to its program for all citizens of Kosova.

Out of 20 televisions media services with terrestrial broadcasting licensed by the IMC, three (3) belong to the category with national coverage, ten (10) with regional coverage and seven (7) with local coverage. The current categorization is based on the location of transmitters and technical parameters.

The data according to geographic and population coverage[1]:

1. *RTK 1 (*public service broadcaster, national category) covers 30 municipalities[2] with 1,503,916 inhabitants);
2. *KTV* (national category) covers 29 municipalities with 1, 503,196 inhabitants;
3. *TV 21* (national category) covers 29 municipalities with 1,503,196 inhabitants;
4. *TV Balkan* (regional category) covers 4 municipalities with 292.867 inhabitants;
5. *TV Besa* (regional category) covers 7 municipalities with 426.009 inhabitants;
6. *TV Herc* (regional category) covers 10 municipalities with 375.916 inhabitants;
7. *TV Mir* (regional category) covers 5 municipalities with 82.607 inhabitants;
8. *TV Mitrovica* (regional category) covers 8 municipalities with 554.696 inhabitants;
9. *TV Opinion* (regional category) covers 7 municipalities with 426.009 inhabitants;
10. *TV Prizren* (regional category) covers 7 municipalities with 426.009 inhabitants;
11. *TV Puls* (regional category) covers 5 municipalities with 136.974 inhabitants;
12. *TV Syri Vision* (regional category) covers 7 municipalities with 360.797 inhabitants;
13. *TV Vali* (regional category) covers 5 municipalities with 136.974 inhabitants.
14. *TV Dukagjini* (local category) covers 3 municipalities with 172.602 inhabitants;
15. *TV Festina* (local category) covers 2 municipalities with 135.978 inhabitants;
16. *TV Iliria* (local category) covers 2 municipality with 46.959 inhabitants;
17. *TV Liria* (local category) covers 2 municipalities with 135.978 inhabitants:
18. *TV Most* (local category) covers 4 municipalities with 141.482 inhabitants;
19. *TV Tema* (local category) covers 6 municipalities with 296.677 inhabitants;
20. *TV Zoom* (local category) covers 4 municipality with 90.015 inhabitants;

For the citizens of Kosova, television remains the most important source of information.

As a legacy from the past, Kosova is divided into 5 broadcasting regions: Prishtina, Peja, Prizren, Mitrovica and Gjilan. But, the media market remains dominated by the television stations based in Prishtina, which broadcast nation-wide.

[1] The data used to calculate the population of the municipality, are based on the 2011 report, the Statistical Agency of Kosovo. New municipalities are not included in this overview, while the data for the population of the municipalities of Leposavic, Zvecan and Zubin Potok are missing.

[2] Prishtinë, Fushë Kosovë, Obiliq, Vushtri, Lipjan, Shtimje, Ferizaj, Pejë, Gjakovë, Prizren, Klinë, Gjilan, Kamenicë, Viti, Mitrovicë, Rahovec, Podujevë, Istog, Novobërdë, Deçan, Malishevë, Suharekë and Zveçan. RTK covers one municipality more than the two commercial national broadcasters (NovoBërdë municipality)

Komisioni i Pavarur i Mediave/Nezavisna Komisija za Medije/Independent Media Commission, Rr.Ul.Str. Perandori Justinian Nr. 14 Qyteza, Pejton, 10000 Prishtinë-Prištin- Pristina/Kosovë-Kosovo, Tel: (+381) (0) 38 245 031, Fax: (+381) (0) 38 245 034, E-mail: Info@kpm-ks.org; www.kpm-ks.org

From 20 audiovisual media services, 13 broadcast in Albanian language: Television of Kosova (*RTK 1*) broadcasts around 15% of its programming in the languages of minorities, 5 other televisions broadcast program in Serbian Language and 1 in Turkish Language.

Radio channels with terrestrial broadcast

In the Republic of Kosova operate four radio stations with national terrestrial coverage, of which two are *radio* of *public broadcaster* (*Radio Kosova 1 and Radio Kosova 2*), and two are private radio stations (*Radio 21 and Radio Dukagjini*).

74 radio stations are of local and regional level and broadcast from their own networks.

From 78 audio media services (radio channels), 44 radio stations broadcast program in Albanian Language, 22 radio stations in Serbian Language, 3 radio stations in Bosnian Language, 2 in Turkish Language, 2 in Goran Language, 1 in Roma Language and 2 are multi-ethnic radio stations, while 2 radios of public broadcaster (*Radio Kosova 1 and Radio Kosova 2*) broadcast around 15% of its programming in the languages of minorities.

Distribution of program content in cable networks

Distribution of audiovisual media services through cable networks has spread fast in the last couple of years and it has increased the diversity of programmes and channels in Kosova.

Cable operators are licensed according to the regulation adopted by the IMC in 2007. Cable operators must submit an application for the license to provide TV cable services in Kosova, and they are obliged to broadcast RTK 1 and RTK 2 free of charge in their networks; while RTK 1 is obliged to provide cable operators the same programme that it broadcasts terrestrially.

Cable operators must apply “must-carry” rule also for all local/regional TV stations based on their coverage area.

In Kosova there are 34 licensed cable operators by IMC: Ipko Telecommunications and Kujtesa Net, that are 2 cable operators with a national coverage in the territory of the Republic of Kosova and 32 other cable operators are with local coverage: Eagle (Prizren), Elektra (Hani i Elezit), TV EHO (Reçan), Progres (Shtërpce), Eurina (Skenderaj), NET TV (Lubinjë-Prizren), Link Produkcija (Graçanica), Dream (Dragash), Kumanova (Suhareka), Intersat (Drenas), KDS Telestar IC (Ropotovë/Kamenicë), NSH Drinia Net (Ratkoc), Elektroni (Zhur), EGC (Vllashne/Prizren), BB Herc (Shtërpcë), Connect 3 (Prizren), Connect ISP (Dragash), Orange NET (Gjilan - Kamenicë), Vision TV (Podujevë), Astra – T (Shtërpcë), Dioni Net (Rahovec), Art Motion (Prishtinë), NegeNet (Ferizaj), Kosova Net (Kamenicë), High Speed (Podujevë), Bledi (Malishevë), ISP Broadcast (Malishevë), A – Net (Gjilan), Vala Net (Therandë) and Max TV (Skënderaj).

Program Service Providers

IMC has licensed 54 program service providers (PSP) that distribute their television programmes through cable operators: Rrokum TV, Klan-Kosova, RTK 2, RTK-3 News, RTK-4 art,
Arta, 1st Channel, 21 Junior, 21 Plus, 21 Popullore, 21 Mix, A9 International TV, A-Mol TV, Art

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Business Channel, Click Channel, Dasma TV, ETV, Fan TV, K-doku dy, K-doku një, K-film dy, K-film katër, K-film një, K-film pesë, K-film tre, K-music, Kosova MTV, K-Reality, K-sport 1, K-sport 2, K-sport 3, K-sport 4, K-sport 5, Kutia.TV, MBTV, Metro TV, News tv, Next televizion, Olti TV, On TV, Plus TV, Pro Channel, Star TV, Top Kosova Info, Turbo Channel, TV Dialog, TV Diaspora, TV Globi, TV Kim, TV Kosova Channel, TV Kosova News, TVR and Zico TV.

In the absence of frequencies for TV license, the IMC in 2007 through the Regulation CIMC 2007/04 on Cable Distribution of Radio and TV Programs in Kosova established the legal basis for the licensing of program service providers which were licensed individually.

The program service providers are not included in "must carry" rule and they have to ensure that they have a channel in the cable operator before getting a license from IMC.

Broadcasting over IPTV Network and Satellite Platform

In Kosovo there are also operators which distribute television programs via IP (Internet Protocol Television / IPTV). There is no satellite broadcaster of Kosova which broadcast its program only via satellite.

BENEFITS FROM DIGITAL BROADCASTING

Improved utilization of frequency spectrum

Strategy sets the framework for the transition from analogue to digital broadcasting of radio-television programs based on contemporary achievements in digital transmission, in order to provide better quality and more efficient transmission of television, radio, multimedia and other content of great value to users.

The digital terrestrial broadcasting system is based on the Orthogonal Frequency Division Multiplex (OFDM) using a high number of carriers in the same frequency channel. Therefore, the channel is much more efficiently used reaching the capacity of maximum 31.67 Mbit/s which can accommodate up to 10 standard television channels compressed in MPEG-4 format. In case of using DVB-T2/MPEG-4 the capacity is increased to 50.59 Mbit/s which corresponds to 14-18 standard television channels. In a digital network, TV channels are sharing the same frequency while in analogue system each TV channel has its own frequency channel. With the application of Single Frequency Network -SFN all transmitters in the network share the same frequency, while in analogue each TV transmitter in the network uses different frequency. Using the digital terrestrial system DVB-T2 a substantial improvement utilization of the frequency spectrum can be achieved.

Improvement of the signal reception

The spread of OFDM signal is much more efficient compared to analogue. The digital signal by the nature of the spread, differs from analog signal and, as a result, has significant reduce of interferences. In addition, the signals from several transmitters using the same frequency in the SFN network will increase the efficiency of use of frequency. In digital transmission, the television picture is free of so-called "shadows" and "snowy" effects which are typical in analogue broadcasting.

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Increase of television channels

In analogue terrestrial broadcasting in Europe the broadcasting spectrum can accommodate 3- 4 national networks, whereas in the digital frequency plan, each country has the possibility to establish much larger number of national networks. Each digital network can provide 10 television channels, respectively 80 television programs in DVB-T or 16 television channels which enables 128 television programs in DVB-T2, which is 10 to 16 times more than analog television channels. However, the radio diffusive broadcasting spectrum is still considered as a scarce resource. The capacity of the digital networks offers the possibility of production of more television channels, mostly thematic, within a frequency channel. Moreover, the transition to digital TV is a policy initiated by the government, which aims to rational use of the frequency spectrum and which will bring benefits to consumers by offering more choice of TV channels and services and promote the benefits in the industry through new revenues and business models.

Lower cost of broadcasting

Digital networks are 30- 40% more expensive compared to the analogue, but due to the fact that the same digital network is used by more than one TV channel, the price per channel is lower than in analogue, which means that broadcasting cost is lower.

Digitalization provides opportunities for content providers to regulate the content of program to the needs of different certain groups. It also provides interactivity, potential to provide services 'services on demand' and lower cost of transmission and service convergence.

New picture format

While in the analogue television system the picture has standard format, with aspect ratio 4:3, digital television offers the possibility to broadcast content in aspect ratio 16:9 and in high definition format (HDTV).

New services

Aside from television channels, digital television can also provide other services, additional services, such as electronic programme guide and multimedia services. Digital DVB-T can provide any digital content such as “Data division”.

I. REGULATORY FRAMEWORK

The legal framework related with the creation, regulation and functioning of free media in Kosova is quite advanced and it resulted with a relatively high number of audio and audiovisual media services licensed in the Republic of Kosova. Basis regulatory framework for audio and audiovisual media services in the Republic of Kosova, is composed of Law of IMC no. 04 / L-44, bylaws of IMC and applicable legislation relating to the regulation of audio and audiovisual media services in the Republic of Kosova.

The regulatory framework of applicable laws in the Republic of Kosova in the field of regulation and functioning of audio and audiovisual media service consists of:

- Law no. 04 / L-44 on the Independent Media Commission, adopted on March 2, 2012;
- Law no.04/L-065 on Copyright and related rights, adopted on October 21, 2011;

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- Law no.2004/22 on Cinematography, adopted on July 8, 2004;
- Law no.03/L-73 on General Elections in the Republic of Kosova, adopted on June 5, 2008;
- Law no.02/L-65 – Civil Law Against Defamation and Insult, adopted on June 15, 2006;
- Law no.2004/17 on Consumer Protection, adopted on June 16, 2004;
- Law no.2004/36 on Competition, adopted on September 8, 2004;
- Law no.04/L-045 on Public-Private Partnership, adopted on October 21, 2011;
- Law no.03/L-087 on Public Enterprises, adopted on April 20, 2012;
- Law no.04/L-109 on Electronic Communications, adopted on October 4, 2012;
- Law no. 02 / L-44 on Procedure for the Provision of Concessions, adopted on October 3, 2005.

Public Broadcaster of Kosova (RTK) is regulated by the special law, Law no.04/L-046 on Radio Television of Kosova.

In accordance with the Law on IMC No.02/L-15 adopted in 2005, the IMC approved the following bylaws:

- Decision of IMC – 2007/ 01 on Level, Manner of Determination of the Payment of License Fee for Radio and Television;
- CIMC Regulation – 2007/04 on Cable Distribution of Radio and Television Programs in Kosova;
- CIMC Decision - 2007/05 on Determination of the Level and Manner of Payment of License Fees for Cable Operators and Service Providers through Cable Programs; as well as
- CIMC Regulation- 2007/06 on Advertisement for broadcasters.

In 2009, in preparation of secondary legislation and package for long-term licensing of broadcasters, the IMC adopted the Regulation on Qualifications for Issuing the License of IMC for Broadcasting, Regulation on Compliance with the Copyright Obligations, Regulation on Audiovisual Commercial Communications and Regulation on Protection of Children and Minors from Harmful Program Contents.

In 2010, IMC has amended the Code of Conduct for Electronic Media of 2010, Decision 2007/05 on the Level and Manner of Determination of Payment of License Fee for Cable Televisions and Program Service Providers, and Decision CIMC 2008/01 on the Level and the Manner of Determination of Payment of License Fee for Radio and Television.

The new Code for Audiovisual Media Services and the Regulation on the Level and Manner of the Payment of License Fee for Audiovisual Media Services (CIMC 2010/02), which in accordance with the Law of IMC, sets payment and the level of fees for all categories and types of licenses, has entered into force on 15 December 2010.

After the entry into force of the new Law on IMC No. 04 / L-44, under a legal obligation to harmonize all bylaws with the new law, the IMC in 2013 has adopted following acts:

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- IMC Regulation-2013/01 on Protection of Children and Minors in Audiovisual Media Services;
- IMC Regulation -2013/02, on Copyright;
- IMC Regulation-2013/03, on Audiovisual Commercial Communications;
- IMC Regulation -2013/04, on Issuing of the License; and
- General Terms and Conditions of IMC License.

The Acts of Council of Europe (CE) are mostly embodied in the applicable legislation of the Republic of Kosova. Referred CE regulations particularly imply the following acts:

- European Convention on Human Rights;
- European Charter for Regional or Minority Languages;
- Resolution on the Right of Reply;
- Declaration on the Freedom of Expression and Information;
- Recommendations on Media Pluralism and Diversity of Media Content;
- Declaration on the Role of Community of Media in Promoting Social Cohesion and Intercultural
- Dialogue;
- Declaration on Freedom of Political Debate in the Media; and
- Recommendation on the Right of Reply in the new Media Environment.

IMC has harmonized regulations with the AVMS Directive as well as with the EU legal acts, which includes the following acts:

- Audiovisual Media Services Directive;
- Protocol on the System of Public Broadcasting in the Member States;
- Communication from the Commission on the Application of State Aid Rules to Public Service Broadcasting;
- Decision on the Media Program;
- Recommendation on the Protection of Minors;
- Conclusion on Principles for Community's Audiovisual Policy;
- Decision on inter-active media content;
- Recommendations on the Protection of Minors and Human Dignity;
- Recommendation on the Development of Competition;
- Resolution to Intensify Exchange of Information; and
- Conclusion on the Application of Recommendations on the Protection of Minors.

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Existing legal framework in Kosova that has to do with the authority and role of IMC, steadily must be completed in order to increase the efficiency of the licensing scheme, to present new roles to new entities of digital television sector and to open the way for the regulation of convergent services.

IMC shall initiate reformation of legal framework that regulates radio-diffusion in Kosova, keeping in mind binding EU legal instruments and the expected transition from the analogue terrestrial broadcasting to digital terrestrial broadcasting and shall clearly define the role, rights and obligations of all participants in the audiovisual media content production and distribution chain.

Reformed legal framework shall enable public and transparent procedure for awarding licenses, on platform-wise neutral basis and on request by content providers, under previously specified and non-discriminatory conditions, adjusted to the type of service, linear or non-linear, that the applicant plans to provide.

After the transition to digital broadcasting in the Republic of Kosova, new licenses for digital terrestrial broadcasting will be issued in accordance with the procedures determined with the legal framework, based on the analysis on the needs of citizens and social groups related to media content, based on market analysis, but also on evaluation of the influence of new providers on media market. Decision on issuance of licenses shall be made for the coverage areas and types of programs, for which new licenses shall be awarded.

By reformed legal framework, IMC shall strongly guarantee citizens' right to broad choice of media content through different platforms for their distribution (satellite, cable, terrestrial broadcasting, etc.). Obligations of platform operators shall be set to broadcast certain content (must carry) and the obligations of public service providers to offer their content without discrimination.

In order to accomplish public interest in the field of information, important for the life and work of citizens in local and regional communities, proportionate minimum quotas of local and regional programs shall be determined by law for all licensees by IMC.

IMC shall guarantee free competition on the public market of audiovisual media services. This means encouraging the protection of competition horizontally and vertically.

Regulation of Digital Terrestrial Television (DTT)

The competent bodies and organizations in the Republic of Kosova are actively engaged in completing the process of transition from analogue to digital broadcasting of terrestrial television signals, implementing all activities relevant to this process, respecting the rights of the audiovisual media services ensured by their licenses for television broadcasting in accordance with the international obligations and the existing regulatory framework.

Digital television brings big changes in comparison with analogue. Current audiovisual media services become providers of audiovisual media services, whereas services of broadcasting and transmitting of

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TV programs are provided by Multiplex service. Thus, the transmitting frequency spectrum will be more efficiently utilized while the market competition will increase, along with an increase of the capacity for improving creative work and preserving cultural identity.

Process of transition from analogue broadcasting to digital broadcasting also requires an additional cost for citizens to be equipped with a receiver for digital terrestrial television signal. Republic of Kosova will in this respect pay special attention to categories with low economic standard and persons with disabilities. Through various incentives and subsidies, they should be provided with a special status in the process of digitalization.

In the process of digitalization a special attention will be paid to privacy and personal data protection for the media service providers.

In order to enable the functionality of digital terrestrial television in the Republic of Kosova, minimum requirements shall be met by determining provisions to regulate new entities/participants in the digital broadcasting chain, content providers and multiplex service as well as determining, under certain conditions, the "must carry" rule in the audiovisual sector.

Functional description of the DVB-T2 transmitter chain

"Content provider" is basically the audiovisual media servant. In a digital terrestrial television platform the right to use the frequency is replaced with the right to enter into the digital terrestrial multiplex in accordance with the criteria set by the IMC.

The license to produce and distribute a television programme does not cover the right to enter into the multiplex, despite the digitalization, as the terrestrial platform is still considered as a scarce resource.

Therefore, a general license defines the content related issues, while an additional license is needed to distribute a TV channel via the digital terrestrial platform.

"Multiplex operator" as the service provider, is licensed to install and operate with digital terrestrial television multiplex. A multiplex operator, as service provider, is licensed by the IMC to enable and operate with the processing of audiovisual signals for terrestrial digital broadcasting.

The signal produced by the content provider is a source of digital signal at the entrance of the multiplex.

Multiplex receives audiovisual program content in digital form and multiplies (mixes in multiplex) with other sources of signals, in order to create a digital multiplying signal (multiplexed).

"Network operator" in terms of this strategy means the legal entity that provides any form of program broadcast network or a radio diffusive broadcasting service to the public. Network operator transmits a digital signal of audiovisual programs which receives from multiplex through the distribution network.

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Manner of functioning and regulation of transmitter chain of content providers, multiplex service and network operator shall be determined by law on digitalization.

II. PROGRAM CONTENTS

Main Principles of Program Content

Independent Media Commission, during the process of transition from analogue broadcasting to digital, will determine the main criteria of the program content of audiovisual media services operating in the Republic of Kosova, considering:

- the objective of the Kosovar society to build a free and democratic society with regard to equality between all citizens;

- encouraging creation of a favourable climate of tolerance between different ethnic, religious, gender, cultural and political groups;
- to advance further faster integration of the country in the Euro-Atlantic structures;
- to encourage the continued improvement of cultural and educational life, general living conditions of citizens of Kosova, as well asto ensure the preservation of peace and security;

- the need to facilitate the undertaking and development of activities for individuals and the industry of production of programmes containing information, educative and cultural program;

- the need that the Kosova broadcasters ensure that the audiovisual media services under their jurisdiction give priority to the promotion of the production and access to content for Kosovar and European society;

- cultural diversity and the possibilities of development of the professional quality of the programme content in general

- reality and the diversity of audiovisual media services as well as their interests in the Republic of Kosova.

Audiovisual programs should respect and promote main values of society and individual freedoms guaranteed by the Constitution of the Republic of Kosova as well as by the European Convention on Human Rights. First of all, the audiovisual programs should respect and affirm dignity, freedom, equality, solidarity, and citizen's rights, by informing citizens generally and in objective manner on different events of general public interest.

Audiovisual program content should reveal correctness, reliability and professionalism.

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Program contents should be based on facts, be unbiased, respecting differences of opinion regarding phenomena or different problems, by not allowing influences of stakeholders involved or groups of interests.

Producers and broadcasters of audiovisual programmes are obliged, in accordance with the Law on Copyright and adequate regulations of IMC, to strictly respect copyrights during the process of production of their own programmes, as well as during the process of broadcasting of foreign programs.

IMC will define standards and criteria for program contents to create equal and fair conditions for all stakeholders, with the aim of protecting freedom of expression and media pluralism, for public broadcaster, as well as for private broadcasters at national, regional and local level. This will be done in order to provide the right conditions for program service providers for access to digital terrestrial broadcasting network and development of content media pluralism.

Based on Law on IMC, on the European Convention on Transfrontier Television and on Audiovisual Media Services Directive of EU (AVMS), IMC provides the basic framework of the program content, depending on the type of audiovisual media service, operating in the Republic of Kosova.

New technological forms

New technological forms for providing of advanced services of audiovisual and multimedia content can be divided into the following categories:

- Mobile TV;
- High Definition TV (HDTV);
- Interactive Television; and
- Video on demand (VoD).

Convergence of networks and services offers the possibility to separate program content production from broadcasting and its distribution, which enables program content producers, concentrating only on the production of these program contents, which also is their main activity.

IMC through bylaws shall determine the rules and specific categories of licensed entities, namely, a clear division of activity that has to do with the production of programs from that of their transmission and distribution.

Programs of General Interest

Audiovisual contents in the interest of general public of the Republic of Kosova consist on:

– Informative programs through which the citizen of Republic of Kosova realizes the right to fair and independent public information regardless of ethnic, gender, religious or political affiliation;

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- Programs that promote human rights aiming the development of a free and democratic society;
- Educational, cultural and entertaining programs dedicated to children and adults;
- Programs for persons with disabilities and specific needs;
- Programs that promote cultural identity and cultural heritage of Kosova;
- Programs that affirm and support cultural developments and artistic work in the Republic of Kosova;
- Programs that promote the culture of public dialogue;
- Programs dedicated to protection of environment;
- Programs that promote academic education, promotion of academic writing, linguistic culture and eloquence; and
- Programs that promote European values.

Obligations on proportionality of broadcast of European origin programs are established by special act. IMC as a regulator of audiovisual media services in the Republic of Kosova, is obliged to submit the reports on proportionality of program schemes, in particular for televisions with national coverage of broadcasting, to the Assembly of Kosova in the annual reports.

In the best practices of European Union, the member states ensure that audiovisual media services, based on the request offered by media service providers, to promote production and access to European productions.

Stimulating the production of programs

IMC will initiate the establishment of a fund to stimulate the production of a wide spectrum of different kinds of programs. This Fund will be open for all program content providers and for independent producers. Subsidizing will be realized though a public competition.

Legal mechanisms for the realization of incentive for program production, through this fund, will be appointed by IMC through a special act.

Regional and local audiovisual media services

During the transition to digital broadcasting, IMC will encourage local and regional audiovisual media services to create their identity by cultivating program contents which treats problems of certain regions or the problems of the local communities where they operate.

III. TECHNICAL FRAMEWORK

Technical characteristics of the elements that compose digitalization

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In the Republic of Kosova, for digital terrestrial television broadcasting following technical standards should be applied:

1. MPEG-4 version 10 (H.264/AVC), as a standard for digital signal compression, while as possible option is promoted the newest standard in preparation: H265 HEVC (High Efficiency Video Coding);

2. DVB-T2, as a standard for radio-difussive broadcasting of digital TV signal; and

3. SFN (Single Frequency Network), as a type of radio-diffusive network.

I. Signal compression format MPEG-4 v.10 or AVC (Advanced Video Coding) is standardized by ISO / IEC 14496-10. It is recommended the use of the new standard H265 that will allow an increase of 39% to 44% of the transportation capacity compared to H264 and provides more TV programs within the same channel.

II. Standard DVB-T2 has many parameters, which are determined according to the type of network, configuration, quantity of contents, the required quality etc.

III. IP Contributory Network, which serves for transmission of program content signal from TV content providers, which transmitt encoded signal to multiplex, in TS (Transport Stream). It is recommended that the transport of the signal from the content provider to the MUX should be done using optic fiber for the best opportunities that offers regarding the quality, cost and safety. This does not prohibit the use of digital links, which means ASI technology for signal transport, sending (contributing) RF and satellite for digital terrestrial broadcasting needs.

IV.2. Head-End (Central Multiplex), is part of radio diffusive digital telecommunication system, which does the collection of TV programs (content providers) and united, conveyes them to the transmitter.

V.3. IP Distributive Network for distribution of the signals from the central Multiplex to broadcasting sites, by using RTP protocols (Real-time Transmission Protocol) via UDP (User Datagram Protocol) during transportat of the signals through optic fiber as well as the use of RF Broadcast links, which means ASI manner of signal transport. Distributive network must ensure the 100% availability of signal up to broadcasting sites, using annular technique and protection 1 +1 at all levels. All possible manners provided by technology for signal transport from MUX to the broadcasting site are recommended.

VI.4. Radio-diffusive Network, broadcasts digital TV signals to the end-users through transmitters systems placed in high sites..

VII. SFN – enables that within an allotment all transmitters to work synchronized and in the same frequency, so as to end-user TV signal arrives at the on time and with same content.

Based on best practices on the implementation of the DVB-T2 in Europe, it is proposed that the primary distribution of signals (within Contributory and Distribution Network) is done using IP technology, namely RTP via UDP, so that in addition to more efficient processing and exchange opportunities, even at this level to be compatible with other technologies such as IPTV, etc.

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The following description of digital terrestrial broadcasting chain is presented graphically and detailed, as follows:

Technical framework Fig. 1 – The chain of activities and connections in digital broadcasting

Standards of compression and broadcasting

In Kosova will be applied the MPEG-4 format as the compression technique as well as DVB-T2 standard.

Compression	SD channels	HD channels
MPEG-2/DVB-T	4/8	1
MPEG-4/DVB-T	8/12	2/3
MPEG-4/DVB-T2	14/18	4/6

Technical framework Table 1 – Compression and capacity of SD and HD channels

The design of MPEG-4 format, based on the current state of technology and design for the production of integrated electronic components VLSI (CPUs, DSPs, ASICs, FPGAs, etc.), provides the most current balance between coding efficiency, implementation of complexity and the cost..

This standard is recommended also by ITU (Recommendation ITU-R BT.1737), and many countries which have started with MPEG-2, now are going through a transition to MPEG-4 because of its technical advantage and a better quality.

Starting from the need of those countries with highly developed broadcasting markets that experienced a lack of network capacity/ frequency spectrum DTT, the DVB consortium issued specifications (2009) for DVB-T2 technology as a successor of the standard DVB-T. New DVB-T2 standard offers a 30-50 % better efficiency compared to DVB-T. Due to the incompatibility with widely used DVB-T standard, the new standard DVB-T2 is not designed to replace DVB-T in short and medium term. The problem is very similar to the incompatibility situation between MPEG-2/MPEG-4, resulting in a new transition period and involved market uncertainty and additional costs for the viewers as well as for the broadcasters. For this reason, the DVB-T2 standard is expected to coexist with DVB-T for some years. It is also worth noting that countries with developed broadcasting markets will introduce both MPEG-4 and DVB-T2 systems simultaneously regarding the new content format (HDTV).

Logical Channel Numbering - LCN

One of the features of the DVB-T2 standard is the possibility to introduce automatic sorting of television channels stored in each individual television set. In a multi channel environment such as digital terrestrial television platform, the position of a specific TV channel on the users' remote control is

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important. IMC will determine the criteria for logical channel numbering of channels by a special sub legal act.

Common Interface

The development of digital television (on satellite frequencies, terrestrial frequencies and cable) and, most of all, the introduction of Pay-TV and conditional access platforms, has generated a wide number of encryption tools, aimed at enabling only the viewer identified with a specific decrypting code to watch the desired programme.

The problem with encryption is that each service provider offering Premium content through Pay-TV channels may use an encryption code that differs from the others. Consequently, the consumer who wishes to view available channels on more than one platform, encrypted differently, might have to buy a decoder for each synchronized system. Consumer behaviour statistics show that when there is more than one decoder available in the market, the consumer has more problems in choosing service providers.

In case of implementation of Pay TV services, the receivers must be equipped with "Common Interface", a defined standard that enables the addition of a conditional access module-CAM in a DTV Receiver, to adapt it to different kinds of cryptography.

The Common Interface equipment must comply with the EN 50221 standard. This is a defined standard that enables the addition of a conditional access module (CAM) in a DTV receiver to adapt it to different kinds of cryptography. In fact, one of Digital Video Broadcasting's main strengths is the option of implementing the required conditional access capability in the common space.

Electronic Program Guide and Interactive Program Guide

Electronic Program Guide -EPG is a continuously updated menu which provides users of television, radio, and other media applications to navigate, select and view (or listen to) content using a remote control, mouse (computer), keyboard or other devices. Information on the program broadcast or program scheme is constantly updated.

Interactive Program Guide is an application that enables viewers and listeners to interactively navigate the program menu, select and browse by time, title, station or genre using input devices such as keyboard, computer keyboard or TV remote control. Standards for delivery of scheduling information on television - based on IPG, vary from application and by country. In Europe, the European Telecommunications Standards Institute (ETSI) has published standard ETS 300 707, to standardize the delivery of IPG data through digital television broadcast signals. Listings of data for IPG integrated into today's digital terrestrial television and radio receivers are mainly sent within each station's MPEG transport stream, or alongside it, in a special data stream.

The IMC should set some specifications and criteria that all network operators and service providers will have to comply with, in order to create an EPG and IPG compatible with the guides provided by other operators/providers.

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Radio frequency plan

According to the GE-06 agreement, one broadcasting area (allotment "Kosova") is planned to cover 52% of the territory of the Republic of Kosova, but the test points of the respected allotment do not correspond to the actual borders of the country.

The results of the regional conference RRC -06- for the Republic of Kosova one allotment and two assignments are planned to accommodate eight (8) SFN digital terrestrial networks. One (1) frequency channel is allocated in frequency band III and seven (7) frequency channels are in frequency band IV/V.

All channels are assigned and recorded in the plan to both transmitting sites Golesh and Cvilen. The allotments are planned on the basis of the reference planning configuration 2 (RPC-2).

This reference configuration is to be used when portable outdoor reception or lower coverage quality of portable indoor reception or mobile reception is planned. The network is based on the reference network 1 (RN1).

Allotment name (allotment)	Channels
Kosova	7, 21, 31, 44, 46, 48, 58, 67

Technical framework / Table 2 - Planned frequencies according to RRC-06 for the allotment "Kosova"

The first problem of the GE-06 plan is that effective radiated power (ERP) of both planned assignments is 40 dBW instead of 49,7 dBW, which corresponds to the typical power according to the Reference Network 1 (RN1) and which is used to plan the coverage of a large SFN service area.

According to this hypothetical network, seven transmitters are situated in the centre and at the vertical of a hexagonal network (see Table 3).

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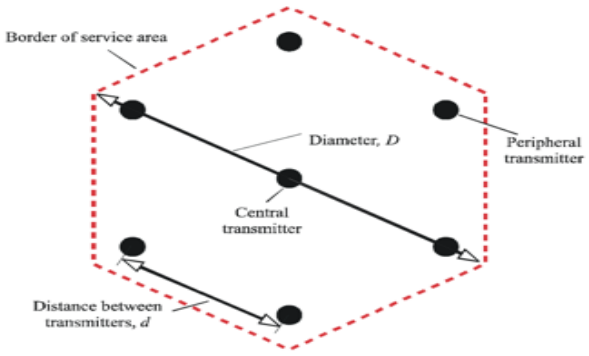
Reference planning configuration and reception type		RPC 1 Fixed antenna	RPC 2 Potable outdoor and mobile	RPC 3 Portable indoor
Type of network		Open	Open	open
Geometry of service area		Hexagon	Hexagon	Hexagon
Number of transmitters		7	7	7
geometry of transmitter lattice		Hexagon	Hexagon	Hexagon
Inter-transmitter distance d/km		70	50	40
Service area diameter D/km		161	115	92
Tx antenna height/m		150	150	150
Tx antenna pattern		non-directional	non-directional	non-directional
ERP / dBW	Band III	31.1 + Δ	33.2 + Δ	37.0 + Δ
	Band IV/V	39.8 + Δ	46.7 + Δ	49.4 + Δ

The power margin Δ is 3 dB



Reference planning Configuration	RPC1	RPC2	RPC3
Location probability	95%	95%	95%
Reference C/N (dB)	21	19	17
(Emed)ref (dBμV/m) at 200 MHz	50	67	76
(Emed)ref (dBμV/m) at 650 MHz	56	78	88

Technical framework / Table 3 - Parameters *of the Reference Network 1 (RN1 – Large service area)*

Transmitting systems with the effective radiated power of 49,7 dBW have antenna systems with circular diagram of radiation and the service area is assumed to be 115 km in diameter. Both transmitting sites are currently under the jurisdiction of KFOR, what makes the situation even more complex.

The existing analogue TV networks, located on 20 transmitting sites (6 national and 14 local/regional) with appropriate infrastructure which can be used for digital broadcasting, has not been taken into the consideration.

The second problem is the fact that about 48% of the territory of Kosova is not covered with the proposed allotment "Kosova". Two assignments included in the Plan provide 28% coverage of the current allotment, but if we take into the account that the borders of allotment does not comply with the borders of the country i.e only 16,1% of the territory of Kosova can be covered with digital terrestrial television signal (DTT).

National broadcasting area: Allotment Kosova

Channels **7**, 21, 31, **44**, 46, **48, 58, 67** enables the extension of digital TV signals in the entire territory of Kosova and of the service providers (Multiplex Services) selected for this extension.

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Channel 67 is assigned to the digital dividend and will be used for this purpose after the date of June 17, 2015.

Type of the network for national coverage is SFN.

In order to economize, reduce the radiation, more effective coverage, it is recommended to use the main existing broadcasting points (assignment):

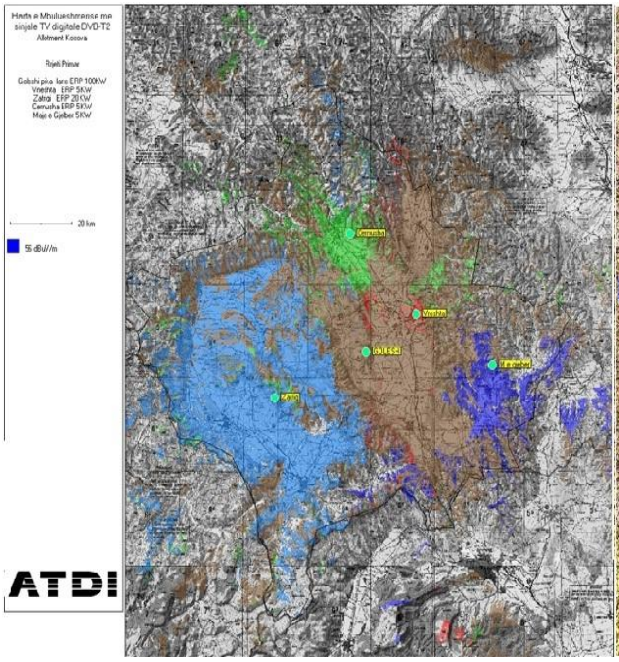
Goleshi – with circular radiation diagram, horizontal polarization and with radiation power up to 100KW (UHF) and up to 25KW (VHF).

Vneshta – with the radiation diagram in three main directions and a support one, horizontal polarization and radiation power up to 5KW (UHF) and up to 1.5KW (VHF).

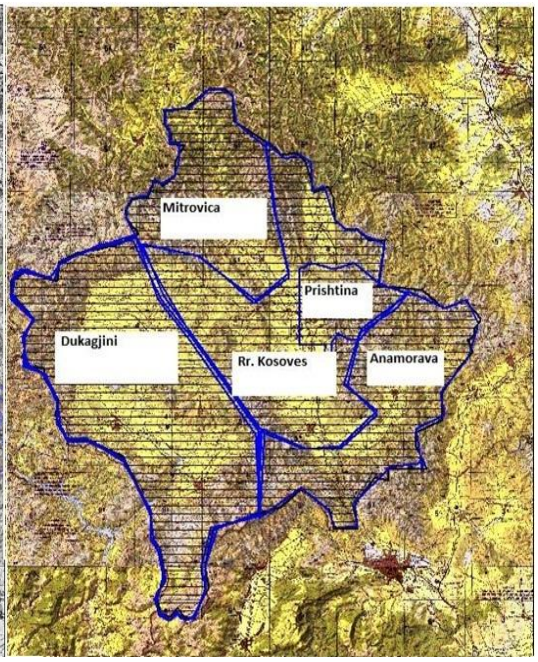
Zatriqi – with radiation diagram in three main directions and a support one, horizontal polarization and radiation power up to 20KW (UHF) and up to 5KW (VHF).

Cërnusha – with radiation diagram in three main directions and a support one, horizontal polarization and radiation power up to 5KW (UHF) and up to 1.5KW (VHF).

Maja e Gjelbër – with radiation diagram in three main directions and a support one, horizontal polarization and radiation power up to 5KW (UHF) and up to 1.5KW (VHF).



Technical framework Fig.2 – Broadcasting network



Technical framework Fig.3 – Regional allotments

Broadcasting sites presented above in figure 1, represent the primary network of broadcasters, which are part of the first phase of planning; second phase of planning should include those parts of Kosova, which would be covered only partially in the first phase. At the end should be planned and implemented the third phase of the coverage with DVB-T2 signals, with the repeater or the so-called "gap fillers".

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Sub-Allotments to meet the needs of the population in the regions

Based on Chapter 4 of the Final Agreement Geneva 2006, IMC shall do the coordination with neighboring countries to provide channels free of interference for sub-allotmentes. Coordination will be made to sub-allotments involving regional areas, the division of which is based on the following criteria:

- Geographic
- Demographic
- Economic
- Maximum reduction of ionizing radiation concentrating on broadcasting sites

IMC will determine the frequencies necessary for divisions of the sub-allotments:

- Sub allotment of Kosova Plain
- Sub allotment of Dukagjini Plain
- Sub allotment of Mitrovica
- Sub allotment of Anamorava and
- Sub allotment of Prishtina

For each region shall also be assigned broadcasting sites:

- For Kosova plain, Golesh Peak;
- For the Dukagjini region, Zatriç Peak;
- For Mitrovica region, Cërnusha Peak; and
- For Anamorava region, Green Peak.

A special suballotment is allocated for capital city of the Republic of Kosova, to meet additional needs as a result of the concentration of population, central state institutions, many educational, cultural, sports, business and of high financial potential. All member countries of ITU have followed such practice, which have one sub-allotment for capital city.

Completion of coverage of Allotment Kosova

In this strategy, the RRC-06 plan is modified to meet the needs for digital terrestrial television broadcasting in the territory of Kosova. The modified plan should be approved because of the advantage it offers in order to start the process of digitalisation of terrestrial broadcasting networks. This digital broadcast strategy provides four regional areas for transmission, a sub-area for broadcasting for the capital city and the main area for digital broadcasting throughout the territory of the Republic of Kosova (figure 2), compared with just one broadcasting area, as planned in Geneva Conference in 2006. The reason why this modification is proposed, except quantitative and qualitative coverage with digital TV signals, is also to become equal with neighboring countries[3].

[3] Kosova is the only country that has ended up with only one allotment, while comparing with the Republic of Macedonia that has a similar coverage but with 8 allotments, alongside with the separate one for the capital. Albania has 11 allotments and one for the capital, Serbia has 20 allotments and one additional for the capital, Montenegro has 3 allotments and one for the capital.

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Division in allotments is done in geographical aspect, assessing that from this we can establish a possibilities for regional broadcasting networks. The new channels which will be proposed after adoption of this strategy (except those approved by the ITU), are not a result of RRC-06 and, as such, they must be coordinated with the neighbouring countries (Albania, Macedonia, Serbia and Montenegro) as the same exists in Geneva plan as free frequencies, leaving the possibility that each of the neighbours can use them for local/regional networks.

In Table 4 are presented foreseen channels for national coverage, according to the frequencies approved by ITU and sub-allotments according to modified plan (which will coordinate with neighboring states for determining new regional/local frequencies).

Name of foreseen coverage area according to RRC-06	Broadcasting channels
Allotment Kosova	7, 21, 31, 44, 46, 48, 58 dhe 67
Name of foreseen coverage area according to modified plan	Broadcasting channels
Sub allotment of Kosova Plain	Shall be coordinated
Sub allotment of Dukagjini Plain	Shall be coordinated
Sub allotment of Mitrovica	Shall be coordinated
Sub allotment of Anamora and	Shall be coordinated
Sub allotment of Prishtina	Shall be coordinated

Technical framework Table 4 – Channels foreseen for digital broadcasting for the territory of Kosova by ITU and modified plan

7	21	31	44	46	48	58	67
RTK 1	TV21	KTV	KTV	Free	Free	Free	dividend

Technical framework Table 5 - Current use of available analogue frequencies for broadcasting area "Allotment Kosova"

Criteria to be used for coordination should be in accordance with the basic principles of ITU, making sure not to cause harmful interference to neighboring countries.

Modification of existing assignments in Kosova

In the GE-06 plan two assignments are planned to be used in Kosova. The transmitting site Golesh is situated close to Pristhina and Cvilen is a hill above Prizren. Both of these sites have maximum effective radiated power of 40 dBW. Transmitting sites are not being used for analogue terrestrial television network, but are being used by KFOR.

An alternative location for Golesh would be very difficult to find, but the assignment of Cvilen can be modified to an existing analogue broadcasting site in Zatriq. The location of Zatriq is positioned 32 km north of Cvilen and is closer to the centre of the country. The new broadcasting site has a lower altitude but provides better coverage of the Kosova territory. Modification of the assignment Cvilen with Zatriq does not increase interferences to the co-channels with neighbouring countries.

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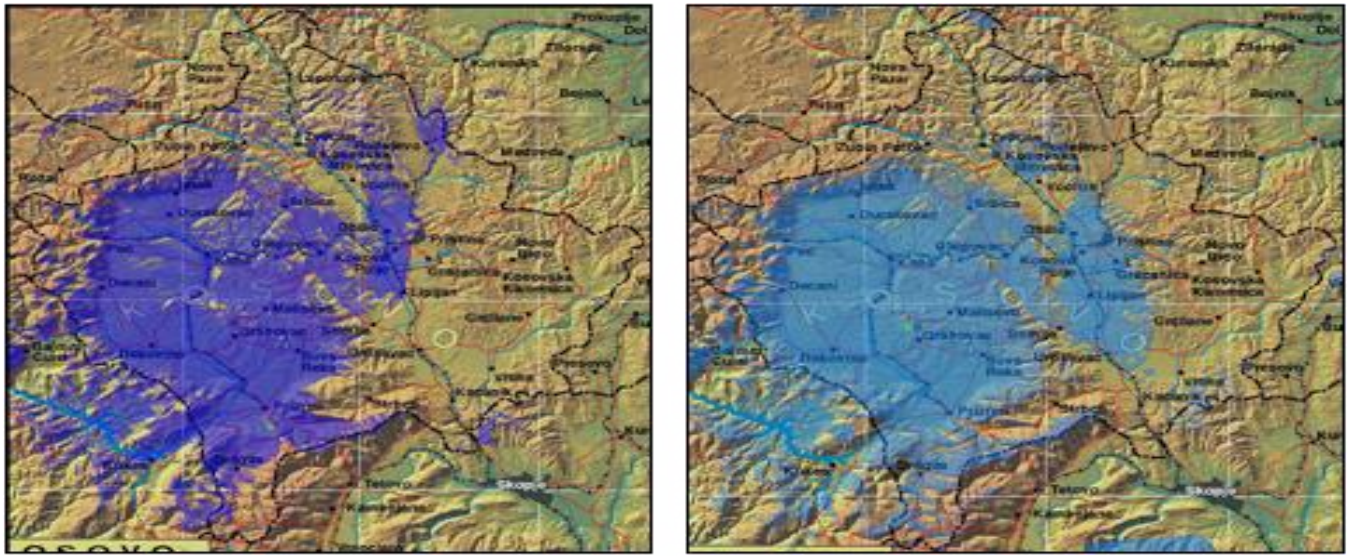
Regarding the Effective Radiated Power, both broadcasting sites may use 49,7 dBW, as this power corresponds to the hypothetical reference network model RN1. The power of 49,7 dBW is ten times higher than the power of 40 dBW. In Watts it means that instead of 10.000 W, the effective radiated power of the proposed modification would be 93.325 W.

Name of transmitting site	Geographical coordinates			Recorded
	Longitude	Latitude	Altitude	
Golesh	20.5859	42.3407	1018 m	GE-06
Cvilen	20.4454	42.1020	1380m	GE-06
Zatriq	20.37315	42.26793	1036m	Modification of Cvilen

Technical framework Table 6 - Proposed modification for assignment Cvilen

The simulation of spread of modified assignment displays that the impact on the neighbouring countries has not changed *(see figure 4.)*



Technical framework / Figure 4 - *Calculation of modified coverage (Cvilen–left, Zatriq-right). Cvilen: 49, 7 dBW (56 dBµV/m for fixed reception), Zatriq: 40 dBW (56 dBµV/m for fixed reception, 78 dBµV/m for portable reception, mobile reception)*

The modification of the assignment Cvilen is proposed to be relocated to a different location (Zatriq) in order to achieve better coverage. Interferences, levels of interferences in neighboring countries will be lower, due to the geographical position of Zatriq and lower altitude compared compared to Cvilen. It must be emphasized that the relocation is within the diameter allowed by ITU criteria within 30 km in the air-line.

The existing allotment can be extended to the north to cover the rest of the country. The typical coverage of the RPC2/RN1 network has a diameter of 115 km and the territory of Kosova is a little larger than this hypothetical coverage area, that means that the distance from the west to the east border of Kosova is approximately 135 km and the distance between north and the south is 154 km. This means that receiving digital terrestrial portable outdoor signal or in mobile model will not be possible outside the perimeter service area of 135 km where average field strength is 78 dBµV/m. The portable outdoor model term is used when the signal is received by portable devices with low antenna reception. Mobile reception means to receive the signal in mobile vehicles.

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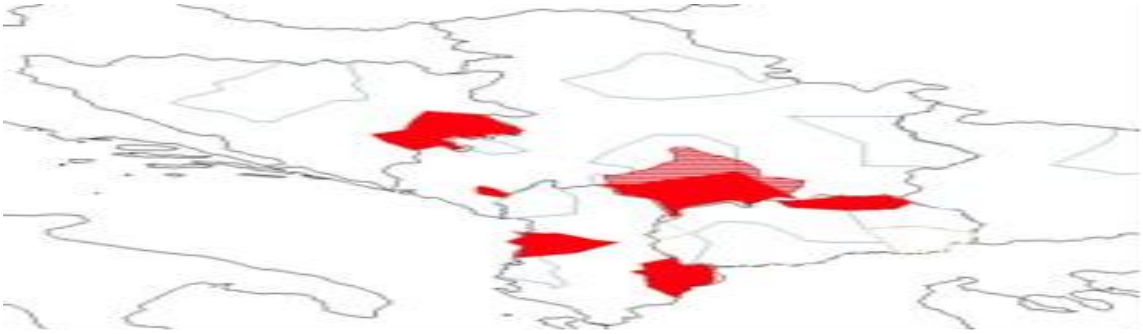
However, outside this area the average field strength will be high enough to offer the reception signal via roof antenna (56 dBµV/m). Considering that the roof antennas are widely being used to receive analogue television signals, the rest of the country will be sufficiently covered with digital television signals as well. In case of using DVB-T2, rotated constellation diagram is enabled, providing sufficient signal up to 5dB gain which means that even when the average field strength is 51 dBµV/m, signal reception with the top antenna is possible.

It is worth mentioning that the size of the new proposed allotment is comparable e.g. similar to areas of the neighbouring countries. This is important for the field of equitable access of the frequency spectrum. Changing of the allotment size could have an effect on the co-channel allotments (neighbouring allotments that use the same frequency) while the distance between them should be sufficient enough not to cause mutual harmful interference. In Figure 3 the existing allotment is extended towards the north (striped area).

The size is similar to other allotments in the neighbouring countries and the distance between co-channel allotments in the Republic of Serbia should not be a problem while the distance in the direction of Macedonia is far shorter and also agreed at the RRC-06 between Serbia and Macedonia. The picture displays the situation on channel 21, while the situation of other channels (7, 31, 44, 46, 48, 58, 67) in the GE-06 plan for Kosova is presented in the Appendix.



Technical framework / Figurea 5 - Expansion of allotment Kosova

Modification of allotment "Kosova" is proposed with the new testing points displayed in the table 4. These testing points will be used when the change of the allotment shape will be proposed, according to the provisions of the GE-06 Agreement.

Proposed modification of the "Allotment Kosova"			Existing transmission areas according to plan RRC-06 "Allotment Kosova"		
pt	Longitude	Latitude	pt	Longitude	Latitude
1	21°E37'30''	42°N15'20''	0	21°E9'46''	42°N49'58''
2	21°E27'16''	42°N17'30''	1	21°E37'30''	42°N15'20''
3	21°E21'4''	42°N14'0''	2	21°E27'16''	42°N17'30''
4	21°E17'39''	42°N9'22''	3	21°E21'4''	42°N14'0''
5	21°E17'34''	42°N6'37''	4	21°E17'39''	42°N9'22''
6	21°E13'47''	42°N6'47''	5	21°E17'34''	42°N6'37''
7	21°E10'43''	42°N12'43''	6	21°E13'47''	42°N6'47''
8	21°E5'15''	42°N13'2''	7	21°E10'43''	42°N12'43''

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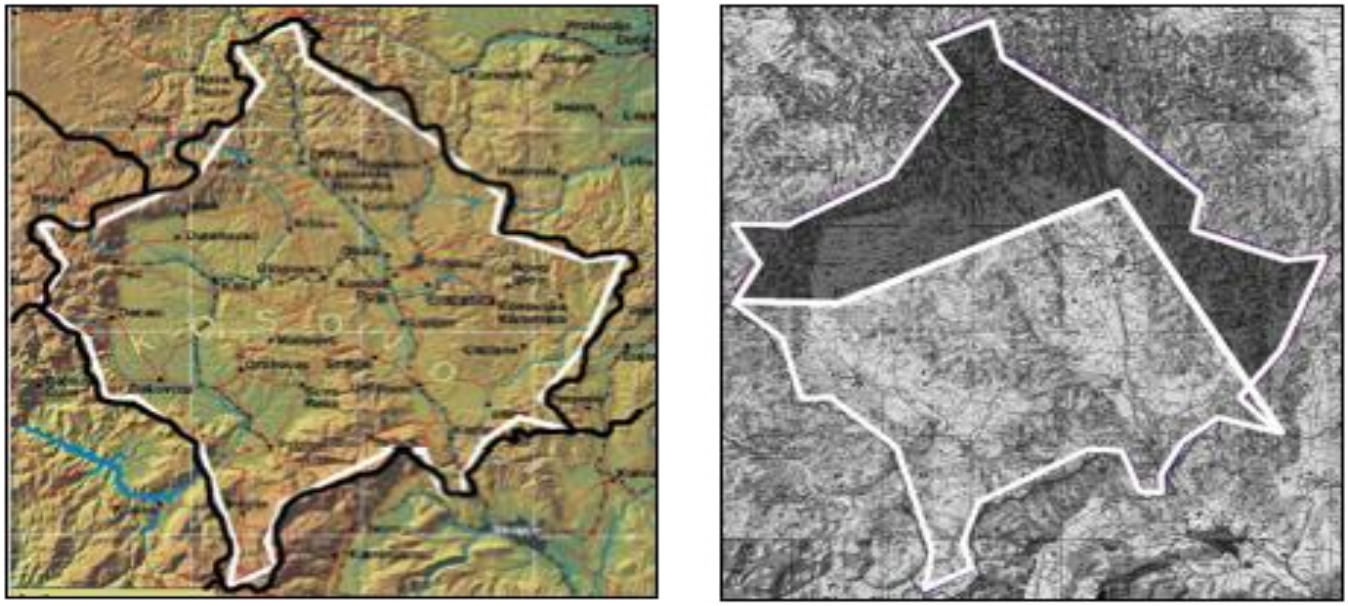
9	20°E46’14’’	42°N5’16’’	8	21°E5’15’’	42°N13’2’’
10	20°E43’36’’	41°N59’12’’	9	20°E46’14’’	42°N5’16’’
11	20°E45’4’’	41°N55’29’’	10	20°E43’36’’	41°N59’12’’
12	20°E37’8’’	41°N52’19’’	11	20°E45’4’’	41°N55’29’’
13	20°E38’27’’	41°N57’55’’	12	20°E37’8’’	41°N52’19’’
14	20°E32’15’’	42°N13’16’’	13	20°E38’27’’	41°N57’55’’
15	20°E20’57’’	42°N20’28’’	14	20°E32’15’’	42°N13’16’’
16	20°E16’0’’	42°N20’19’’	15	20°E20’57’’	42°N20’28’’
17	20°E12’30’’	42°N29’12’’	16	20°E16’0’’	42°N20’19’’
18	20°E4’16’’	42°N34’11’’	17	20°E12’30’’	42°N29’12’’
19	20°E08’30’’	42°N40’04’’	18	20°E4’16’’	42°N34’11’’
20	20°E03’52’’	42°N45’46’’	19	20°E22’9’’	42°N33’54’’
21	20°E13’07’’	42°N45’43’’			
22	20°E30’48’’	42°N52’57’’			
23	20°E42’30’’	43°N06’56’’			
24	20°E37’44’’	43°N12’26’’			
25	20°E48’13’’	43°N15’55’’			
26	20°E50’18’’	43°N10’18’’			
27	21°E09’37’’	43°N00’21’’			
28	21°E24’25’’	42°N50’16’’			
29	21°E23’04’’	42°N44’59’’			
30	21°E38’43’’	42°N40’29’’			
31	21°E45’36’’	42°N41’05’’			
32	21°E37’59’’	42°N27’24’’			
33	21°E30’56’’	42°N20’31’’			

Technical framework/ Table 7 - Proposed modification of “Allotment Kosova”



Korniza teknike/ Figura 6 dhe 7 - The shape of new allotment and the old and new allotment – comparison (Black-country border, White-allotment border)

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Digital Dividend

The transition from analogue to digital broadcasting of television programs will provide for the broadcasting a considerably larger number of television programs within an existing television channel, both in standard (SD) and high definition (HD) by enabling a large number of television channels to be released.

The strategy for the transition from analogue to digital television broadcasts foresees for the broadcasting of television programs the use of most efficient standard (DVB-T2), and this way it provides a large number of programs within a single frequency channel. On the other hand, the compression standard for video and audio signals, within a single television program (MPEG-4 v.10), will efficiently reduce the bandwidth required to broadcast a single television program. The choice of using the latest technology, as well as the network architecture for the distribution of television programs in the Republic of Kosova, efficiently provides for the utilization of the radio frequency spectrum, thereby maximizing the digital dividend.

Relying on study results from European Union countries, as well as the results of the World Radio Conference (WRC-07), Strategy defines the digital dividend. The Strategy foresees for the radio-frequency range corresponding to the television channels within the 61-69 UHF band/range (790-862 MHz) not to be used for television broadcasts, but for wireless broadband services. The EU likewise adopted EU Recommendation C(2009) 8287 on October 20, 2009 (*Facilitating the release of the digital dividend in the European Union*) regulating the use of this range, known as 800MHz, this is "Dividend 1".

The European Parliament, in addition to the 800MHz range, also proposes the designation of channels from the 700MHz range to be set aside as "Digital Dividend 2", also for the development of broadband services.

The digital dividend should be considered after 2015, so that frequencies higher than 790 MHz should not be used for digital terrestrial television broadcasting.

The International Telecommunications Union (ITU), as well as the European Union, set the tasks for the development of broadband systems, networks and services by 2020. The European Union adopted the Digital Agenda 2020.

These tasks indicate that it is necessary to set aside the largest possible segment of the radio-frequency spectrum, as the digital dividend, and assign it to mobile broadband systems. The estimated total digital dividend capacity in the Republic of Kosova must consider the number of required television channels in standard resolution and high definition resolution during the period after the transition to digital broadcasting. Parties responsible for managing the spectrum shall define the size of the digital dividend.

Strategy incorporates the issue of digital dividend and considers existing EU legal acts (*EU acquis*)[4]. Particulary, chapter 4 omits the strategic importance of the effective use of digital dividend, which is

[4] Relevant EU legislation in this respect:

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closely related to an efficient spectrum management – a key to the Europe 2020 and objective of Digital Agenda for Europe-DAE, for sustainable and inclusive growth. This is particularly important to boost expansion and access to broadband/fast internet.

The Broadband Communication of September 2010 (COM 2010 472) states that: "The Radio Spectrum Policy Programme proposed by the Commission would ensure that part of the digital dividend – the radio frequencies released by the transition from analogue to digital broadcasting – reserved for the use by wireless broadband technologies".

This is particularly important because wireless broadband can bring high-speed connection to people in remote areas, or others, where it is not economically viable to install a fixed line. The European Commission is asking member states to enhance mechanisms by issuing quickly licenses to operators to use spectrum bands which have already been technically harmonized at EU, level for the use of wireless broadband and to open up the 800 MHz band to wireless broadband by 2013.

Spectrum issues in accessing the benefits of the digital dividend

Since the digital dividend must be used by "wireless broadband services", all over the world (or at least all over the region), frequency harmonization is a required condition. Such harmonization would create enormous benefits in terms of social impact and increased productivity. In particular, mobile operators and equipment manufacturers would be able to address a large market, by increasing their economies and reducing the high cost of telecommunications technologies.

Before the digital transmitters are put into operation on these channels, the analysis of harmful interferences should be done, which are possible during the operation of analogue channels in the neighbouring countries. Until 2015, analog plan GE-06A and digital plan GE-06D should be respected. The use of a digital channel which is still in use for analogue television should be accorded with neighbouring countries.

Analyses on the potential harmful interferences should be conducted for each potential channel, bazed on the data of GE-06A and GE-06D plans.

Digital Radio Service T-DAB

According to GE-06, digital radio service T-DAB, the entire territory of Kosova is designated in one allotment, and testing points determined the borders of this zone, so that dimensions of allotment are

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Framework Directive (Directive 2002/21/EC of the European Parliament and Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services);
Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions on reviewing the interoperability of digital interactive television services pursuant to Communication COM(2004) 541;

Communication from the Commission to the Council, the European Parliament, the European Economic and Social committee and the Committee of the Regions on accelerating the transition from analogue to digital broadcasting COM(2005) 204 final;

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identical to the dimensions of allotments for digital TV services DVB-T in frequency bands VHF and UHF. For T-DAB radio services are reserved 2 blocks (11B and 12D) in the VHF band.

Technical characteristics of the allotment and assignment according to the GE-06 are:

Allotment name: Cvileni
Reference network: RN5
Type of reception: RPC4
Reserved channels: 11B and 12D
Frequency band: 216- 230 MHz
Channel latitude: 1.75 MHz

For T-DAB, are defined two reference planning configurations (RPC), RPC 4 for cases of mobile reception and RPC 5 for portable internal reception, as in the table below.

Configuration of reference planning	RPC 4	RPC 5
Probability of placement	99%	95%
Reference *C*/*N* (dB)	15	15
Reference $(E_{med})_{ref}$ (dB(μV/m)) at f_r = 200 MHz	60	66
$(E_{med})_{ref}$: Reference value for the average minimum of field intensity RPC 4: RPC for mobile reception RPC 5: RPC for portable internal reception		

Technical framework / Table 8 - Characteristics of T-DAB service (Digital radio)

Implementation of T-DAB service largely depends on the dynamics of the transition process, especially when it comes to switching off analogue transmitters, which broadcast television programs in VHF band. In Kosova, frequency band TV/VHF is used for broadcast of the RTK 1 television program.

Considering this, the beginning of the implementation of the T-DAB is going to happen in the later stages of the transition process, with the creation of the conditions for switching-off the analogues transmitters that broadcast television signal in the TV/VHF band (ASO).

After the switch off period of analog TV transmitters (ASO), a new strategy is planned to be drafted, with regard to digital audio terrestrial broadcasting services.

In European countries, the implementation of T-DAB service, so far has been limited. The main reason for the stagnation of the implementation of T-DAB service, it refers to the relatively high cost of receivers, even in countries that have implemented almost entirely the transition from analogue to digital broadcasting, by which are created the conditions for release of a part of the frequency band in VHF from analog TV broadcasters.

According to the experiences of European countries, the transition to digital broadcasting of the audio signal in T-DAB standard is foreseen for 2017. Therefore, considering the technology developments, before 2015 should be reviewed the efficiency of the proposed standard, namely to propose advanced standards for digital audio terrestrial broadcasting services.

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IV. THE PROCESS OF IMPLEMENTATION OF DIGITAL TERRESTRIAL TELEVISION IN KOSOVA

Implementation process of DTT presents fundamental module in Digitalization Strategy in Kosovo since it enables the practical application of the principles on which to build the digitalization process. Simultaneously, this module provides basic orientations for handling the current media situation in Kosova.

Implementation module is designed in accordance with criteria that enable that the digitalization process in Kosova should be subject to particular specifications which mainly in principle affirm the international criteria and standards for the media and in particular the recommendations of the EC and ITU.

Implementation Module of Digitalization Strategy affirms the role of the IMC that in the digitalization process has the mission of protecting and stimulating the development of the media market, ensuring the principle of competition, media pluralism, the preservation of national and cultural identity as well as providing ethnic diversity.

The fulfillment of these goals that will be enabled by implementation module of digital terrestrial television is agreed in current communications, that IMC has developed with media industry in Kosova, relevant Kosovar institutions, based on analyzes and comparisons of European practices for countries that have already completed digitalization and ending with consultations and assists od international experts from the EC.

Implementation Module foresees stakeholders who participate in the process of digitalization, their role in different phases, timelines, setting criteria for the competition and all actions which must be taken at the application and implementation phase.

Implementation Process precedes the completion phase and the adaptation of adequate legislation as well as full respect of procedures that are provided by law in Kosova, while respecting the primary interest of the public, the principle of competition and full transparency of the entire process from beginning to end.

Implementation Process of DTT includes national and regional / local level as two separate activities, but which will run parallel with the aim to ensuring the continuity of broadcasting in both levels.

Individual handling of digital terrestrial broadcasting on national and regional / local level is done because the inclusion of regional/local operators can not be done on a national multiplexes due to the limited number of frequencies / MUX-es that constrain application of SFN transmission network (Single Frequency Network).

DTT in Kosova at national and regional / local level will be done in two phases.

The first phase is the transition period and begins immediately after the adoption of the Law on Digitalization by the Assembly of Kosova.

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Law on Digitalization is drafted based on the Strategy for transition to digital broadcasting prepared by IMC and approved by the Government.

The second phase is after the switch off period from analogue terrestrial television broadcast (ASO).

The first phase – transition period

The implementation of DTT at national level

Frequencies (that in digitalization are replaced by multiplexes or MUX-a) are national resources and will be given in concession in a public competition conform a reasonable fee set by the IMC. In addition, the annual fee for MUX will be determined by IMC with a special regulation.

National commercial multiplex MUX1 and MUX2

Following the adoption of the Strategy by the Government and Law on Digitalization by Assembly, the digitalization transition period in the Republic of Kosova will start with the awarding of 2 multiplexes (MUX 1 and MUX 2) which will be provided through a public competitive contest.

The winner of this contest (winner of the right to use with concession of MUX 1 and MUX 2) besides other conditions must meet specific and general requirements which will be determined by IMC in the bidding documents and competitive price.

During the transition period in one of two MUX-es (in MUX 1) will be applied the "Must Carry" rule (mandatory carriage) for televisions with national terrestrial coverage which are already licensed by IMC for analogue terrestrial broadcasting (channels of the public broadcaster RTK, RTV 21 and KTV) as well as other channels that will be evaluated by the IMC that are of public interest in Kosova.

"Must Carry" rule will apply for the following reasons:

- The public to be informed continuously by the media it has used, as the primary means to receive television program dedicated to them;
- In order to guarantee the public to have access to their language on national news, information, education, and cultural and social debates;
- To preserve and promote media pluralism and cultural diversity;
- To support and deliver local content among the new content that will be provided;

"Must Carry" rule will be applied throughout the transition period up to "switch off" of analogue broadcasting (analog broadcasting switch off) unless IMC decides otherwise.

“Must Carry” terms and conditions (must-carry rule) for certain program content will be determined by specific regulations.

National Multiplex of Public Broadcaster MUX3

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The public broadcaster (RTK) will be awarded a MUX (MUX 3 of the public broadcaster) automatically without public contest.

MUX 3 will be used only for program content of public broadcaster. Channels with general content, not thematic, of public broadcaster in MUX 3 that are in the public interest will be offered for free (Free to Air). IMC will determine the criteria for the selection of these channels.

Public television is obliged to provide national coverage broadcasting throughout the territory of the Republic of Kosova.

The implementation of DTT at regional/local level

Transition to digital broadcasting in the regional levels of the Republic of Kosova, will be implemented within five sub-allotments:

- Sub-allotment of Kosova Plain;
- Sub allotment of Dukagjini Plain;
- Sub-allotment of Mitrovica;
- Sub-allotment of Anamorava; and
- Sub-allotment of Prishtina.

IMC will determinate the initial price for separate concessions of sub-allotments based on certain criteria.

MUX-es of sub-allotments of Kosova Plain, Dukagjini, Mitrovica and Anamorava

IMC will announce public competition for the selection of the MUX operator for a respective sub-allotment of Kosova Plain, Dukagjini, Mitrovica and Anamorava.

MUX of a specific sub-allotment will be managed by consortia / associations composed of legal entities, audio-visual media services licensed by the IMC for terrestrial broadcasting.

The winner of the concession (MUX operator of assigned sub-allotment), will carry the regional/local historic channels with terrestrial broadcasting licensed by IMC with "must-carry" rule, according to criteria set by the IMC;

Operator, MUX winner of assigned sub-allotment is obliged to provide transmission with 95% coverage of the population of a given region and this will be realized within the period assigned by IMC;

In case of no expression of interest, or non-fulfillment of criteria of consortia / associations, the regional MUX-es will be given for management to a legal entity through a commercial public competition.

MUX of Prishtina sub-allotment

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IMC will announce public competition for the selection of the MUX operator for sub-allotment Pristina;

Since in the sub-allotment Pristina there are no audio-visual entities licensed for terrestrial broadcasting by IMC, the concession-management of the MUX of sub-allotment Prishtina will be carried by one or several operators offering audio-visual services which meet these criteria:

-Have experience in program-content production;

- Provide a comprehensive program fulfilling the needs of the public in the region of Prishtina;

- Have established its audience;

- Etc.

The winner of the concession (MUX operator of sub-allotment Prishtina), will carry with the principle "must-carry" the channels that offer program of general public interest of Prishtina region. This will be determined by clear criteria by the IMC.

Operator, winner of MUX of sub-allotment Prishtina is obliged to ensure broadcasting with 95% coverage of the population of a given region and this will be realized within the deadline set by the IMC.

Second phase – analogue broadcasting switch off

The second phase will start immediately after the switch-off of analog signal of broadcasting.

National multiplexes with "Beauty Contest" MUX4 and MUX5

Concession of two other MUX-es (MUX4 and MUX5) will be made immediately after the first phase (MUX4 and MUX5), also with a public contest of "Beauty Contest" type.

IMC will do the invitation for expressions of interest on the basis of the following criteria:

- Experience in management and terrestrial radio-diffusive TV broadcasting in the Republic of Kosova;
- Type of program dedicated to the public;
- Comprehensive program content of civic interest, Kosova-wide;
- Contribution to civic and national identity;
- Providing network with national coverage as digital terrestrial broadcasting infrastructure SFN according to ITU standards for reference network settings RN1.

Following the analysis and evaluation of the first phase of the transition to digital broadcasting, the IMC will develop additional criteria depending on the needs that must be met in the public interest.

Concession of MUX4 and MUX5 will be done separately for two separate entities.

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On the basis of initial concession prices of commercial MUX-es (first phase), but reducing payment for one broadcasting channel in HD (High Definition) will be set the price for MUX-es of the second phase (MUX4 and MUX5).

In case of no expression of interest, or non-fulfillment of the criteria for "Beauty Contest", then MUX4 and MUX5 will be given for management to a legal entity through a commercial public competition.

Remaining MUX-es (MUX6 and MUX7) as well as other MUX-es that may be available for the Republic of Kosova
in the future will be handled by IMC according to the needs of the media market in Kosova.

All other issues that may arise as a result of uncertainties for DTT implementation shall be regulated by relevant secondary legislation by the IMC.

V. SOCIAL-ECONOMIC FRAMEWORK

Financial cost for transition to digital broadcasting

Realization of the national strategy for digital broadcasting requires a specific financial cost. The state must ensure that the population has access to television programs for families who can not bear the required costs. Subsidy must be for families on social assistance category. According to the Kosova Agency of Statistics, in the third quarter of 2014 is estimated to be 29.538 families who benefit from social scheme and 13.062 families of martyrs and war invalids. For subsidizing this category, namely to secure Set-top Box (STB) for them, the cost to be invested amounts to 852,000.00 Euros (by calculating the value of a STB, MPEG4 DVB-T2, of 20 Euros). However, alongside this category are also some other beneficiaries who should be subsidized. The total cost for all categories and persons, is calculated on the value of 4,483,440.00 Euros.

Great assistance in providing funds for digitalization for EU member countries and those who claim to join the EU was also given by the European Commission. Substantial incomes can be realized also by private investors or concessioners.

Financial impact on broadcasters

In order to determine what would be the right cost of access to the networks, the first step should be an accurate cost estimation of each composing element of the digital network. The elements[5] of a digital proposed in the strategy are:

- Contributive Network;
- Multiplex - Head-End;
- Distributive and radio-diffusive Network;
- Infrastructure construction for radio- diffusive network.

[5] Their determination is given at the technical part

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The construction cost for SFN network in Kosova using four broadcasting sites defined in the strategy is 1.9 million Euros, while the construction of network infrastructure is estimated to be approximately 16 million Euros[6].

Public broadcaster of Kosova (Radio Television of Kosova)

Public broadcasters in the EU countries have played an important role during the transition to digital broadcasting. Many states have provided different forms of financial support to public broadcasters to successfully switch from analogue to digital broadcasting. Besides the cost of the subsidy, it must be considered the cost on digitalization[7] of public broadcasters in order to enable the citizens of Kosovo to have access to programs of the public interest. RTK is set to have a Multiplex in which will accommodate only its own programs. The Assembly of the Republic of Kosova, as the founder of Radio Television of Kosova, must ensure the necessary financial support for RTK, which has the legal obligation of coverage of all the territory of Kosova.

Commercial TV stations

All television stations will be faced with additional costs during the digitalization process, particularly during simulcasting period, when both the analog and digital networks are in operation. However, the financing of the analog networks during the simulcasting period for those TV channels broadcasting also in digital network is a viable option. The burden of double network costs should be shared between broadcasters while long-term double operation (analog and digital) is actually not in the interest of the broadcasters. To reduce the costs of the transition period the fast transition period in preferable.

Financial impact on viewers

Consumer protection is an important aspect during the transition to digital broadcasting. Consumers should be protected from spending on inadequate television apparatus, while at the same time, market competition must be preserved. It is therefore very important to define the technical specifications and standards of equipment needed by households.

Technical solution provided in strategy implies a cost of purchasing digital signal receiving devices (Set-top-box), recommended to be subsidized by Government for certain categories.

The promotional campaign for the digitalization process should contribute to consumer protection. During the campaign, the consumer must be informed on the process and modalities of transfer and of any subsidy.

Subsidies

Regarding the role of the state and acceptable forms of public support, there are various good European practices. Best practices and European experiences shows that the best option is the subsidizing of the

[6] The estimation is based on the analysis of the IMC with reference for territory of Kosova, and comparative analysis based on the experiences of countries in the region.

[7] According to the RTK evaluations, RTK has evaluated that for their digitalization is needed 20 million Euro for network and 5 million for program production and internal digitalization.

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purchase of the receivers (Set-top-box). Subsidy schemes should encourage all households to buy a DVB-T2 receiver in order to minimize the transition period and thus reduce the overall costs of the analog to digital switchover process.

Experiences in the region shows that subsidies have been used in the following ways:

- The provision on DVB-T receivers or
- Subsidizing a portion of the price of the DVB-T receiver in the form of coupons.

The Government of Kosova should establish a working group to develop a plan for subsidies for categories of families in assistance / social schemes. The subsidy scheme should consider the best practices in the EU.

According to data from Kosova Agency of Statistics of third quarter of 2014:

- 29.538 Kosovar families are currently involved in the social scheme. The number of households has changed from year to year due to adoption of new laws, strengthening of internal control of MLSW, adoption of new criteria and application of new legal acts. Social assistance in the process of reduction in the past two years;
- In Kosovo there are 122.363 base pensioners and 37.979 contributors. KAS has no information for pensioners living alone, without the support of other family members. MLSW suggests that this category should be included in the subsidy scheme;
- 13.062 families of martyrs are receiving assistance from the scheme. These families are divided into 11 categories. MLSW suggests that all these families should be included in the subsidy scheme for digitalization;
- In Kosovo there are 18,054 pensioners with disabilities (18-65 years). MLSW suggests that all these families should be included in the subsidy scheme for digitalization;
- In Kosovo there are 2,913 children who benefit from the scheme of children with disabilities (0-18), elderly without family care 118, people located at Shtime Institute 135, and abandoned children 10;
- The total number of households that will need subsidies is 45.776, excluding three categories of pensioners. The value of the subsidy will be provided in the Action Plan of this strategy, since the price of DVB-T2 receiver is decreasing each year. Price of the DVB-T2 receivers at the moment of writing of this strategy is about 20 EUR (DVB-T2/MPEG-4).

Subsidy will be done by giving a coupon to the subsidized party, which will include all necessary information regarding technical specifications and type of set up box which will be subsidized. With this coupon, subsidized party can get the set up box at the certain points.

Categories	Number of families	Amount 20 € per STB
Families benefiting from social schemes, the families of martyrs and war invalids	42,600.00	852,000.00 €

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Children with disabilities (0-18 years), elderly without family care, persons located at Shtime Institute and abandoned children	3,176.00	63,520.00 €
Pensions of persons with disabilities (18-65 years)	18,054.00	361,080.00 €
Contributor pensioner	37,979.00	759,580.00 €
Base pensions	122,363.00	2,447.260.00 €
Total	**224,172.00** families	**4,483.440.00 €**

Table 9. Subsidies calculated for certain categories (according to MSLW)

VI. PUBLIC INFORMATION

A public information campaign of the citizens of the Republic of Kosova is necessary for the process of digitalization.

Citizens should be informed of the changes in digital signal reception, timing and way of supplying with receiver devices. IMC will continually inform the public about the activities during the digitalization process.

To implement the Strategy, IMC has developed the dynamics of realization, stages and directions of development of its strategic plan to ensure effective transition from analogue to digital broadcasting.

IMC will coordinate its activities with the Government of the Republic of Kosova, relevant ministries, other institutions and civil society. For the public information campaign, along with the commitment of experts, the IMC will contribute to the realization of the tasks and activities according to the action plan.

VII. ACTION PLAN FOR THE IMPLEMENTATION OF THE STRATEGY OF IMC FOR DIGITAL BROADCASTING

Establishment of legal basis for licensing – drafting of identified normative acts

- Drafting the regulation for licensing
- Drafting of a documentation package for licensing of content providers
- Drafting of regulation for categorization of content providers and MUX
- Drafting of documentation package for licensing for multiplex operator
- Drafting of regulation for determining the criteria for must- carry rule (mandatory carriage)
- Drafting of Regulation on the level and payment of license fees for program content providers and MUX operators

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Timeline: Second quarter of 2015

- Drafting of regulation on media ownership and prevention of media concentration
- Drafting of regulation for the evaluation of applications for licensing of content providers
- Drafting of regulation for the evaluation of applications for MUX licensing
-

Timeline: Second quarter of 2015

- Drafting of regulation for determining the criteria for the program contents in a Multiplex

Timeline: Second quarter of 2015

- Drafting of regulation for the establishment of a fund for the stimulation of programs,
- Drafting of regulation for Logical Channel Numbering (LCN),
- Drafting of regulation for the Electronic Program Guide (EPG) and the Interactive Program Guide (IPG)

Timeline: Third quarter of 2015

Network construction for digital terrestrial television broadcasting SFN- allotment Kosova

- Preliminary analysis of the coverage of Kosova with digital terrestrial television signal up to 95% at national level:

Timeline: Third quarter of 2015

- Compilation of conceptual project of coverage of Republic of Kosova with DVB-T2 signal:

Timeline: Within 30 days after the announcement of the public tender

- Beginning of implementation of technical project for the coverage of the Republic of Kosova with DVB-T2 signal:
- Preparation of the infrastructure for the installation of antennas for transmission and supporting devices to the point of transmission

Timeline: 1 month after licensing

- Installation of equipment and the beginning of digital broadcasting testing

Timeline: 3 months after licensing

- Optimization of SFN network for national coverage:

Timeline: 6 months after licensing

- Monitoring the process of digital broadcasting / Compliance with the terms and conditions set out in the license

Timeline for implementation: 2015

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Network construction for digital terrestrial television broadcasting SFN- sub-allotments:

-

- Compilation of the conceptual project of the coverage of the Republic of Kosova with DVB-T2 signal in the regions and sub-allotment Prishtina,

Timeline for implementation: 2015

- Beginning of implementation of the technical project for the coverage of the Republic of Kosova with DVB-T2 signal in the regions and sub-allotment Prishtina:
- Preparation of the infrastructure for the installation of antennas for broadcasting and supporting devices to the broadcasting sites

Timeline for implementation: 2015/1 month after licensing

- Installation of devices and the beginning of digital broadcasting testing across regions and sub-allotment Prishtina:

Timeline for implementation: 2015/3 month after licensing

Subvention of population with setup box:

-

- Defining standards and parameters for receivers (set-up box) of digital television signal; Approval of the Regulation for STB

Timeline for implementation: Second quarter of 2015

- Distribution of STB

Timeline for implementation: Third quarter of 2015

- **Public information:**

- Identification of individuals and groups of interest to be involved in the activities of public information campaign;
- Broadcasting of radio and television advertising spots:
- Organization and implementation of TV debates, roundtables, workshops and other means of direct communication with the public;
- Arrangement of special meetings of the IMC with representatives of audiovisual media services;
- The realization of special radio and television programs with IMC members, representatives of audiovisual services, digital technology experts and other parties involved in this process;

-

Timeline for implementation: Second quarter of 2015

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- Information for subsidizing special categories with digital receiver device;
- Providing information to citizens how they can be equipped with a digital receiver STB (Set-up Box);
- Placement and displaying information materials for digitalization such as billboards, audiovisual spots, sponsorship on activities;

Timeline for implementation: Third quarter of 2015

- Providing information through special telephone lines;

Timeline for implementation: during 2015

- Opening of the call centers during the switch -off of analogue signal to provide practical information in order to help citizens regarding problems of a technical nature;

Timeline for implementation: during the transition to DTT in 2015

- Provide the necessary information on digitalization, through the official IMC web site as well as social networks;
- Monitoring and reporting on the effects of public communication during the implementation of digitalization process;

Timeline for implementation: After the approval of the Strategy

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APPENDIX A - List of abbreviations

ASO – Analogue Switch-Off. Switching off of the analogue transmitters for analogue terrestrial broadcasting;

DVB-T – Digital video terrestrial broadcasting. A standard DVB for transmission and broadcasting of digital television signal over a terrestrial network transmitters;

DVB–T2 – The next generation of DVB–T standard;

EPG – Electronic Program Guide. Electronic program guide is an application (including service content) that enables direct access to broadcasting and additional contents (for example, teletext with additional contents);

IPG – Interactive Program Guide;

GE06 – an international radio frequency allocation plan for the needs of digital terrestrial broadcasting of radio and television programs, adopted in Geneva in 2006 at RRC06. According to this plan, transition to digital terrestrial broadcasting in VHF III and in UHF IV and V frequencies is defined;

H.264 AVC - H.264 - Advanced Video Coding. An ITU-T recommendation that defines the improved video coding, which is identical to the MPEG-4 v10 standard;

HDTV – High Definition Television. A television standard with high resolution of video and audio signals;

ITU – International Telecommunication Union; ITU sector for standardization in the field of telecommunications;

MPEG - Audio and video signal compression for digital transmission;

RRC06 – A Regional Radio-communication Conference held in Geneva in 2006;

SDTV – Standard Definition Television. Digital television broadcasting with standard resolution of video and audio signal, with 4: 3 picture aspect ratio, with 625 lines (Europe);

SFN – Single Frequency Network. A broadcast network where all transmitters simultaneously send the same signal to the same frequency channel;

STB – 'Set Top Box'. An external digital television receiver connected to the analogue television through SCART or HDMI connector to display digital television programs on analogue television set;

VHF – Very High Frequency. Frequency spectrum from 30MHz to 300MHz.

UHF – Ultra High Frequency. Frequency spectrum from 300MHz to 3GHz;

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