



REPUBLIC OF CROATIA

THE GOVERNMENT OF THE REPUBLIC OF CROATIA

**Analogue to Digital Television Broadcasting
Switchover Strategy for the Republic of Croatia**



Zagreb, July 2008

Document title

Analogue to Digital Television Broadcasting Switchover Strategy for the Republic of Croatia

Purpose of the document

To define strategic goals for all the stakeholders who will be involved in any way with the analogue to digital switchover process, as well as to define clear guidelines referring to the content and dynamics of tasks, activities and terms.

Status

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The Working Group for the Preparation of the Implementation and Application of the DVB Technology and Services in the Republic of Croatia, established by the Decision of the Minister of the Sea, Transport and Infrastructure on 5 December 2005 (Class: 344-04/05-01/32, Ref. No.: 530-10-06-22 KA/KA), 4 August 2006 (Class: 344-04/05-01/32, Ref. No.: 530-10-06-24 KA/KA) and 11 September 2007 (Class: 344-04/05-01/32, Ref. No.: 530-10-07-29 KA).

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Only the Croatian version of this Strategy is to be considered official and used as a reference.

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1. INTRODUCTION AND STRATEGY BASELINES

Stimulated by unquestioned vital national interests of the Republic of Croatia in the field of the development of digital television and introduction of advanced digital electronic communications, the Government of the Republic of Croatia with this Strategy defines strategic guidelines for the introduction of digital terrestrial television services in the Republic of Croatia. In doing so, the recommendation of the European Commission on digital switchover by the year 2012 (or earlier) as well as on creating better conditions for enhanced possibilities of informing, educating and entertaining all Croatian citizens and economy as a whole has been followed.

Digital TV provides higher signal quality, interference-free reception, wider choice through additional TV programmes and new services, such as digital teletext, interactivity, Electronic Programme Guides (EPG) and High Definition Television (HDTV).

For a successful implementation of the Strategy, the key issues are those of planning, supervising and implementing digital television system, financing and informing the public. Thus the purpose of this Strategy is to define strategic objectives and the stakeholders who will be involved in any way in the analogue to digital switchover process, as well as to define clear guidelines related to the content and dynamics of tasks, activities and delivery deadlines.

The planned process of introducing digital television does not refer exclusively to change in technology of TV programme broadcasting. The basic task during the transitional period to which this Strategy refers to, is to create conditions for enhanced quality and scope of production and broadcasting of new programme content, enriching the media space in the Republic of Croatia. All TV broadcasters on the national and local level and all programme producers will have higher transfer capacity at their disposal, providing the end-users of services – viewers – with greater and diverse programme content choice, compared to the existing analogue television. It should be emphasised that the digital switchover will not only give the existing broadcasters an opportunity to use the digital platform, but will also create an environment that enables open and free media market, so that other programme producers with new programme content of public interest or value for the society as a whole may enter the market, following the principle of transparency and non-discrimination.

Key issues in the implementation of specific activities defined by this Strategy are measures related to the information flow and specifically informing the wider public, including a dynamic Public Information Campaign with the purpose of timely and comprehensive informing of the public on the introduction and benefits of digital television and facilitating preparations for its gradual introduction on the territory of the Republic of Croatia.

Along with the implementation of this Strategy, the Government of the Republic of Croatia will also insist on the implementation of the already commenced activities within the Implementation Plan of the e-Croatia programme for the year 2008, Broadband Development Strategy in the Republic of Croatia by the year 2008, and Action Plan for the Broadband Development Strategy in the Republic of Croatia by the year 2008. Realization of the above mentioned activities will, in addition to expected improvements of digital electronic

communications services, also enable the introduction of new services of the information society.

Subsequently, the Government of the Republic of Croatia determines that the main strategic goal in the period to 31 December 2010 is complete analogue to digital television broadcasting switchover.

2. PURPOSE AND IMPLEMENTATION AREA OF THE STRATEGY

The basic purpose of this Strategy is to create conditions and opportunities for broadcasting terrestrial television programmes with programme contents enriched with new possibilities, quality and coverage on the entire territory of the Republic of Croatia as equal distribution system that can compete with other distribution systems by using new technologies.

The basic purpose of this Strategy refers to universal, common and publicly acceptable guidelines defining the following:

1. to implement full digital terrestrial broadcasting of television programmes on the territory of the Republic of Croatia from 1 January 2011,
2. to provide conditions for preserving free, universal and public service of broadcasting public television programmes, as well as services of other broadcasters on the national, regional and local level,
3. to ensure technical-technological preconditions for managing part of radio-frequency spectrum by optimal use of transmission capacities to meet public interests and needs,
4. to provide access conditions for independent content providers to digital terrestrial television network and development of content pluralism on the open services market,
5. on the basis of benefits provided by digital system of terrestrial broadcasting of TV programmes, to open room for various ways of expressing cultural identity of the Republic of Croatia and for the new media that makes an integral part in functioning and development of democracy through comprehensive services giving each and every citizen an opportunity to access free-of-charge programme contents on the national, regional and local level.

The subscribed goals, directly connected to the implementation of particular parts of this Strategy, are coordinated with planned activities, activity holders and terms of implementation, and are specified within each section of the Strategy.

3. BASIC CRITERIA FOR THE IMPLEMENTATION OF THE STRATEGY

Objective: Analogue to digital television switchover should not cause any negative consequences to the viewers as end-users of services or to the TV broadcasters.

The following two criteria shall be used to achieve the specified objective:

Criterion 1: Availability of digital signal in comparison to analogue signal

The digital television programmes reception of public service broadcaster via terrestrial, satellite or cable networks must be available to all citizens paying legally binding radio and television fee (RTV fee). Everyone currently receiving two nationwide analogue TV programmes from commercial TV broadcasters must be able to receive them on digital system.

This criterion shall be met with the coverage of at least 95% of all citizens of the Republic of Croatia (in accordance with regional transition model) for at least one digital multiplex (multi-programme channel containing more radio or television programmes and/or other data simultaneously transferred via one radio frequency channel) comprising current analogue programmes (four main nationwide services).

In order to ensure the “added value” for customers and to achieve the efficacy of the transition process, it is necessary to operate at least two nationwide digital network multiplexes as well as to use the local frequencies currently available on the local level, in the urban locations.

Criterion 2: Digital receiver equipment affordability

Digital television must be affordable for the vast majority of people in the Republic of Croatia.

This criterion should be met through a competitive market development to provide a rich offer of digital receivers (set-top-boxes or integrated TV sets). In order to facilitate the process of supplying consumers with digital receivers and to achieve the desirable level of their affordability, the Government of the Republic of Croatia shall subsidise receiver purchase for end-users – natural persons paying RTV fee.

Programme content offer within the two new multiplexes formed during the transitional period shall be free-of-charge, without conditioned access.

4. INSTITUTIONAL – LEGAL FRAMEWORK

Objective: To define basic tasks and responsibilities of all the stakeholders in the process of analogue to digital television broadcasting switchover, and to analyse current laws and sub laws in order to determine the directions for their adjustments for the digital switchover.

4.1. Institutional framework

In the analogue to digital television switchover process the key stakeholders are:

- The Government of the Republic of Croatia and administrative bodies competent for the implementation of the Strategy
- Independent regulatory authorities
- Public service broadcaster
- Private broadcasters
- Network operators
- Equipment manufacturers and retailers
- Consumer protection groups
- Antenna and cable distribution system installers and maintenance personnel

The primary roles and responsibilities of each stakeholder are:

- **The Government of the Republic of Croatia and administrative bodies competent for the implementation of the Strategy:**
 - ❖ To ensure that the digital television switchover process takes place by 31 December 2010, in accordance with the European Commission recommendation dated 2005, defining the beginning of the year 2012 as the end term for analogue programme switch-off in all EU Member States;
 - ❖ To provide universal access to public television channels via a choice of digital platforms;
 - ❖ To ensure that primary and secondary legislation is in place;
 - ❖ To ensure that the radio frequency spectrum vacated by analogue television i.e. the digital dividend, is re-used in the most beneficial way possible for the benefit

of the population as a whole through the generation of new services providing economic and employment opportunities;

- ❖ To establish a method for the core partners to work together in an efficient and effective way to establish digital switchover within the defined term;
- ❖ To ensure that new and enhanced free-to-air (FTA) services via digital television will be available to the same or preferably larger proportion of householders that received analogue television signals;
- ❖ To ensure the interests of the population are protected through the establishment of a Digital Switchover Help system which is available to all users through a consumer education programme;
- ❖ To ensure that no group of the population is socially disadvantaged for any reason in the digital switchover process;
- ❖ To ensure necessary subsidy for the purchase of digital receivers for all natural persons paying RTV fee;
- ❖ To ensure funds for the promotion campaign.

- **Independent regulatory authorities:**

- ❖ To ensure radio frequency spectrum management issues pertaining to digital switchover are solved in a timely way and that the spectrum assets assigned to Croatia are adequately protected and preserved;
- ❖ To ensure that public service and private broadcasters and networks/multiplex operators comply with the terms of the concession agreement and to ensure that amendments to the concession agreements, if necessary, are made on time;
- ❖ To advise the Government of the Republic of Croatia and competent administrative bodies of any shortcomings or/and necessary amendments within existing regulatory legislation in order to avoid any obstacles in the digital television implementation;
- ❖ To ensure the Croatian electronic communications sector continues to function in an open and effective competitive way and that no operator of services or technology is disadvantaged in any way as a result of transition.
- ❖ To ensure that new services such as the electronic programme guide (EPG), conditional access for subscription services, and other enhanced services

conform to the international standards for digital television and that their use is enshrined within the relevant licenses.

- **Public service broadcaster:**

- ❖ The primary role is to ensure the public service remit is fulfilled in the context of the change-over to the digital platform, as required by the Croatian Radio-Television Act and that the public service broadcasts remain accessible to all members of society;
- ❖ To provide additional content to further educate, inform and entertain the viewing public through new programmes, as well as through the programmes that were available on the analogue platform;
- ❖ To provide innovative programming that capitalises on the higher quality of digital television particularly in the area of high definition television (HDTV) for programmes containing high production values such as sports fixtures, science, entertainment and other programmes;
- ❖ To provide specialized theme programmes that could not be broadcasted in analogue technology due to lack of available channels;
- ❖ To provide new services for special needs members of society and for the elderly;
- ❖ To provide additional services such as audio description channels, signing and closed caption services for the visually and aurally impaired;
- ❖ To provide multilingual broadcasting for ethnic groupings in Croatian society;
- ❖ To take an active role in the dissemination of public information relating to the education of the consumer for the digital transition especially in the production of relevant high value public service announcements;
- ❖ To provide first order interactivity together with programme manufacturers and supported by advertisers.

- **Private broadcasters:**

- ❖ To be active in the promotion of consumer education for the digital switchover;
- ❖ To provide innovative programming that capitalises on the higher quality of digital television particularly in the area of high definition television (HDTV) for

programmes containing high production values such as sports fixtures, science, entertainment and other programmes;

- ❖ To provide additional programmes to further educate, inform and entertain the viewing public over and above the channels that were available on the analogue platform.

- **Network operators:**

- ❖ Responsible for the initial financing and the engineering rollout of the digital television network on a national, regional and local level;
- ❖ Provision of sufficient distribution channels to supply all the possible DVB-T transmitters with programme services from the public and private broadcasters;
- ❖ To control the multiplexes, electronic programme guides (EPG) and conditional access systems in a neutral, transparent and non-discriminatory manner that guarantees the same treatment to all content providers;
- ❖ To interact with other stakeholders in the process of digital switchover and advise on technical detail relating to use of standards MPEG-2, H.264/AVC (MPEG-4), HDTV, DVB-H and other developing technologies;
- ❖ To facilitate the broadcasters in providing and implementation of new technologies such as interactivity and DVB-T2 as may be deemed appropriate over time for new services and technologies;
- ❖ To provide short-term distribution channels to accommodate simulcast transmissions, if required, in any region undergoing digital transition.

- **Equipment manufacturers and retailers:**

- ❖ To ensure that suitable digital receiver equipment is available for all technical configurations used within the multiplexes;
- ❖ To advise consumers – the end-users on matters pertaining to availability of digital receivers and necessary equipment, their technical details, purchase and maintenance costs, distribution and future technology developments;
- ❖ To ensure necessary staff training to provide consumers – end-users with timely, accurate and complete information on digital receivers and associated equipment;

- ❖ They are responsible for timely, complete and accurate placement of consumer advisory alerts on all analogue television sets being sold, stating that the device will no longer be suitable for over-the-air broadcasts without purchasing an external digital receiver (STB), after the digital switchover.
- **Consumer protection groups**
 - ❖ To advise all participants in the switchover process on consumers – end-users’ interests;
 - ❖ To inform and advise the general public on analogue to digital switchover relating to consumer protection;
 - ❖ To ensure that the elderly, the disabled and the socially deprived are timely, adequately and completely informed about the digital switchover.
- **Antenna and cable distribution system installers and maintenance personnel**
 - ❖ To install, service and maintain common antenna systems and cable distribution systems and associated equipment on the basis of previously obtained proper certificate, in order to provide consumers with timely, accurate and complete information on all possible technical upgrades of their common antenna systems and cable distribution systems;
 - ❖ To ensure that new common antenna systems are carried out at a reasonable cost for end-users;
 - ❖ To liaise with network operators and broadcasters regarding digital signal coverage of areas in the Republic of Croatia as well as multiplex channels and programmes offers.

4.2. Legal framework

The following Acts primary legislation forms the legal framework for the switchover from analogue to digital television programme broadcasting:

- ❖ Electronic Communications Act (Official Gazette 73/08):
 - this Act regulates the field of electronic communications, including the use of electronic communications networks and the provision of electronic communications services, the provision of universal services and the protection of rights of users of services, construction, installation, maintenance and use of electronic communications

infrastructure and associated facilities, competition conditions and rights and obligations of participants in the market of electronic communications networks and services, addressing, numbering and management of the radio frequency spectrum, digital broadcasting, data protection and security in electronic communications and the performance of inspection and expert supervision and control in electronic communications, as well as the establishment of a national regulatory authority in electronic communications and its organisation, scope and competence, including the decision-making procedure and dispute resolution concerning electronic communications.

- ❖ Electronic Media Act (Official Gazette 122/03, 79/07 & 32/08):
 - this Act regulates rights, obligations and responsibilities of natural and legal entities involved in the production and publishing of programme contents and services via electronic media, and interests of the Republic of Croatia in the field of electronic media.

- ❖ Croatian Radio-Television Act (Official Gazette 25/03):
 - this Act regulates the organization and operation of the Croatian Radio-Television as a legal entity with the status of a public institution, established by the Republic of Croatia, whereas founding rights shall be exercised by the Government of the Republic of Croatia.

- ❖ Audiovisual Works Act (Official Gazette 76/07):
 - this Act regulates the provision, organisation and funding of audiovisual works as an integral part of contemporary culture, encouragement of the Croatian audiovisual production and distribution, promotion of cinematography and complementary activities, and particularly the protection and studying of audiovisual heritage and presentation of the Croatian audiovisual works in Croatia and abroad.

- ❖ Copyright and Related Rights Act (Official Gazette 167/03 & 79/07):
 - this Act regulates the rights of authors, acquiring (individually and collectively) of copyright and related rights, and the protection of copyright and related rights in case of abuse.

- ❖ Act on Acceptance of the European Convention on Transfrontier Television and the Protocol Amending the European Convention on Transfrontier Television (Official Gazette – International Treaties 11/01);

- ❖ Act on Acceptance of the European Agreement Concerning Programme Exchanges by Means of Television Films (Official Gazette – International Treaties 10/04);

- ❖ Act on Acceptance of the European Agreement on the Protection of Television Broadcasts (Official Gazette – International Treaties 10/04);
- ❖ Act on Acceptance of the European Agreement for the Prevention of Broadcasts Transmitted from Stations outside National Territories (Official Gazette – International Treaties 10/04);
- ❖ Act on Acceptance of the European Convention on the Legal Protection of Services based on, or consisting of, Conditional Access (Official Gazette – International Treaties 4/07);
- ❖ Act on Acceptance of the European Convention for the Protection of the Audiovisual Heritage (Official Gazette – International Treaties 5/07);
- ❖ Act on Acceptance of the Memorandum of Understanding between the European Community and the Republic of Croatia on the Participation of the Republic of Croatia in the Community Programme MEDIA 2007 (2007 – 2013) (Official Gazette – International Treaties 3/08).

The aforementioned primary and secondary legislation particularly stipulates the following:

- legal procedure to select network operators,
- legal procedure to select new commercial broadcasters to fill the available multiplexes with appropriate programme content,
- legal rights for the Croatian Radio-Television to produce and distribute more than two nationwide TV programmes,
- fees for the right to use radio frequency spectrum.

Provisions of the Electronic Communications Act, with reference to promotion of democratic rights of all the citizens of the Republic of Croatia, should be abided by all additional television programmes forming the programme content of new channels.

All current nationwide analogue broadcasters, besides the public service broadcaster, shall have their programmes in the first multiplex at the moment of digital switchover.

It is necessary to ensure that possible amendments to the aforementioned primary legislation do not cause an adverse impact on the market position of any existing content provider, and such the amendments should facilitate television programme receiving for the citizens who currently receive analogue television programmes.

ACTIVITY	HOLDER	TERM
Adoption of necessary secondary legislation regulating the allocation of radio frequency spectrum, allocation and usage conditions, and manner and conditions for analogue to digital broadcasting switchover, thus providing pre-requisites to invite the public tender for a licence for use of the radio frequency spectrum for broadcasting	Ministry of the Sea, Transport and Infrastructure Croatian Post and Electronic Communications Agency	1 November 2008
Establishing whether there is a need for amendments to the primary and secondary legislation regarding electronic media	Ministry of Culture	1 February 2009
Drafting proposals of amendments to the primary legislation in the field of electronic media	Ministry of Culture	31 December 2009
Drafting of amendments to the secondary legislation in the field of electronic media	Ministry of Culture Agency for Electronic Media	31 December 2009

5. TECHNICAL – TECHNOLOGICAL FRAMEWORK

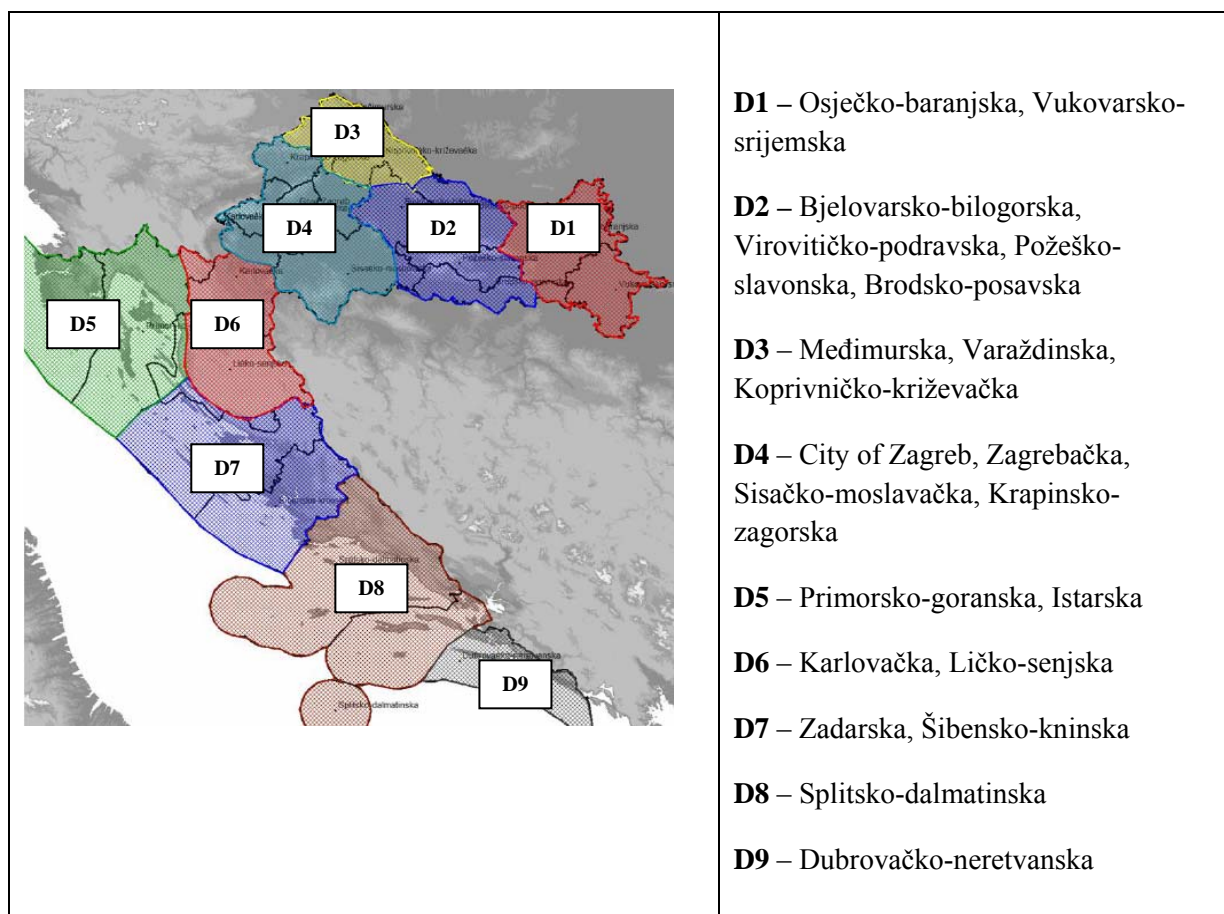
Objective: Systematically plan broadcasting networks to meet the requirements of digital terrestrial television programme broadcasting and provision of additional electronic communications services, following the principle of good economy and meeting public interest based on available technical facilities.

5.1. Radio frequency Plan

Radio frequency Plan comprises internationally agreed Radio Frequency Assignments Plans for TV and radio broadcasting accepted by the Republic of Croatia. In accordance with these plans, it also includes drawing up and implementation of Digital Broadcasting Plan within VHF frequency band (band III – 174-230 MHz) and UHF (band IV and V – 471 – 860 MHz) in the Republic of Croatia. The Digital Broadcasting Plan of the Republic of Croatia is based primarily on the international Radio Frequency Assignment Plan for Digital Terrestrial Transmission of Radio and Television Programme – Geneva 2006 (GE06) passed in June 2006 at the Regional Radiocommunications Conference (RRC-06) of the International Telecommunications Union (ITU) held in Geneva, as technological substitution for former radio frequency assignment plan for analogue terrestrial broadcasting of television programmes (Stockholm Agreement in 1961 – ST61). In accordance with the Regional Agreement – Geneva 2006, the Digital Broadcasting Plan GE06 shall be fully available after 2015, indicating that up to that date the Republic of Croatia must continuously harmonize and co-ordinate radio frequencies with the neighbouring countries.

The territory of the Republic of Croatia has been divided into 9 different regions according to the digital allotments from the GE06 plan. Each region contains one or more Croatian counties (Figure 1). The specified regions represent the entity of the *Radio Frequency Plan for Digital Broadcasting of Radio and Television programmes in the Republic of Croatia* (so called "digital regions").

Figure 1 – Plan of "digital regions" for the Republic of Croatia allocated in accordance with the Digital Broadcasting Plan GE06 and related counties of the Republic of Croatia



Digital switchover shall be implemented on the level of 9 aforementioned regions, meaning that the radio frequency planning and international co-ordination of the use of the radio frequencies with the neighbouring countries represents basic pre-requisites for drafting the *Radio Frequency Allocation Plan for Broadcasting of Radio and Television Programmes in the Republic of Croatia* in the transitional period.

Detailed conditions for radio frequency allocation and use shall be defined by radio frequency allocation plans. Availability of radio frequencies shall be defined by radio frequency spectrum database kept by the Croatian Post and Electronic Communications Agency, in accordance with the Electronic Communications Act.

ACTIVITY	HOLDER	TERM
<i>Radio Frequency Allocation Plan for Radio and Television Programme Broadcasting in the Republic of Croatia</i> during the transitional period	Croatian Post and Electronic Communications Agency	31 December 2008

As digital terrestrial broadcasting of television programmes is performed through multiplexes (multi-programme channel), the Plan must contain, for the whole transitional period, the allocation for two nationwide multiplexes, and one multiplex for digital terrestrial broadcasting on local level (county level and town level)		
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The necessary co-ordination of radio frequency use during the transitional period at international level shall be completed at least one month before the beginning of the digital broadcasting of television programmes for each "digital region" from the *Radio Frequency Allocation Plan for Radio and Television Programme Broadcasting in the Republic of Croatia*.

ACTIVITY	HOLDER	TERM
Co-ordination of the radio frequency spectrum use with the neighbouring countries pursuant to the <i>Radio Frequency Allocation Plan for Radio and Television Programme Broadcasting in the Republic of Croatia</i> for each "digital region"	Croatian Post and Electronic Communications Agency	At least one month before digital broadcasting of television programmes within each "digital region"

Based on the *Radio Frequency Allocation Plan for Radio and Television Programme Broadcasting in the Republic of Croatia* within UHF frequency bands IV and V, as well as in VHF band III, there is a possibility of widening the area of providing the existing radio and television services, as well as of introducing new, additional electronic communications services. **Appendix C** shows radio frequencies associated with the types of electronic communications services (Figure 3 and 4), which forms an integral part of this Strategy.

5.2. Technical preconditions for the implementation of digital terrestrial broadcasting

5.2.1. Digital terrestrial television broadcasting system

In the Republic of Croatia, the digital terrestrial broadcasting system for television programmes during the transitional period and at the beginning of full digital broadcasting on the whole territory of the Republic of Croatia shall comply with the European standard ETSI EN 300 744 for digital terrestrial television– *Digital Video Broadcasting (DVB) – Framing structure, channel coding and modulation for digital terrestrial television.*

During the transitional period minimum conditions must be fulfilled for the fixed reception of the digital television signal, meaning that the households currently equipped with the roof-top antennas receiving analogue TV programmes will have the possibility to receive digital DVB-T via their own existing antennas.

ACTIVITY	HOLDER	TERM
Initiating the procedure for the granting a individual licence for use of the radio frequency spectrum for broadcasting, pursuant to the provisions of the Electronic Communications Act	Croatian Post and Electronic Communications Agency	20 November 2008
Adopting decision on the selection of one or more best applicants for the use of the radio frequency spectrum for broadcasting	Croatian Post and Electronic Communications Agency	20 May 2009
Ensuring preconditions for at least fixed reception of digital television signal during the transitional period on the whole territory of the Republic of Croatia	Croatian Post and Electronic Communications Agency	By the beginning of digital TV broadcasting within the particular "digital region"

Digital multiplexes are managed by network operators. During the transitional period, until licences are issued in accordance with the provisions of the Electronic Communications Act, network operators shall be regarded as legal entities that have licences for experimental digital terrestrial television broadcasting effective as of the date of entering into force of this Strategy, but only for the electronic communications networks and services to which the licence refers (SDTV, HDTV, DVB-H, etc.).

5.2.2. Digitalization system of programme content broadcasted via digital terrestrial television

The digitalization of programme content broadcasted via digital terrestrial television shall be performed in accordance with the ISO/IEC IS 13818 standard– *Information Technology – Generic coding of moving pictures and associated audio information* (MPEG-2 standard) and ITU-T H.262 Recommendation. The specified standard and recommendation must be used while transmitting and delivering programme contents to digital receivers during the transitional period, and for at least three nationwide multiplexes and one multiplex at local/regional level after the beginning of digital terrestrial television broadcasting on the whole territory of the Republic of Croatia (after 1 January 2011).

ACTIVITY	HOLDER	TERM
Ensuring preconditions for the implementation of ISO/IEC IS 13818 standard and ITU-T H.262 Recommendation on the transmission and delivery of the programme contents to digital receivers during the transitional period, for at least three nationwide multiplexes and one multiplex at local/regional level, after 1 January 2011	Croatian Post and Electronic Communications Agency	Upon initiating the procedure of issuing an individual licence for use of the radio frequency spectrum in multiplex A

The H.264/AVC (MPEG-4) standard represents a format of coding digital television signal in accordance with the ITU-T H.264 Recommendation (ISO/IEC 14496-10:2005 standard) that will be used in the Republic of Croatia for high definition television (HDTV) and "Pay-TV" broadcasting of television programmes. Therefore, the television transmitter network and multiplex capacity must be planned to meet the requirements for high definition television signal (visual and audio).

The implementation of high definition television (HDTV) shall commence with the radio frequencies available at a local level, especially in urban, high density populated areas, according to the "digital islands" model. Subsequently, in accordance with technical possibilities and needs, it will be spread to other areas of the Republic of Croatia. This will create an opportunity for the market and service users to efficiently and timely prepare for future changes and technology upgrades of the television programme broadcasting.

ACTIVITY	HOLDER	TERM
Finalizing preparations and planning of new multiplexes, using MPEG-4 standard on national level	Croatian Post and Electronic Communications Agency	31 December 2010
Finalizing preparations and planning of new multiplexes, using MPEG-4 standard on local level	Croatian Post and Electronic Communications Agency	Until the end of the transitional period in particular "digital region"

5.3. Technological framework for the introduction of digital terrestrial television broadcasting in the Republic of Croatia

The availability of digital radio frequencies in the Republic of Croatia enables nationwide single frequency networks (SFN) to be built with coverage of at least 95% of the population, without any significant decrease in analogue signal coverage. It means that two digital multiplexes shall be available at the beginning of the transitional period together with current analogue transmitter network ("simulcast" broadcasting – simultaneous broadcasting in digital and analogue technology). The use of these multiplexes shall be as follows:

- **Multiplex A** – contains **4-5 Standard Definition TV services (SDTV)** compressed in **MPEG 2** standard with a statistical multiplexing facility,
- **Multiplex B** – contains **4-5 Standard Definition TV services (SDTV)** compressed in **MPEG 2** standard with a statistical multiplexing facility.


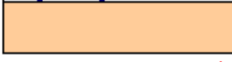

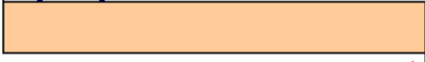

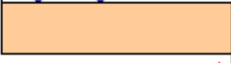



Statistical multiplexing is applied in order to use the multiplex capacity more effectively. The remaining part of capacity will be assigned to additional services such as digital teletext, electronic programme guides (EPG), etc. These services as well as increasing the number of the nationwide television programmes (from current 4 to 8-10 programmes) provide for an added value to all service users – viewers.

The switchover process from analogue to digital terrestrial broadcasting of television programmes shall be progressive, and the regional approach model shall be applied. Time schedule for digital television switchover in accordance with the "digital regions" plan is shown in Table 1. The switchover process in every region consists of two key activities:

1. beginning of the switchover process in a particular region – commencing of nationwide "simulcast" (simultaneous television broadcasting in digital and analogue technology),
2. completion of the switchover process in a particular region – final switch-off of nationwide analogue transmitters, creating prerequisites for digital switchover for all

television broadcasters on regional/county and local/town level, and creating possibility for the introduction and development of new, additional electronic communications services.

Table 1. Time schedule for digital television switchover according to regions

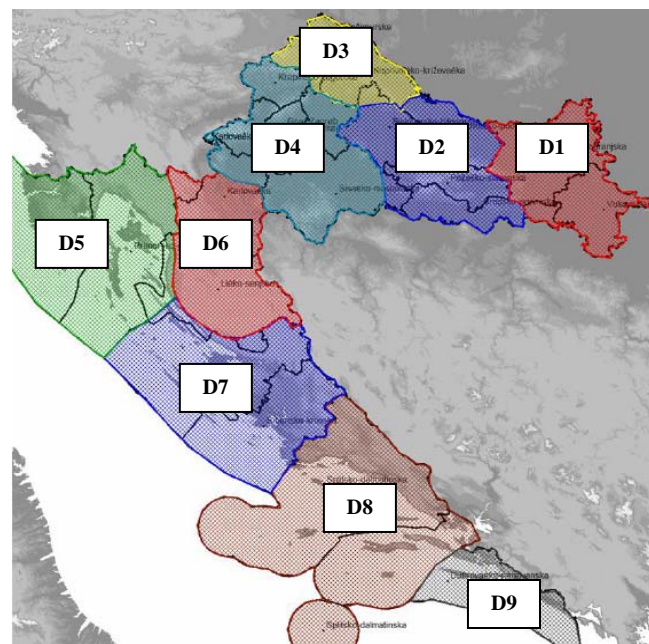
year	2008				2009												2010											
month	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
D1																	> beginning of the switchover  > analogue switch-off											
D2																	> beginning of the switchover  > analogue switch-off											
D3																	> beginning of the switchover  > analogue switch-off											
D4																	> beginning of the switchover  > analogue switch-off											
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D7																	> beginning of the switchover  > analogue switch-off											
D8																	> beginning of the switchover  > analogue switch-off											
D9																	> beginning of the switchover  > analogue switch-off											

The beginning of the transitional period (simulcast) for the "digital regions" D5, D7, D8 and D9 is 1 January 2009. Analogue switch-off of nationwide television programmes is scheduled for 1 July 2009, except for the region D9 where the scheduled term is 1 January 2010.

The beginning of the transitional period (simulcast) for the "digital regions" D1, D3 and D6 is 1 March 2009. Analogue switch-off of nationwide television programmes is scheduled for 1 September 2009.

The beginning of the transitional period (simulcast) for the "digital regions" D2 and D4 is 1 July 2009. Analogue switch-off of nationwide television programmes for the region D2 is scheduled for 1 January 2009, and for the region D4 for 1 June 2010.

Figure 2. "Digital regions" plan for the Republic of Croatia with the corresponding number of households and persons paying RTV fee



"Digital region"	Counties	Number of households	Number of persons paying RTV fee	Coverage criterion
D1	Osječko-baranjska Vukovarsko-srijemska	180,560	145,413	At least 95% of households
D2	Bjelovarsko-bilogorska Virovitičko-podravska Požeško-slavonska Brodsko-posavska	158,128	123,791	At least 95% of households
D3	Međimurska Varaždinska Koprivničko-križevačka	131,367	103,355	At least 95% of households

D4	City of Zagreb Zagrebačka Sisačko-moslavačka Krapinsko-zagorska	478,839	378,025	At least 95% of households
D5	Primorsko-goranska Istarska	183,464	185,834	At least 95% of households
D6	Karlovačka Ličko-senjska	69,521	49,566	At least 95% of households
D7	Zadarska Šibensko-kninska	92,007	61,891	At least 95% of households
D8	Splitsko-dalmatinska	144,366	94,544	At least 95% of households
D9	Dubrovačko-neretvanska	39,125	30,965	At least 95% of households
	THE REPUBLIC OF CROATIA	1,477,377	1,173,384	At least 95% of the Croatian households

The Action Plan of analogue to digital switchover in all 9 "digital regions" of the Republic of Croatia, together with the list of all planned activities, activity holders and deadlines is given in **Appendix A** which forms an integral part of this Strategy.

Depending on specific issue in each "digital region", the transitional period of the nationwide simultaneous television broadcasting in digital and analogue technology ("simulcast") is between six months and one year.

The beginning of the transitional period for television broadcasters at levels lower than the national level shall be on 1 January 2010 at the latest, or 1 June 2010 for the region D4, depending on the availability of radio frequency spectrum and on the procedure of international co-ordination of radio frequencies. All existing television broadcasters shall be granted a transitional period of maximum 6 months, with a minimum precondition of guaranteed digital terrestrial television signal coverage of the region covered by the corresponding concession contract.

The City of Zagreb, together with the Zagrebačka County, Sisačko-moslavačka County and Krapinsko-zagorska County, form the region D4 with the highest number of households (approx. 480,000) to be equipped with digital receivers. The longest period of the nationwide simultaneous television broadcasting in digital and analogue technology, for 11 months, is thus foreseen in order to achieve all the necessary preconditions for the analogue switch-off.

Upon switching-off the analogue transmitters, the conditions for new multiplexes will be created in each "digital region", enabling digital broadcast of programme contents of the existing television broadcasters at the regional and local level, as well as new, additional contents and new digital services (DVB-H, "Pay-TV", interactive services, etc).

6. PROGRAMME – CONTENT AND BUSINESS FRAMEWORK

Objective: To create conditions for the protection of free, universal and public television broadcast of public service television, as well as programmes from other broadcasters at national, regional and local level; to provide conditions for independent content providers to access digital terrestrial television network, and to stimulate the development of content pluralism on open service market

6.1. Programme-content framework

Programme content and other conditions for the provision of television services are regulated by the Electronic Media Act. The competence of the Croatian Radio-Television is regulated by the Croatian Radio-Television Act. The aforementioned primary legislation stipulates the obligatory programme content that must be included in broadcasters' programme plan, defining programme content type and classification into groups, quantitative ratio between individual programme content groups, maximum permitted amount of advertising content, anticipated amount of own programme content and Croatian and European audiovisual content share.

The share of European audiovisual works in broadcasters' programme is defined by the Ordinance on criteria and manner of increasing the share of European audiovisual works (Official Gazette 47/08) and Ordinance on criteria and manner of increasing the share of European audiovisual works by independent producers (Official Gazette 47/08).

The share of own production must amount to a minimum of 20% of the broadcaster's daily programme, a minimum of 60% of which shall be broadcasted between 6 p.m. and 10 p.m., except otherwise stipulated by the Electronic Media Act.

Programme content also consists of Croatian audiovisual works. Pursuant to the Electronic Media Act, these are the works originally produced in Croatian language or works produced for ethnic groups in their respective languages, as well as Croatian cultural heritage works.

Croatian audiovisual works form a part of prescribed share of European audiovisual works, which should form the major share of broadcasters' yearly output. The nationwide broadcasters who do not reach the prescribed amount of European audiovisual works, must enlarge the share of the works in relation to the previous year, pursuant to criteria and manner specified in the Ordinance adopted by the Electronic Media Council. The nationwide television broadcaster must also ensure that the share of European audiovisual works by independent producers amounts to a minimum of 10% of yearly broadcasted programme.

When granting the concession for television services of private television broadcasters, the Electronic Media Council, as an independent regulatory body in the field of electronic media, must take into consideration the prescribed criteria, ensuring, among other things, fulfilment of programme conditions pursuant to the Electronic Media Act, with special attention to the amount of one's own production, the share of European audiovisual works and the share of

works by independent producers, as well as achievement of required level of quality and diversity of programme contents.

The introduction of new programme contents in the second nationwide multiplex (multiplex B) shall follow upon the adoption of necessary amendments to the primary and secondary legislation.

ACTIVITY	HOLDER	TERM
Preparing technical conditions for the second nationwide multiplex (multiplex B)	Croatian Post and Electronic Communications Agency	During 2009
Introduction of new programme contents in the second nationwide multiplex (multiplex B)	Agency for Electronic Media	Upon the adoption of necessary amendments to the primary and secondary legislation

6.2. Service systems and business models

In addition to production and broadcasting of programme contents as a part of regular television broadcasters' activities in the digital terrestrial broadcasting system, the purpose of this Strategy is to open the room for the introduction and provision of new services or business models due to releasing of the radio frequency spectrum – so called "digital dividend" – for new allocations and applications upon full digital switchover.

The use of "digital dividend" is foreseen for various purposes, such as:

- ❖ additional nationwide digital terrestrial television programmes in either standard definition (SDTV) or high definition (HDTV),
- ❖ digital terrestrial television programmes at regional and local level,
- ❖ television services for mobile phones (DVB-H) and other types of mobile video and multimedia,
- ❖ mobile communications, such as voice calls or information data,
- ❖ wireless broadband communications services,
- ❖ wireless microphones for theatres, television and radio production and live music events,
- ❖ short range wireless applications, such as fixed wireless access at home,
- ❖ public safety services, such as wireless communications for the emergency services.

The distribution of the "digital dividend" in the Republic of Croatia, giving the opportunity for new types of services, can be divided into three groups:

1. Communication services – this Strategy comprises new and existing services, such as:

- 1.1. Existing communications services – gain greater transmission and quality options, along with an increase in the number of communications services consumers. For the existing communications services relevant radio frequency spectrum share is allocated, becoming available upon analogue switch-off, nationwide, regionally and locally. In order to manage the radio frequency spectrum as a limited natural resource of the Republic of Croatia in a transparent and rational way, the procedures of issuing proper licences in accordance with the Electronic Communications Act shall be applied upon commencing the digital terrestrial television broadcasting in the Republic of Croatia;
- 1.2. New public communications services – based on the use of available radio frequency spectrum previously allocated to the analogue television broadcast, particularly referring to wireless broadband services that enhance the mobility of population and businesses. These services are provided by network operators on the basis of proper licences for use of the radio frequency spectrum. The share of particular service type is planned in 1:3 ratio, meaning that each of three transmission channels can offer only one service type. This provides for fair market competition aimed at the lowest possible prices and the highest possible quality of communications services;
- 1.3. Mobile television services – mobile communications network operators, taking over the television programme transmission via their mobile networks, must be enabled to provide such services to all interested programme content providers, under the equal, transparent and non-discriminatory conditions. Mobile television services can be introduced progressively even in the stage of preparation for digital terrestrial television broadcasting, if public interest exists, if an available radio frequency spectrum is ensured and if there is an efficient protection from interference.

2. Information services – services provided by television broadcasters and businesses providing activities in the field of digital electronic media, or producing digital contents:

- 2.1. New information services by television broadcasters – services enabling television broadcasters to extend their business activities due to the introduction of digital platform. In addition to widening specialized programme contents (sports, history, politics, science, etc), they also provide other information services expanding their business activities, thus enlarging the total amount of information contents in the Republic of Croatia. By digital broadcasting of television programmes, television broadcasters shall distribute Internet contents even to those recipients – consumers who do not have nor will have the necessary technical skills and equipment to access and use current Internet technologies. The Electronic Media Act shall ensure the

opportunities for the television broadcasters to provide information services of public interest in the digital terrestrial television environment, thus achieving general development objectives for the information society;

- 2.2. New information services for business entities in the field of electronic media – such services can be systematically developed on the basis of market competition, in co-operation with network operators, both for the needs of individual service users, and for the targeted social groups, whereas the price and level of services shall be defined on free market. The legal framework for this group of services must remain neutral in relation to the content, which means that the appropriate licensing procedure for the provision of these services should contain no restrictions on conditions in relation to the requested/obligatory contents;
 - 2.3. Production, maintenance and supply of electronic programme guides – these services are intended for the production of a unique electronic programme guide system for all available television programmes, in accordance with common interests of programme content recipients and network operators. In the preparation stage for the digital television broadcasting, the Agency for Electronic Media shall conduct appropriate activities to promote these services and to define basic criteria for the production and maintenance of electronic programme guides.
- 3. Interactive services** – services which particularly include e-commerce, home banking, interactive games and quizzes, as well as specific types of public administration services. The television broadcasters shall decide, in accordance with their business plans, on models of co-operation with interactive services providers available on the market, in order to provide added value to their consumers – viewers and to improve their rating within the advantages achieved by digital technology. Interactive services are scheduled to be provided upon commencement of the full digital terrestrial television broadcasting on the entire territory of the Republic of Croatia. Interactive services providers shall supply their consumers – viewers with the necessary additional equipment for use of interactive services, in accordance with their business plans and market demand for these services.

7. PROMOTION CAMPAIGN AND CAMPAIGN COSTS

Objective: To inform the public on the introduction and benefits of digital television and its benefits and to facilitate the preparation for the introduction of digital television

The success of the transition process, and especially regional approach model of analogue to digital television broadcasting switchover depends mainly on a comprehensive, well focused and motivated promotion campaign carried out by the Central State Administrative Office for e-Croatia, as the focal co-ordinating body responsible for the implementation of a comprehensive information-educational campaign related to digital television in the Republic of Croatia.

The task of the Central State Administrative Office for e-Croatia is to organize, prepare and implement all the activities related to information-educational campaign on digital switchover in the Republic of Croatia.

The following key objectives should be reached:

1. to inform the public on reasoning for the analogue to digital television broadcasting switchover,
2. to educate the public on benefits of digital television,
3. to provide information and support to all citizens of the Republic of Croatia in the process of the analogue to digital television broadcasting switchover.

For the implementation of the aforementioned objectives, clear directives shall be defined to ensure vertical and horizontal co-ordination of information-educational activities provided by all public administration bodies and other activity holders specified in this Strategy.

In order to achieve the aforementioned objectives, intensive and continuous co-operation among all stakeholders in the process of the analogue to digital television broadcasting switchover shall be established – between the Government of the Republic of Croatia and public administration bodies competent for the implementation of this Strategy, independent regulatory authorities, public service broadcaster, private broadcasters, network operators, equipment manufacturers and retailers, consumer protection groups and antenna and cable distribution system installers and maintenance personnel.

The Action Plan for the promotion campaign, together with a list of all planned activities, activity holders and implementation deadlines, is given in **Appendix B** which forms an integral part of this Strategy.

8. FINANCING – COST FRAMEWORK

Objective: To establish a successful and sustainable system of cost planning and monitoring in the digital switchover transitional period

The transition from analogue to digital television broadcasting in the Republic of Croatia should be a market-oriented process based on the principles of transparency, non-discrimination and technological neutrality. The existing satellite and cable digital communications market is a very good example of the development possibilities without an "external intervention". However, the analogue to digital television broadcasting switchover process, whereas the terrestrial television represents the basic television programmes reception technology for the majority of consumers – viewers in the Republic of Croatia, cannot be successfully implemented without support and co-ordination from the competent public administration bodies and without ensuring the necessary funding from the state budget, in accordance with the defined public interests.

The following main items of expenditure from the state budget of the Republic of Croatia should be identified by this Strategy for the implementation period of digital terrestrial television:

- digital receivers subsidising in a technologically neutral form – pursuant to the decision of the Government of the Republic of Croatia to grant vouchers to natural persons paying RTV fee,
- costs of the promotion campaign with the purpose to inform the public, carried out by the Central State Administrative Office for e-Croatia,
- management costs of the Strategy implementation (analyses, opinions, public surveys, etc.).

Under the relevant EU legislation, direct governmental subsidies for commercial interests are generally not allowed. Consequently, any additional costs incurred during the analogue to digital television broadcasting switchover must be covered within the limits of funds planned by each stakeholder in this process. When the digital switchover is finished, the overall television programmes transmission costs can be expected to be significantly lower due to the use of digital technology.

Since the Croatian Radio-Television Act obliges, all television and radio set owners on the territory of the Republic of Croatia to pay RTV fee, the Government of the Republic of Croatia shall ensure that in the period of the implementation of this Strategy there is no group of population which is socially disadvantaged or deprived for any reason during the analogue to digital television broadcasting switchover process.

Governmental subsidies for digital receivers to the citizens – end-users, in accordance with the common practice in EU Member States, shall significantly contribute to the increase in the number of digital terrestrial television services users in the Republic of Croatia, thus enabling

the full digital terrestrial television switchover within deadlines defined by this Strategy – as of 31 December 2010.

The Central State Administrative Office for e-Croatia shall plan within its part of the state budget of the Republic of Croatia the funds required for the aforementioned subsidies.

9. STRATEGY IMPLEMENTATION MANAGEMENT AND MONITORING

Objective: To provide the Strategy implementation monitoring and management system and to determine the obligation to report to the Government of the Republic of Croatia

Analogue to Digital Television Broadcasting Switchover Strategy for the Republic of Croatia is adopted by the Government of the Republic of Croatia. The objectives of this Strategy are directed to all digital terrestrial television users in Croatia – the citizens and business entities, namely to all the elements of the Croatia's society. This Strategy also clearly defines tasks and activities for all key stakeholders in the analogue to digital television broadcasting switchover, as well as deadlines for their implementation, specified in detail in the Action Plan for the Analogue to Digital Terrestrial Television Broadcasting Switchover in "digital regions" (Appendix A) and in the Action Plan for the Implementation of the Promotion Campaign (Appendix B). Both plans form an integral part of this Strategy.

The Strategy management system consists of the following three levels:

1. individual measures and activities to be implemented directly by the competent activity holders,
2. common measures and activities:
 - ❖ in the field of electronic communications – to be monitored and co-ordinated by the Ministry of the Sea, Transport and Infrastructure,
 - ❖ in the field of electronic media – to be monitored and co-ordinated by the Ministry of Culture.
3. consolidated set of all measures and activities – to be monitored and co-ordinated by the Central State Administrative Office for e-Croatia that manages their implementation.

Monitoring system for the Strategy implementation consists of the following activities:

1. individual monthly reports on the implementation of specified measures and activities – Ministry of the Sea, Transport and Infrastructure, Ministry of Culture, Croatian Post and Electronic Communications Agency and Agency for Electronic Media are responsible for the regular reporting to the Central State Administrative Office for e-Croatia, in accordance with their respective competences for the implementation of specified measures and activities stipulated by this Strategy,
2. drawing up of comprehensive semi-annual reports for the period of every six months, until the end of the period to which this Strategy refers – Central State Administrative Office for e-Croatia prepares and submits the report to the Government of the Republic of Croatia, on the basis of collected monthly reports referred to in item 1, and results of market analysis and public opinion polls.

The Government of the Republic of Croatia carries out a comprehensive monitoring of the Strategy implementation through semi-annual reports, while current management tasks related to the Strategy implementation are within the competence of the Central State Administrative Office for e-Croatia. The Government of the Republic of Croatia may also request a full report from the Central State Administrative Office for e-Croatia for a period shorter than six months, when considerable deviation from the objectives and deadlines planned by this Strategy is determined.

ACTIVITY	HOLDER	TERM
Drafting monthly reports on the implementation of specified measures and activities defined by this Strategy	Ministry of the Sea, Transport and Infrastructure Ministry of Culture Croatian Post and Electronic Communications Agency Agency for Electronic Media	Once per month, at the latest till the 10 th of each month, referring to the previous month, starting with the date of the adoption of the Strategy
Drafting semi-annual report	Central State Administrative Office for e-Croatia	Every six months, starting with 31 December 2008

APPENDIX A – Action Plan for the Analogue to Digital Terrestrial Television Broadcasting Switchover in "digital regions"

As specified in Section 5 of this Strategy, the full analogue to digital terrestrial television broadcasting switchover in the Republic of Croatia shall be carried out within particular "digital regions" by 31 December 2010 at the latest.

The following four groups of activities shall be implemented in order to introduce digital television in each of 9 "digital regions":

- ❖ official commencing of "simulcast" – simultaneous broadcasting of nationwide television programmes in digital and analogue technology,
- ❖ promotion campaign – informing consumers on details referring to analogue to digital television broadcasting switchover in relevant "digital region", and on possibilities of purchasing digital receivers,
- ❖ delivery of subsidy vouchers and purchase of digital receivers enabling consumers – viewers to receive digital television contents,
- ❖ analogue transmitter switch-off – upon the completion of the "simulcast" period, analogue terrestrial television network in a specific "digital region" shall be completely switched off, indicating a complete switchover to digital technology.

Objective: Nationwide analogue to digital terrestrial television broadcasting switchover

ACTIVITY	HOLDER	TERM
REGION D1		
Ensuring radio frequencies in the transitional period for multiplexes A and B	Croatian Post and Electronic Communications Agency	1 February 2009
Distribution of subsidy vouchers to purchase digital receiver	Croatian Radio-Television	1 September 2008
Promotion campaign and informing of the public	Central State Administrative Office for e-Croatia	Permanently
Commencement of digital broadcasting in multiplex A	Network operator	1 March 2009
Commencement of digital broadcasting	Network operator	31 December 2009

in multiplex B		
Ensuring that at least 95% of households are covered by multiplex A	Network operator	31 August 2009
Ensuring coverage of multiplex B in accordance with the conditions specified in the licence for use of the radiofrequency spectrum	Network operator	31 December 2009
Switching-off analogue transmitters broadcasting nationwide television programmes	Television broadcaster	31 August 2009
Ensuring radio frequencies in the transitional period for regional/local television broadcasters (local multiplexes or multiplex D)	Croatian Post and Electronic Communications Agency	1 December 2009
REGION D2		
Ensuring radio frequencies in the transitional period for multiplexes A and B	Croatian Post and Electronic Communications Agency	1 June 2009
Distribution of subsidy vouchers to purchase digital receiver	Croatian Radio-Television	1 January 2009
Promotion campaign and informing of the public	Central State Administrative Office for e-Croatia	Permanently
Commencement of digital broadcasting in multiplex A	Network operator	1 July 2009
Commencement of digital broadcasting in multiplex B	Network operator	31 December 2009
Ensuring that at least 95% of households are covered by multiplex A	Network operator	31 December 2009
Ensuring coverage of multiplex B in accordance with the conditions specified in the licence for use of the radiofrequency spectrum	Network operator	31 December 2009

Switching-off analogue transmitters broadcasting nationwide television programmes	Television broadcaster	31 December 2009
Ensuring radio frequencies in the transitional period for regional/local television broadcasters (local multiplexes or multiplex D)	Croatian Post and Electronic Communications Agency	1 December 2009
REGION D3		
Ensuring radio frequencies in the transitional period for multiplexes A and B	Croatian Post and Electronic Communications Agency	1 February 2009
Distribution of subsidy vouchers to purchase digital receiver	Croatian Radio-Television	1 September 2008
Promotion campaign and informing of the public	Central State Administrative Office for e-Croatia	Permanently
Commencement of digital broadcasting in multiplex A	Network operator	1 March 2009
Commencement of digital broadcasting in multiplex B	Network operator	31 December 2009
Ensuring that at least 95% of households are covered by multiplex A	Network operator	31 August 2009
Ensuring coverage of multiplex B in accordance with the conditions specified in the licence for use of the radiofrequency spectrum	Network operator	31 December 2009
Switching-off analogue transmitters broadcasting nationwide television programmes	Television broadcaster	31 August 2009
Ensuring radio frequencies in the transitional period for regional/local television broadcasters (local multiplexes or multiplex D)	Croatian Post and Electronic Communications Agency	1 December 2009

REGION D4		
Ensuring radio frequencies in the transitional period for multiplexes A and B	Croatian Post and Electronic Communications Agency	1 June 2009
Distribution of subsidy vouchers to purchase digital receiver	Croatian Radio-Television	1 January 2008
Promotion campaign and informing of the public	Central State Administrative Office for e-Croatia	Permanently
Commencement of digital broadcasting in multiplex A	Network operator	1 July 2009
Commencement of digital broadcasting in multiplex B	Network operator	31 December 2009
Ensuring that at least 95% of households are covered by multiplex A	Network operator	31 May 2009
Ensuring coverage of multiplex B in accordance with the conditions specified in the licence for use of the radiofrequency spectrum	Network operator	31 May 2009
Switching-off analogue transmitters broadcasting nationwide television programmes	Television broadcaster	31 May 2009
Ensuring radio frequencies in the transitional period for regional/local television broadcasters (local multiplexes or multiplex D)	Croatian Post and Electronic Communications Agency	1 May 2010
REGION D5		
Ensuring radio frequencies in the transitional period for multiplexes A and B	Croatian Post and Electronic Communications Agency	1 December 2008
Distribution of subsidy vouchers to purchase digital receiver	Croatian Radio-Television	1 September 2008
Promotion campaign and informing of	Central State Administrative Office for	Permanently

the public	e-Croatia	
Commencement of digital broadcasting in multiplex A	Network operator	1 January 2009
Commencement of digital broadcasting in multiplex B	Network operator	31 December 2009
Ensuring that at least 95% of households are covered by multiplex A	Network operator	30 June 2009
Ensuring coverage of multiplex B in accordance with the conditions specified in the licence for use of the radiofrequency spectrum	Network operator	31 December 2009
Switching-off analogue transmitters broadcasting nationwide television programmes	Television broadcaster	30 June 2009
Ensuring radio frequencies in the transitional period for regional/local television broadcasters (local multiplexes or multiplex D)	Croatian Post and Electronic Communications Agency	1 December 2009
REGION D6		
Ensuring radio frequencies in the transitional period for multiplexes A and B	Croatian Post and Electronic Communications Agency	1 February 2009
Distribution of subsidy vouchers to purchase digital receiver	Croatian Radio-Television	1 September 2008
Promotion campaign and informing of the public	Central State Administrative Office for e-Croatia	Permanently
Commencement of digital broadcasting in multiplex A	Network operator	1 March 2009
Commencement of digital broadcasting in multiplex B	Network operator	31 December 2009
Ensuring that at least 95% of households are covered by multiplex A	Network operator	31 August 2009

Ensuring coverage of multiplex B in accordance with the conditions specified in the licence for use of the radiofrequency spectrum	Network operator	31 December 2009
Switching-off analogue transmitters broadcasting nationwide television programmes	Television broadcaster	31 August 2009
Ensuring radio frequencies in the transitional period for regional/local television broadcasters (local multiplexes or multiplex D)	Croatian Post and Electronic Communications Agency	1 December 2009
REGION D7		
Ensuring radio frequencies in the transitional period for multiplexes A and B	Croatian Post and Electronic Communications Agency	1 December 2008
Distribution of subsidy vouchers to purchase digital receiver	Croatian Radio-Television	1 January 2009
Promotion campaign and informing of the public	Central State Administrative Office for e-Croatia	Permanently
Commencement of digital broadcasting in multiplex A	Network operator	1 January 2009
Commencement of digital broadcasting in multiplex B	Network operator	31 December 2009
Ensuring that at least 95% of households are covered by multiplex A	Network operator	30 June 2009
Ensuring coverage of multiplex B in accordance with the conditions specified in the licence for use of the radiofrequency spectrum	Network operator	31 December 2009
Switching-off analogue transmitters broadcasting nationwide television programmes	Television broadcaster	30 June 2009
Ensuring radio frequencies in the transitional period for regional/local	Croatian Post and Electronic	1 December 2009

television broadcasters (local multiplexes or multiplex D)	Communications Agency	
REGION D8		
Ensuring radio frequencies in the transitional period for multiplexes A and B	Croatian Post and Electronic Communications Agency	1 December 2008
Distribution of subsidy vouchers to purchase digital receiver	Croatian Radio-Television	1 January 2009
Promotion campaign and informing of the public	Central State Administrative Office for e-Croatia	Permanently
Commencement of digital broadcasting in multiplex A	Network operator	1 January 2009
Commencement of digital broadcasting in multiplex B	Network operator	31 December 2009
Ensuring that at least 95% of households are covered by multiplex A	Network operator	31 December 2009
Ensuring coverage of multiplex B in accordance with the conditions specified in the licence for use of the radiofrequency spectrum	Network operator	31 December 2009
Switching-off analogue transmitters broadcasting nationwide television programmes	Television broadcaster	31 December 2009
Ensuring radio frequencies in the transitional period for regional/local television broadcasters (local multiplexes or multiplex D)	Croatian Post and Electronic Communications Agency	1 December 2009
REGION D9		
Ensuring radio frequencies in the transitional period for multiplexes A and B	Croatian Post and Electronic Communications Agency	1 December 2008
Distribution of subsidy vouchers to	Croatian Radio-Television	1 January 2009

purchase digital receiver		
Promotion campaign and informing of the public	Central State Administrative Office for e-Croatia	Permanently
Commencement of digital broadcasting in multiplex A	Network operator	1 January 2009
Commencement of digital broadcasting in multiplex B	Network operator	31 December 2009
Ensuring that at least 95% of households are covered by multiplex A	Network operator	30 June 2009
Ensuring coverage of multiplex B in accordance with the conditions specified in the licence for use of the radiofrequency spectrum	Network operator	31 December 2009
Switching-off analogue transmitters broadcasting nationwide television programmes	Television broadcaster	30 June 2009
Ensuring radio frequencies in the transitional period for regional/local television broadcasters (local multiplexes or multiplex D)	Croatian Post and Electronic Communications Agency	1 December 2009

APPENDIX B – Action Plan for the Implementation of the Promotion Campaign

Objective 1: To inform the public on the reasons for analogue to digital terrestrial television broadcasting switchover

ACTIVITY	HOLDER	TERM
CREATING PROMOTION CAMPAIGN		
Creating and broadcasting of informative TV commercial	Central State Administrative Office for e-Croatia	1 August 2008
Concluding agreements with television broadcasters on conditions and frequency of TV commercial broadcasting	Central State Administrative Office for e-Croatia	1 August 2008
Designing the mascot	Central State Administrative Office for e-Croatia	1 October 2008
Designing logo	Central State Administrative Office for e-Croatia	1 October 2008
Creating and broadcasting of informative TV commercial containing the answers to the questions put by consumers – viewers	Central State Administrative Office for e-Croatia	31 December 2008
DRAWING UP AN INFORMATIVE BROCHURE		
Beginning of design and distribution of an informative brochure	Central State Administrative Office for e-Croatia	1 August 2008
COMMUNICATION WITH THE PUBLIC BY "MY ADMINISTRATION" WEB PORTAL		
Introducing new topic at "My administration" web portal, providing information on digital television	Central State Administrative Office for e-Croatia	31 December 2008

DESIGNING AN INFORMATIVE WEB SITE		
Designing web site providing relevant information on digital television http://dtv.e-hrvatska.hr	Central State Administrative Office for e-Croatia	31 December 2008

Objective 2: Educating the public on digital television benefits

ACTIVITY	HOLDER	TERM
CREATING AND ORGANIZING INDIRECT CONTACTS WITH THE PUBLIC		
Participation in themed TV shows	Central State Administrative Office for e-Croatia	Permanently
Organization of annual conferences, workshops and round tables	Central State Administrative Office for e-Croatia	Permanently
Organization of round table for public debate on the Analogue to Digital Television Broadcasting Switchover Strategy for the Republic of Croatia	Ministry of the Sea, Transport and Infrastructure Central State Administrative Office for e-Croatia	31 December 2008
Creating and uploading <i>on-line</i> quiz: "Are you ready for DTV?"	Central State Administrative Office for e-Croatia	31 December 2008
Creating and uploading <i>banner</i> : "What are the benefits of DTV?"	Central State Administrative Office for e-Croatia	31 December 2008
Organizing seminars for digital receivers and associated equipment manufacturers and retailers	Central State Administrative Office for e-Croatia	31 December 2008

CREATING AND ORGANIZING DIRECT COMMUNICATION WITH THE PUBLIC		
Organizing the round trip called "Digital Switchover Road Show" across Croatian towns, with a team of experts who will provide necessary information to the public and distribute informative brochures	Central State Administrative Office for e-Croatia	Permanently

Objective 3: Ensuring the right to information and help in the process of the analogue to digital television broadcasting switchover for all the citizens of the Republic of Croatia

ACTIVITY	HOLDER	TERM
ESTABLISHING THE DTV CALL CENTRE		
Commencing of preparations for the establishing the DTV Call Centre – focal point which can be contacted by the viewers searching for information, by dialling free number 0800-1-1-2011 (the date of the switchover)	Central State Administrative Office for e-Croatia	1 August 2008
Organizing an event called " <i>DTV for everybody</i> " within the DTV Call Centre, to give the opportunity to those who, for any reason, cannot get information on digital television (disabled persons, elderly people (elderly people homes), or any other persons who are deprived from relevant information	Central State Administrative Office for e-Croatia	Permanently
Organizing an event called " <i>Road show DTV for everybody</i> " as a part of the "Digital Switchover Road Show" – after promotion campaign performed on the town main square, the team of experts shall visit certain groups of citizens who informed the DTV Call Centre that they cannot get necessary information on digital TV – e.g. visiting disabled persons' associations, elderly people homes, etc.	Central State Administrative Office for e-Croatia	Permanently

APPENDIX C – Technical data

Figure 3. This Figure shows UHF frequency bands IV and V – available multiplexes and associated broadcasting services and other electronic communications services

channel	21	55	56	60	61	69	70
frequency	470MHz		750MHz		790MHz		860MHz
service	DVB-T/H		DVB-T		IMT		
MUX A - national	4xSD: HRT1, HRT2, NOVA, RTL + 1xSD: additionally available						
MUX B - national	5xSD: additionally available						
MUX C - national	5xSD: additionally available						
MUX D - regional /national	1-3xSD: existing regional programs + 2-4 SD: additionally available (regional/national)						
MUX E - national	DVB-H: additionally available ~30 TV programs or ~ 60 radio programs						
MUX F - national /regional	additionally available: DVB-T ili DVB-H						
MUX G - regional /national	additionally available: DVB-T ili DVB-H						
MUX H - regional	additionally available: DVB-T ili DVB-H						

Figure 4. This Figure shows VHF frequency band III – available multiplexes and associated broadcasting services and other electronic communications services

channel	5	12	13
frequency	174MHz		230MHz
service	DVB-T/DVB-H/T-DAB/DMB		
MUX VHF - national /regional	additionally available: DVB-T, DVB-H, T-DAB, DMB		

APPENDIX D – Abbreviations

"Digital Dividend" – part of the radio frequency spectrum allocated to the terrestrial television broadcasting in the VHF band III and UHF bands IV and V, freed in the digital system for new broadcasting services and contents, as well as for other electronic communications services.

DTV – Digital Television.

DVB-H (Digital Video Broadcasting – Handheld) – digital video broadcasting intended for the reception on mobile phones and similar handheld devices in accordance with the relevant ETSI standards and other international standards.

DVB-T (Digital Video Broadcasting – Terrestrial) – terrestrial digital television broadcasting in accordance with the relevant ETSI standards and other international standards.

DVB-T2 – next generation of DVB-T system.

EPG (Electronic Programme Guide), or **IPG** (Interactive Programme Guide), or **ESG** (Electronic Service Guide) – an on-screen guide to scheduled broadcast of television or radio programmes, representing the so called supertext, which is faster and more interactive than regular teletext.

GE06 – Plan of digital assignments and allotments, Geneva 2006 – adopted at International Telecommunication Union (ITU) Regional Radiocommunication Conference (RRC-06) held in June 2006 in Geneva. It represents an integral part of the Geneva 2006 Regional Agreement. In accordance with the final provisions of the Plan, the digital terrestrial broadcasting switchover in the VHF band III and UHF bands IV and V is scheduled by 2015.

HDTV (High Definition Television) – television signal with higher quality of images and sound than standard definition television (SDTV), achieved by increased number of analysing lines per image, change in image analysing, increase of aspect ratio to 16:9 and change in the image colorimetric characteristics, in accordance with the relevant ITU-R recommendations and SMPTE standards.

H.264/AVC, or **MPEG-4 Part 10**, or **MPEG-4 AVC** (Advanced Video Coding) – digital television signal compression standard in the terrestrial broadcasting systems.

IMT – International Mobile Telecommunications.

ITU – International Telecommunication Union.

MPEG (Motion Pictures Experts Group) – an expert group established in 1988 within the International Standard Organisation and the International Electrotechnical Commission, in charge for the determination and development of video and audio encoding standards.

MPEG-2 – video and audio compression standard for SDTV signal in the terrestrial broadcasting systems.

MUX – multiplex – a series of digital signals containing several radio or television programmes and/or other data simultaneously transferred in the one radio frequency channel.

SDTV (Standard Definition Television) – television signal enabling standard image and sound quality with 625 or 525 analysing lines per image, broadcast in 4:3 aspect ratio, in accordance with the relevant ITU-R recommendations and SMPTE standards.

SFN – Single Frequency Network.

ST61 – Stockholm 1961 Agreement –Plan for analogue terrestrial television broadcasting assignments, that was valid until the adoption of Regional Agreement – Geneva 2006 (GE06).

UHF – Ultra High Frequency – a range of electromagnetic waves with frequencies between 300 MHz and 3 GHz

VHF – Very High Frequency – a range of electromagnetic waves with frequencies between 30 MHz and 300 MHz