

DIGITAL BROADCASTING DEVELOPMENT POLICY IN THE CZECH REPUBLIC

Contents:

1	Objectives and principles of the transition to digital broadcasting in the CR	2
2	Summary of current development	3
3	European Union and the International Telecommunication Union	4
4	Regulation	5
5	Technical issues	5
6	State's role in the process of transition to digital broadcasting	7
7	Institutional measures on co-ordination	8
8	Schedule	10
	Annex 1	12
	Annex 2	13
	Annex 3	14

1 Objectives and principles of the transition to digital broadcasting in the CR

The strategic aim is to accomplish effective utilisation of the radio spectrum determined for propagation of radio and television broadcasting.

The major objectives are to provide for a comprehensive and effective change in the way of television and radio programme reception including those services that the digital broadcasting brings and enables. At the same time, to enable a substantial broadening of competitive offers of freely accessible television programmes as well.

In the transition period the programme choice should not get limited significantly. The result of the outcome of the entire process will enhance the over all support for and development of the electronic segment of the media market (more attractive programme offers, improved quality and plurality of broadcasting, expanding the room for new market entrants and for the development of new services, and expansion and implementation of new technological options connected with digital broadcasting).

With regard to the severe nature and relatively high costs of transformation, it will be appropriate to reduce the period of parallel terrestrial analogue and digital broadcasting of the existing programmes of television stations in order to make use of the released part of radio spectrum for the completion of additional digital networks' roll-out.

The specific solution of the entire process is within the authority of independent regulatory bodies, in the closest co-operation with all parties involved. More detailed objectives and up-to-date tasks for individual bodies and institutions are covered in the chapter titled Institutional Measures of Co-operation.

Terrestrial digital video broadcasting for end-users (viewers) will bring about in particular the following:

- **coverage of the Czech Republic by television signal even in areas currently not covered or with poor reception, without requiring additional frequencies,**
- **enhanced quality of audio and video information,**
- **expanded and content-wise more diverse programme offers,**
- **a number of new services with the possibility to have interactive contact with the viewer.**

2 Summary of current development

One of the basic documents that was adopted in connection with the transition to terrestrial digital broadcasting is the Chester Agreement of CEPT countries of 1997¹, by which the new frequency plan for terrestrial digital video broadcasting (DVB-T) was initiated. By signing this international agreement as a member of CEPT the Czech Republic has addressed itself to activities that would result in the transition to terrestrial digital broadcasting.

As early as in 1999 the Czech Republic launched the experimental broadcasting that run on DVB-T system in the area of Prague and later on in Brno.

In 2000 an Inter-ministry working group for digital broadcasting was established to assist the Radio and Television Broadcasting Council (hereinafter "RRTV" only). Its work resulted in developing the Policy of Transition to Digital Broadcasting that was taken up by the Permanent Commission for Communication Means of the House of Deputies of the Parliament on 8. March 2001.

On 4. July 2001 the Act No. 231/2001 Coll., on operation of radio and television broadcasting (hereinafter "Act on RTV" only) became effective. This regulation harmonised the legislative measure with EU legislation in this area.

In July 2001 the Government took up "The Policy of Transition to Digital Audio and Video Broadcasting in the Czech Republic" developed by the Ministry of Transport and Communication jointly with the Ministry of Culture pursuant to Government Resolution No. 7 of January 5, 2000. This paper anticipated the amendment of RTV Act. For reasons of failing to come to conclusions in the end of commenting procedure the preparation of the amendment was suspended.

In 2003 the Government Resolution No.159, imposed on the Ministry of Informatics together with the Ministry of Culture to submit the updated version of The Policy of Transition to Digital Broadcasting taking into account the changes that took place since the development of the initial policy. The document titled Policy of Launching Digital Video Broadcasting in the Czech Republic in the period 2004 - 2006 the Government discussed on April 28, 2004. The Government approved the launching of regular digital video broadcasting for the period 2004 - 2006².

On July 15, 2004 the Czech Telecommunication Office (hereinafter "CTO" only) granted a permission for the utilisation of radio frequencies to 3 temporary digital networks (A, B and C) to three holders of telecommunication licenses (ČESKÉ RADIOKOMUNIKACE, a.s., Czech Digital Group, a.s., ČESKÝ TELECOM, a.s.).

By the end of 2004 RRTV announced the license proceedings for terrestrial digital video broadcasting for positions within temporary networks B and C that had not been closed yet.

Act No.127/2005 Coll., on electronic communication and on amendments to some relevant acts (hereinafter "ZEK" only) became effective on May 1, 2005. The draft of this Government Act contained also the amendment to RTV act concentrating on the issue of digital

¹ Multilateral Co-ordination Agreement relating to Technical Criteria, Co-ordination Principles and Procedures for the introduction of Terrestrial Digital Video Broadcasting (DVB-T).

² Government Resolution No. 395 of 28.April 2004.

broadcasting. However this part of the draft was deleted during the parliament debate. Therefore the Government in January 2005 submitted a draft act amending the RTV Act separately.

In the autumn of 2005 the Council for Radio and Television Broadcasting extended the licenses of current operators of nation-wide television broadcasting giving the option to broadcast digitally in Prague, Brno and Ostrava. CTO reserved the radio frequencies for Česká televize enabling the operation of broadcasting to the extent set out in § 3, Sec.1, Letter b/ of Act No. 483/1991 Coll., on Česká televize.

On October 21, 2005 there was the regular digital broadcasting launched within network A offering three programmes of Česká televize, programme of TV Nova and five programmes of Český rozhlas.

3 European Union and the International Telecommunication Union

The European Union puts the emphasis on a strategy that enables a quick transition from terrestrial analogue video broadcasting to terrestrial digital video broadcasting in individual Member States. The International Telecommunication Union should adopt a new frequency plan for the broadcast service by mid-2006 that will have a profound importance for terrestrial digital audio and video broadcasting.

3.1. European Union

Transition to terrestrial digital broadcasting is one of the tasks that cannot be disregarded in implementing the Initiative i2010 - "European Information Society for Growth and Employment".³ Commission of the European Communities (hereinafter "EC" only) regards the process of transition to digital broadcasting and the schedule of switch-off of analogue broadcasting as one of the elements for acceleration of the economy of European Communities and pays great attention to these issues. The whole issue is monitored not only from the point of view of risks of retardation of individual countries but also from the point of view of negative interference with the situation over to neighbouring countries or even into more distant countries that might feel the impact with respect to the physical properties of radio wave propagation as well.

By the end of May 2005 the Commission adopted the Communication on Acceleration of Transition from Analogue to Digital Television Broadcasting⁴ that was elaborated on the basis of information received from individual EU Member States. This document anticipates that the analogue television broadcasting in EU Member States will be switched completely off in the period from 2010 to 2012.

The position of EC on possibilities for the provision of governmental support in introduction of the digital video broadcasting includes the EC Decision on State support⁵ that was provided by FRG German Federal Republic in introducing DVB-T in Berlin-Brandenburg. Among the

³ COM(2005) 229

⁴ COM(2005) 204

⁵ COM(2005) 3903 of 9. November 2005

acceptable forms of public support in connection with the transition to digital broadcasting, the EC indicates, for example, the provision of contributions for acquiring the receiving equipment under such conditions that do not stipulate or disfavour the use of specific types of technology, or the provision of support for network development in areas that would not otherwise be covered by signal.

3.2. International Telecommunication Union

In following up the Decision of the Regional Radiocommunication Conference of ITU (hereinafter "ITU Conference (RRC-04/06)" only) that was held in 2004 some activities took place according to the schedule that was adopted during the first half of this conference. Telecommunication administrations of individual countries exercised their requirements for the so-called planning exercise in order to be able to evaluate them from the point of view of compatibility. The work schedule that was adopted at the first session of the ITU Conference (RRC-04/06) is fully adhered to by the Czech Republic. At the second session of the ITU Conference (RRC-04/06) that will be held in 2006 the interests of the Czech Republic in approving the new frequency plan will be advocated.

4 Regulation

The entry of terrestrial digital video broadcasting is connected with market liberalisation in the area of electronic communication as well as in the area of electronically disseminated content of broadcasting and adherence to principles of technological neutrality and non-discrimination in the course of its standard regulation.

The adoption of ZEK was an essential step by which the relevant directives of EC were transposed, incl. the principle of separating the regulation of content from the regulation of transmission.

In the CR there were independent regulatory bodies established with relevant competencies - the RRTV for the field of content of broadcasting and the CTO for the field of transmission. Competencies of both regulators were clearly defined and separated from one another and mutual co-operation was secured.

5 Technical issues

5.1. Nation-wide and regional digital networks

Based on the frequency plan that will result from ITU Conference RRC-04/06 in Geneva 2006, CTO will create the final form of 5 nation-wide digital networks for terrestrial digital video broadcasting, out of which at least one network will be of regional nature, enabling broadcasting in individual regions (to the extent proportionate to current VÚSC), and one nation-wide digital network for terrestrial digital video broadcasting of programmes of

broadcasting operators by virtue of a law⁶ (multiplex of public services). In the course of rolling-out networks under the Technical Plan of Transition these networks will be prioritised in the course of their set up and will replace the current temporary networks A, B and C - See paper "Progress Report on Co-ordination of Radio Frequencies for Propagation of Terrestrial Digital Video Broadcasting by Nation-wide as well as Regional Networks"-, which the Government took note of⁷, and the public multiplex network.

5.2. Technical plan for transition to digital television broadcasting

The method of transition to digital broadcasting and the switch off of analogue broadcasting will technically be described in the Technical Plan of Transition from Terrestrial Analogue Television Broadcasting to Terrestrial Digital Video Broadcasting (hereinafter "TPP" only)⁵ that will be submitted to Government by CTO before 31 December 2006. CTO will develop TPP in co-operation with network operators and current operators of terrestrial analogue television broadcasting in a way that will enable effective and transparent transition to terrestrial digital video broadcasting and accomplish the switch off of terrestrial analogue television broadcasting.

Implementation of digital networks will necessarily require gradual switch off of the terrestrial analogue television broadcasting for reasons of releasing frequencies for terrestrial digital video broadcasting. Frequencies other than those acquired by switch off of the terrestrial analogue broadcasting cannot be utilised.

Within its competencies, the CTO will monitor the utilisation of assigned frequencies reserved for networks of terrestrial digital video broadcasting as well as supervise a timely and fully working operation of these networks so that to provide for fast and full-value coverage of the entire territory of the CR by digital broadcasting, and to prevent disproportionate reception for end-users in localities with low density of population.

5.3. Conditions for switch - off the terrestrial analogue television broadcasting

Switch - off of the terrestrial analogue television broadcasting will proceed on the area-by-area basis with efforts made to minimise the negative impact on end-users (viewers) and other entities involved. TPP will set the switch date of the terrestrial analogue television broadcasting for each individual area.

The switch off of the terrestrial analogue television broadcasting within the given area and at the date set out by TPP may be provided under the following conditions:

- a) coverage for the area concerned by terrestrial digital video broadcasting with the level of signal required for reception via fixed antenna located outside of a building will correspond with the extent of coverage of current terrestrial analogue broadcasting with the level of signal respecting the recommended values of a minimum protected intensity of the electromagnetic field at the given frequency band,
- b) launch of a targeted information campaign on transition to terrestrial digital video broadcasting within the given area will be at least 3 months prior to the switch off date of the terrestrial analogue television broadcasting, set out under TPP,

⁶ Act No. 483/1991 Coll., and Act No. 484/1991 Coll.

⁷ Government Resolution No.1189 of 14.10.2005.

- c) provision of the parallel broadcasting to the extent under Letter a/ will be at least for a period of 3 months, but not longer than 12 months before the switch off date of the terrestrial analogue television broadcasting in the given area set out in TPP provided that within the given area it will technically be possible to provide parallel analogue and digital video broadcasting,
- d) within the commercial network there will be a sufficient quantity of basic equipment for the reception of terrestrial digital video broadcasting for affordable prices.

Complete switch off of the analogue broadcasting in a certain area set out by TPP will not take place before 1.7.2007. In certain localities the switch off of some programmes with analogue propagation may separately take place even before the set date, if it would be necessary for reasons of international frequency co-ordination.

5.4. Deadline for switch off of the terrestrial analogue television broadcasting in the CR

The final date for complete switch off of the terrestrial analogue television broadcasting in the CR is 31.12.2012. On the basis of transition conditions the Transition Technical Plan sets out specific dates for switch -off of the terrestrial analogue television broadcasting for individual areas.

In linkage to the termination of analogue television broadcasting and in terms of international agreements and decisions of European authorities the switch off may be implemented at an earlier date.

6 State's role in the process of transition to digital broadcasting
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Co-ordination of transition from terrestrial analogue television broadcasting to terrestrial digital video broadcasting will in particular concentrate on:

- **provision of informations** - to provide for sufficient foreknowledge of citizens and entities providing digital products and services in all phases of transition to terrestrial digital video broadcasting,
- **co-financing by the Government**
 - direct government support (financing of the information campaign, market monitoring in areas affected by the switch off),
 - indirect government support in the form of compensations necessary for final switch off of the analogue broadcasting, e.g. contribution made to the acquisition of basic reception equipment to selected groups of citizens, or government co-financing of projects from European resources,
- **market monitoring** in individual areas affected by the switch off.

By launching the regular terrestrial digital video broadcasting are created the conditions for the entry of new entrants to this market segment of television broadcasting, for the development and introduction of new applications and their use by the commercial sphere as well as in the State's interests (e.g. for the creation of the information society, or for the state crisis management requirements). At the same time, there will be experience gained that reflects the real situation in the CR. This complex issue will apply to a number of entities (ministries, regulators, operators, applied research, interest associations of operators and users) and requires constant analytical and conceptual activities managed at the Government level. This is obvious also from the experience gained from the transition to digital broadcasting abroad.

So as to accomplish successful management of the entire process of transition from a terrestrial analogue television broadcasting to a terrestrial digital video broadcasting it will be necessary to co-ordinate procedures within individual phases.

7.1. National Co-ordination Group for Digital Broadcasting in the CR

The National Co-ordination Group for Digital Broadcasting in the CR (hereinafter "NKS" only) will be the central co-ordinating and managing body headed by the representative of the Ministry of Informatics - National Co-ordinator for Digital Broadcasting in the CR. The task of NKS will be to co-ordinate the transition from terrestrial analogue television broadcasting to terrestrial digital video broadcasting and the defining of activities of working groups for individual thematic areas.

NKS will directly report to the Minister of Informatics of the CR (alternatively - to the Vice-chairman of the Government) that will regularly inform the Government twice a year, and also on request, about the activities of NKS. Members of NKS will come from among representatives of Government bodies (ministries, Office of the Government, RRTV, CTO), professional associations and consumer organisations, or from other institutions as per requirements of NKS. Leaders of individual NKS working groups will be, depending on their specialisation, the representatives of Government bodies within whose authority the given area will fall under.

7.2. National Co-ordinator for Digital Broadcasting in the CR

The National Co-ordinator for Digital Broadcasting in the CR sets up and manages the NKS and will be nominated by the Government at the proposal of the Minister of Informatics. The National Co-ordinator will be the representative of the Ministry of Informatics.

7.3. NKS Working groups

Working papers to individual matters of digital broadcasting will be prepared by working groups composed of the representatives of relevant bodies of state administration,

professional associations and consumer organisations⁸. It is anticipated that at least the following working groups will be established (co-ordinator is indicated in brackets):

- Working group for technology (CTO),
- Working group for matters of content of broadcasting (Ministry of Culture),
- Working group for communication (Ministry of Informatics),
- Working group for financing (Ministry of Finance),
- Working group for informatics and statistics (Ministry of Informatics).

The Government will approve the powers and financial resources of NKS and the statutes will define the groups' activities. Especially in the beginning, the financing from the state budget is assumed, and in longer perspective also the combined financing may also be used. The results and conclusions of NKS activities will be publicly available through the Public Administration Portal.

7.4. NKS' powers

Major tasks within the NKS' power include:

- preparation of the information campaign relating to the transition from terrestrial analogue television broadcasting to terrestrial digital video broadcasting,
- co-operation in developing the legal framework of digital terrestrial, satellite and cable audio and video broadcasting in the CR (harmonisation with EC law),
- updating of the schedule of transition to terrestrial digital video broadcasting,
- development of digital broadcasting in the CR in linkage with the plans and projects of the EU (eEurope 2005⁹, i2010) and of international organisations of whom the CR is a member (ITU, CEPT),
- preparation of plans and requirements for the State information policy and policies of individual ministries in the area of digital broadcasting, incl. terms of reference for required studies and analyses,
- preparation of documents and assistance to individual entities in acquiring financial resources from EU funds,
- defining of the activities of working groups for individual thematic fields,
- development programmes in particular in the area of applied research in multimedia and interactive services,
- information administration - collection and evaluation of information and results from individual working groups,
- co-operation with committees of the Parliament of the CR in matters relating to digital broadcasting,
- regularly, twice a year, and also on request, inform the Government on its activities, regular evaluation of the situation of transition to digital broadcasting in the CR,
- support for standardisation of digital broadcasting (e.g. application of MHP, selection of a standard for video signal compression),

⁸ Government Resolution No.4 on Consumer Policy Concept for 2006-2010 of 4.January 2006

⁹ COM(2002)263

- preparation of themes for the activity of a sector group for consumer protection.

Within its powers the NKS will not substitute the role and powers of independent regulators whose powers are set out by the relevant acts.

8 Schedule

Transition to digital broadcasting will take place in three main phases whose duration and content will pertinently be corrected according to the actual development in the Czech Republic and in neighbouring countries - especially with regard to the results and practical implementation of conclusions from ITU Conference (RRC-04/06).

I. Phase

Launching of terrestrial digital video broadcasting 2005 - 30.6.2007

This phase is focused on the expansion of broadcasting of all current operators of terrestrial analogue television broadcasting via temporary digital networks and on a gradual commencement of broadcasting by new broadcasting operators with licenses, and on

- the establishment of NKS
- the commencement of information campaign
 - o on nation-wide scale, focusing on explanations of elementary questions relating to the transition to terrestrial digital video broadcasting,
 - o targeted, focusing on the area concerned within which the switch off of the terrestrial analogue television broadcasting is to take place,
- the adoption of TPP,
- the transformation of 3 current temporary digital networks to a standard nation-wide digital network, out of which one will be of regional nature, enabling broadcasting in individual regions, i.e. in an extent proportionate to current VÚSC, and the co-ordination of one nation-wide digital network for terrestrial digital video broadcasting of operators by virtue of a law (multiplex of public services); transformation will be accompanied by gradual expansion of the territorial area of broadcasting by operators of these digital networks,
- the preparation of market monitoring in areas topically affected by the switch off,
- the commencement of the terrestrial analogue television broadcasting switch off.

II. Phase

Transition to digital broadcasting 1.7.2007 - 31.12.2009

This phase will be the follow-up of ITU Conference (RRC-04/06) conclusions. At the same time the following activities will go on:

- a gradual switch off of the terrestrial analogue television broadcasting,
- a targeted information campaign focusing on the area concerned within which the switch-off of the terrestrial analogue television broadcasting is to take place.
- launching of the experimental video broadcasting with high definition (HDTV), or the application of other new technologies.

III. Phase

Completion of transition to terrestrial digital video broadcasting and the final switch off of the terrestrial analogue television broadcasting in the period from 1.1.2010 to 31.12.2012.

In this phase the final switch off of the terrestrial analogue television broadcasting as well as the completion of roll-out of all planned digital networks for terrestrial digital video broadcasting will take place in the CR.

Areas associated with the development of digital broadcasting and the challenges to be dealt with in the future

The transition from analogue to digital broadcasting and its further advancement will be accompanied by a number of new challenges as well as risks. The way of dealing with them will depend on close co-operation of all interested institutions, bodies and sectors. If possible, there will be a need to respond to all potential risks in advance (information campaign, legislation, up-to-date decisions and perfect communication and co-ordination, etc.). The National Co-ordination Group in its working groups should monitor and analyse the following areas of issues, or make suggestions in respect of their solution:

- the impacts arising from the granting of licenses within the framework of previously announced RRTV license proceedings for terrestrial digital video broadcasting,
- problems arising in the course of TPP implementation and performance,
- risks associated with cost increases on the part of broadcasting operators in the transition period of parallel analogue and digital broadcasting,
- setting out the criteria for fulfilment of the time frame for transition to terrestrial digital video broadcasting and of conditions for its reduction in case of broadcasting operators by virtue of a law,
- development of a framework for sufficiently diverse programme offer and the subject matter of broadcasting content in relation to its plurality (nation-wide programmes, thematic programmes, regional programmes and paid programmes),
- risks associated with limitations for competition,
- issues of equipment for digital broadcasting reception
 - insufficient quantity of suitable receiving equipment on the market,
 - compatibility of receiving equipment with current TV sets and with terrestrial digital video broadcasting (language sets for EPG),
 - changes in standards and technologies in the area of digital broadcasting,
- in some localities, insufficient coverage by the signal of terrestrial digital video broadcasting,
- development and further advancement of digital broadcasting under different standards (DVB-S, DVB-C, DVB-H, iTV, etc.),
- amendments to legal regulations (e.g. simplification of conditions for granting licenses for the operation of audio and video broadcasting, and limitation of excessive cases of regulatory interference in relation to the broadcasting transmission convergence method).

Technological standards and their development
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Technological standards

For the terrestrial digital video broadcasting there was the ETSI EN 300 744 standard selected with the use of a standard for coding the MPEG2 video signal together with other standards that relate to ETSI standard. For the area of interactive services the CR supports the unified API standard which is the MHP. As a member of ETSI the CR may monitor the development of individual standards in detail and express its position as to the suitability of its implementation in the CR. Testing of selected standards was verified within the framework of experimental broadcasting in the CR.

Technological development

The technological progress in the area of video broadcasting is taking place very quickly namely in several main strategic directions. Currently the development may be divided into two main directions:

- implementation of HDTV
- mobility of television reception

The introduction of HDTV is robustly supported by producers of flat-screen TV sets, e.g. on the basis of LCDs. These producers exert great pressure on television broadcasting operators to make them produce the content of broadcasting in HDTV standard but also on the end-users for which HDTV will bring several times higher quality video information. Programmes in HDTV quality require a great transmission capacity that is approximately four times greater than in case of the transmission of programmes in the current PAL video quality. This fact results in the development and implementation of new standards for the video signal coding, e.g. MPEG 4 AVC or VC 1, capable of reducing the required data flow provided that the video quality is maintained so that the programmes could be effectively transmitted via the networks of terrestrial digital video broadcasting.

Mobile television is the other notable area of the digital video broadcasting advancement. In the ETSI working groups the DVB-H standard was completed that enables the reception of mobile television. Currently the experimental mobile television broadcasting is under way in a number of EU countries (e.g. in Italy, Germany, Finland, Spain, France).

List of abbreviations and terms used

API	Application Program Interface means a software interface between applications provided by operators of radio and television broadcasting or operators of services, and between the expanding digital television equipment determined for digital television and radio services (Directive 2002/21/EC).
CEPT	European Conference of Postal and Telecommunications Administrations
DVB-C	Digital Video Broadcasting – Cable
DVB-H	Digital Video Broadcasting – Handheld
DVB-S	Digital Video Broadcasting – Satellite
DVB-T	Digital Video Broadcasting – Terrestrial
EPG	Electronic Programme Guide is the associated equipment that falls into the area of transmission regulation. However it has no effect on the scope of responsibilities that the State should impose in relation to the method of EPG presentation and of similar overview and navigating facilities with the framework of regulation of the content (DIR2003/19/EC).
ETSI	European Telecommunications Standards Institute
HDTV	High Definition TV
ITU	International Telecommunication Union
iTV	TV via Internet
MHP	Multimedia Home Platform. API standard developed by ETSI for interactive services that form a part of digital video broadcasting
MPEG	Moving Picture Experts Group. Group of experts focusing on the development of digital video standards used in the area of digital video broadcasting under labels (MPEG-1, MPEG-2 and MPEG-4 AVC)
NKS	National Co-ordination Group for Digital Broadcasting
PAL	Phase Alternation Line. Standard for terrestrial analogue television broadcasting use in the CR
RRC	Regional Radio Conference
Set-top-box	Equipment designed for the reception and de-coding of digital video broadcasting
T-DAB	Terrestrial - Digital Audio Broadcasting
VÚSC	A higher territorial and self-administrative whole