

***STATE AGENCY FOR INFORMATION TECHNOLOGY  
AND COMMUNICATIONS***

***PLAN FOR IMPLEMENTATION OF DVB-T  
IN THE REPUBLIC OF BULGARIA  
(SUMMARY)***

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## **Introduction**

Implementation of digital terrestrial radio and television broadcasting (DVB-T) in the Republic of Bulgaria has become high priority. On one hand, this trend is in line with the documents of the European Union, aiming at accelerating the implementation of digital television in Europe, and on the other hand, it corresponds to the new information needs of the Bulgarian society.

Digital television broadcasting (terrestrial, satellite and cable) technology offers considerable advantages, both for television transmission, and for development of integrated broadband communication systems. Digital terrestrial television broadcasting provides opportunities for a much more effective use of the radio frequency spectrum with higher TV image and audio quality.

Amongst the new specific opportunities are the realization of interactive regime of TV transmission and of new communication networks, which function in the same digital multiplex and offer a broad range of information services. The technical parameters of digital terrestrial television broadcasting also provide reception of high-quality television signal from mobile receivers (in moving vehicles), thus expanding additionally the scope of spectators.

## **Implementation of digital terrestrial television broadcasting**

The main institutions of the European Union – the European Parliament, Council of the European Union and European Commission, in co-ordination with the International Telecommunications Union (ITU) and the European Broadcasting Union (EBU) carry out a purposeful policy of wide implementation of digital terrestrial television broadcasting in EU member-states. The terms for actual coverage of the territories of the countries with digital terrestrial TV signals are planned in the period 2009-2012.

The transition to digital (including terrestrial) television and audio (DAB, DRM), broadcasting is considered in detail from economic, social and ecological point of view by the European Commission. The leading factors and stakeholders (consumers, industry representatives and regulatory authorities) are evaluated together with the risks ensuing from the initial and subsequent stages of the transition. The ultimate political aim is carrying out of national transition policy and market development in each member-state of the European Union.

Defining the market niche of digital terrestrial television broadcasting is of great importance for its successful implementation. In recent years, due to the high number of programmes, high quality and ease of reception, distribution of TV programmes through cable and satellite networks attracts many consumers and pushes out the analog terrestrial television broadcasting.

Our country is characterized by a mountainous terrain hindering the terrestrial coverage by TV programmes. The national television programme of the Bulgarian National Television has coverage of approximately 98 % of the population of the country which is accomplished by a significant number of TV transmitters and relay stations.

Currently, frequencies used for analog terrestrial television broadcasting are in the I<sup>st</sup>, II<sup>nd</sup>, III<sup>rd</sup>, IV<sup>th</sup> and V<sup>th</sup> television bands. The network of the Bulgarian National Television is constructed by transmitting and relay equipment, mainly in the II<sup>nd</sup> and III<sup>rd</sup> range and is supplemented partially by the IV<sup>th</sup> and V<sup>th</sup> television bands. As for the networks of *bTV* and *Nova TV*, the television bands are III<sup>rd</sup>, IV<sup>th</sup>, V<sup>th</sup> and IV<sup>th</sup>, V<sup>th</sup>, respectively. There are licensed 41 television transmitting stations with local coverage. Considerable part of the available spectrum designated for television broadcasting is allocated for the needs of the Ministry of Defence. The deadlines for the release of the particular channels are in accordance with the current National Plan for Allocation of the Radio Frequency Spectrum. In the course of harmonizing the frequency bands, used by the Ministry of Defence and the respective amendments of the National Plan for Allocation of the Radio Frequency Spectrum, the terms in the footnotes are defined in accordance with the plans for modernization of the communication and navigation systems of the Bulgarian Army, including those concerning the IV<sup>th</sup> and V<sup>th</sup> television bands. By now, this modernization has been constantly postponed because of some financial restrictions of the Ministry of Defence.

According to the Geneva Plan of 2006, frequencies in the III<sup>rd</sup>, IV<sup>th</sup> and V<sup>th</sup> television bands are used for the needs of digital terrestrial television broadcasting. The frequency resource allocated to the Republic of Bulgaria provides an opportunity for the construction of 10 networks for digital terrestrial television broadcasting with national coverage, 34 networks with regional coverage and 23 networks with local coverage. The frequency resources in the bands 174-230 MHz and 470-862 MHz are defined under the frequency plan, adopted at the Regional Conference RRC-06 (ITU, Geneva).

The conditions for use of the available frequency resource and the current situation in the country give grounds to assume that the most appropriate approach for digitalization of terrestrial television broadcasting is the so called “island-based transition/a mixed island transition”. 95 % coverage of households is aimed to be reached gradually by 2012, thus providing opportunity for reception of television programmes from digital terrestrial television broadcasting.

The development of digital terrestrial television broadcasting would be a real factor for expanding the market of TV receivers such as integrated DVB receivers, set-top-boxes (STB), DVD recording and reproducing devices, personal video recorders (PVR) and also of those designated for a wide-range intensive media activity.

The “island-based transition” approach is reasonable and favourable for the private operators taking into accounts the investments costs in networks whereas the public ones provide the coverage of the whole territory. Each island includes 3 effective frequencies and from 12 to 15 TV programmes, in total. The process of transition from analog to digital terrestrial television broadcasting is anticipated to take place in two phases:

#### **FIRST PHASE (Launch Phase)**

##### **National networks**

**2008:** granting right of use of the radio frequency spectrum for construction of three national Multi-Frequency Networks (MFNs) by territory and Single-Frequency

Networks (*SFNs*) for every territorial zone, defined by GE-06, for the following zones of service: Bourgas, Varna, Vidin, Plovdiv, Rousse, Sofia and Stara Zagora;

### **Regional networks**

**2008:** granting right of use of the radio frequency spectrum for construction of twelve regional *SFNs*: three networks per territory of four cities: Bourgas, Varna, Plovdiv and Sofia;

## **SECOND PHASE (Transition Phase)**

### **National networks**

**2010:** granting right of use of the radio frequency spectrum for construction of three new national *MFNs (SFNs)* (one of them by DVB-H technology) for the following zones of service: Bourgas, Varna, Vidin, Plovdiv, Rousse, Sofia and Stara Zagora;

### **Regional networks**

**2010:** granting right of use of the radio frequency spectrum for construction of thirteen new **regional SFNs** for the following zones of service: Blagoevgrad, Bourgas, Varna, Varna City, Vidin, Kyrdzhali, Pleven, Plovdiv, Rousse, Smolyan, Sofia City, Stara Zagora, Strandja and Shumen and two *SFNs*: one for Sofia City and the other for Varna City.

***By December 2012 all terrestrial analog television broadcasting transmitters should be switched off.***

Special attention should be paid to avoiding the so called “digital divide” based on the needed media literacy of the consumers. The implementation of digital television has certain advantages for the supply and consumers such as more channels, interactive TV programmes, Internet access, access to digital services, EPG usage, purchasing digital receiving devices at affordable prices, etc.

In order to achieve the ultimate political aim, namely, carrying out national policy for transition and market development in each EU member-state, the Government should have a clear strategy and take measures for promoting and advertising the digital transmission. Conditions should be created for provision of consumer equipment at affordable prices and for covering the country with a high-quality signal. The establishment of a specialized fund to the state budget is anticipated for covering specific digitalization costs.

In the Electronic Communications Act particular issues are considered in relation to the implementation of digital terrestrial television broadcasting in the Republic of Bulgaria and to the use of devices for interactive digital television services and the need for those devices to have open application programme interfaces (APIs). An important document is the National Plan for Allocation of the Radio Frequency Spectrum (referred to as the “National Plan”) where frequency bands for the needs of DVB-T are defined.

## **Conclusions:**

The transition from analog to digital terrestrial television broadcasting imposes two approaches for frequency planning – in a mid term and long term perspective. Now, it

is necessary to bring out affordable frequencies for digital networks while at a later stage, we need to implement the new frequency plan for digital networks adopted by ITU at RRC-06, Geneva, 2006 in the “National Plan”.

Prerequisites for the accelerated and smooth implementation of DVB-T in Bulgaria are:

- Optimum planning of the frequency allotments in the zones;
- Releasing the necessary frequency spectrum from the Ministry of Defence;
- Establishing an appropriate legal base;
- Involving the country and its political and regulatory means;
- Carrying the investments burden by operators, and
- Elaborating programmes with various and valuable content.

Bulgaria’s priority aim is to ensure conditions for launch of gradual digitalization of terrestrial television broadcasting in 2008.

For our country, the so called “island-based approach” has turned to be the most appropriate as a result of a detailed analysis and taking into account the experience of the countries having significant progress in the process of implementation of terrestrial digital television.

For successful realization of the transition, a package of regulatory measures, amendment and supplement of the legislation are needed in order to ensure the transition to digitalization. The plan is adopted by a Decision of the Council of Ministers on 31 January 2008.