Analyses of Base of the Development and Organize of the Digital Television Format

Rayimdjanova Odinakhon Sadikovna
PhD. Chief of the Department of Telecommunication Engineering of the Fergana branch of TUIT, Fergana, Uzbekistan
E-mail: rodinaxon75@mail.ru

Usmonali Umarovich Iskandarov
Senior teacher of the Department of Telecommunication Department of Telecommunication Engineering of the Fergana branch of TUIT, Fergana, Uzbekistan
E-mail: usmonaliiskandarov7@gmail.com

Orifjonova Mohidil Oqiljon qizi
Master's Degree Student, Department of Telecommunication Department of Telecommunication Engineering of the Fergana branch of TUIT, Fergana, Uzbekistan

ABSTRACT

The article analyzes the basics of development and formation of the digital television format, the theoretical basis of DVB-T2 (digital video broadcasting) digital television standard programs, signal transmission scheme and comparison tables of channels.

Keywords: digital television, modulation, broadcast, protocol, video, digital broadcasting, integration scheme, skrambling.

Introduction

Many users have been scientifically developing their theoretical and practical work through experimental work related to research and development, design of modern TV and radio broadcasting format. Of course, it is necessary to pay attention to the stages. The first stage is characterized by the transfer of all studio equipment within one television center to a digital signal, their processing and storage is carried out by digital means. When leaving the television center, the signal is converted to analog and transmitted through standard communication channels. Later, hybrids of analog-digital television systems were launched. The final stage in the development of a new format of television broadcasting was the announcement of the competition for the best project of high-definition television, which will be approved as a national standard in the United States. This race was announced in 1987, and only in the 90s did the first proposals for fully digital systems appear, and by the 93s, a major project was presented and the main national standard was recognized in the USA [1,2,3,4,5].

Methos and results

International standards of such digital television: DVB - European standard; ATSC - American Standard; ISDB is a Japanese standard. The digital format of broadcast television is based on MPEG-2 video compression technology for all standards. If we look at European DVB (Digital Video Broadcasting) in detail, it is divided into separate categories that transmit signals at different frequencies and use different

modulation methods. The European digital DVB standard (Fig. 1) uses a multiplexer in the studio to combine all the signals of individual MPEG-2 video programs and put them into a DVB stream. The resulting stream is "enclosed", modulated to suit itself, and broadcast [4,5,6,7].

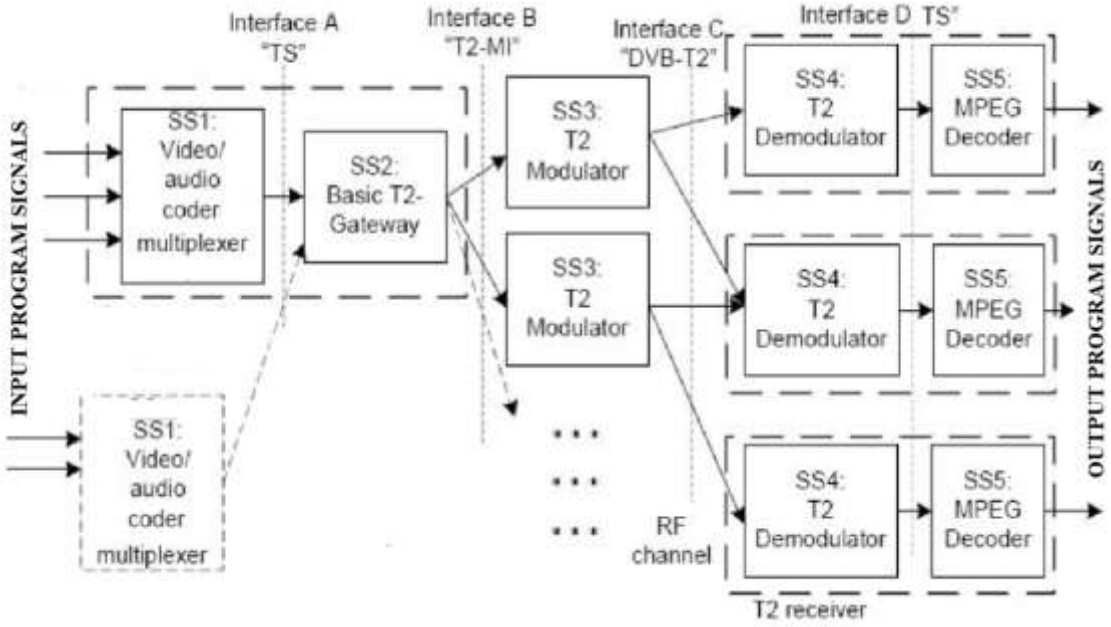

Figure 1. DVB-T2 digital television standard program signal transmission scheme.

Discussion

With the help of a special antenna, a signal is received, and this signal is demodulated and sent to processing for viewing, determining whether the receiver has the right to use the channel. The final DVB protocol will contain MPEG-2 video and additional data. Working as a digital broadcast standard has many advantages, such as: picture quality; the ability to choose the broadcast language and subtitles; watching TV for several days; freeze frame, record transfer and return to the beginning of the transfer; listening to the radio; get more information. These advantages are not the main thing expected in new television formats. The high speed of signal transmission and excellent sound and image quality, as well as the interactive features of the digital standard, have led to the widespread use of the name digital system [8,9,10].

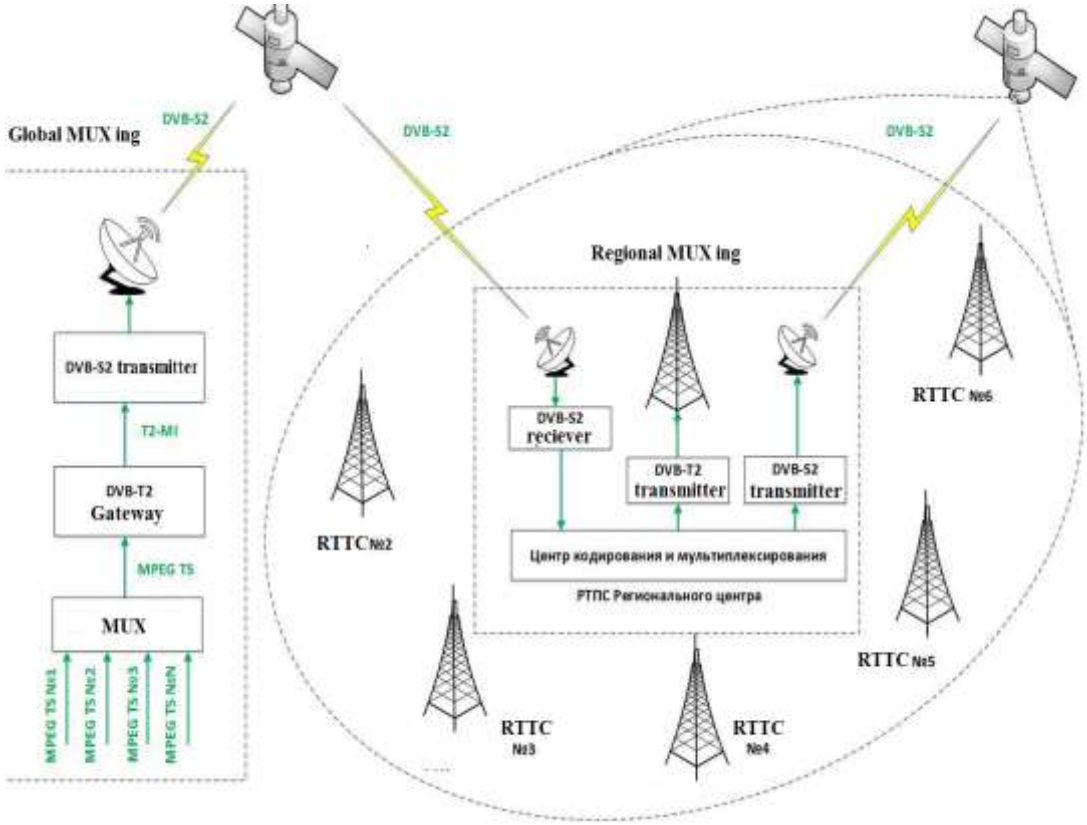

Figure 2. Integration scheme of DVB digital television systems.

Such systems also use physical layer scrambling or encrypted terrestrial television signal. Most providers offer specific service packages to consumers that include a strictly regulated set of channels. Channels not provided in the tariff plan are simply not displayed on the screen. RTTC are radio television Centers. A conditional access to a signal can be created by scrambling. There are different interfaces for connecting scrambling and different broadcasters choose them according to their preferences. In the studio, the signal is encrypted for each user and sent to the client in this form. The decoder installed in the subscriber demodulates the signal, "opens" it and displays it on the TV screen, that is, on the panel. Demands and features of digital terrestrial television At the time of technological development, analog radio and television broadcasts are gradually disappearing in all countries, and digital terrestrial television has taken its place. It works on the technology of video and audio signal transmission coded using the latest standard digital channels. The digital data transmission method greatly expands the possibilities, because it allowed to transmit the image and sound without the slightest loss, because the digital signal is not affected by noise. Digital switchover means the global modernization of terrestrial broadcasting networks through the transition to digital technologies. This process gradually covered all countries of the world during 2009-2015 and now it can be said to be fully digital. Currently, it is possible to watch programs from different countries on more than 100 channels in several different languages.

Table 1. A sample of frequencies of some RTTC in the republic

Place of RTTC	*Sitial pocket*	*bisness packet*	*2 - bisness packet*
Tashkent xududi	42 ТВК (DVB-T – 642 MHz)	41 ТВК (DVB-T – 634 MHz))	29 ТВК (DVB-T – 538 MHz))

	31 ТВК (DVB-T2 – 554 MHz)) 35 ТВК (DVB-T – 586 MHz)) 40 ТВК (DVB-T2 – 626 MHz))	37 ТВК (T – 602 MHz))	30 ТВК (DVB-T2 – 546 MHz))
Tosh. regl. Charvaq	47 ТВК (DVB-T2 - 682 MHz))	48 ТВК (DVB-T2 - 690 MHz))	
Tosh. reg. Quyoshliq	34 ТВК (DVB-T2 - 530 MHz))	25 ТВК (DVB-T2 - 458 MHz))	48 ТВК (DVB-T2 - 690 MHz))
Tosh. reg. Angren	44 ТВК (T - 658 MHz)) 47 ТВК (DVB-T2 - 682 MHz))		
Tosh. reg. Bekobod	24 ТВК (DVB-T2 - 498 MHz)) 27 ТВК (T - 522 MHz))		
Shaugaz	26ТВК(DVB-T2 - 514 MHz)) 35 ТВК (T – 538 MHz))		
Andijan	27 ТВК (DVB-T2– 522 MHz)) 39 ТВК (T – 618 MHz))	37 ТВК (DVB-T2 - 602 MHz))	33 ТВК (DVB-T2 - 578 MHz))
Fergana	24 ТВК (DVB-T2 - 498 MHz))	22 ТВК (TDVB-T2 - 482 MHz))	29 ТВК (DVB-T2 - 538 MHz))
Kokand	40 ТВК (T-626 MHz)) 42ТВК (T2-642MHz))	45 ТВК (T 2 - 666 MHz))**	
Sokh	40 ТВК (T 2 - 626 MHz))	37 ТВК (T 2 - 602 MHz))**	
Lenburg	33 ТВК(T2-570MHz))		
Navoiy	41 ТВК (DVB-T2 - 634 MHz))	43 ТВК (DVB-T2 - 650 MHz))	45 ТВК (DVB-T2 - 666 MHz))
Zarafshan	48 ТВК (DVB-T2- 690 MHz))	43 ТВК (DVB-T2 - 650 MHz))**	44 ТВК (DVB-T2 - 658 MHz))**
Uchquduq	32 ТВК (DVB-T2 – 562 MHz))	30 ТВК (DVB-T2 - 546 MHz))**	34 ТВК (DVB-T2- 578 MHz))**
Langar	30 ТВК (T-546 MHz)) 28 ТВК (DVB-T2 - 530 MHz))	33 ТВК (566-574 MHz))**	
Gazgan	36 ТВК (DVB-T2 - 594 MHz))		
Tamdi	38 ТВК (DVB-T2 -610 MHz)		

Conclution

The article analyzes the basics of development and formation of the digital television format, the theoretical basis of DVB-T2 (digital video broadcasting) digital television standard programs, signal transmission scheme and comparison tables of channels. Shown the way of study of structures step by step to integrated televission networks. Analized all comparative data and parametrs of the digital TV RTTCes. Made and develoed conclusions of all complicated digital color television.

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