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# The Main Comparations of the Some Parametters of the Modern Television Standards

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**Annotation:** Article stoped on the following aspects: kinds of TV standatds, a comprehensive developments of TV structure andcomplecation. They change regularly. TV bases are related by the using of equipments in accordance with the requirements and their effectivness. Digitalization TV processes have several superior features that are unique coders, modulators, amplifiers, generators, comparators, MUXes and so on.

**Keywords:** standard, receiver, encoder, data conversion, modulation system, radio waves, stream, packets, digitalization, coders, modulators, amplifiers, generators, comparators, MUXes.

Data in TV systems represents as an image and sound, as well as any additional information related to multi services. There is only many conditions for transmitting this information in the DVB-T standard - the data must be encoded in the form of MPEG-2 transport stream packets. In this sense, the standard describes a container adapted for the delivery of packetized data in terrestrial television conditions. For the DVB-T standard, neither the contents of the container nor the origin of the data matter; it only adapts the output data of the MPEG-2 transport multiplexer to the properties and characteristics of the terrestrial television broadcast transmission channel, trying to most effectively convey them to the receiver. That is, the standard defines the structure of the transmitted data stream, channel coding and modulation system for multi-program terrestrial television services operating in limited, standard, enhanced and high definition (HD) formats [1,2,5]. To ensure compatibility of devices from different manufacturers, the standard defines the parameters of a digital modulated radio signal and describes the conversion of data and signals in the transmitting part of the digital terrestrial television broadcasting system. Block diagram of the signal and data conversion device in the DVB-T transmitter, a special system of the DVB-T standard as a container for transmitting MPEG-2 transport packets is a harmonious combination of the channel coding system and the OFDM modulation method. Signal processing in the receiver is not regulated by the standard and remains open. This does not mean that the creators of the standard did not foresee the principles of constructing a DVB-T receiver, but the lack of a strict standard for the receiver intensifies competition between TV manufacturers and stimulates efforts to create high-quality and cheap devices. An approximate version of the receiver circuit is shown in the figures. The DVB-T system was designed for digital broadcasting, but it must be integrated into the existing analog environment, so the system must be protected from adjacent and co-channel interference caused by existing PAL/SECAM transmitters. Since we are talking about terrestrial broadcasting, maximum efficiency in the use of the frequency range must be ensured, realized as a result of the optimal combination of single transmitters, multi-frequency and single-frequency networks. The high level of industrial noise in the terrestrial television channel should be taken into account. A DVB-T system must successfully combat the typical terrestrial television echoes caused by both static objects, such as buildings, and dynamic objects, such as aircraft, and provide stable reception in conditions of multipath propagation of radio waves caused by the terrain. It is desirable to create conditions for reception on the move and with indoor antennas.

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All these requirements have been fulfilled in DVB-T thanks to the use of the new OFDM modulation system. [4, 6, 8] OFDM is characterized by signal transmission using a large number of carrier oscillations, the frequencies of which are multiples of some fundamental frequency. Moreover, each carrier carries a data stream reduced by a number of times equal to the number of carriers. The carriers are orthogonal, which makes it possible to demodulate modulated oscillations even in conditions of partial overlap of the sidebands of individual modulated carriers [2, 3, 8]. Coding is necessarily associated with the introduction of some redundancy into the data stream and, accordingly, with a decrease in the transmission rate of useful data, therefore, increasing the coding power by increasing the volume of verification data does not always meet the requirements of practice. To increase coding efficiency without reducing code speed, data interleaving is used. Encoding allows errors to be detected and corrected, and interleaving increases the efficiency of encoding because error packets are broken down into small fragments that the encoding system can handle. [4,9.11] Concept of the DVB-T2 standard The second version of the digital terrestrial television standard DVB-T2, developed within the DVB consortium in 2008 for the transmission of HDTV programs, provides at least a 30% increase in the capacity of terrestrial channels, possibly 50% increase compared to DVB-T standard system. DVB-T2 is the last in the family of DVB standards for terrestrial digital television, since it is physically impossible to implement a higher information transmission rate per unit of spectrum.

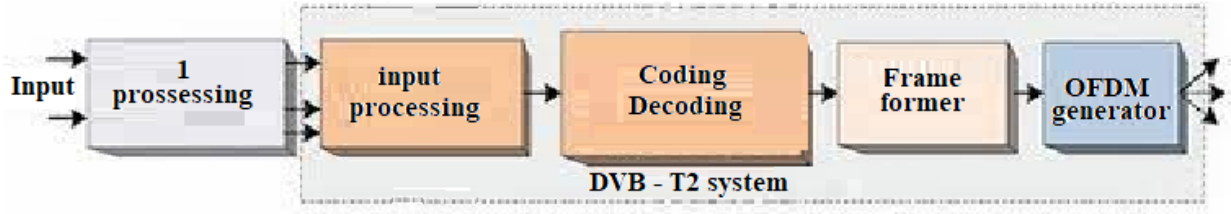
What kind of gain can be obtained depends on the carrier modulation modes used and the network construction. This gain will be maximum in single-frequency networks. [1, p. 262] When developing the new standard, the following pre-formulated commercial requirements were met: Requirements for DVB-T2 - open spoiler Most of the technical solutions used in creating the DVB-T2 standard were aimed at maximizing the radio channel capacity, almost reaching 50 Mbit/ with.

| N | Parametrs | DVB-T1 | DVB-T2 | DVB-S2 | DVB-s2 | DVB-Tt | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Modulation QAM | 64 | 256 | 256 | 256,1024, 4096 | 64,32,16 | |
| 2 | Size of FTT K | 8 | 32 | 32 | | 4 | |
| 3 | FEC | 2/2+R+s | 3/5LDPS+BCH | 3/5LDPS+BCH | 3/5LDPS+BCH | 3/5LDPS+BCH | |
| 4 | Code | 2046188.16 | 64800- LDPS | 64800- LDPS | 64800- LDPS | 772-752-64800- LDPS | |
| 5 | Fault | 8 | 8 | 8 | 8 | 8 | |
| 6 | Reciever Band. MHz | 4.98-31,7 | 7/49-50,32 | C,Ka,Ku | 25,1-84 8,1 | 5.41-28.8 | |
| 7 | Ts, Mbit/s | 32 | 51 | 51 | 51 | 32 | |

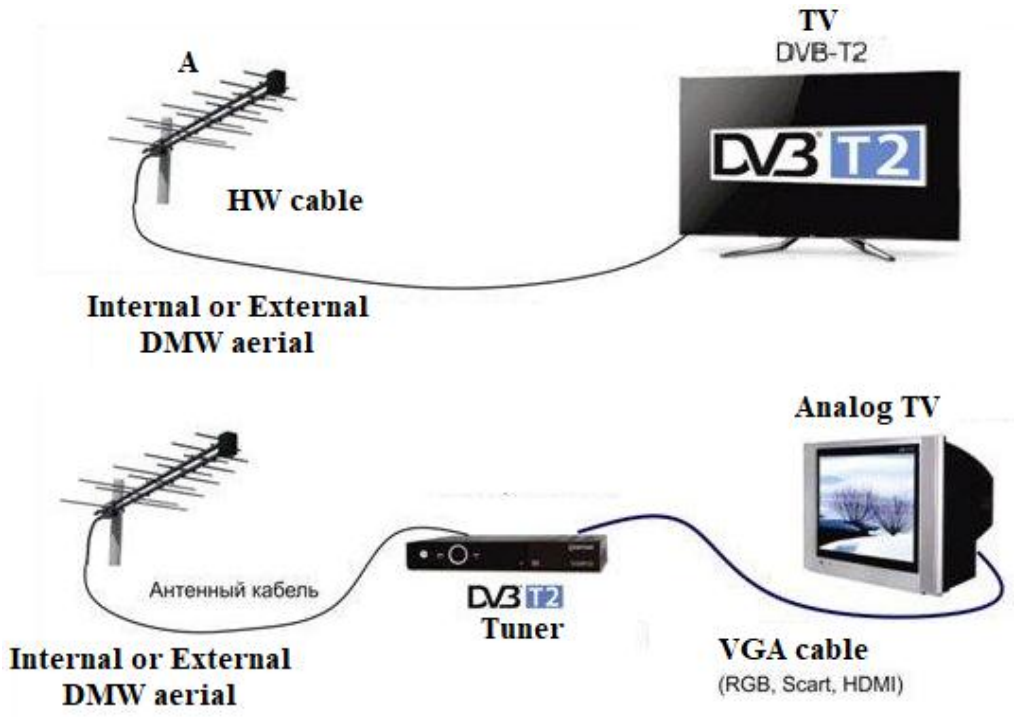
**Picture 1. Comporative table of TV standard technologies.**

Thus, DVB-T2 provides an actual increase in throughput by 1.4 times under almost equal transmission conditions (signal-to-noise ratio 20 and 22 dB, respectively, in the DVB-T and DVB-T2 standards). [1, p. 263] A number of releases were introduced into the set of requirements for DVB-T2 to make it possible to optimize its parameters depending on the characteristics of a particular radio channel, to increase the flexibility and reliability of its operation in practical reception conditions. Despite using the same modulation method (OFDM), the new digital terrestrial broadcasting standard DVB-T2 is not compatible with the previous DVB-T standard. [1, p. 264] Formation of transmitted data packets If the DVB-T standard was intended exclusively for transmitting MPEG-2 transport stream packets, then the DVB-T2 network is capable of transmitting information flows of a wide variety of nature and structure. At the same time, the DVB-T2 standard is capable of simultaneously transmitting several independent multimedia streams, each with its own modulation scheme, encoding rate and time intervals. Each digital stream is placed in its own main stream - the so-called PLP (Physical Layer

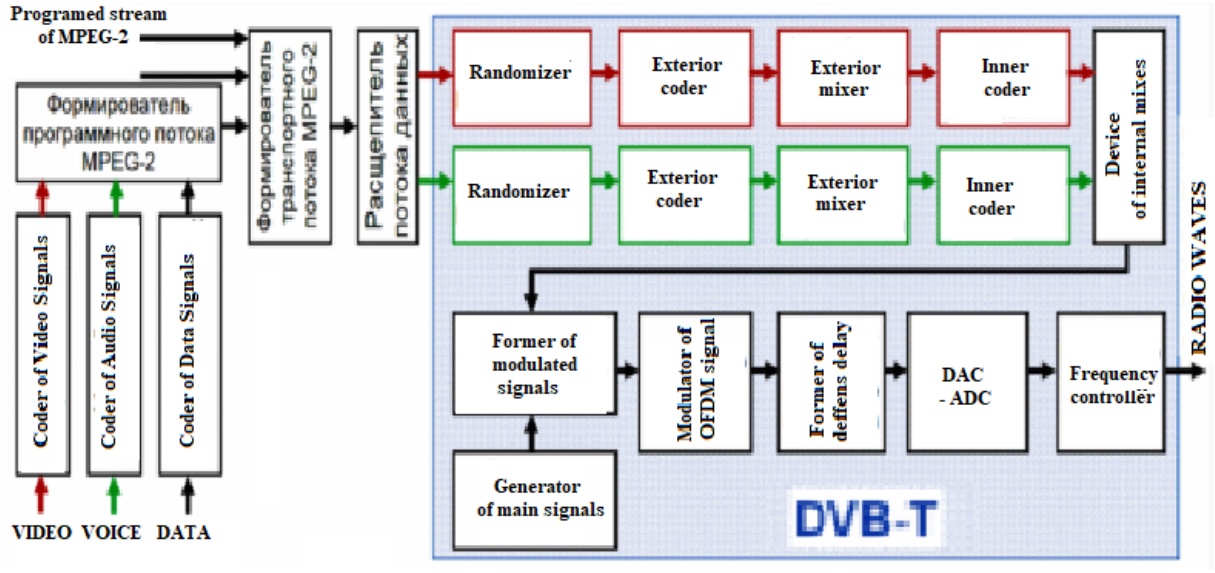
Pipe) channel. The trunk PLPs that are created may contain one of the following streams, which are a sequence of UP (User Packet) packets. The DVB-T2 standard is focused on the transmission of television streams, in which empty packets are sometimes used (to equalize the flow rate, various types of delays to maintain a constant flow rate). Therefore, DVB-T2 provides a means of removing this redundant information, but with the ability to restore it at the receiving end. [1, p. 23] The DVB-T2 standard is extremely flexible in terms of multiplexing multiple streams into a single broadcast signal. Commercial requirements for DVB-T2 include providing different levels of interference immunity for different services. Therefore, OFDM symbols are grouped inside the T2 frame, so that each service is transmitted as a single block, occupying a certain slot in the frame, that is, an output multi-PLP note current is formed. Thus, in the DVB-T2 standard, the grouping of OFDM symbols is inextricably linked with the distribution of modulated carriers between logical information flows, the PLP network. Moreover, in DVB-T2 it is possible to simultaneously transmit several transport streams, each of which is placed in an individual PLP. [Figure 1] Service capabilities of the DVB-T2 standard system - open spoiler the above list presents all digital services and services of the DVB-T2 standard system, many of which are interactive. [1, p. 28] Comparative assessment of DVB-T and DVB-T2 standard systems to assess the potential capabilities of the two systems (DVB-T and DVB-T2), the main parameters of their operation are presented in table form, allowing, first of all, to estimate the throughput of terrestrial radio channels. [10, 11, 9].




**Picture 2. Structure of data processing by the DVB-T transmiters.**




**Picture 3. Kids of DVB-T resievers.**




**Picture 4. Structure of DVB-T transmitting.**

**Conclutions.** At the end of the article, the following can be noted as a result: kins of TV standatds always finds a comprehensive development in the future being more complecated. They change regularly and require sufficient skill. In order to study TV bases in action, regular training should be done. This is related to the use of equipment in accordance with the level of requirements and their effective use. Digitalization process have several superior features that are unique coders, modulators, amplifiers, generators, comparators, MUXes and so on.

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