

## Analog television in Russia after 2019: Some consequences of the transition to digital tv broadcasting

*Televisión analógica en Rusia después de 2019: algunas consecuencias de la transición a la transmisión de televisión digital*

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### Abstract

13 years ago, on December 22, 2006, Russian Prime Minister Mikhail Fradkov signed the first government decree regulating the introduction of digital TV in Russia (TASS October 14, 2019). The article summarizes the authors' long-term research on the country's transition to digital broadcasting. Historical parallels are drawn with similar events from the history of television development. It is found out how this will affect different segments of the population. Possible ways of realization of digital signal reception for viewers are presented. Two possible ways of distributing terrestrial television content are briefly described. It is concluded that cable operators are monopolists of television broadcasting in apartment buildings. The results of the study of cable operators in Russia are presented. In contrast to the majority of "winning" headlines in the media the hypothesis that cable TV networks will continue to broadcast in the same format on analog TV sets was confirmed. The authors conclude that the high urbanization of the Russian population has saved most of the country's viewers from the severe shocks associated with the transition to digital television. A comparison of the television audience of the urban population and suburban residents is given. It points to the problems of pensioners and the poor caused by the digitization of TV. The problems of possible destruction of the socio-cultural space of Russia due to the reduction or liquidation of local TV companies were highlighted. It is emphasized that it is the rural population that most contributes to the preservation of cultural traditions and moral foundations. It is emphasized that regional and municipal television is the main way of information influence on the local electorate. The analysis of pages of all subjects of the Federation of the official website of the STRC for broadcasting in digital format of local television is carried out. The dynamics of the emergence of new regional stations on the air was indirectly measured. In conclusion, measures are proposed to unite the population of the country through the programs of regional companies.

**Keywords:** cable analog television, terrestrial television, transition to digital broadcasting, regional local television, problems of the older generation, pensioners, social and cultural space.

### Resumen

Hace 13 años, el 22 de diciembre de 2006, el primer ministro ruso, Mikhail Fradkov, firmó el primer decreto gubernamental que regula la introducción de la televisión digital en Rusia (TASS, 14 de octubre de 2019). El artículo resume la investigación a largo plazo de los autores sobre la transición del país a la transmisión digital. Se trazan paralelos históricos con eventos similares de la historia del desarrollo de la televisión. Se descubre cómo esto afectará a diferentes segmentos de la población. Se presentan posibles formas de realización de la recepción de señal digital para los espectadores. Se describen brevemente dos posibles formas de distribuir contenido de televisión terrestre. Se concluye que los operadores de cable son monopolistas de la transmisión de televisión en edificios de apartamentos. Se presentan los resultados del estudio de operadores de cable en Rusia. En contraste con la mayoría de los titulares "ganadores" en los medios de comunicación, se confirmó la hipótesis de que las redes de televisión por

cable continuarán transmitiendo en el mismo formato en televisores analógicos. Los autores concluyen que la alta urbanización de la población rusa ha salvado a la mayoría de los televidentes del país de las graves conmociones asociadas con la transición a la televisión digital. Se ofrece una comparación de la audiencia televisiva de la población urbana y los residentes suburbanos. Señala los problemas de los pensionistas y los pobres causados por la digitalización de la televisión. Se destacaron los problemas de posible destrucción del espacio sociocultural de Rusia debido a la reducción o liquidación de las compañías de televisión locales. Se enfatiza que es la población rural la que más contribuye a la preservación de las tradiciones culturales y los fundamentos morales. Se enfatiza que la televisión regional y municipal es la principal forma de influencia de la información en el electorado local. Se realiza el análisis de páginas de todos los temas de la Federación del sitio web oficial del STRC para su transmisión en formato digital de televisión local. La dinámica de la aparición de nuevas estaciones regionales en el aire se midió indirectamente. En conclusión, se proponen medidas para unir a la población del país a través de los programas de las empresas regionales.

**Palabras clave:** televisión analógica por cable, televisión terrestre, transición a la transmisión digital, televisión local regional, problemas de la generación anterior, pensionistas, espacio social y cultural.



## Introduction

A number of reasons contributed to Russia's transition to digital terrestrial television broadcasting:

1. Lack of frequency resource. An analog television signal, according to modern ideas, takes up too much space in the radio wave range. After transition to digital broadcasting, a package of ten digital channels (the so-called multiplex) will be broadcast in place of one analog TV channel.
2. The continuation of analog broadcasting in the border regions of Russia creates radio interference to other states. The "Geneva-06" agreement implies the removal of legal protection from analog frequencies in 2015. The border regions of the Russian Federation that have not stopped analog TV broadcasting become sources of interference for neighboring countries that use the frequencies of former analog channels for other purposes. The demand of foreign states to Russia to turn off analog broadcasting will be quite justified. It is no accident that digital terrestrial television, first of all, appeared on the borders of the country. This was also necessary in order to secure the frequencies of radio transmitters for Russian broadcasters.
3. Improving the quality of the "picture" to the viewer. Digital TV provides stable quality for all viewers in the entire area of confident reception. With an analog signal, as moving away from the transmitting television center, the quality of the television image steadily decreases.
4. The possibility of using the radio frequencies released after the analog for other purposes (not television). Many countries are deploying networks in this range to develop broadband Internet.

The purpose of this article is to investigate and evaluate the consequences of the country's transition to digital terrestrial television broadcasting; what urgent problems arise in this regard, what the possible ways to solve them are. The relevance of *Studying* this issue is dictated by the recent final transition of Russia to digital terrestrial TV broadcasting.

In the Federal target program approved in 2009 by the government, it was planned to turn off analog broadcasting in 2015 after covering 95% of the country's territory with digital one. Prior to this, it was planned to start this process in 2015 and be fully completed by 2016. But the situation was complicated by economic shocks in the country, which delayed the construction of the necessary infrastructures (Henry engineering, 2019).

And if half a century ago, thanks to the compatibility of television systems, the transition from black-and-white to color broadcasting went

smoothly, the current situation is much more complicated (Bakhus 2016).

The main problem encountered in the transition to digital broadcasting - the population has a large number of analog TVs. Updating the fleet of home reception television equipment is not fast in Russia. Modern equipment is quite reliable and the image quality suits the majority of viewers. It is not necessary to buy a new television to watch the digital channels. An analog TV can still be used with a \$50 set-top box (Adam Turner, 2013). A similar situation was observed in our country more than 30 years ago when developing the decimeter TV range. Most TVs could only accept twelve-meter channels. Initially, there were TMC set-top boxes, and over time, and the fleet of TV receivers was updated, mainly due to imported manufacturers (Bakhus, 2016). But the "development" of TMC did not imply the termination of broadcasting in the meter radio range.

And in the current conditions, although gradual and stepwise, but still the final shutdown of analog broadcasting is expected. The viewers' concerns were well-founded who were afraid of losing the opportunity to watch TV. The American experience of transition to digital broadcasting in June 2009, when 2.5% of viewers were in front of an "empty" screen, is also instructive.

In a sense, the situation repeats itself. In 1940, the senior engineer of The Television Department of the Radio Committee of the USSR, S.O. Girshgorn, made a recommendation to keep low-line television in the USSR for a few more years, while developing new television technologies. The reason is similar: coverage of the territory by television broadcasting and, secondly, the technical base of the receiving television equipment, its availability and potential cost to the consumer. This seemed all the more justified, because low-line broadcasting had a well-established editorial basis, conducted program broadcasting and relied on a small, but real reception base. Unfortunately, at that time, this was not listened to and they received a "collapse" (lessening, reduction) of broadcasting.

However, on October 14, 2019, the last regions of Russia did not officially switch to digital terrestrial TV broadcasting. This means that it will no longer be possible to catch a signal from the house antenna, and many will have to acquire additional devices in order to continue to watch terrestrial TV channels (Sudo null company, 2019). Millions of analog TVs have ceased to be "receivers" and left behind only the function of the monitor (screen). They are not able to accept the "digit" (Solyanina & Bakhus, 2019). According to some estimates, up to 25 million

people were faced with an empty screen and the need to purchase unnecessary equipment of questionable quality (Butuzova, 2019).

After the final transition to digital broadcasting, the authors set out to find out how justified the viewers' fears were, what difficulties who, where and how faces, because the composition of the population of a huge country varies by age, level of wealth and region of residence.

The younger generation prefers the Internet for information. Wealthy citizens will not have any difficulties with purchasing digital equipment. To a greater extent, the problem will affect the elderly population of the country, as the main consumers of television content (Solyanina & Bakhus 2019). Reception of the terrestrial signal is carried out either on an individual antenna (one antenna-for one or two TVs in the household), or a collective antenna (one antenna for the entire apartment building). Cable TV networks "cover" residential neighborhoods, districts and even regions. Filling such a network with content comes from a single point - the head station, which receives a signal from various sources (broadcast, satellite, local studios, etc.). It should be noted that developed cable networks are typical for densely populated settlements (cities, towns, etc.), and individual antennas - for low-rise suburban housing (cottages, country settlements, villages and hamlets) (Bakhus & Kulikov 2019).

Collective antennas in Russia are almost completely replaced by commercial cable networks. Terrestrial television in high-rise buildings has almost ceased to be used. Those who want to save on cable TV services install individual TV antennas (street and room) (Bakhus & Kulikov 2019).

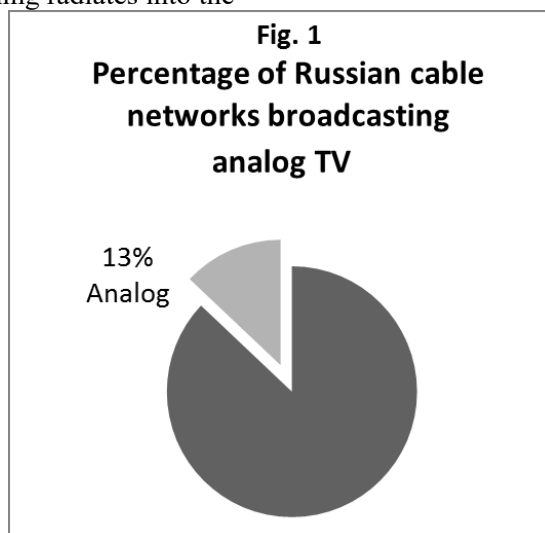
Foreign data call that 20 million viewers have chosen cable TV (Henry engineering, 2019). According to most Russian experts: in large cities, 90% of the population watch television through cable networks (Afanasyeva, 2019). A serviceable cable system is "closed" - nothing radiates into the

air, and does not interfere with anyone. It is quite possible "painless" continuation of broadcasting in such systems in the old analog format on old NON-digital TVs (Solyanina & Bakhus 2019). The authors have already suggested that cable television networks will become the "last stronghold" of analog television broadcasting (Bakhus 2016). In America, to keep analog broadcasting on cable networks, some cable providers did digital to analog conversions for their customers for a while (Anderson Michael, 2019).

And after a series of victorious headlines in the media that "... all television in Russia has become digital...", the idea of the authors to conduct a study to find out - how many such networks and how long they will be carried out analog TV broadcasting was logic (Bakhus & Kulikov 2019).

### The material of the study

was the operators of the Russian cable segment of mass communications. In the global network, the main popular search engines queries such as were processed: *Cable television, Cable television networks, Analog cable broadcasting* and the like. The result was a long list of 247 cable operators in Russia. A detailed analysis of their activities on the basis of the presented network resources, allowed to exclude Internet providers, operators of digital IP broadcasting and similar, not related to analog cable TV broadcasting. As a result of selection, 32 companies remained, which is 13% of the total number (Fig.1). Previously, we studied the distribution of TV channels in the directions, their number and the size of the subscription fee (Solyanina & Bakhus, 2019).



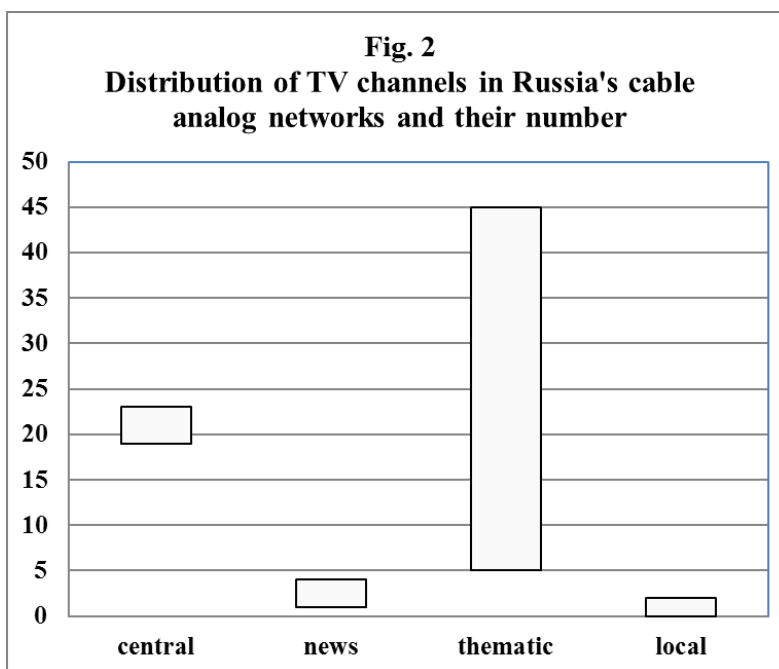
The research method



is a telephone survey of companies through the operators of the customer support service in the period 16-17 October 2019. The main thing that interested: whether it will be possible after October 14 to continue to watch TV shows without purchasing additional devices, on an antenna cable, on the old TV (Solyanina & Bakhus 2019).

**Results**

of the study: Absolutely all 32 surveyed companies confirmed the continuation of broadcasting on cable networks in analog format without a deadline for the broadcast. The number of TV channels in the networks varies from 32 to 80; subscription fee from 130 to 350 rubles per month. On average, companies broadcasting about 20 central channels, 2-4 news channels, 1-2 local channels (Solyanina & Bakhus 2019). In the broadcast networks there are TV shows of local (regional) companies. (Fig. 2)



Naturally, the sample is not complete - some TV companies were not included in our study because of the lack of representation in the global network, or because of the inability to detect them by search engines. But, nevertheless, even the results of this focus group allow judging the current situation in the country.

Urbanization of the Russian population reaches 75 %. **This means** that based on the results of the study - for the majority of television viewers in our country-the nature of viewing TV shows has not changed! The fears of most viewers of the cities were in vain.

Who should be worried after the analog turn off? The problem of switching to terrestrial digital TV broadcasting is relevant:

1) to urban residents who have an individual or indoor antenna. Here the problem can be easily solved by connecting to an existing urban cable TV network. Presumably, the audience of cable television should now expand significantly. Now we are switching to a number, perhaps the time is not far off when we will also give up the cable. Cable television can be modified by replacing TV channels, but it will not be developed anymore, as the frequency resource has been exhausted. People

have to watch 20, a maximum of 60 TV channels in a small resolution. There are no multimedia opportunities for cable television, while digital allows to increase the number of channels, improve the quality of broadcasting, introduce new formats, thereby responding to the needs of modern audiences (Sudo null company, 2019).

2) to the remaining 25 % of the population living “outside the city”: cottagers, residents of villages and hamlets, country settlements, etc. Most of the suburban settlements located near large cities just actively used terrestrial analog TV. After turning off the analogue they could ever make a choice in favor of the satellite segment. The satellite “Tricolor” has already connected more than 10 million people (Henry engineering, 2019). But for many remote areas, analog terrestrial broadcasting was either never conducted at all, or was discontinued due to the dilapidation (failure) of the broadcasting regional equipment. Therefore, before the launch of “digit” to install a satellite dish will be the only way to give or if you live in a small village (Henry engineering, 2019). The Federal program implies coverage of 95% of the country’s territory by digital broadcasting. This is a very high volume figure compared to the

outgoing analog TV. The potential audience for the new way of broadcasting is incomparably greater. Despite this, it is here that serious questions are brewing.

The transition to the “digit” will hit, first of all, pensioners and the poor. As a rule, they do not have enough money to buy a modern TV or install receiving satellite TV. The only way out is to buy a special set-top box, which also costs money (Solyanina & Bakhus 2019). But not everyone can install independently and competently this set-top box, connect it correctly to the TV and antenna. According to some publications, many people are very dissatisfied (Butuzova, 2019).

The quality of the set-top boxes that have poured into the market from China leaves much to be desired. The ease of use of their control panels is puzzling. The problem of interaction of pensioners with modern devices (computers, household appliances, phones and other similar devices) has long been known (Bakhus & Kulikov 2019). American researchers confirm that seniors continue to lag behind younger Americans when it comes to tech adoption (Smith, 2014). There is unavoidable confusion with the control panels: how to adjust the volume, and how to choose the channels (Solyanina & Bakhus 2019). The algorithm for viewing TV shows has been developed by the population for years (Bakhus 2016). It is very difficult to retrain the elderly! Besides, a strong sense of social responsibility may be a more important factor underlying many older people’s rejection of digital technology (Lancaster University, 2018).

**The second disappointing conclusion** is the problems of the older generation during the transition to digital broadcasting and after it.

But even all the above-mentioned topical issues “pale” in comparison with another problem: After the transition to digital broadcasting, many local TV channels will disappear.

Again, history repeats itself in a way. At the dawn of television broadcasting in the 50s of the last century, all television in the country could be described as “regional”. Hundreds of local television centers, usually located in large regional cities, prepared their own broadcast, often for many hours. They broadcast, of course, and programs from the center, brought to the region on film. But the main basis was the local theme, interesting, diverse and meaningful. It met the needs of the region and satisfied the majority of local viewers. In our opinion, this was the “Golden age” of regional television. But in the 60ies, the construction of a network of television repeaters was launched throughout the country, and the «Orbita» satellite relay system was put into operation. This made it possible to organize directly the broadcast of central television broadcasts to the regions, which played a decisive

role... From the center there was an “avalanche” of materials required to be shown at the regional level. This caused a sharp reduction in local broadcasting up to a few minutes per day. And this is compared to the previous 2-3 hours of own broadcasting!

The next stage of reestablishment of local television came in the 90ies, when in the local cable TV networks local broadcasting studios began to appear. History of “becoming and growing up” of these studios is informative. At first, they were people who worked on pure enthusiasm. They had a maximum of one video camera at their disposal. Yes, they acquired skills by creating simple programs for an unassuming audience. They existed at the expense of primitive advertising or congratulatory “running” lines on the broadcasting pirate video. But over time, the transmission improved its quality, the company acquired equipment. Gradually, they became “cramped” within their cable network. Having gained enough experience to increase the real audience of their viewers, there was a gradual “growth” of the cable segment and terrestrial broadcasting. As a result, many of them became large program television centers that produced a fairly serious and high-quality TV product. Naturally, the local theme was resumed in sufficient volume, as the main tool for “filling” their own air. But then everything went down again. On the horizon “digit” loomed (appeared)! Local broadcast television was under threat of destruction. Everything is developing in a spiral. As in the 60s, Central TV almost “killed” all local one, and in the modern situation, Federal channels can eliminate many regional ones.

The cost of entering the multiplex is about 1.2 billion rubles – most of them do not have such a financial opportunity (Tishina & Afanasyeva 2019). The basic version of the multiplex is formed in the Federal center and initially “rises” to the satellite for retransmission. To organize the insertion (inset) of local content in the central package - 81 multiplexing centers were created in the country. In a particular regional center there is a secondary “rising” of one or two local programs on the satellite and their subsequent delivery to all repeaters in the region. But in most subjects of the Federation, there is not one or two, but many low-budget studios and many of them will be “overboard”, they simply do not have enough space!

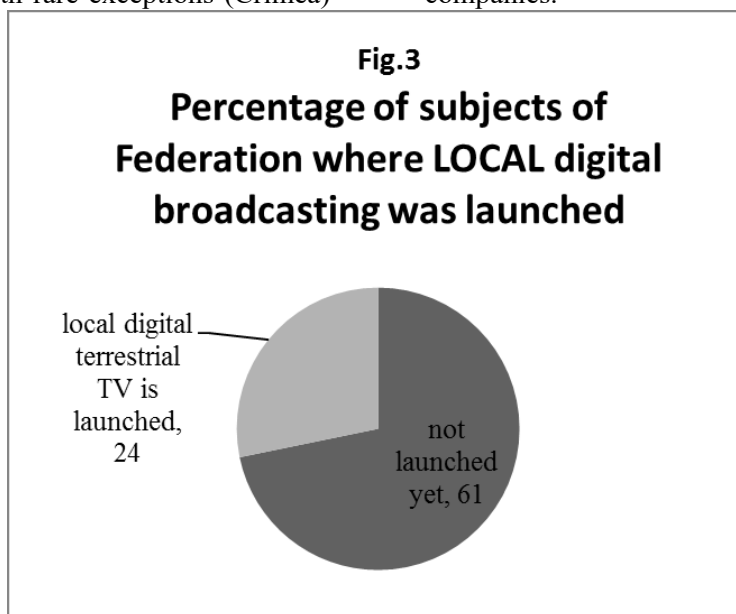
With the departure of local TV channels for a specific, but rather large audience – the oldest age group – and the local agenda will leave. And it, as the September elections in the regions show, is now very relevant. There is no other means of communication with this audience, only through TV (Butuzova, 2019). The programs of local TV companies were the most effective means of



information influence on the local electorate (Bakhus & Kulikov 2019).

A month after the official shutdown of terrestrial analog television in Russia, it was natural to conduct *another study*. On November 14, 2019, the content of 85 pages “Regional broadcasting in multiplexes” was analyzed on the official website of STRC. It was found that in Russia, as of November 2019, only 23 of the 85 regions represented in the Federation broadcast regional programs.(Fig. 3) With rare exceptions (Crimea)

- this is only **one** regional channel, usually the former regional STRC, or a native of it. You can imagine: ONE regional channel for such a huge Republic as, for example, Tatarstan, which is home to 115 nationalities and where before “digitalization” there were 20 branches of regional TV channels throughout the Republic (Bakhus 2016). In our opinion, in such regions, it is advisable to combine broadcasters or alternate use of a dedicated channel by various local companies.



All the remaining 62 regions were optimistic about the launch date of digital regional broadcasting on November 29, 2019...

At the time of writing, on December 23, 2019 (almost a month later), a repeated analysis of the site revealed the appearance of a new regional broadcaster in digital format in just one subject of the Federation. It turned out to be STRC “Pomor’ye” in the Nenets Autonomous district, although initially it was planned to launch another - the TV channel “North”.

As a **result** of another study, sad analogies arise. Judging by the pace of the country’s transition to digital broadcasting, the speed of launching local television in the regions of the Federation will be similar. By that time, many TV channels will either completely lose their audience, or even cease to exist.

No country in the world has such a huge territory, so many nations and nationalities, a variety of cultural traditions. And most clearly all this is manifested not in large cities, but in areas with low population density, in rural areas. We can draw the most important - the **third** disappointing **conclusion** that the elimination or reduction of local TV channels in our multi-ethnic and multi-

religious country will have a detrimental effect on the self-identification of regions, undermine their identity, and may contribute to the disappearance of local languages and dialects (Bakhus 2016). It is terrible to think what consequences all this can lead to. After all, regional television is one of the key elements in the formation of the country’s social and cultural space, responsible for preserving its integrity and entering the world information space (Bakhus, 2016). Many foreign researchers confirm specific roles of local television in the socio-cultural transformations at the local level (Hendrawan, 2015).

The adoption of the law “On the 22<sup>nd</sup> button” in June 2019 confirms the understanding of the problem by the country’s leadership. 180 cities have been identified where local CABLE broadcasting should be organized.

To avoid disunity in the country, it is advisable to provide broadcasting time on Federal channels to various regional companies in turn. The center, and the whole huge country should represent how and what people live in its various corners (Bakhus, 2016).

## Conclusions

1. In Russia, in densely populated areas (cities, towns), there is a fairly well-developed method of delivering a television signal over cable lines. In apartment buildings, cable operators are the monopolists of television broadcasting. A detailed analysis of 247 cable operators in Russia was carried out in order to identify the fact of broadcasting **analog** TV. Despite a small percentage (13%) of the total number of all network infrastructure in Russia, they provide TV broadcasting to most of the country's population. (Fig.1) This led to the conclusion that the majority (about 75 %) of viewers will not be affected by the shutdown of analog terrestrial television. The cable television networks developed to date will continue to broadcast TV programs in analog format for a long time. This will extend the life of analog TVs for the foreseeable future.

The study allows estimating the distribution of TV channels in the direction of their number and spread among different broadcasters. Most of the differences among cable operators are manifested in the number of thematic channels. (Fig. 2)

2. At the moment, the main consumers of television content in Russia are older people. The younger generation has preferred the Internet for long. The transition to digital broadcasting will have a negative impact on the poor and low-

income citizens of the country.

3. The shutdown of analog television has threatened the disappearance of many regional and municipal television companies.

The analysis of the content of the page "Regional broadcasting in multiplexes" on the official website of STRC revealed digital broadcasting of local television in only 24 subjects of the Federation out of 85 possible ones.(Fig.3)

The dynamics of the appearance of broadcast digital regional programs in the country is very low, although according to the same site, the date of the beginning of the broadcast in all regions is determined - November 29 of the outgoing year (2019).

4. At the moment, the cable television segment contributes more to the preservation of local broadcasting in the Russian Federation than the terrestrial one.

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