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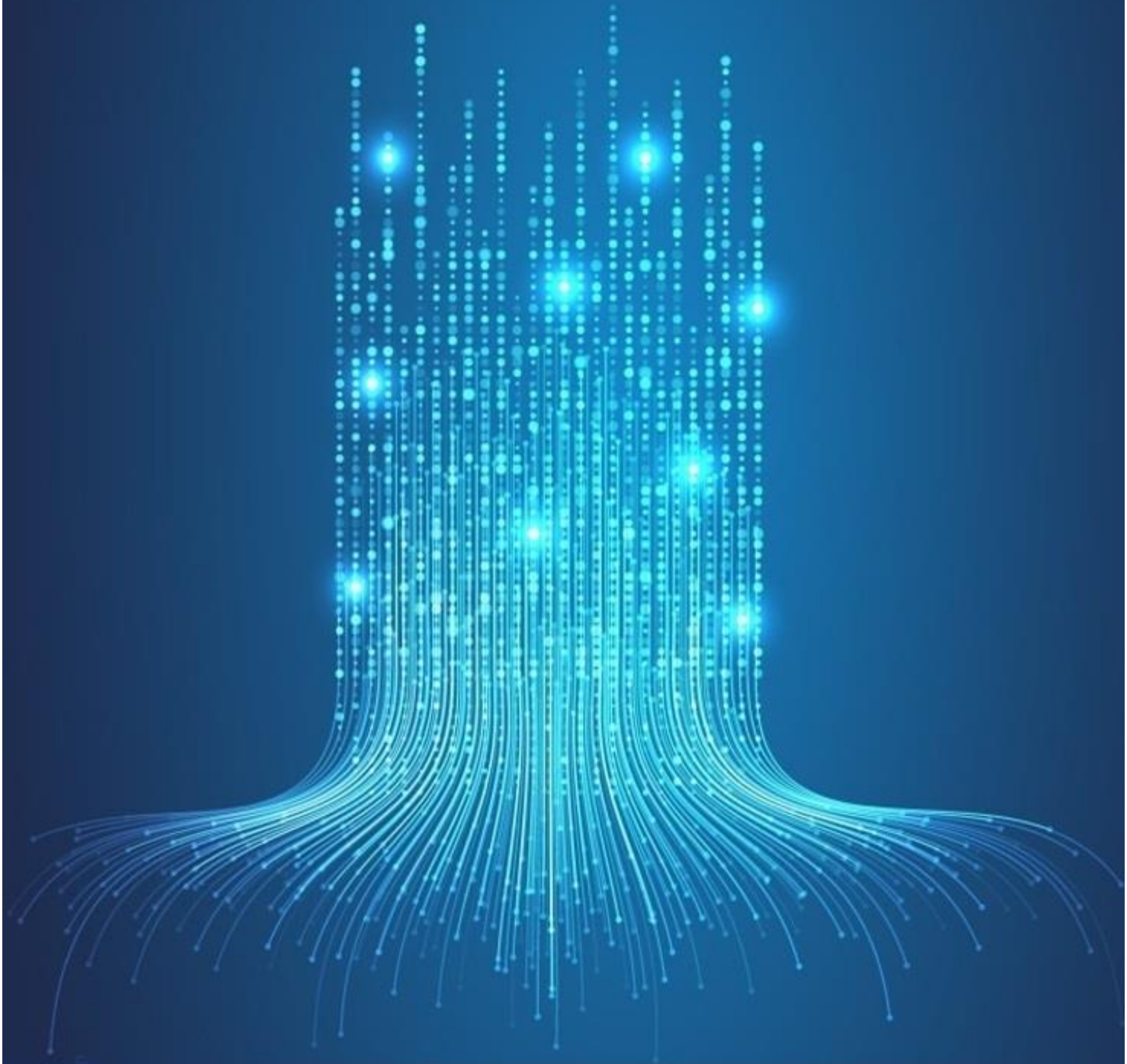

Annual Report 2024

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COMMUNICATIONS REGULATION COMMISSION

ANNUAL REPORT
2024

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INTRODUCTION

In recent years, we have witnessed dynamic changes in the digital world and the emergence of impressive new technologies applied across various fields, transforming the way people live and work both globally and in Bulgaria. Telecommunications play an important role in these processes. They are the ones that connect us and create a sense of closeness in the digital age, and their rapid development over the past decades lies at the foundation of the world we know and live in today.

In line with global trends, the development of the telecommunications sector in Bulgaria in 2024 was also a dynamic process of key importance for the economy and society. The accelerated adoption of innovations and new technological solutions, in turn, opens up not only opportunities for businesses and consumers, but also necessitates adaptation to European and national norms and regulations.

In this dynamic environment, as an independent state authority responsible for implementing policies in the field of electronic communications and postal services, as well as in the planning and allocation of the radio frequency spectrum in the Republic of Bulgaria, the Communications Regulation Commission (CRC, the Commission) continued to carry out its priorities at both the European and national levels.

Remaining consistent in fulfilling its mission to create conditions for the development of the electronic communications market, conditions for investment in next-generation electronic communications networks, effective and sustainable competition in the provision of modern and high-quality electronic communications networks and services for citizens and businesses, and to guarantee equal access to them, the Communications Regulation Commission (CRC) continued in 2024 to work toward achieving the key strategic goals and objectives outlined in its action plan.

Ensuring an effective and forward-looking regulatory environment, promoting a sustainable competitive market and consumer protection, fostering institutional sustainability, and strengthening international partnerships were key priorities in the work of all Commission staff throughout the year. As a result of the overall efforts to implement its main priorities, the Commission achieved significant outcomes in areas such as radio frequency spectrum management, market regulation, network monitoring and control, the regulatory framework, international cooperation, consumer protection, and more, as reflected in the 2024 Annual Report.

In fulfilment of the objectives set out in Decision (EU) 2022/2481 of the European Parliament and of the Council establishing the Digital Decade Policy Programme 2030 and the tasks set out in the Regulatory Policy for the management of radio spectrum for civil needs, and in order to comply with the principles of transparency, publicity and consultation, after holding public consultations and conducting an analysis, CRC adopted a Position on the prospects for use of the free resource in the 1.5 GHz, 2.6 GHz, 3.6 GHz and 26 GHz bands.

In 2024, CRC provided an additional frequency resource of 2x5 MHz in the 1800 MHz band to Vivacom Bulgaria EAD, A1 Bulgaria EAD, and Yettel Bulgaria EAD and extended the validity of the authorisations of A1 Bulgaria EAD and Vivacom Bulgaria EAD to use the 900 MHz and 1800 MHz frequency spectrum for a terrestrial network enabling the provision of electronic communications services by 10 years.

The Rules for the Use of the Radio Frequency Spectrum for Terrestrial Networks were amended and supplemented to allow the provision of electronic communications services upon authorisation, as so were the Rules for the Free Use of the Radio Frequency Spectrum.

This enabled the establishment of harmonised technical conditions for the efficient use of the 900 MHz and 1800 MHz frequency bands for terrestrial systems enabling the provision of electronic communications services, including fifth-generation (5G) terrestrial wireless systems, as well as conditions for the coexistence of narrowband and broadband systems through the definition of block edge masks for the different systems. The added conditions are essential to ensure technological neutrality in the 900 MHz and 1800 MHz bands.

A draft of an updated Regulatory Policy for the Management of Radio Spectrum for Civil Needs was also developed, which is to be adopted in 2025.

In 2024, CRC continued the activity of collecting, processing and validating data for the development of electronic communications services in the Republic of Bulgaria through the Commission's electronic system for on-line questionnaires.

After a notification procedure concluded with an opinion of the European Commission without remarks regarding the prepared analysis and the proposed specific obligations, CRC adopted a final decision on the definition, analysis and assessment of the wholesale market of access to passive (physical) infrastructure.

A fourth round of the wholesale market analysis of local access at a fixed location was launched. The purpose of the analysis is to establish the existence or absence of effective competition in accordance with the general principles of competition law and the specific national conditions and, where appropriate, to impose specific obligations on undertakings with a dominant position in order to ensure conditions for maintaining the competitive environment.

During the reporting period, the Commission continued to monitor the implementation of the requirements of Regulation (EU) 2015/2120 (Open Internet Regulation) and the results of regular monitoring are summarised in an annual report in implementation of Article 5 of that Regulation, published on the CRC's website.

In 2024, CRC was appointed as coordinator for the digital services for Bulgaria by Decision No 405/13.06.2024 of the Council of Ministers. CRC's representatives took part in all 12 meetings of the European Board for Digital Services and in the meetings of its working groups, which discussed key issues related to the implementation of the Digital Services Act.

In connection with CRC's strategic objective for the implementation and maintenance of information systems oriented to business and citizens, actions were taken to ensure the maintenance of the information systems used in the Commission, some of which were upgraded. Actions were also taken to implement Decision № 608/16.08.2024 of the Council of Ministers on adaptation of information systems processing financial information to work with Euro.

The introduction of new technologies and the exponentially increasing spectrum occupancy have posed new challenges for the Commission in terms of radio monitoring. In this context, work continued on the expansion and modernisation of the National Radio Frequency Spectrum

Monitoring System for Civil Needs (NRFSMS) in accordance with its Development Plan for the period 2021–2025, and in fulfilment of the Commission's strategic goals for 2024.

In response to European legislation concerning the placing on the market of radio equipment, its electromagnetic compatibility, and the protection of end-user interests, in May 2024, the Commission commenced the establishment of an Electromagnetic Compatibility (EMC) Laboratory to support its supervisory activities under the Law on Electronic Communications (LEC) regarding radio devices and verification of their compliance with regulatory requirements.

What has been mentioned so far in this report is only part of what has been achieved this year. The specific results of the implementation of the objectives and tasks set by the Commission are reflected in the following parts of the report.

I. STATE, DEVELOPMENT AND PROSPECTS OF THE ELECTRONIC COMMUNICATIONS MARKET

Methodological notes on Section I

The information provided is based on data received as of 05.05.2025 from 95.1% of the undertakings registered with CRC as of 31.12.2024. The information was provided in accordance with model forms for reporting of the activity for provision of electronic communications networks and/or services endorsed by Decision No 337/27.11.2024. A major part of the indicators monitored and included in the forms are defined by various international institutions and organisations, to which CRC by law has a commitment to regularly provide data on the electronic communications sector in Bulgaria (International Telecommunication Union (ITU), European Commission (EC), Body of European Regulators for Electronic Communications (BEREC), etc.).

In the summation rounded amounts and percentage data, rounding-related differences may occur due to the use of standard calculation functions of the electronic tables and charts.

The relative shares are presented rounded to one decimal place. As a result of such rounding, the sum of the relative shares may exceed or may be less than 100%.

The total number of undertakings presented in the tables for a particular market segment does not represent the sum of the number of undertakings by the individual services included in the segment. In the event that an undertaking provides more than one of the listed services, it is accounted for only once in the total number of undertakings.

For the purposes of the annual report, the term “subscriber” is defined as “any natural or legal person who is a party to a contract with an undertaking providing public electronic communications services” and should be considered to be identical to “end-user, party to a contract under Article 227” in accordance with the Law on Electronic Communications (amended SG, no. 79 of 17 September 2024).

1. Volume and structure of the Bulgarian electronic communications market

1.1. Market volume

According to data from the CRC Register[1] under Article 33, paragraph 1, item 1 LEC, as of 31.12.2024, a total of 976 undertakings were registered with the intention to provide public electronic communications. In implementation of Article 4 of the General Requirements[2] and Decision No 337/21.11.2024 of CRC, a total of 928 of the undertakings registered as of 31.12.2024 have submitted to the Commission an annual activity report for 2024 (the share of undertakings having submitted reports makes up 95.1% of those registered as of the said date).

In 2024, a total of 825 undertakings performed their activity, including 32 undertakings which suspended their activity on providing public electronic communications during the year and

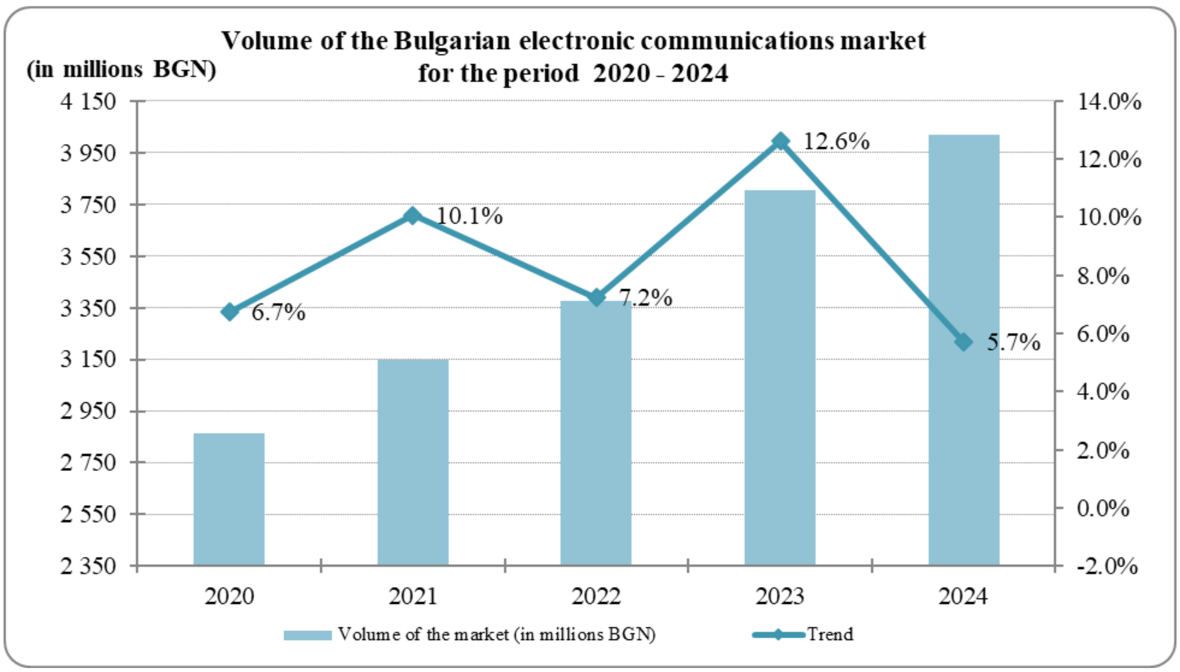
[1] Register of entities who have notified the Commission of their intention to provide public electronic communications networks or services

[2] General requirements for the provision of public electronic communications (amended SG, no. 56 of 30 June 2023)

submitted a report pursuant to Article 5 of the General Requirements (as of 31.12.2024, those undertakings were removed from the CRC register). In addition, by CRC Decision No 239/15.08.2024 pursuant to Article 33a, paragraph 1, item 4 LEC, in 2024, 85 undertakings that have not provided the Commission with annual activity reports in connection with Article 38, paragraph 1 LEC for the previous three calendar years were removed from the CRC Register. This has led to a decrease in the number of undertakings entered in the CRC Register for the provision of public electronic communications by 10.2% compared to the previous reporting period (2023). At the same time, the share (84.5%) of undertakings that actually operated during the year of the total number of registered operators has grown by nearly 6 percentage points.

In 2024, the total volume of the electronic communications market in Bulgaria amounted to BGN 4.021 billion (BGN 20.081 million of this revenue were generated by 474 undertakings that have reported annual revenue below BGN 100,000). The upward trend in the total market volume continued for yet another year – the reported growth was 5.7% compared to the data for 2023.

Figure 1 presents the dynamics in the volume of electronic communications market in the country for the period 2020-2024.



Note: *The data for 2023 have been updated.*

Source: Data submitted to CRC

Figure 1

The share of the total volume of the public electronic communications market constituted 2.0% of the total GDP[3] of Bulgaria for 2024. Notwithstanding the growth reported in the total

[3] Calculated at current prices. Source: NSI (GDP - Production Method - national level | National Statistical Institute (nsi.bg)).

volume of the public electronic communications market, a decrease of 0.07 percentage points was observed in its share of the total GDP versus 2023, when it amounted to 2.1%.[4]

1.2. Market structure

Information on the structure of revenue generated from the provision of public electronic communications in Bulgaria is presented in Table 1 by segments, determined according to the type of services provided, including distributed[5] revenue from bundled services (information on the definition of "bundled services" is contained in item 1.2.1 below).

Table 1

Structure of the public electronic communications market in Bulgaria according to the type of services provided for the period 2022-2024

Services through which public electronic communications are carried out	Revenue		
	2022[1]	2023	2024
	(in millions BGN)		
I. Interpersonal communication services	1,067.320	1,068.099	1,036.658
1.1. Fixed telephony services through numbers from the NNP and public payphones	71.241	69.730	59.882
1.2. Mobile telephony service through numbers from the NNP	946.460	922.782	902.263
1.3. Other services related to the provision of fixed telephony[2]	49.619	75.587	74.513
2. Leased lines services	21.321	23.170	28.633
3. Data transfer and/or Internet access services	1,673.694	1,953.094	2,176.068
4. Transmission and/or distribution of radio and/or TV programmes services	474.044	541.424	543.555
5. Other services[3]	141.083	217.621	235.657
TOTAL	**3,377.462**	**2,803.409**	**4,020.572**

[1] The data for 2023 have been updated.
[2] Includes revenue from retail provision of VoIP service, transfer of voice traffic between operators (wholesale VoIP, telephony services, incl. through non-geograpphic numbers from the NNP in the “90” range and SMS services in networks of other undertakings, through satellite systems, etc.
3 The segment includes revenue from the provision of duct networks, shared use, incl. provision of towers, masts; dark fibre; co-location services, other than those provided for interconnection, etc.

Source: Data submitted to CRC

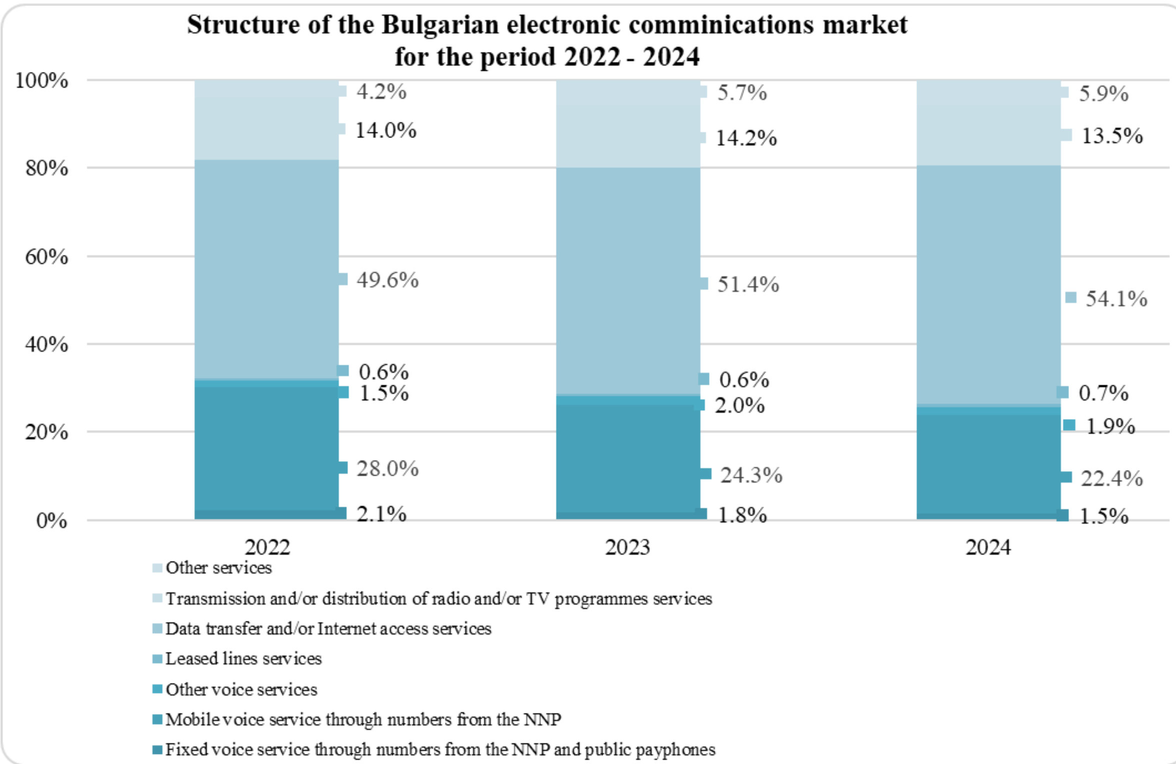
In 2024, the total volume of the electronic communications market in Bulgaria continued to be determined mainly by revenue from interpersonal communications services and data transfer and/or Internet access services.

[4] The GDP data for 2023 have been updated. Source: NSI (gross domestic product in 2023 (updated data).
[5] The breakdown of revenue from bundled services (installation fees and monthly subscription for fixed and mobile voice services, Internet access and television) by types of services included in the bundle is made by the undertakings which have submitted information in their annual report. The breakdown was made based on evaluation of the prices of standalone services having close or similar characteristics (e.g.: minutes to national fixed and/or mobile networks, Internet download speed, number of television programmes, etc. included in the monthly subscription fee) of services included in the bundled service.

Revenue from data transfer and/or Internet access services helds a leading position with a 54.1% share in the total market volume. The relative share of revenue from this market segment within the market structure increased by 2.8 percentage points compared to 2023.

Despite its significant share (25.8%) in the total volume of the public electronic communications market, the revenue generated from interpersonal communications services (fixed, mobile and other voice services) has decreased compared to the previous year in absolute terms (by 2.9%) and in relative terms (by 2.3 percentage points).

Figure 2 presents the dynamics in the relative shares of revenue from electronic communication services within the structure of the electronic communications market for the period 2022-2024.



Source: Data submitted to CRC

Figure 2

As compared to the year before, revenue in the following market segments registered growth in 2024, namely:

- ”Data transfer and/or Internet access“ – 11.4%; over a one-year period, the relative share of the segment grew by 2.8 percentage points. Revenue from the “Data transfer and/or Internet access via mobile terrestrial networks” group grew by 12.9%, and the revenue from the “Data transfer and/or Internet access via fixed networks” group was up by 9% compared to the previous year.
- "Transmission and/or distribution of radio and TV programmes services" – revenue increased insignificantly by 0.4%, resulting in a slight decrease in their share (13.5%) by 0.7 percentage points in relative terms. The reported growth of this segment is mainly

due to the increase in revenue from IPTV (by 15.1% compared to 2023).

- “Other services” registered growth of 8.3%. Revenue from other forms of sharing, including the provision of towers, masts; dark fibre; co-location and others increased by 16.5% compared to 2023, leading to growth in the share of the segment (5.9%) by 0.1 percentage points. Revenue from the “Provision of duct access” service, included in this segment, registered a decline of 35.6%.
  - "Leased lines services" - a 23.6% growth in 2024 compared to the previous year, with a slight increase in their share (0.7%) by 0.2 percentage points in relative terms.

The segment which registered a decline in its volume during the period was “Interpersonal communications services” – by 0.3% in absolute terms. In this segment, only VoIP revenue registered growth of 1.2%. At the same time, fixed (reported decrease of 14.1%) and mobile (reported decrease of 2.2%) services through numbers from the NNP have kept the downward trend in recent years.

Detailed information on the state and trends of development of the relevant market segments is presented in items 2-5 of this section of the report.

1.2.1. Bundled services

Revenue from bundled services[6] play a significant role on the electronic communications market in Bulgaria. For another consecutive year, consumption of bundled services increased - as of 31.12.2024, 57.4% of fixed voice service subscribers, 80.4% of mobile voice service subscribers, 33.1% of fixed Internet access subscribers, 83.7% of mobile Internet access subscribers, and 43.5% of pay-TV subscribers used the service in a bundle with other electronic communications services. As a result, the total volume of revenue (from installation fees and monthly subscriptions) gained from bundled services reached BGN 2.064 billion,[7] which represents growth of 10.6% compared to the revenue in the previous year.

Market players

According to the data submitted to CRC in 2024, four undertakings launched activity for the provision of a bundled service - in particular, double-play package including fixed Internet access and television, while seven undertakings discontinued the provision. In this way, in 2024, the total number of undertakings providing bundled services amounted to 89, which is by 3 less in comparison with the previous year (92 in 2023).

The main providers of bundled services were A1 Bulgaria EAD (A1), Vivacom Bulgaria EAD (Vivacom), and Yettel Bulgaria EAD (Yettel). In 2024, they accounted for 97.8% of the segment volume, calculated on the basis of the revenue generated, and covered 98.3% of the total number of subscribers to bundled services. Each of the remaining undertakings providing bundled

[6] “Bundled services” shall mean commercial offers offered on the basis of a monthly subscription and comprising two or more of the following services: (1) Fixed broadband Internet access, (2) Fixed voice service, (3) Mobile voice service, (4) Mobile broadband Internet access, and (5) pay TV (cable, satellite, or IPTV). As bundled services should also be considered the so-called "pure", "joint" and "mixed" bundles.

[7] The data are included in the total volume of the electronic communications market, distributed by services but presented with a view to achieving comparability with previous years.

services has a share that does not exceed 1.0% of the total number of subscribers to bundled services.

Table 2

Market shares of undertakings providing bundled services

Undertaking	2023		2024	
	Share based on number of bundled services subscribers	Share based on revenue from bundled services	Share based on number of bundled services subscribers	Share based on revenue from bundled services
A1 BULGARIA EAD	37.4%	38.4%	37.2%	38.3%
VIVACOM BULGARIA EAD	30.7%	27.6%	32.9%	30.2%
YETTEL BULGARIA EAD	28.8%	30.0%	28.3%	29.3%
BULSATCOM EOOD	1.4%	1.7%	-	-
All other*	1.7%	2.3%	1.7%	2.2%

** Including the providers of bundles with a share not more than 1% of the total number of subscribers to/revenue from bundled services.*

Source: Data submitted to CRC

In 2024, only Vivacom saw an increase in its market share (32.9%), calculated on the basis of subscribers to bundled services, by 2.2 percentage points compared to 2023. In 2024, versus 2023, A1 reported a decrease of 0.3 percentage points, and Yettel registered a decline of 0.5 percentage points. In 2024, Bulsatcom[8] was deleted from the CRC Register and the data on its activities were reported by Vivacom. Subscribers of all other undertakings retained their share, which amounts to 1.7% of the total number of subscribers to bundled services.

In the market shares of undertakings, calculated on the basis of revenue from the provision of bundled services to subscribers, the changes are as follows: Vivacom's share grew by 2.7 percentage points compared to the previous year (including data on Bulsatcom's activity); A1 saw a decrease by 0.1 percentage points, while Yettel's market share reported a fall of 0.7 percentage points. The aggregate market share of 2.2% of the other market participants, calculated on the basis of the total volume of revenue from the provision of bundled services, fell by 0.2% compared to 2023.

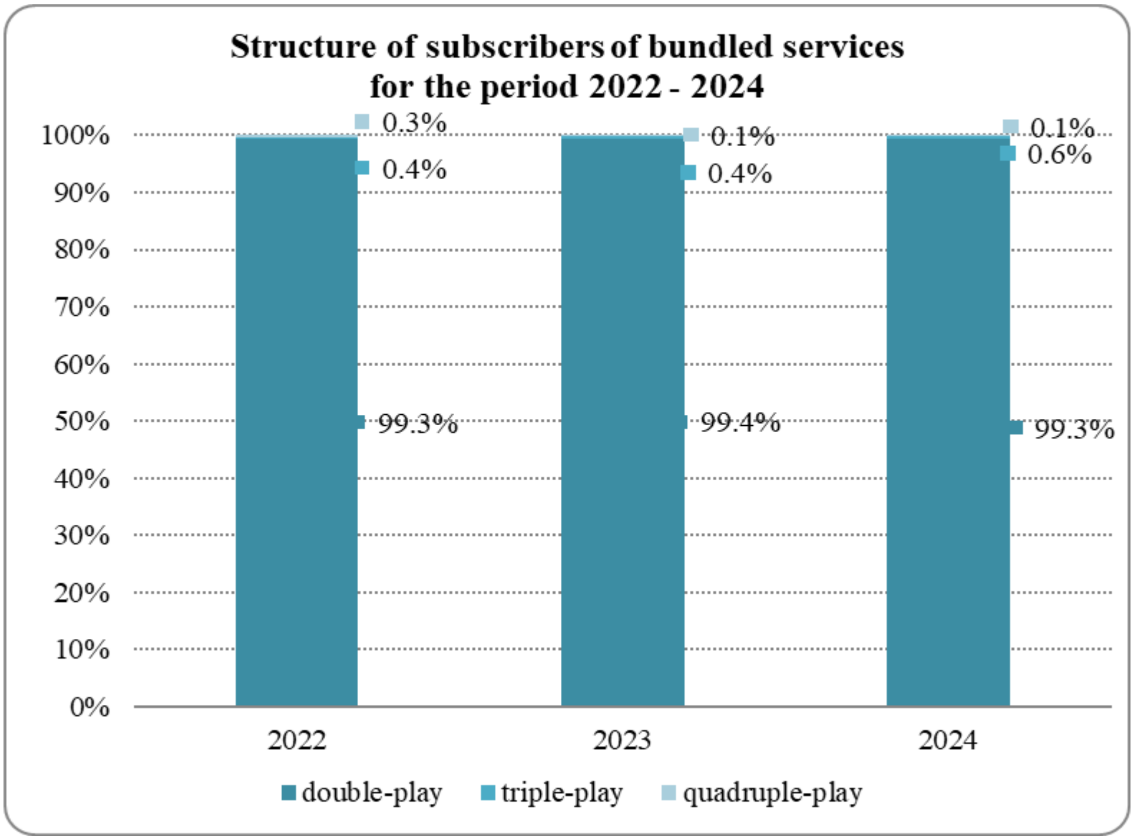
Subscribers to bundled services

The number of subscribers to bundled services toward the end of 2024, according to the data submitted by the undertakings providing public electronic communications in Bulgaria, increased compared to the previous year by 1.4% to reach 7.264 million. As a result, in the period 2023-2024, the value of the "penetration by population"[9] indicator also grew by 1.7 percentage points, thus reaching 112.8%.

[8] As of 10.07.2024, Bulsatcom EOOD was incorporated into Vivacom Bulgaria EAD.

[9] The indicator was calculated as the ratio between the total number of subscribers to bundled services as of 31 December of the respective year and the number of population according to NSI data as of the same date (https://www.nsi.bg/en/statistical-data/206/651).

The breakdown of subscribers by types of bundled services, according to the number of electronic communications services included, in Bulgaria is presented in Figure 3.

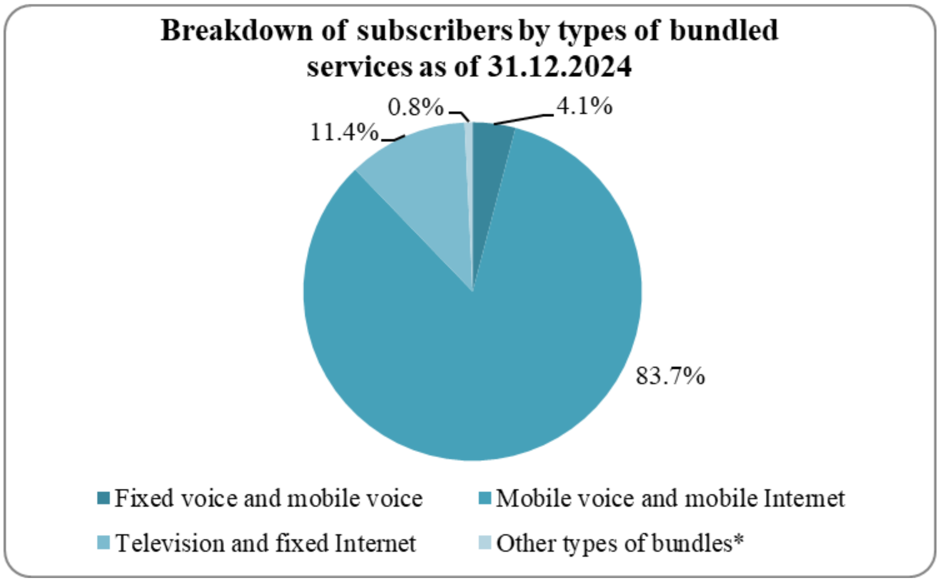


Source: Data submitted to CRC

Figure 3

In 2024, the share of subscribers to packages formed by two electronic communications services (double-play) accounted for 99.3% of the total number of subscribers to bundled services, registering a slight decrease compared to 2023 (by 0.1%), although the number of subscribers to this type of packages increased in absolute terms (by 1.3% over a one-year period). For yet another year, the interest in the triple-play packages is growing, which is evident from the reported higher number of subscribers – by almost 50% compared to 2023. However, this increase does not significantly affect their share, amounting to 0.6% (an increase of 0.2% year-on-year). As in the previous year, in 2024, the number of subscribers to quadruple-play packages decreased significantly (by 43.2%), leading to a decline in the share of quadruple-play packages which made up less than 0.1%.

Figure 4 presents the breakdown of subscribers by the most preferred bundled services in 2024.



Note: *"Other types of bundles" include the subscribers to bundles, each with a share not exceeding 1% of the total number of subscribers to bundled services.*

Source: Data submitted to CRC

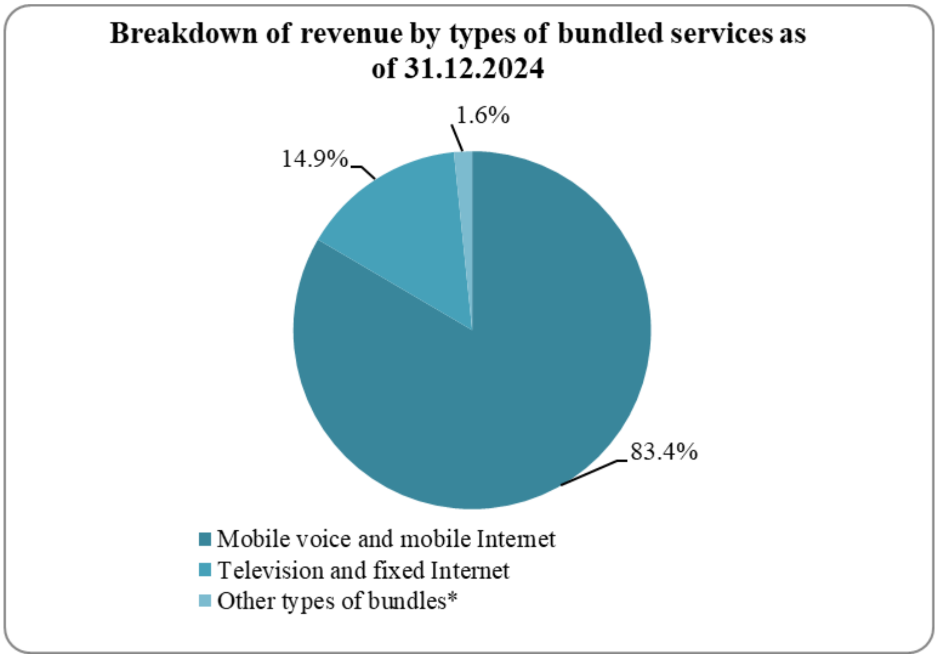
Figure 4

The number of subscribers to the most preferred bundled service – "mobile voice and mobile Internet access" - has increased by 1.6% compared to 2023 to reach 6.081 million at the end of 2024, with a slight increase in their share (83.7%) by 0.1 percentage points in relative terms. The number of subscribers who used the second most distributed package ("TV and fixed Internet access") in 2024 amounted to 831 thousand, with an increase of 1.3% in absolute values compared to 2023. Fixed voice service and mobile voice service in a bundle, with a relative share of 4.1% of the total number of bundled services subscribers, were used by 296 thousand subscribers (down by 3.9% in absolute values and by 0.2 percentage points in relative terms).

Revenue from bundled services

Revenue from bundled services amounted to BGN 2.064 billion in 2024, registering growth of 10.6% year-on-year. The highest share (98.6%) in the total volume of revenue from these services continued to be held by double-play packages which, as compared to 2023, reported growth of 10.5% in absolute terms and an increase of 0.1 percentage points in relative terms. The share of revenue from triple-play bundles registered growth (1.1%) in 2024 of 0.3 percentage points and an increase of 57.9% in absolute terms. Revenue from quadruple-play bundles continued to decline in 2024, by 42.6% compared to 2023, accounting for 0.2% of the total revenue in the segment (by 0.2 percentage points less than in 2023).

Figure 5 presents the breakdown of revenues by types of bundled services in 2024.



Note: *"Other types of bundles" include revenue from bundles, each with a share not exceeding 1% of the total revenue from bundled services.*

Source: Data submitted to CRC

Figure 5

In 2024, the share of revenue from the most used bundled service including mobile voice service and mobile Internet access rose by nearly 1 percentage point from 2023 to reach 83.4% of the total volume of revenue from bundles and registered growth of 11.9% in absolute value. The share of revenue from the double-play bundled service "TV and fixed Internet access" (14.9%) reported a decrease of 1 percentage point, despite the reported growth in absolute terms of 3.8% compared to 2023. The total share of other types of bundles, which include revenue from those bundles the share of which does not exceed 1.0% in the total revenue from bundled services, amounted to 1.6%, maintaining its level compared to 2023.

Summary

In 2024, the following trends were observed in the bundled services:

- The consumption of double- and triple-play bundles grew at the expense of quadruple-play bundles;
- Once again, the most preferred bundled services were those that included mobile service – 88.5% of the total number of subscribers to bundled services used bundles with mobile voice included, while 84.0% of the subscribers used bundles with mobile Internet included;
- The growth in the total volume of revenue from bundled services was mainly due to the increase in revenue generated from bundles with mobile Internet access, fixed Internet access included and in revenue from bundles with television service included;
- The segment is highly concentrated and there was no new redistribution of market shares among the three largest undertakings in 2024, with their total share based on number of

subscribers amounting to 98.3%. The largest market share was retained by A1, followed by Vivacom and Yettel, which occupied third position. Only Vivacom registered growth in its shares on the basis of number of subscribers and on the basis of revenue thanks to strategic acquisitions and migration of subscribers from the acquired undertakings. The share of smaller providers remained low.

1.2.2. Investments

In 2024, a total of 367 undertakings (by 11 less than in 2023) invested funds in the construction and maintenance of public electronic communications networks amounting to BGN 676.373 million, registering annual growth of 0.6% of their investments.

During the year, investments in fixed networks and in next-generation access (NGA) networks reported a drop both in terms of volume and share of invested funds. An amount of BGN 97.365 million was invested in fixed networks for the provision of electronic communication services (by 24.8% less than the previous year in absolute terms), of which BGN 46.102 million were invested in NGA networks, down by nearly 40%.

Investments in mobile networks amounting to BGN 283.547 million remained the leading category, albeit with a minimum decline of 0.1%, making up almost 42% of all investments.

In the "Other investments" category, the funds invested in 2024 registered an increase (13.9% in absolute terms) as well as the largest share, amounting to 43.7%.

2. Interpersonal communications services

The "Interpersonal communications services" segment includes the following public electronic services:

- fixed telephony service provided through numbers from the National Numbering Plan (NNP) and through public payphones;
- mobile telephony service provided through numbers from the NNP (including SMS[10] and MMS[11]) and
- other voice services (retail VoIP; transfer of voice traffic between operators (wholesale VoIP); services provided through non-geographic numbers from the NNP of the "90" range serviced in networks of other undertakings; telephony services provided through satellite systems, etc.).

Table 3 provides information on the key indicators characterising the reviewed segment in 2024, namely: number of undertakings which have provided the relevant services during the year, number of subscribers/lines, and the amount of annual revenue generated.[12]

Table 3

Number of undertakings, number of subscribers/lines and revenues by type of voice services provided in 2024

[10] Short message service.
[11] Multimedia messaging service.
[12] Detailed information on the provision of fixed and mobile telephony services through numbers from the NNP is presented in item 2.1 and item 2.2.

Service	Number of undertakings providing the service in 2024	Number of subscribers/lines as of 31.12.2024		Revenue (in million BGN excl.VAT)	
		Total[1]	including bundled service subscribers	Total[2]	including from bundled services
1. Fixed voice service through numbers from the NNP and public payphones	30	529 540*	303,921	59.882	2.220
2. Mobile voice service through numbers from the NNP	3	7,978,611	6,415,737	902.263	596.700
3. Other voice services	20	///	///	74.513	///
Total	**47**	///	///	**1,036.658**	**598.919**

[1] Including subscribers of bundled services.

[2] Including the share of revenue from the provision of voice services bundled with other electronic communication services

* Number of lines of subscribers to a fixed telephony service.

Note: *The symbol /// is used in this document in cases wheret the information is not applicable to the indicated parameter or is confidential.*

Source: Data submitted to CRC

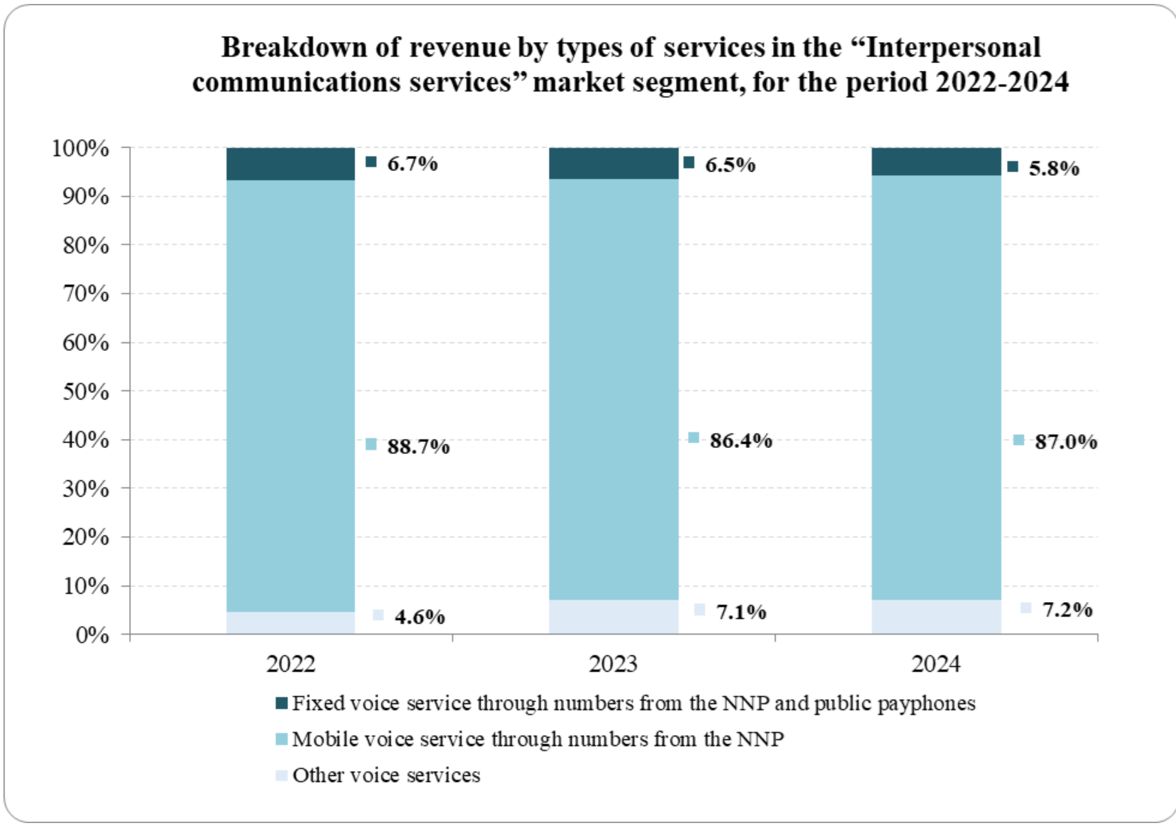
A total of 47 undertakings declared activity in 2024 related to the provision of services included in the "Interpersonal communications services" segment, down by 3 since the year before.[13] The undertakings providing services from the "Mobile telephony service through numbers from the NNP" group remain unchanged. A total of 30 undertakings declared activity of providing access to a fixed telephony service (fixed voice service) through numbers from the NNP and/or wholesale interconnection services in public telephone network. The number of providers of other voice services amounted to 20, of which 16 undertakings declared the retail or wholesale provision of VoIP services (transfer of voice traffic between operators).

In 2024, the total volume of revenue generated from services included in the "Interpersonal communications services" segment amounted to BGN 1,036.658 million, registering a decrease of 2.9% compared to the segment's volume in 2023 (BGN 1,068.099 million), compared to a 0.1% increase for the previous one-year period (2022-2023).

As shown in the figure below, the structure of this market segment remains unchanged for another consecutive year – the main share (87.0%) is formed from the revenue from the mobile voice service, with growth of 0.6 percentage points for the one-year period. In 2024, as in the previous reporting year, the share of revenue generated from other services related to the provision of voice telephony (mainly VoIP) reached 7.2% and exceeded the share of revenue from fixed telephony service through numbers from the NNP. The smallest share in the segment was formed by revenue from the traditional fixed voice service through numbers from the NNP, which continued to shrink in 2024 – the decline in the relative share of this service in the segment structure

[13] The data for 2023 have been updated as a result of the additionally submitted questionnaire for the activity report in 2023. According to the updated data for 2023, the total number of undertakings that had declared activity of providing interpersonal voice communications services amounted to 50. A total of 31 undertakings provided a fixed telephony service through numbers from the NNP and/or wholesale public telephone network interconnection services, including the three undertakings which provided a mobile telephony service as well. The number of undertakings providing other services related to the provision of voice telephony, including VoIP, was 23.

was by 0.7 percentage points compared to 2023.



Source: Data submitted to CRC

Figure 6

In absolute terms, the following changes were observed in the individual groups of services forming the segment in 2024, compared to the previous year:

- During the reporting year, a decrease of 2.2% was registered in the volume of revenue from the provision of a mobile voice service which made up the main share in the “Interpersonal communications services” segment, with a comparative decrease of 2.5% over the previous one-year period (2022-2023);
- A decrease of 1.4% in the total revenue from services included in the "Other voice services” group. The main share of the revenue in this group, in 2024, as in the previous year, was formed by the provision of services related to the transmission of voice traffic between operators (wholesale VoIP), amounting to 79.3% (74.6% in 2023). For the one-year reporting period, an increase of 4.8% in absolute terms, in the revenue from this service was reported;
- The largest one-year absolute decline in revenue from services included in the “Interpersonal communications services” segment was recorded in the provision of a fixed voice service through numbers from the NNP and public payphones. In 2024, 14.1% less revenue was generated compared to 2023, with a drop of only 2.1% for the previous reporting period (2022-2023).

2.1. Fixed telephony service through numbers from the NNP

Market players

As of 31.12.2024, the total number of undertakings authorised by CRC for the provision of voice telephony services through primary assigned resource from the NNP – geographic numbers, non-geographic numbers for access to national non-geographic services, and access code to the "carrier selection" service amounted to 21, which is by 2 undertakings (Bulsatcom EOOD[14] and Telecommunications Company Varna EAD[15]) less than the year before. The number of undertakings without a primary assigned resource, which have notified CRC of their intention to provide interpersonal communications services with numbers (through resale of a fixed voice service through secondary assigned geographic and non-geographic numbers) was 28.

A total of 30 undertakings declared activity of providing fixed voice service through numbers from the NNP and/or wholesale public telephone network interconnection services to end-users in 2024. Of these, 25 undertakings declared activity of providing a fixed voice service to end-users through geographic numbers and/or non-geographic numbers. Thirteen undertakings provided the service through a primary assigned resource, and twelve declared activity related to resale of a fixed voice service through secondary received geographic numbers and/or non-geographic numbers for access to national non-geographic services. Five undertakings have declared activity of providing wholesale services only ("transit" and "service of physical interconnection") which are relevant to the provision of a fixed telephony service through numbers from the NNP. In 2024, as in the previous two years (2022 and 2023), an activity of providing voice service through public payphones/booths was declared solely by Vivacom.

In 2024, the main providers of fixed telephony service through numbers from the NNP for end-users (retail service) were A1, Vivacom, and Yettel. These undertakings made up 97.8% of the market volume, measured on the basis of the number of lines of fixed voice service subscribers (97.7% in 2023) and 94.0% of the revenue generated from subscribers to the service provided at retail level (94.1% in 2023).

Table 4

Market shares of undertakings providing retail fixed voice service

Undertaking	2023		2024	
	Share based on number of fixed telephone lines	Share based on revenue from subscribers	Share based on number of fixed telephone lines	Share based on revenue from subscribers
VIVACOM BULGARIA EAD	57.3%	83.0%	56.5%	82.2%
A1 BULGARIA EAD	24.6%	5.3%	24.5%	5.1%
YETTEL BULGARIA EAD	15.8%	5.8%	16.9%	6.6%
All other	2.3%	5.9%	2.2%	6.0%

Source: Data submitted to CRC

As is apparent from the data presented in Table 4, there was no significant change in the

[14] As of 10.07.2024, Bulsatcom EOOD was incorporated into Vivacom Bulgaria EAD.

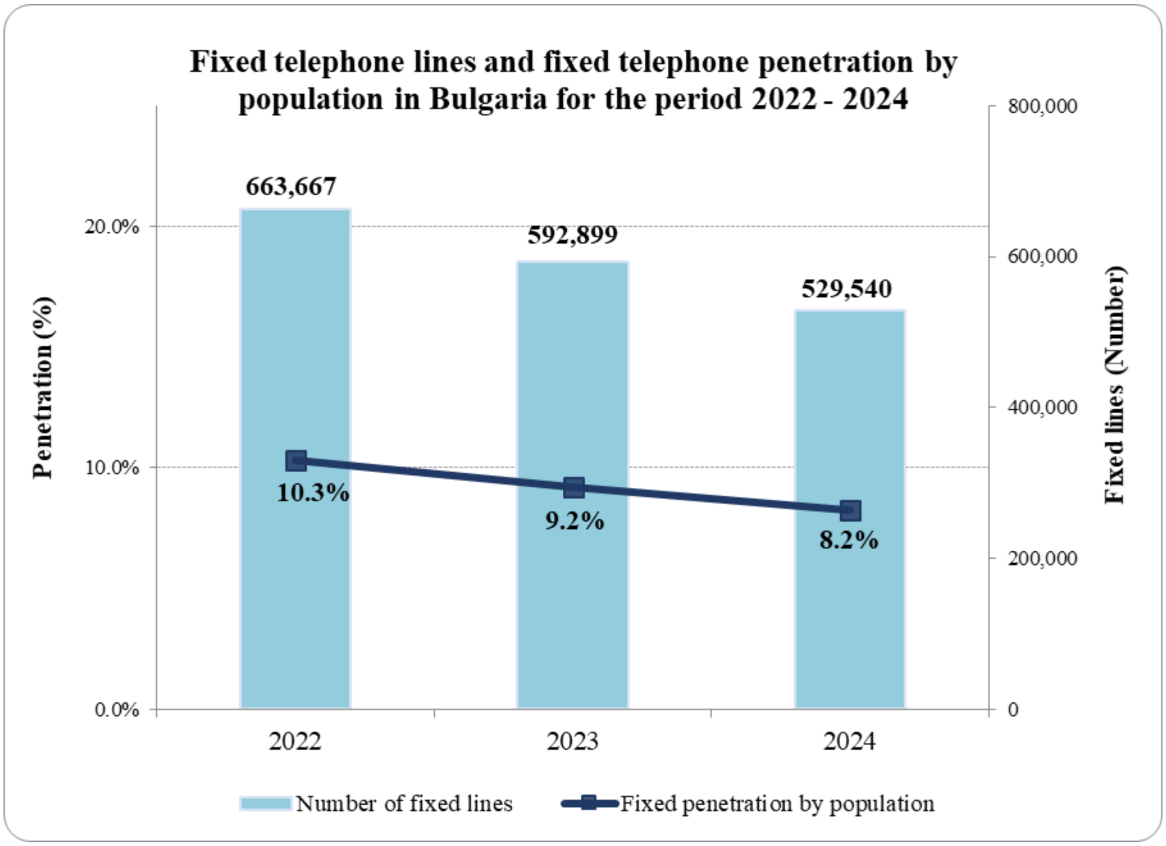
[15] On the basis of a request by Telecommunications Company Varna EAD the authorisation for use of numbering resources issued to the undertaking was terminated by CRC with Decision No 258 of 05.09.2024.

values of the market shares of undertakings providing access to a fixed voice service in 2024 as well. Vivacom held the highest share, despite the reported decrease of 0.8 percentage points, in the values of both indicators over the one-year period. As for A1, the values of the indicators remained almost unchanged compared to the previous year – a decrease of 0.1 percentage point in the share based on number of lines and 0.2 percentage points in the share based on revenue from subscribers. In terms of Yettel, the changes in the indicators were more significant: the value of market share based on number of lines reached 16.9% in 2024, with a one-year growth of 1.1 percentage points. In terms of the undertaking's share calculated based on revenue, there was an increase of 0.8 percentage points, with the indicator reaching 6.6% in 2024. The aggregate market shares of the other market players remained almost unchanged – the indicator based on the number of lines decreased by just 0.1 percentage point, while the share calculated based on revenue increased by the same amount.

Lines of fixed voice service subscribers

The total number of lines of fixed voice service subscribers declared by the undertakings as of 31.12.2024 amounted to 529,540. A decrease of 10.7% in the total number of lines compared to 2023 was registered, with the same decrease reported for the previous period (2022-2023). The continued downward trend in this indicator for another year is the result of the decreasing interest of end-users in the service. The number of Vivacom lines dropped by 12.0% in 2024, with a decrease of 11.7% for the previous period (2022-2023), and the decrease in the total number of subscribers to fixed voice service of the competing undertakings was by 8.9% versus 2023, compared to 9.2% for the previous reporting period.

Figure 7 presents information on the variation in the number of fixed lines of voice service subscribers and the fixed telephone density by population for a three-year period.



Source: Data submitted to CRC

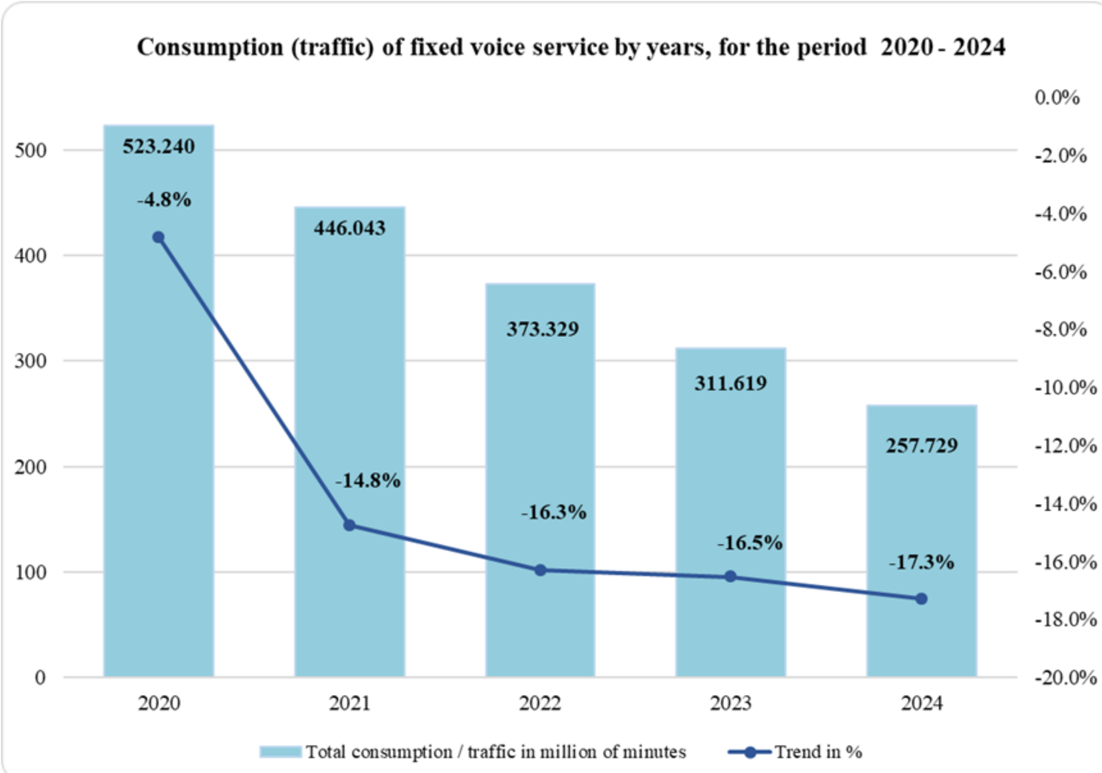
Figure 7

As a result of the annual decrease in the total number of fixed lines in absolute value (by 20.2% in 2024, compared to 2022), the value of the "fixed telephone density by population" indicator also dropped down to 8.2%[16] in 2024.

Consumption (traffic) of fixed voice service

The total consumption of the fixed voice service includes the volume of outgoing traffic (in minutes) generated by the end-users of the service when making national (local and long-distance calls, calls to mobile terrestrial networks and to non-geographic numbers) and international calls over a one-year period. According to data provided by the undertakings, the total volume of voice traffic generated from calls to subscribers in 2024 amounted to 257.729 million minutes, compared to 311.619 million minutes in 2023, which represents a decrease of 17.3% over the one-year period. As shown in Figure 8, following the peak of service consumption in the period of the COVID-19 crisis in 2020, a persistent downward trend in the total volume of outgoing call traffic generated in the period 2021-2024 was observed.[17]

[16] The indicator was calculated as the ratio between the number of voice service subscribers as of 31 December of the respective year and the number of population according to NSI data as of the same date (https://www.nsi.bg/en/statistical-data/206/651).
[17] The data for 2022 and 2023 have been updated as a result of additional information received.

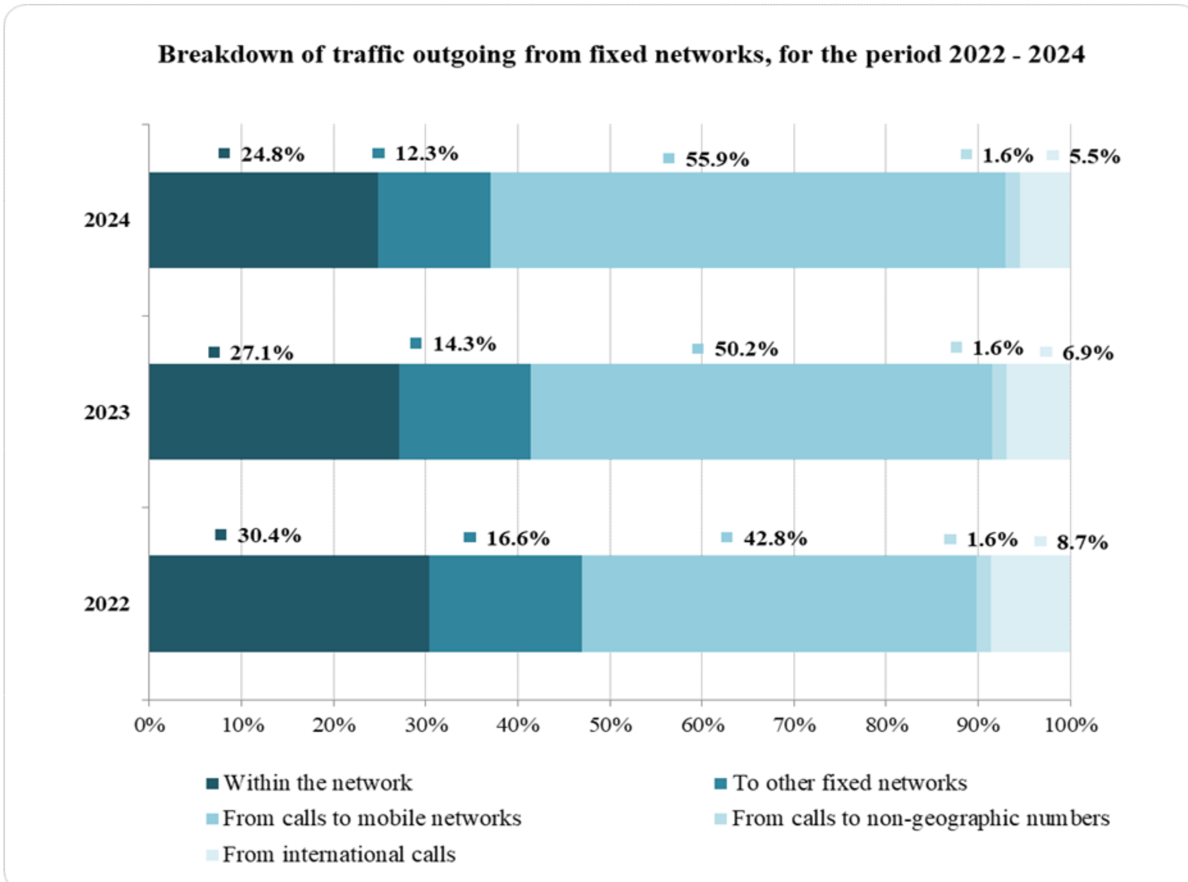


Source: Data submitted to CRC

Figure 8

The service provision model, characterised by the inclusion of a large volume of call traffic in the monthly subscriptions of fixed voice service users, remained unchanged in 2024. Despite a slight increase (by 0.4 percentage points) in the share of traffic charged beyond the subscriptions (11.2% in 2024 compared to 10.8% in the previous year), the share of traffic included in subscription plans remained high in 2024, amounting to 88.8%.

The breakdown of the total volume of outgoing traffic from fixed networks in the period 2022-2024, depending on the call directions, is presented in Figure 9.



Source: Data submitted to CRC

Figure 9

In the period 2022-2024, a reduction was observed both in the total volume of outgoing traffic generated and in terms of call directions (within the undertaking's network (on net), to other fixed networks (off net), to mobile networks, to non-geographic numbers, and to networks abroad). The following changes were reported in 2024, compared to 2023, both in absolute value and as a share in the total volume of generated outgoing traffic:

- the largest share for a yet another year was formed by calls to mobile networks, making up 55.9% in 2024, with a year-on-year growth of 5.7 percentage points. The increasing share of this traffic is due to the fact that in absolute terms its decrease (by 7.9% in 2024 compared to 2023) was at a lower rate than the overall decrease in outgoing traffic – 17.3% for the same period;
- next is the traffic within the network (on net), and in 2024 this type of traffic accounted for 24.8% of the generated outgoing traffic, compared to 27.1% for the previous year. In absolute terms, a decrease of 24.3% for the one-year period was reported;
- the volume of traffic generated from calls to other fixed networks (off net) dropped by 28.9% in absolute value, and its share decreased by 2 percentage points to 12.3% year-on-year;

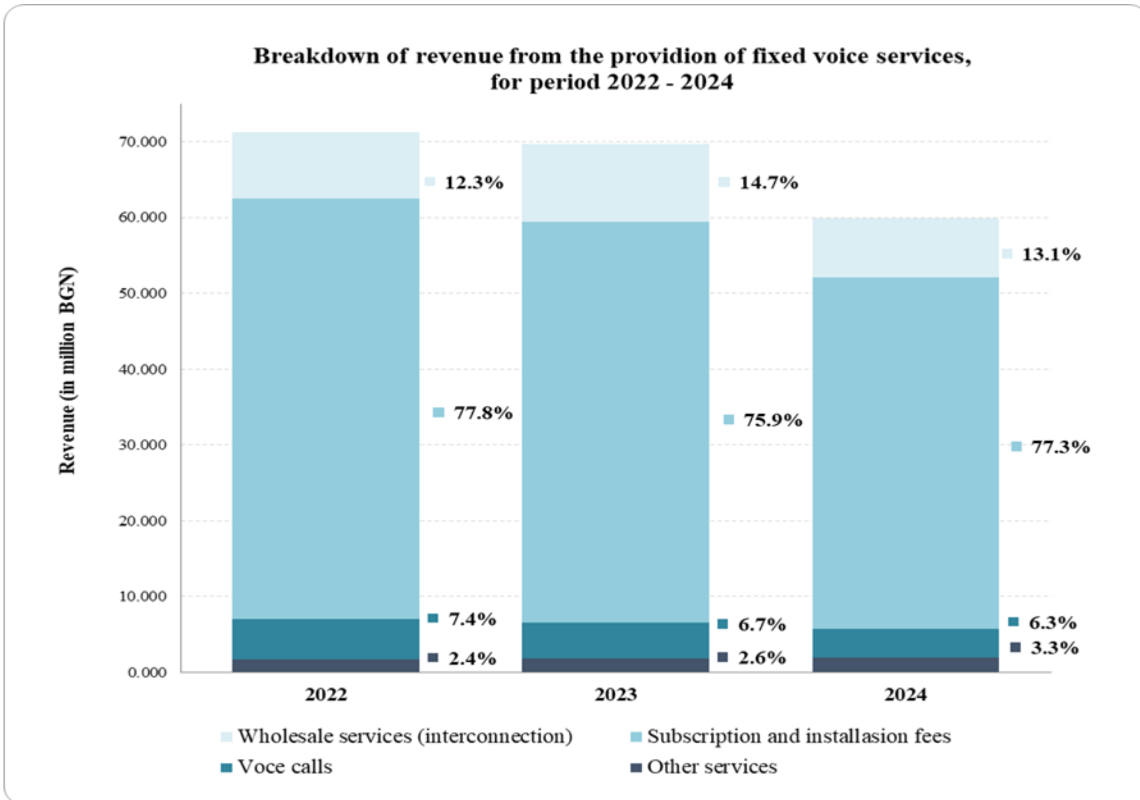
- calls to networks abroad accounted for 5.5% of the total traffic volume, which represents a decrease of 1.4 percentage points compared to 2023. This type of traffic recorded the most significant decline in absolute terms for the second consecutive year - 34.0% in 2024 compared to 2023, and 33.8% in the previous period (2022–2023);
- the share of consumption from calls to non-geographic numbers for services and short numbers in the total volume of traffic remained unchanged in the period considered (1.6%), and in absolute terms its decrease in 2024, amounting to 16.4%, is comparable to that of the previous period (a decrease of 16.1% in 2023 compared to 2022).

The shrinking use of the fixed voice service by end-users also affects the related wholesale call termination service on fixed networks. The data declared by the undertakings on the provision of call termination services on fixed networks in 2024 confirm the established downward trend. In 2024, the total volume of terminated traffic on fixed networks in the country decreased by 12.2% compared to 2023, with 11.3% for the previous one-year period. In the case of terminated national traffic (traffic generated from geographic and non-geographic numbers on fixed and mobile networks in the country), consumption fell by a total of 10.7%. In this type of traffic termination, the largest decrease in volume was reported in the traffic generated from geographic numbers and terminated in geographic numbers – by 26.6% (the decrease in 2023 compared to 2022 was by 24.9%). According to the data provided by the undertakings, the volume of traffic generated from mobile and terminated in geographic numbers on fixed networks was down by 9.7% for the reporting year, compared to an 8.4% decrease for the previous period (2022-2023). In 2024, as was the case the year before, the lowest rate of decrease was reported in call termination in non-geographic numbers on fixed networks – 1.7% for the one-year period (down by 1.5% for the previous one-year period), and this traffic also held the smallest share in the total volume of terminated traffic – 9.8%. A decrease was also reported in the volume of traffic terminated on national fixed networks from calls generated from networks abroad, which in 2024, compared to 2023, amounted to 21.2%, with a drop of 19.5% for the previous period (2022-2023).

In the structure of the total volume of traffic terminated on fixed networks, the largest share was traffic generated from mobile networks in the country (including generated from own mobile network) – 69.8% for 2024 versus 67.9% for the previous year. In the volume of terminated national traffic, this share amounted to 80.1% in 2024, up by 0.9 percentage points compared to its value (79.2%) in 2023. In comparison, the share of traffic generated from geographic numbers and terminated in geographic numbers in the total volume of terminated national traffic accounted for as little as 8.7% in 2024, down by 1.9 percentage points compared to the previous year, when it amounted to 10.6%.

Revenue from fixed voice service

In 2024, the total volume of revenue generated from the provision of fixed voice service amounted to BGN 59.882 million, registering a decline of 14.1% compared to 2023. According to data declared by the undertakings, revenue from installation and subscription fees from the provision of fixed voice service to end-users, including the part of a bundled service, formed the main share in the structure of revenue generated from the service. In 2024, it accounted for 77.3% of the total revenue generated, with the decrease for the three-year period presented in Figure 10 being 0.5 percentage points and amounting to 16.5% in absolute terms.



Source: Data submitted to CRC

Figure 10

In absolute value, the changes in the main groups of revenue from the provision of fixed voice service, presented in Figure 10, in 2024 versus 2023, were are as follows:

- drop of 12.6% in the volume of revenue generated from the provision of access to the fixed voice service (installation and subscription fees), with a decline of 4.5% in 2023 compared to 2022;
- revenue generated from calls beyond the subscriptions for the reporting period fell by 19.2%, with a decrease of 11.3% for the period 2022-2023;
- the main share in the "Other services" group (84.4%) was formed by revenue from the provision of non-geographic numbers for access to national non-geographic services to users of short and/or non-geographic numbers, with a 3.8% increase registered in absolute terms of this revenue for 2024;
- in the total volume of revenue from the provision of wholesale services (including interconnection services - origination, termination, transit and physical interconnection) in 2024, there was a decline of 23.7% compared to 2023, due to a decrease in revenue generated from voice traffic transit by 25.8%, compared to the previous period.

In 2024, wholesale fixed voice termination rates set out in the Delegated Act on single EU-wide voice call termination rates for mobile and fixed networks (Delegated Regulation (EU) 2021/654), which have been in force since 01.07.2021, applied.

Summary

The data declared by the undertakings on the provision of fixed voice service in 2024 confirm the already established persistent downward trend in the consumption of the service, with the following changes observed in the main indicators:

- the number of lines of fixed voice service subscribers fell by 10.7% in 2024 compared to 2023, with the same percentage of decrease reported for the previous reporting period (2022-2023), and the volume of call traffic down by 17.3% year-on-year;
- after a period of growth in the volume of outgoing traffic from calls to mobile networks, which lasted until 2021 and was due to the shift of consumption from fixed to mobile voice service, this indicator reported a decline each year in the period 2022-2024;
- as a result of a shrinking consumption, revenue generated from subscribers (subscription fees, installation fees, and call charges) decreased by 13.1% compared to the previous year, however this revenue still form the main share (83.6%) in the total revenue volume for 2024;
- there was no change in respect of the main service providers. A1, Vivacom, and Yettel formed a total of 97.8% of the market volume, measured on the basis of the number of subscribers to fixed voice service and 94.0% of the revenue generated from subscribers to the service provided at retail level.

Based on the reported downward trends in fixed voice service consumption, confirmed also by the 2024 data, a continuation of the outflow from the traditional fixed service and the shift of end-users of voice services to Internet applications for interpersonal communication can be expected. This is indicated by both the increasing number of subscribers to the Internet access service and the increasing share of users using Internet applications for communication – according to NSI data on Internet usage in 2024, 71.4% make phone and video calls, and 64.9% exchange messages in real time.[18]

2.2. Mobile telephony service through numbers from the NNP

Market players

In 2024, no change was observed concerning the number of providers and the undertakings themselves that have provided mobile telephony service through numbers from the NNP (mobile voice service) - these are A1, Vivacom, and Yettel. The three undertakings are listed in the Public Register of CRC for the provision of the service, as well as authorisations for the use of individually assigned scarce resource – radio spectrum, and have been provided with codes for access to digital mobile networks (non-geographic numbers from the NNP for the provision of mobile telephony service).

[18] Internet users by purpose of use | National Statistical Institute: https://www.nsi.bg/en/statistical-data/315/922

The market shares of the three mobile undertakings, calculated as at 31 December 2024 based on the number of subscribers of mobile voice service and based on retail revenue,[19] show that Vivacom's competitive pressure on A1 and Yettel continued in 2024. As a result, Vivacom expanded its market shares and already holds not only the second largest market share in the number of subscribers, displacing Yettel from the second position in 2023, but also holds second place in terms of revenue, displacing A1 in 2024 (Table 5).

Table 5

Market shares of undertakings providing retail mobile voice service

Undertaking	2023		2024	
	Share based on number of subscribers	Share based on revenue	Share based on number of subscriber	Share based on revenue
A1 BULGARIA EAD	36.2%	29.9%	36.5%	27.1%
VIVACOM BULGARIA EAD	32.4%	29.4%	32.8%	32.0%
YETTEL BULGARIA EAD	31.4%	40.7%	30.7%	40.9%

Source: Data submitted to CRC

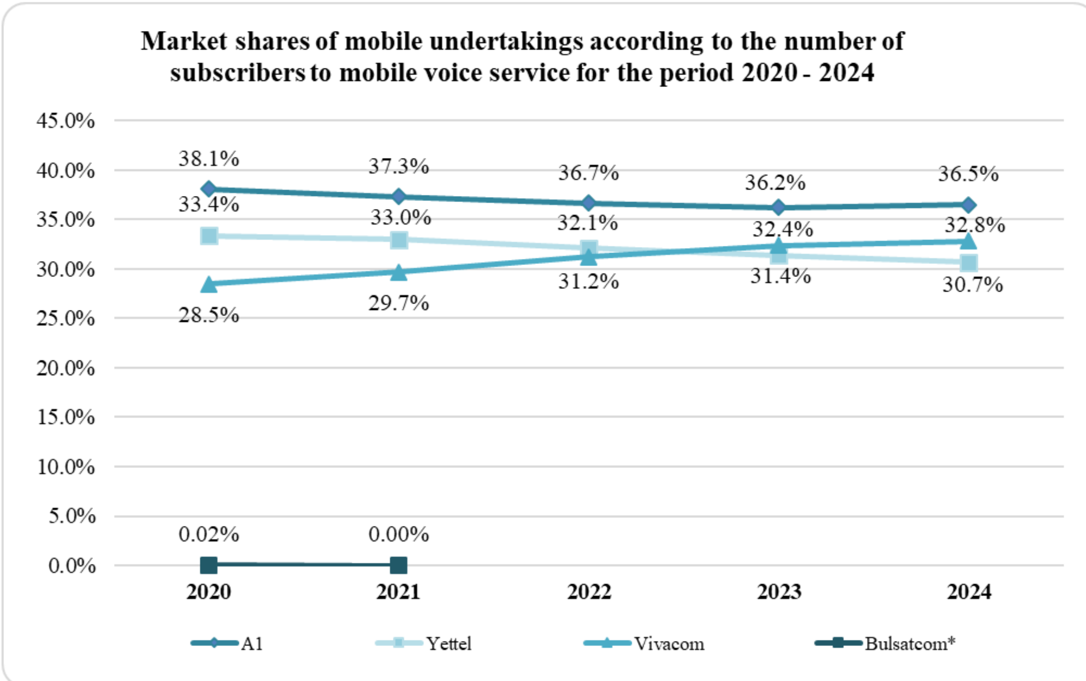
Despite the changes in market shares in the segment, the data in Table 5 show that in 2024 the most preferred mobile operator among Bulgarian consumers remained A1 – the undertaking has the highest market share (36.5%) based on the number of subscribers (and third based on retail revenue (27.1%). Based on revenue from the provision of retail mobile voice service, Yettel also continued to hold the highest market share (40.9%) in the segment (and the third largest market share based on the number of subscribers (30.7%).

In 2024, compared to 2023, the values of hanges in the market shares of A1, Vivacom, and Yettel were as follows:

- the relative share of A1, calculated on the basis of number of subscribers, rose by 0.3 percentage points, while the one calculated on the basis of revenue dropped by 2.8 percentage points;
- the relative share of Vivacom, calculated on the basis of number of subscribers, grew by 0.4 percentage points, while the one calculated on the basis of revenue was up by 2.6 percentage points.
- the relative share of Yettel, calculated on the basis of number of subscribers, fell by 0.7 percentage points, while the one calculated on the basis of revenue increased by 0.2 percentage points.

The following two figures present data on the trend of development of the market shares of mobile undertakings over the last five years (2020 – 2024), calculated on the basis of the number of subscribers and revenue from the provision of mobile voice service.

[19] Market shares were calculated based on revenue from the provision of retail mobile voice service (revenue from retail service provided standalone and the part of revenue provided bundled with other electronic communication services).



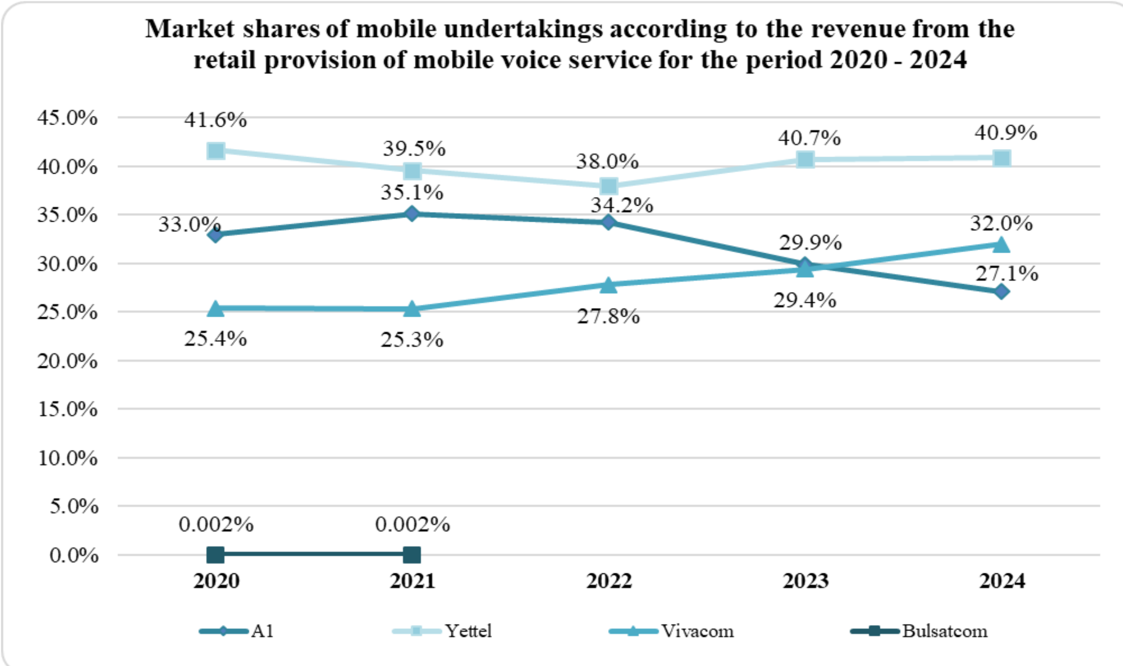
*The undertaking provided mobile voice service until 15.12.2021.

Source: Data submitted to CRC

Figure 11

The data in Figure 11 show that during the period 2020–2023, A1's market share based on the number of subscribers declined annually, with a slight increase in the indicator observed in 2024. During the analysed five-year period (2020–2024), Vivacom was the only operator whose market share, based on the number of subscribers, increased each year (by 4.3 percentage points in 2024 compared to 2020), while over the same period, Yettel's corresponding share declined by 2.8 percentage points

The data presented in Figure 12 indicate that during the period 2020–2024, Yettel's market share based on revenue fluctuated, and by the end of 2024, the undertaking had lost 0.7 percentage points compared to 2020. Nevertheless, it managed to retain its leading position in the segment according to this indicator. In contrast, A1 not only experienced a decline in market share after 2021, but in 2024 the undertaking also failed to withstand the competitive pressure of the other two mobile undertakings and lost its second position in terms of revenue in the segment to Vivacom. In this regard, it should be noted that during the entire five-year period only Vivacom's market share based on revenue has increased, up from 25.4% for 2020 to 32.0% in 2024 (an increase of 6.6 percentage points). Moreover, the competitive pressure that Vivacom has exerted in the segment over the past year also allowed it to reduce by 2.4 percentage points the difference that existed between Vivacom and the revenue leader, Yettel, in 2023 (the difference of 11.3 percentage points in the market shares of the two undertakings in 2023 decreased to 8.9 percentage points in 2024).



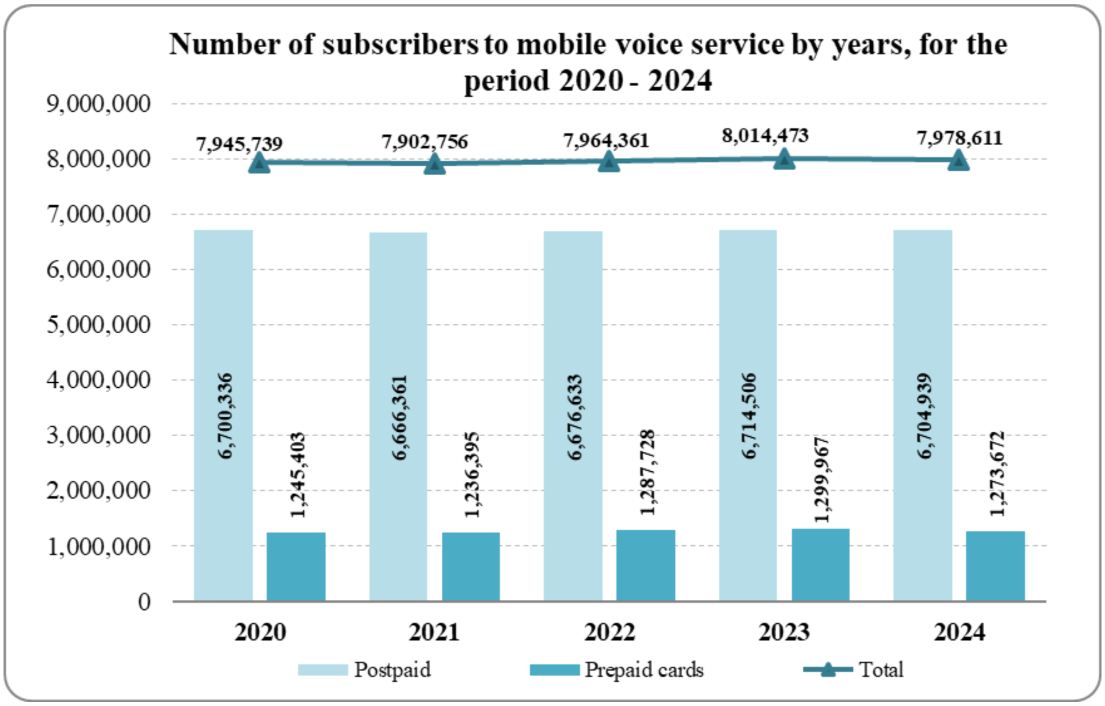
Source: Data submitted to CRC

Figure 12

The trends observed in market shares, based on the number of subscribers and revenue, during the reviewed period (2020–2024), indicate that the mobile voice service segment is characterised by ongoing competition and a continuous redistribution of subscribers among the three mobile operators. As a result, the most recent entrant to the mobile voice service market – Vivacom – managed in 2024 to increase its share in terms of retail revenue and to secure the second position in the segment by this indicator.

Subscribers to mobile voice service

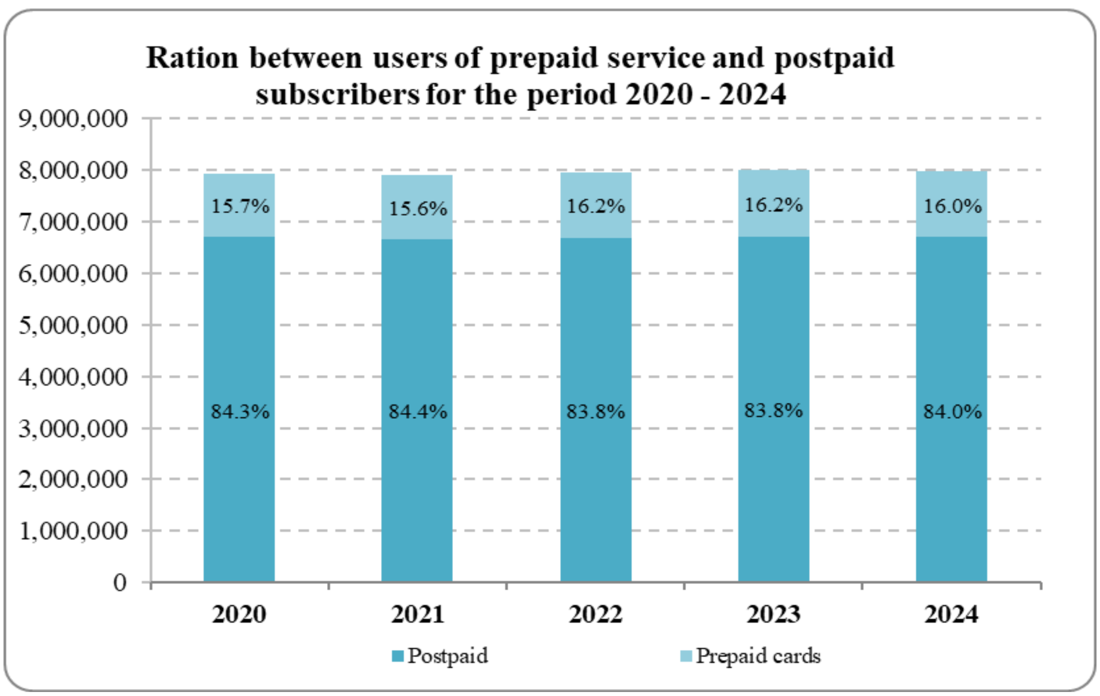
As of 31.12.2024, the number of subscribers to mobile voice service (number of unique SIM cards) amounted to 7,978,611, registering a slight decline of 0.4% since the previous year 2023. The figures presented in Figure 13 show that, compared to the end of 2023, as of 31.12.2024, there was a decrease both in the number of postpaid subscribers (by 0.1%) and in the number of end-users of the prepaid card service (by 2.0%). To compare with, in 2023, the growth registered in postpaid subscribers was by 0.6% and by 1.0% for those with prepaid cards.



Source: Data submitted to CRC

Figure 13

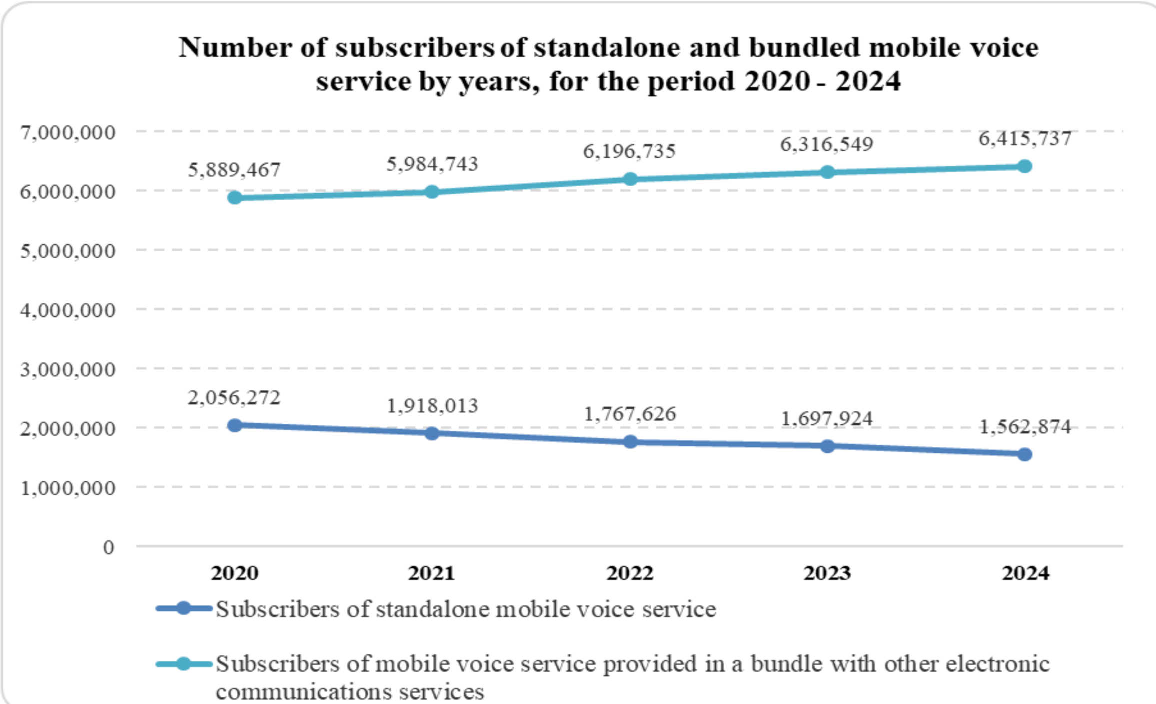
Figure 14 presents the ratio between the subscribers to prepaid mobile voice service and postpaid subscribers. The data show minor changes compared to the end of 2023 – as of 31.12.2024, the share of postpaid subscribers increased by 0.2 percentage points to reach 84.0% of the total number of subscribers, and that of prepaid service subscribers was 16.0%, respectively.



Source: Data submitted to CRC

Figure 14

The number of subscribers who use mobile voice service in a package with other electronic communications services increased by 1.6% compared to the end of 2023, and as of 31.12.2024 the number of bundle services subscribers reached 6,415,737, which represents 80.4% of the total number of subscribers to mobile voice service in Bulgaria. Over the last five years (2020-2024), the reported growth in the number of subscribers using the service in a package was 8.9%.

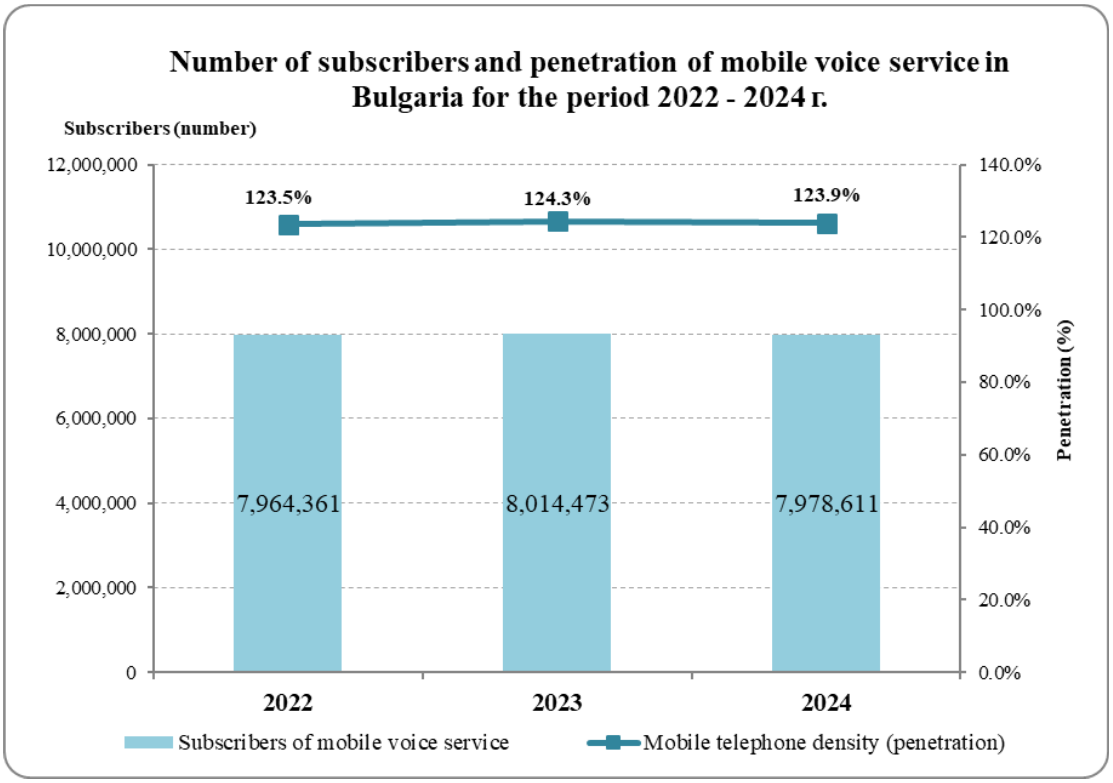


Source: Data submitted to CRC

Figure 15

Figure 16 presents information on the number of subscribers to mobile voice service and the service penetration among the population for the period 2022-2024.[20] The data shows that the decrease of 0.4% in the number of subscribers to mobile voice registered in 2024 also leads to a drop of 0.4 percentage points in the service penetration among the population (from 124.3% as of 31.12.2023, penetration fell to 123.9% as of 31.12.2024).

[20] The indicator was calculated as the ratio between the number of mobile voice service subscribers as of 31 December of the respective year and the number of population according to NSI data as of the same date (https://www.nsi.bg/en/statistical-data/206/651).



Source: Data submitted to CRC

Figure 16

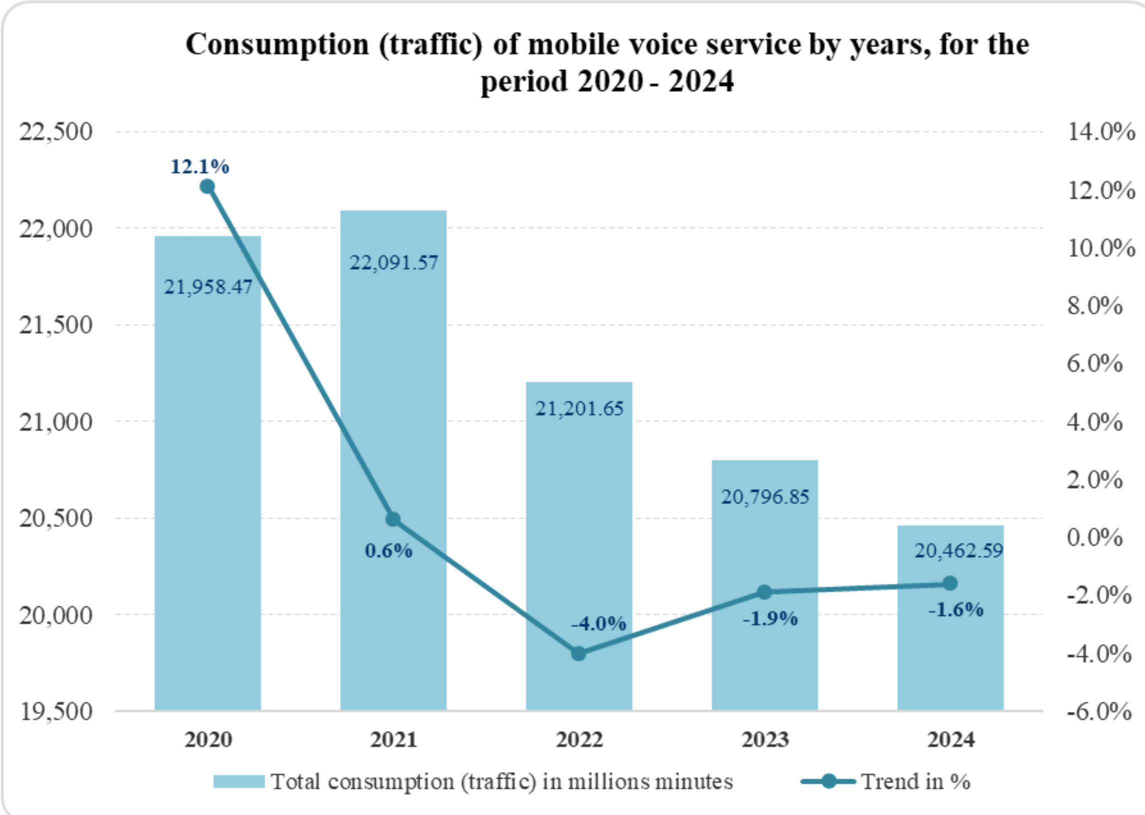
The growth in the penetration of mobile voice service among the population in 2022 and 2023 is mainly due to a decline in the number of the country's population and not so much to an increase in the number of subscribers, as their number has increased insignificantly (by 0.8% for 2022 and by 0.6% for 2023). In this regard, it should be noted that recent trends in the demand for and consumption of mobile voice services indicate that the service has passed its growth phase, reached maturity, and is now in stagnation and decline. Therefore, it is unlikely that its penetration among the population will change significantly in the coming years, unless favourable socio-economic and demographic developments occur - developments that could lead to the emergence of new key business users and subscribers on the market, thereby stimulating demand for the service.

Consumption (traffic) of mobile voice service

After the peak reached in 2021, mobile voice usage decreased for the third consecutive year. The total volume of outgoing traffic from mobile networks in the country[21] for 2024 amounted to 20,462.59 million minutes, by 1.6% less than in the previous year 2023. This decline is due to a fall in the number of minutes used from mobile to fixed networks in the country (by 8.9%), to the own mobile network (by 3.9%), and to networks abroad (by 8.7%). Only traffic to other mobile networks in the country has increased (by 1.4%) compared to 2023, but this has failed to

[21] Including outgoing traffic generated by mobile voice service subscribers within a mobile network (on-net traffic), to other mobile networks in the country (off-net traffic), to fixed networks in the country, and to networks abroad.

compensate for the overall decrease in mobile calls consumption in the three groups mentioned above.



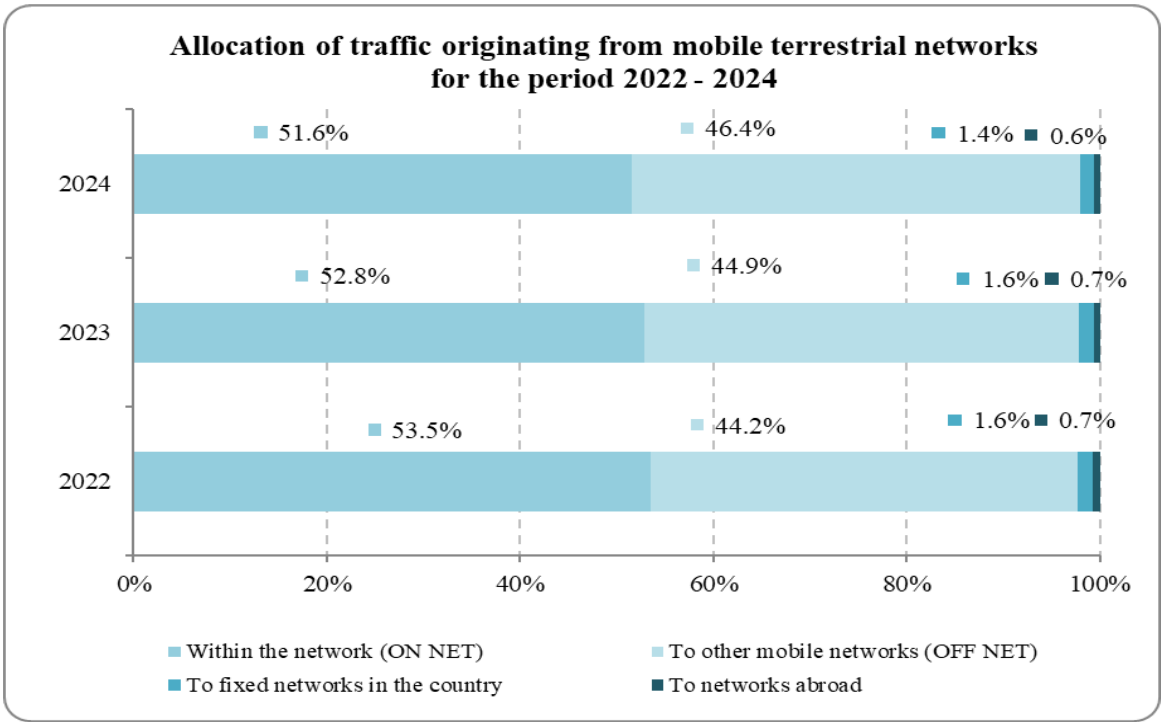
ource: Data submitted to CRC

Figure 17

The downward trend in roaming consumption continued in 2024 as well, yet there was a slowdown in the rate of decrease compared to 2023: the volume of outgoing calls in roaming made by subscribers of the Bulgarian mobile undertakings abroad decreased by 3.2% in 2024, which is 3.8 percentage points less than the decline recorded in 2023 (7%). As for incoming calls in roaming, the rate of decrease is also slowing – from 10.5% for 2023, the reported decrease for 2024 was 5.2%.

In 2024, the share of consumption (number of minutes used) that postpaid subscribers (96.8%) and those with prepaid SIM cards (3.2%) occupy in the total consumption of mobile voice service remained unchanged compared to 2023, although in both categories of subscribers the trend of decline in the volume of minutes used continued. Compared to the previous year, the rate of decrease in 2024 is slower, with a registered decline of 1.6% for prepaid subscribers (versus 1.8% for 2023), and for subscribers with prepaid cards it was 2.9% (versus 4.5% for 2023).

The absence of a significant change in the total volume of outgoing traffic from mobile networks in 2024, compared to 2023, was also accompanied by sustainability in the traffic structure – as shown in Figure 18, in 2024, for another consecutive year, the share of traffic outside the own mobile network (off net) increased (from 44.9% in 2023 to 46.4% in 2024), while the share of traffic within the own mobile network (on net) fell for yet another year (from 52.8% in 2023 to 51.6% in 2024). The continued increase in the share of off-net traffic shows that there is no deterioration in competition in the segment in 2024 due to "traffic closure" within the own mobile network[22] and the conditions for calls both on and off the network of the undertaking to which the end-users are subscribers, remained competitive.



Source: Data submitted to CRC

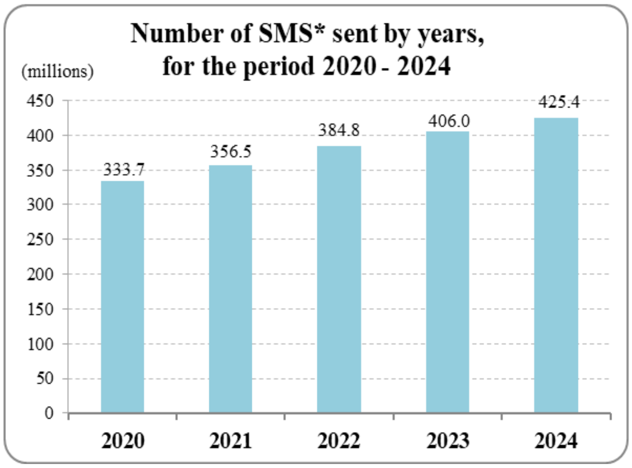
Figure 18

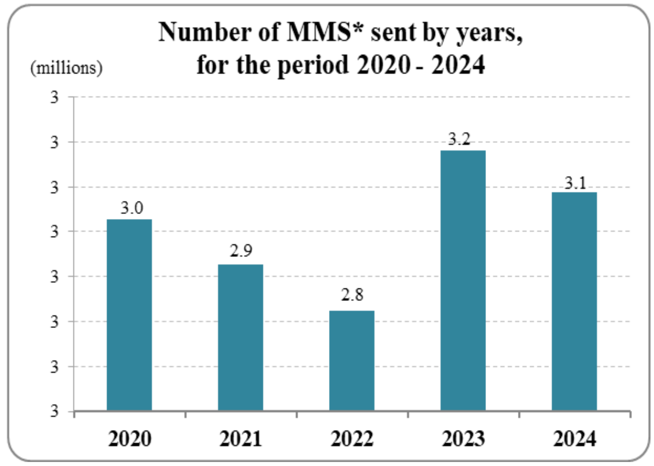
As is evident from the data on Figure 18, the share of traffic to fixed networks in the country (1.4%) decreased by 0.2 percentage points compared to 2023, and the share of traffic to networks abroad registered a drop of 0.1 percentage points.

Short multimedia and text messages

In 2024, the total number of SMS messages sent by Bulgarian subscribers to networks in the country and abroad as well as to short numbers increased (by 4.8%) to reach 425.4 million (Figure 19). The total number of MMS sent amounted to 3.1 million, registering a decline (by 2.9%) compared to the previous year 2023 (Figure 20).

[22] "Traffic closure" is a product and pricing strategy in which a user is given far better conditions for calls to users of the same network (on-net calls) than to users of other networks (off-net calls).





**Sent to networks in the country and abroad and to short numbers*

Source: Data submitted to CRC

Figure 19

Source: Data submitted to CRC

Figure 20

The growth in short text messages registered in 2024 was entirely due to the 10% increase in the number of SMS sent to short numbers, while in short text messages to networks in the country and abroad there was a decline compared to 2023, by 1.4% and 6.8%, respectively. The increase in the number of SMS sent to short numbers is probably due to the fact that at least for now they cannot be replaced by instant messages through the so-called over-the-top (OTT) apps[23] like Facebook Messenger, iMessage, Viber, etc., which are increasingly being used by users instead of standard SMS. The redirection of users to such applications is likely to be among the reasons for the observed decline in the number of MMS messages sent in 2024 (by 2.9%), as well as for the decrease in the number of SMS sent in roaming (by 6.2%).

Revenue from mobile voice service

In 2024, the total volume of revenue from the provision of mobile voice service amounted to BGN 902.263 million, registering a drop of 2.2% compared to the previous year 2023. To compare with, the decline in revenue registered in 2023 was 2.5%. The analysis of the total volume of revenue from mobile voice service shows that, in 2024, revenue from the retail provision of mobile voice service rose (by 2.9% compared to 2023) to arrive at BGN 828.138 million. Revenue from wholesale services for 2024 amounted to BGN 74.125 million and registered a decrease for the third consecutive year, down by 37.1% compared to 2023. This significant drop in wholesale revenue is primarily caused by a 40.0% decrease in total revenue from wholesale traffic services, which is again due to the new, lower (by 50%) wholesale voice call termination rates for mobile networks (from 0.007823 BGN/min. in 2023, the wholesale termination rates for mobile networks fell to 0.003912 BGN/min. for 2024), according to the Delegated Act on single EU-wide voice call termination rates for mobile and fixed networks (Commission Delegated Regulation (EU) 2021/654). In terms of revenue from wholesale non-traffic services, there was an increase (by 17.6% versus 2023) for the fourth year in a row.

The analysis of the data shows that the increase recorded in 2024 in the volume of retail revenue from the provision of mobile voice service is due both to the usual growth in revenue from

[23] In the BoR (16) 35 "Report on OTT services", BEREC defined the term "over-the-top" ("OTT") as: “Content, service or application that is provided to the end-user over the open Internet”.

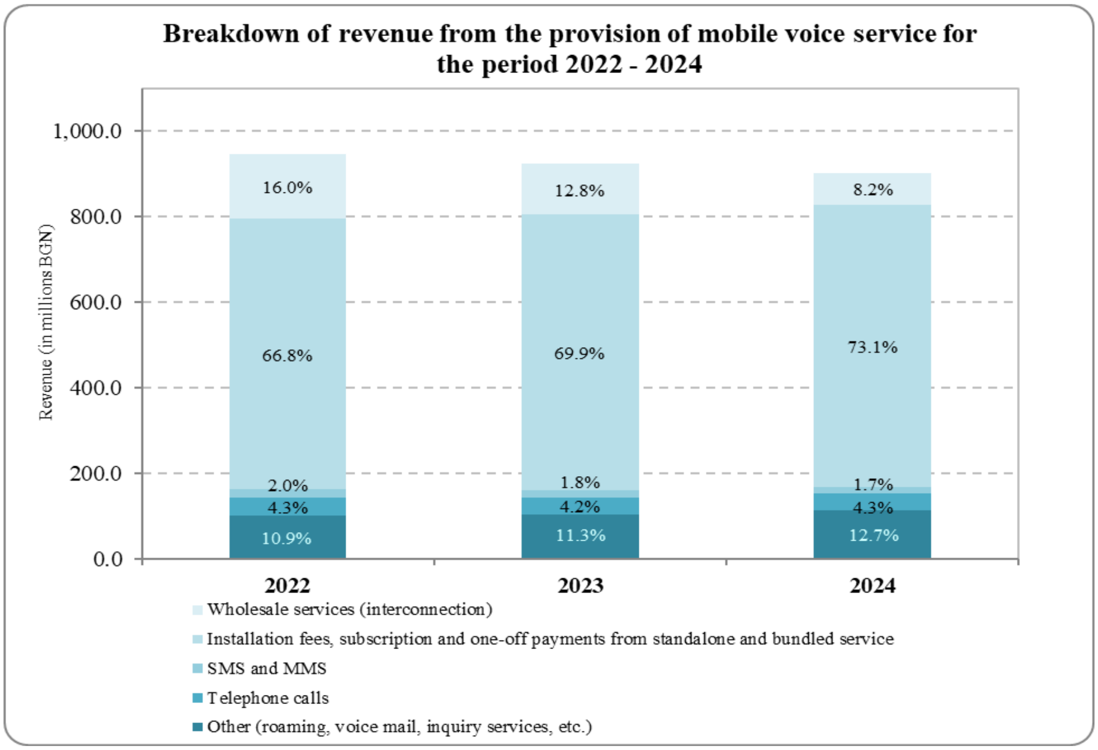
the provision of the service in bundle with other electronic communications services (by 3.6%) and to the 5.2% increase of retail traffic revenue. In the case of non-traffic[24] revenue from the standalone provision of the service at retail level, there was a decrease of 8.5%.

Retail revenue (traffic and non-traffic) from the standalone provision of mobile voice service to business subscribers continued to fluctuate and the 6.9% increase reported in 2023 in the volume of this revenue was followed by a 1.4% decrease in 2024.

Although at the beginning of 2024 all three mobile undertakings indexed the prices of their mobile plans, an increase in revenue from the provision of mobile voice service in a bundle for 2024 (revenue from monthly subscription and installation fees) was observed only in Yettel and Vivacom, while A1 again reported a decline for this indicator. This situation is likely to continue to be observed in 2025, considering the fact that at the end of 2024 Yettel and Vivacom again took steps to raise the prices of their subscription plans, while A1 informed its loyal customers that it will leave the basic monthly fees unchanged in 2025.

Figure 21 shows the breakdown (structure) of total revenue from mobile voice service by years, for the period 2022-2024. It shows that the significant decline in wholesale revenue in 2024 also leads to a significant decrease in its share, down from 12.8% in 2023 to 8.2% (a decrease of 4.6 percentage points). For comparison, the decrease in the indicator for 2023 was by 3.2 percentage points. The share of revenue from monthly subscription and installation fees from standalone and bundled provision of mobile voice remained the largest (73.1%), continuing to grow (by 3.2 percentage points compared to 2023). The share of revenue from mobile calls (4.3%) registered a slight increase - by 0.1 percentage points.

[24] Includes the following revenue from the standalone provision of mobile voice service: revenue from monthly subscription and installation fees, revenue from number portability, revenue from concluded contracts with applicants for short and/or non-geographic numbers (from one-off and regular/monthly payments) and other revenue from one-off payments for ancillary services (e.g. replacement of SIM card, issuance of itemised bills, changing telephone number, number by choice and other similar services).



Source: Data submitted to CRC

Figure 21

The share of SMS and MMS revenues fell slightly in 2024 (by 0.1 percentage points), while the share of revenues from other services increased for the third consecutive year (by 1.4 percentage points) to reach 12.7%.

Summary

In 2024, Vivacom's competitive pressure on the two largest mobile undertakings (A1, which is the leader in the number of mobile voice service subscribers, and Yettel – in the amount of retail revenue from its provision) continued and led to a new shift in positions in the mobile voice service segment. By the end of 2024, Vivacom already held the second largest market share both in terms of number of subscribers and in retail revenue from the provision of the service.

Competition between mobile voice service providers in 2024 was exacerbated as the growth potential in the segment decreased – the number of subscribers and the penetration of the service among the population was marked by a decline, which was accompanied by a lower consumption of the service and a decrease in its revenue. The main reason for the observed decline in the total revenue from the service in 2024 is the application from 1 January 2024 of new, even lower wholesale termination rates of voice calls originating in countries within the European Union and the European Economic Area (EU/EEA) on mobile networks. Retail revenues have increased, and after the retail price indexation announced at the beginning of 2024 by all three mobile undertakings, at the end of 2024 only Yettel and Vivacom saw an increase in retail revenues during the year, while A1 registered a decline. In this regard, it should be noted that, with the development of technology and the emergence of each next generation of mobile networks (2G, 3G, 4G and 5G), the mobile phone has gradually transformed from a device intended for voice call and exchange of short text messages into a kind of gateway to knowledge and entertainment, a possibility for interactive communication, and a means for development of new business models. The data from the annual reports of mobile undertakings show that demand and consumption of mobile data is constantly growing, as opposed to the demand and consumption of mobile voice service. With the increasing deployment of 5G mobile networks and the offering of faster and better mobile data transfer, the so-called “over-the-top” (OTT) apps for calls and instant messaging are increasingly replacing classic mobile voice services and SMS messages. This digital transformation also shifts the focus in the product and price strategies of mobile undertakings and mobile voice service no longer has a leading role in the marketing mix of undertakings, and in the last three years (since 2022), in terms of revenue volume, mobile Internet access has displaced it from its long-standing leading position in the Bulgarian electronic communications market.

3. Leased lines services

In 2024, the volume of revenue of the "leased lines” segment consisting of the retail and wholesale leased lines services (including international lines) saw an increase in both revenue and the number of leased lines. Despite the one-year growth of 23.6% in revenue, this segment has the smallest relative share (0.7%) in the total market volume.

Table 6 presents a summary of the number of undertakings providing the "leased lines” service, the number of leased lines and the amount of revenue generated from them during the reporting period.

Table 6

Number of undertakings, number of lines and revenues by type of leased lines provided in 2024

Service	Number of undertakings providing the service in 2024	Number of leased lines as of 31.12.2024	Revenue in 2024 (in millions BGN, excl. VAT)
1. Wholesale leased lines	**18**	**2,687**	**23.856**
1.1. National leased lines	17	2,360	16.559
1.2. International leased lines	7	327	7.298
2. Retail leased lines	**11**	**1,798**	**4.777**
Total	**21**	**///**	**28.633**

Source: Data submitted to CRC

In 2024, the number of active undertakings in the segment under consideration did not change and remained 21 (the undertakings registered as of 31.12.2024 in the Public Register of CRC, which declared their intention to provide the “leased lines” service, were 116), as 6 of them declared that they provided the service both at retail and at wholesale level, and 7 were the undertakings that provided the “international leased lines” service.

The total revenue from the provision of the service in 2024 registered a growth of 23.6% to reach BGN 28.633 million. In absolute terms, this is an increase of BGN 5.463 million compared to the revenue reported in the previous year 2023 and is due to the achieved 30.0% growth in revenue from wholesale leased lines compared to 2023.

Tables 7 and 8 present the market shares of the three leading undertakings in the retail/wholesale leased lines segment in 2024 based on the number of lines leased provided by them.

Table 7

Market shares of undertakings providing retail leased lines

Undertaking	2023		2024	
	Share based on number of retail leased lines	**Share based on retail revenue**	**Share based on number of retail leased lines**	**Share based on retail revenue**
VIVACOM BULGARIA EAD	71.5%	47.0%	71.4%	47.2%
A1 BULGARIA EAD	10.2%	18.6%	10.0%	18.1%
NETERRA EOOD	10.5%	8.8%	10.4%	8.4%
All other	7.8%	25.6%	8.2%	26.3%

Source: Data submitted to CRC

It is apparent from the data in Table 7 that in 2024 the two leading undertakings based on market share calculated on the basis of the number of retail leased lines, remained Vivacom and Neterra. In 2024, as opposed to 2023, the total market share (91.8%) based on number of retail leased lines of the three major undertakings dropped by 0.4 percentage points as a result of a decrease in the market share by this indicator in the three leading undertakings.

The share of the leading undertaking, Vivacom, calculated based on revenue from retail leased lines, increased in 2024 by 0.2 percentage points compared to 2023. The market share of all other undertakings, calculated based on revenue, also grew to reach 26.3% (by 0.7 percentage points more than in 2023).

Table 8

Market shares of undertakings providing wholesale leased lines

Undertaking	2023		2024	
	Share based on number of wholesale leased lines	**Share based on wholesale revenue**	**Share based on number of wholesale leased lines**	**Share based on wholesale revenue**
NOVATEL EOOD	16.5%	26.4%	20.6%	25.1%
NETERRA EOOD	27.1%	17.7%	25.9%	33.7%
VIVACOM BULGARIA EAD	16.3%	21.4%	15.0%	18.3%
All other	40.1%	34.5%	38.5%	22.9%

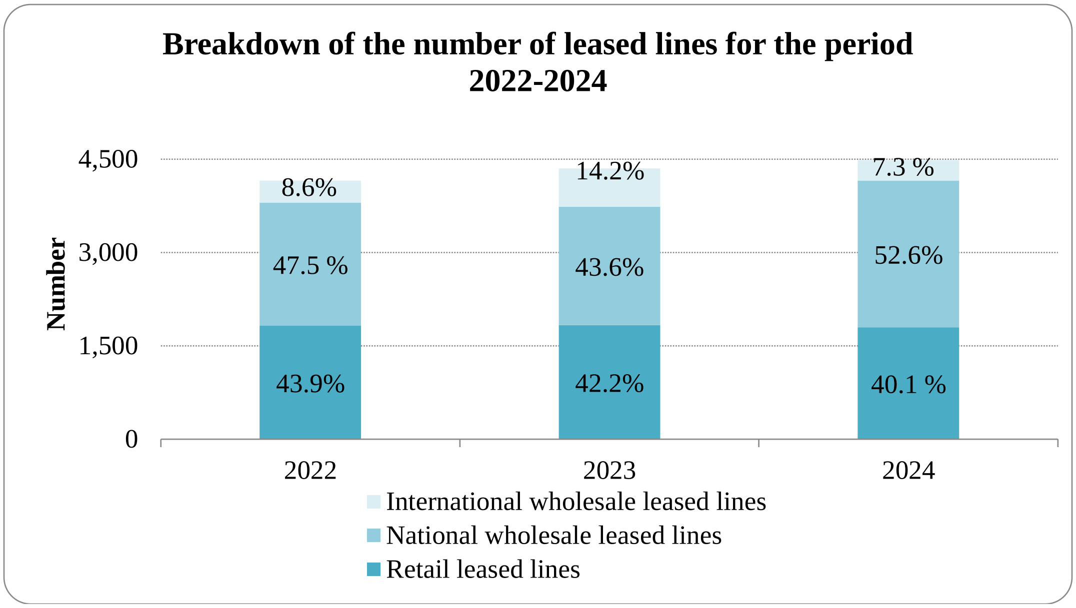
Source: Data submitted to CRC

In 2024, there was no shift in the positions of the first three undertakings by the number of wholesale leased lines provided. The total market share (61.5%), calculated based on the number of wholesale leased lines of the three main undertakings, increased by only 1.6 percentage points, whereas a significant increase of 11.6 percentage points based on revenue was reported. There was an increase of 4.1 percentage points in the market share of Novatel, calculated based on the number of wholesale lines, compared to the previous year. As for the other two leading undertakings, Neterra and Vivacom, this indicator is declining.

Despite the reduced market share based on number of wholesale lines by 1.2 percentage points, Neterra has increased its market share based on revenue to reach 33.7% - up by 16 percentage points, which is mainly due to the significant growth of revenue from international wholesale leased lines - 33.81% compared to the year before.

Number of wholesale and retail leased lines

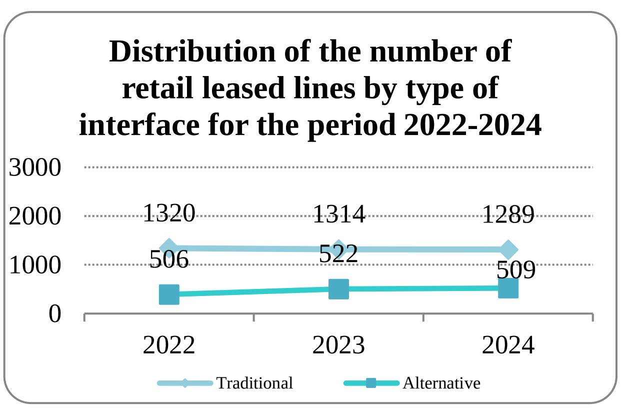
Figure 22 shows the breakdown of leased lines in 2024. The data submitted by the undertakings show that the number of retail leased lines provided in 2024 dropped in relative terms by 2.1 percentage points, while the wholesale one grew by 9 percentage points. The relative share of the number of international wholesale leased lines fell by 6.9 percentage points compared to the previous year. The main increase in the number of national wholesale leased lines was due to Novatel, which recorded an increase of 31.3% compared to 2023.



Source: Data submitted to CRC

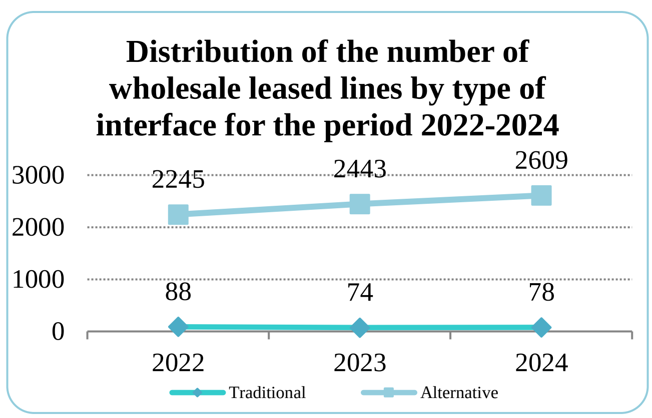
Figure 22

Figures 23 and 24 present the distribution of the number of retail and wholesale leased lines provided for the period 2022–2024 by type of interface used.



Source: Data submitted to CRC

Figure 23



Source: Data submitted to CRC

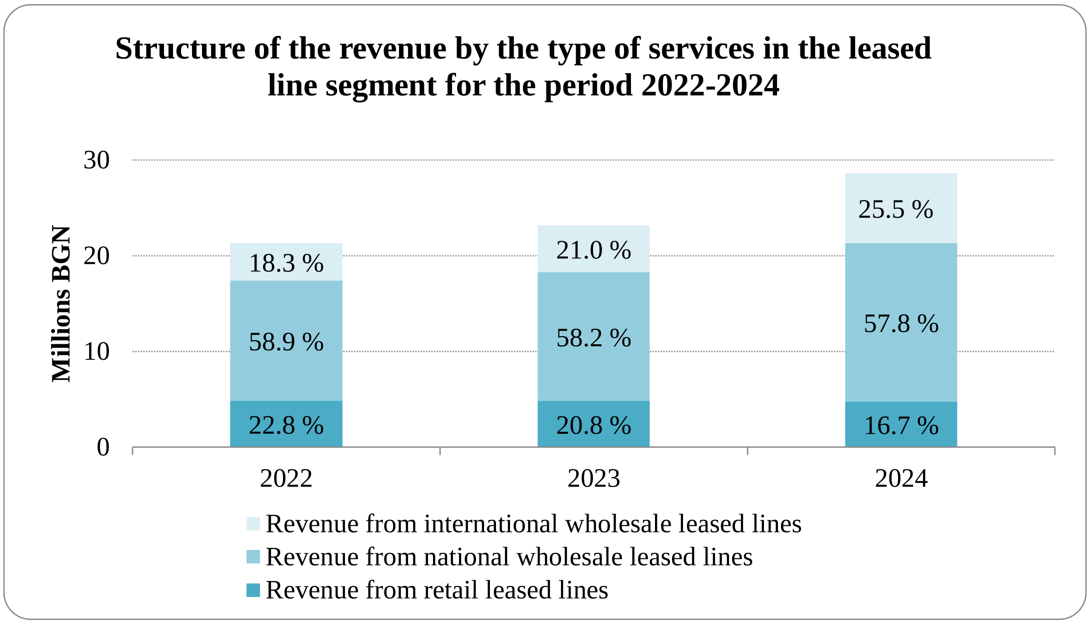
Figure 24

In 2024, the trend of the last two reporting periods continued in the retail leased lines – the number of traditional lines decreased by 1.9% and arrived at 1,289. Alternative retail leased lines also saw a 2.5% drop.

In 2024, the trend of increasing alternative and traditional wholesale leased lines continued, with growth accounting for 6.8% and 5.4%, respectively.

Revenue from leased lines

Figure 25 presents the structure of revenue generated from the provision of leased lines services (wholesale and retail) for the period 2022-2024.



Source: Data submitted to CRC

Figure 25

The generated revenue declared by the undertakings that provided the service in 2024 increased by 23.6% compared to 2023, which is mainly due to the revenue generated by Novatel and Neterra which reported a growth of 28.2% and 49.8%, respectively, in the revenue reported from national wholesale leased lines.

As shown in Figure 25, in the structure of revenue generated from leased lines, the highest growth in relative terms was recorded in international leased lines – 4.5 percentage points compared to 2023. Although in 2024 the relative share of revenue from national wholesale leased lines fell by 0.4 percentage points, they remained with the highest relative share of 57.8% in the total revenue. For yet another year, revenue from retail leased lines fell by 0.9% in absolute terms and by 4.1 percentage points in relative terms.

Summary

In 2024, in the "leased lines services” segment, the trend of increasing the number of alternative wholesale leased lines and the trend of minimal decline in the number of traditional retail and wholesale leased lines continued. Despite the significant increase in the number of wholesale leased lines and the revenue generated from them, the segment's relative share in the overall market structure remained below 1%.

4. Data transfer and Internet access

The total volume of revenue generated in 2024 from the services included in the "data transmission and Internet access" segment amounted to BGN 2,176.068 million. This year also saw an increase compared to the previous year 2023,[25]which amounted to 11.4%.

Table 9 presents information about the number of undertakings which provided services in this market segment in 2024 as well as about the number of their subscribers/users and the revenue generated from them.

[25] The data for 2023 have been updated. The revenue from the segment for 2023 amounted to BGN 1,963.094 million.

Table 9

Number of undertakings, subscribers/users and revenues by type of Internet access and data transfer services provided in 2024

Service	Number of undertakings providing the service in 2024	Number of subscribers/users as of 31.12.2024		Revenues (in millions BGN, excl. VAT)	
		Total[1]	incl. bundled services subscribers	Total[2]	incl. revenue from bundled services
1. Retail Internet access and data transfer services	**621**	///	///	**1,879.791**	**1,251.174**
1.1. Internet access, incl.	612	9,934,700	6,972,748	1,819.894	1,251.174
1.1.1. fixed	612	2,642,618	874,285	471.277	126.355
1.1.2. mobile[3]	3	7,292,082	6,103,573	1,348.617	1,124.819
1.2. Data transfer services	54	1,220,618	///	57.527	///
1.3. Other services (hosting, e-mail, etc.)	17	7,835	///	2.371	///
2. Wholesale services	**141**	///	///	**296.276**	///
2.1. Provision of capacity for Internet connectivity (Peering and Transit)	95	836	///	23.100	///
2.2. Data transfer services	27	418	///	17.895	///
2.3. Wholesale provision of Internet access via next-generation access (NGA) networks	51	277	///	4.493	///
2.4. Other wholesale services	12	44	///	250.789	///
Total	**667**	///	///	**2,176.068**	///

[1] Including subscribers to bundled services.
[2] Including revenue from bundled services.
[3] Including mobile access via data cards or modem and bundled services with mobile Internet access included (including subscribers to data transfer packages purchased in addition to voice plans via 3G, 4G and 5G UMTS/HSPA+/LTE+/NR (5G) mobile networks).
Note: *The symbol /// used in this document means that the information is not applicable to the indicated parameter or is confidential.*

Source: Data submitted to CRC

Market players

The number of undertakings providing services for Internet access and data transfer in 2024 was 667,[26] down by 36 undertakings compared to 2023. The decrease in the total number of undertakings is mainly due to the reduced number of undertakings providing retail services in 2024, which was by 38 less than in 2023, falling to 621. The decline described can be partly explained by the behaviour observed in the last year by some of the undertakings which consolidated their activities from several active undertakings into one, while the rest ceased to operate or were

[26] Including undertakings that notified CRC for suspension of their activity in 2024 and declared revenue during the year.

completely deregistered. The number of undertakings providing wholesale services decreased by one over the one-year period, as in 2024, wholesale services were provided by 141 undertakings.

The first three providers of fixed Internet access for end-users (retail service) in 2024 saw a change compared to previous years, with Yettel now already occupying the third position after Vivacom and A1. As was predicted in the CRC's annual report for 2023, following the acquisition transactions made by Vivacom, its market positions grew stronger which was clearly expressed in the increasing share of the undertaking in the total number of subscribers to fixed Internet access, as well as in the increase of the undertaking's share in the total amount of revenue generated from the provision of the fixed Internet access service. These transactions had an impact on the market positions of the other Internet providers in Bulgaria. After the acquisition of Bulsatcom,[27] which held the third position among the undertakings providing fixed Internet access at retail level until 2023, and the preceding acquisition of Networx-Bulgaria, which occupied the fourth place in 2023 among the undertakings providing fixed Internet access, in 2024, the third position was already occupied by Yettel.

Table 10

Market shares of undertakings providing fixed Internet access at retail level

Undertaking	2023		2024	
	Share based on number of fixed access subscribers[1]	Share based on revenue from fixed access[2]	Share based on number of fixed access subscribers[1]	Share based on revenue from fixed access[2]
VIVACOM BULGARIA EAD	32.2%	28.8%	39.4%	37.1%
A1 BULGARIA EAD	28.4%	23.2%	29.9%	23.7%
BULSATCOM EOOD*	5.4%	3.9%	-	-
YETTEL BULGARIA EAD	2.8%	2.2%	4.1%	3.4%
All others	31.3%	41.8%	26.6%	35.8%

[1] Including subscribers to bundled services.
[2] Including revenue from bundled services.
*As of 10.07.2024, Bulsatcom EOOD was incorporated into Vivacom Bulgaria EAD.

Source: Data submitted to CRC

In 2024, the market leader based on the number of subscribers in the retail fixed Internet access segment remained Vivacom, as the undertaking increased its market share significantly – by 7.2 percentage points year-on-year, reaching 39.4%. A1 retained the second position, increasing its market share by 1.5 percentage points compared to 2023 and covering 29.9% of fixed Internet access subscribers. Yettel ranked third in 2024 with a share of 4.1%, up by 1.3 percentage points compared to 2023. The undertakings included in the "All other" group[28] in 2024 occupied a share of 26.6%. In terms of the market share of undertakings based on revenue from fixed Internet access at retail level, including the part of revenue from the provision of fixed Internet access in a bundle with other electronic communications services, all three undertakings registered an increase compared to 2023. In 2024, Vivacom occupied a 37.1% share with an increase of 8.3 percentage points, A1 made up 23.7% with growth of 0.4 percentage points, and Yettel held a share of 3.4%,

[27] As of 10.07.2024, Bulsatcom EOOD was incorporated into Vivacom Bulgaria EAD.
[28] This includes all undertakings ranked outside the top three undertakings with the highest market share based on the number of subscribers and revenue from fixed Internet access.

up by 1.2 percentage points. The remaining undertakings reported a decline in both indicators, with the share based on the number of subscribers falling by 4.6 percentage points, and the decrease in market share based on revenue amounted to 6 percentage points over a one-year period.

In 2024, mobile Internet access was again provided by 3 undertakings – A1, Vivacom, and Yettel. Table 11 presents their shares in the provision of mobile Internet in 2023 and 2024.

Table 11

Market shares of undertakings providing retail mobile Internet access

Undertaking	2023		2024	
	Share based on number of mobile access subscribers[1]	Share based on revenue from mobile access[2]	Share based on number of mobile access subscribers[1]	Share based on revenue from mobile access[2]
VIVACOM BULGARIA EAD	36.3%	29.4%	36.7%	28.2%
A1 BULGARIA EAD	32.7%	39.8%	33.4%	42.1%
YETTEL BULGARIA EAD	31.0%	30.8%	29.9%	29.7%

[1] Including subscribers to standalone service via data cards or modem, and bundled service subscribers, including a certain amount of data traffic at maximum speed and/or volume of data traffic per month.
[2] Including revenue from standalone service via data cards or modem, revenue from traffic, and the part of revenue from the provision of mobile Internet in a bundle with other electronic communications services.

Source: Data submitted to CRC

As is evident from the data presented in the table, in 2024, there was no change in the positions of undertakings providing mobile Internet access at retail level compared to the previous year 2023. The market share on the basis of the number of subscribers remained almost unchanged for all three undertakings compared to 2023, with a slight increase for Vivacom and A1 by 0.4 and 0.7 percentage points respectively, and a decrease of 1.1 percentage points in the share of Yettel. Market shares calculated based on revenue from the provision of mobile Internet access did not register any changes in the positions as well. Both in 2023 and 2024, Vivacom experienced a decline of 1.2 percentage points, Yettel reported a similar decline - 1.1 percentage points, while A1 remained the undertaking with the largest market share based on revenue, with an increase of 2.3 percentage points in 2024.

Subscribers to Internet access services

As of 31.12.2024, the total number of subscribers to retail Internet services (fixed and mobile Internet access) reached 9.935 million, up by 2.4%, as the growth registered is significantly lower compared to the previous reporting periods. The upward trend in the number of subscribers to bundled services (with fixed and/or mobile Internet access included) was maintained, registering growth of 1.7% in absolute terms for 2024, with the number of subscribers reaching 6.973 million. The share of subscribers to bundled services in the total number of subscribers[29] was 70.2% in 2024.

[29] In order to avoid duplication, subscribers to bundled services with both fixed and mobile Internet access are excluded from the total number of Internet access subscribers.

The total number of subscribers to fixed Internet access (including services provided in a bundle) grew by 5.0%, reaching 2.643 million in the past year. In addition to the growth in the total number of subscribers to fixed Internet access, an increase was also observed in the number of subscribers to fixed access provided in a bundle - by 1.5%. The share of fixed access subscribers in the total number of Internet access subscribers registered an increase of 0.7 percentage points compared to the previous year to reach 26.6%.

In 2024, the total number of subscribers using mobile Internet access services[30] reached 7.292 million, with growth of 1.3% compared to the previous year. Subscribers to mobile Internet access in a bundle saw a similar increase of 1.5% and, at the end of 2024, their number reached 6.104 million (to compare with, the growth in 2023 versus 2022 was by 2.7%). Unlike the previous year when growth of 3.3% was reported, in 2024, there was a slight decrease of 0.1% in the number of subscribers using the service standalone (via data cards and/or modem) and these subscribers already reach 1.189 million. The share of subscribers to mobile Internet access via LTE in the total number of subscribers to mobile Internet access was 54.7%, down by 16 percentage points compared to the previous year. This decline is mainly due to the increase in 5G subscriptions, which also affects their share in the total number of subscribers to mobile Internet access, which in 2024 amounted to 33.3% and grew by 14.5 percentage points. The total number of 5G subscriptions in Bulgaria as of 31.12.2024 amounted to 2.431 million. With the increase of 5G subscriptions, the consumption of the service is also increasing. The estimated average monthly traffic on 5G networks generated by a single subscriber was 17.0 GB in 2024.

Figure 26 presents penetration of fixed broadband Internet access by population[31] and by households[32] as well as of mobile access[33] by population for the period 2022-2024.

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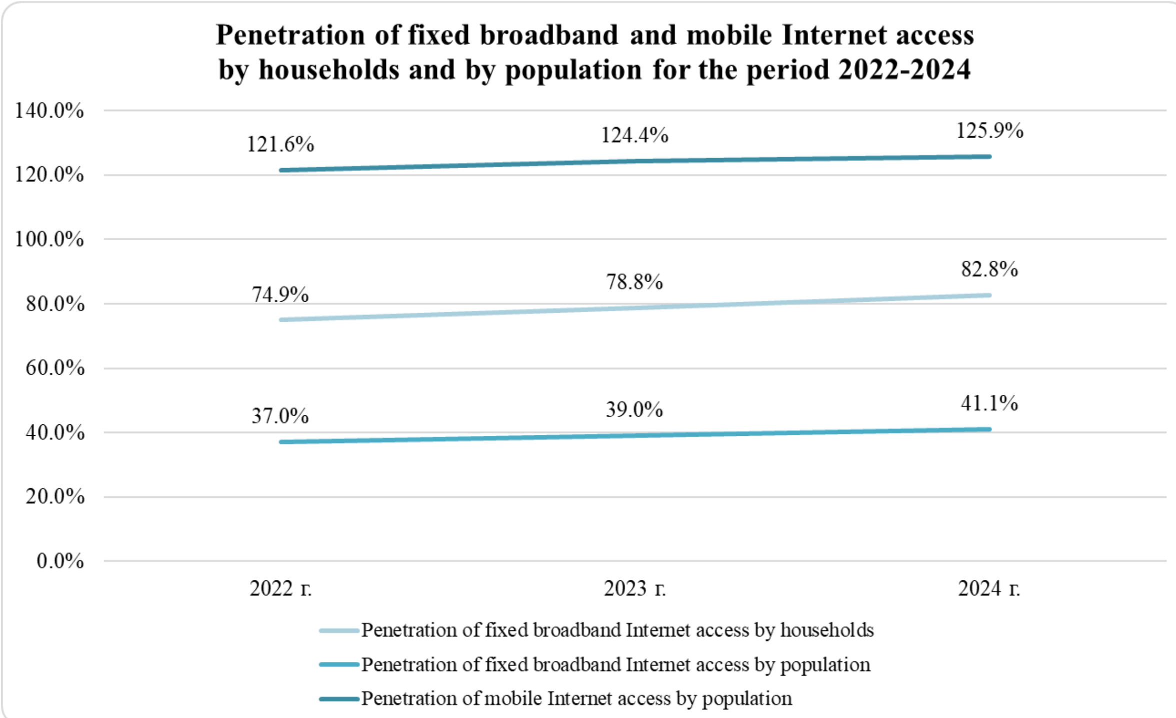
[30] Standalone service via data cards or modems and bundled services with mobile Internet access included, via 3G, 4G and 5G UMTS/HSPA+/LTE+/NR (5G) mobile networks. (including data transfer packages purchased in addition to voice plans).

[31] The indicator was calculated as the ratio between the number of subscribers to fixed Internet access as of 31 December of the respective year and the number of population according to NSI data as of the same date (https://www.nsi.bg/en/statistical-data/206/651).

[32] The indicator was calculated as the ratio between the number of household subscribers to fixed Internet access as of 31.12.2024 and the number of households according to the census carried out by NSI in 2021 (2,866,657 households - https://www.nsi.bg/sites/default/files/files/pressreleases/Census2021_Households.pdf).

[33] These include: subscribers to bundled services with mobile Internet access included (including subscribers to data transfer bundles purchased in addition to voice plans), subscribers to stand-alone services via data cards or modems, as well as subscribers to mobile Internet access services provided without an individual subscription. The indicator was calculated as the ratio between the number of subscribers to mobile access as of 31.12.2024 and the number of population according to NSI data as of the same date (https://www.nsi.bg/en/statistical-data/206/651).

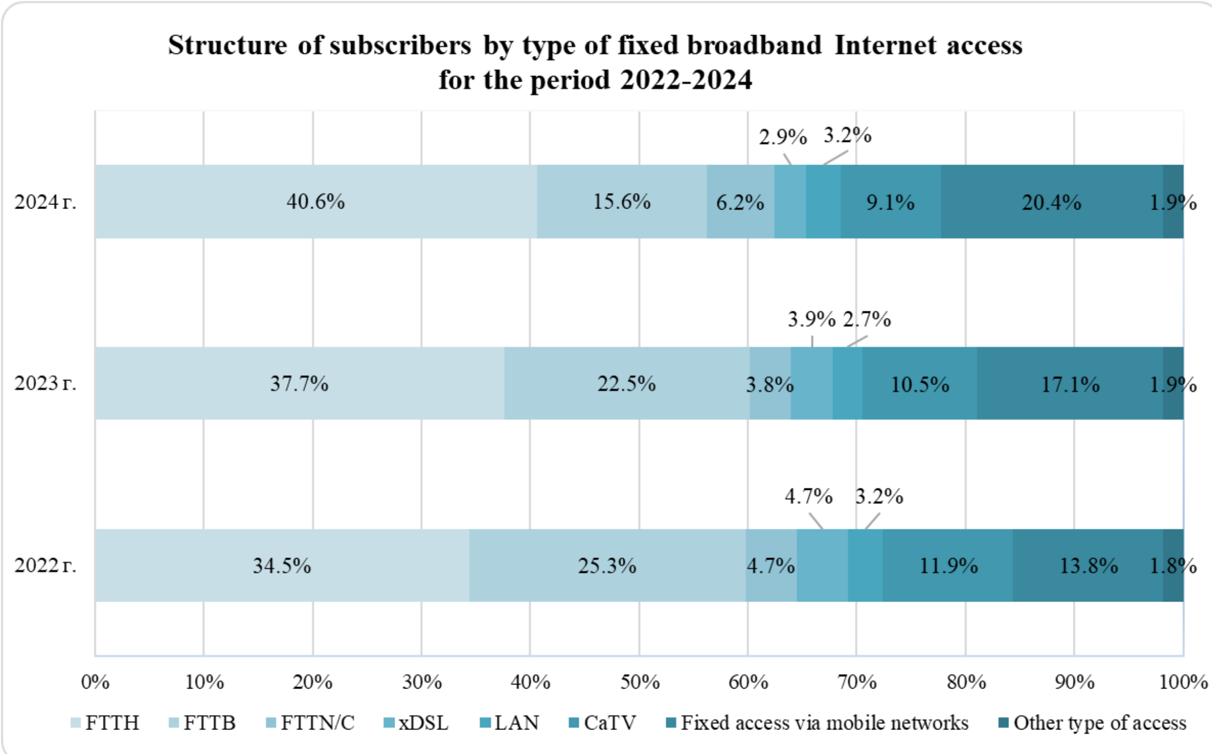


Source: Data submitted to CRC

Figure 26

The indicators "penetration of fixed broadband Internet access by households", "penetration of fixed broadband Internet access by population" and "penetration of mobile Internet access by population" again registered an increase from the previous year by 4 pp, 2 pp and 1.6 percentage points, respectively.

The breakdown of subscribers by type of fixed Internet access for the period 2022-2024 is shown in Figure 27.



Source: Data submitted to CRC

Figure 27

At the end of 2024, 62.4% of subscribers to fixed Internet access in Bulgaria used access via fibre-optical networks ((FTTH,[34] FTTB and FTTN/C). The upward trend in the total number of subscribers using optical access in absolute terms was preserved, albeit at a slower pace. At the end of 2024 there was an increase of 2.5% over a one-year period, while at the end of 2023 this growth was 4.5%. The number of FTTH access subscribers in the total number of fixed access subscribers is also increasing, with the number of "fibre-to-the-home" subscribers registering an increase of 13.0% in absolute terms. The reported increase in the share of FTTH access subscribers compared to the previous year amounted to nearly 3 percentage points and for yet another year this type of access strengthens its leadership position in the structure of subscribers by type of fixed broadband Internet access.

There is a change regarding the second position in the types of Internet access based on the number of subscribers. At the end of 2024, the share of subscribers to fixed access via mobile networks in the total number of subscribers to fixed access was 20.4%, up by 3.3 percentage points compared to the previous year 2023. In absolute terms, the number of subscribers to this type of access grew by 25.3% over a one-year period. The main reason for this significant growth is rooted both in the widespread coverage of LTE networks nationwide and in the ongoing large-scale deployment of 5G NR networks.

[34] Includes FTTH and FTTx bitstream access subscribers.

Third place, with a share of subscribers of 15.6% in the total number of subscribers to fixed broadband, is held by FTTB access, which registered a decline of 6.9 percentage points compared to 2023, due to the increase of subscribers to FTTH access and fixed access via mobile networks.

CATV access subscribers (based on transmission and/or distribution of radio and TV programmes networks and DOCSIS standard) ranked fourth, as they registered a decline for the fourth year in a row - by 1.4 percentage points versus 2023. The CATV access subscribers using the DOCSIS 3.0 protocol increased by 0.6 percentage points, to arrive at 99.4% of the total number of CATV access subscribers.

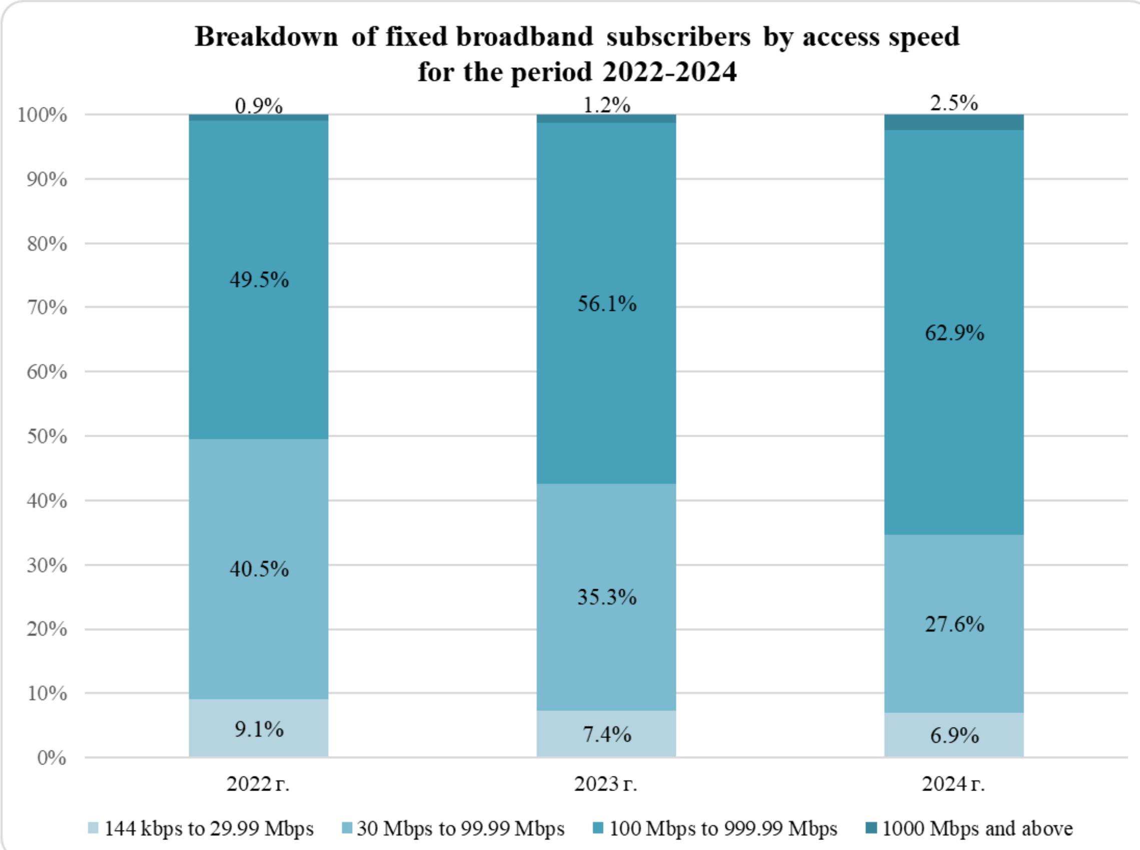
The downward trend in the subscribers to xDSL access, provided only by Vivacom, continued in 2024 as well. Compared to the end of the previous year, the number of subscribers of that type of access dropped by 19.8% in absolute terms, and for the period 2022-2024, the decline was nearly 31.0%. At the end of the reporting period, the share of xDSL access subscribers in the total number of subscribers of the undertaking was 7.5%, or by 4.5 percentage points less than the year before. Subscribers using VDSL[35] decreased by 2.1 percentage points from 2023 to 4.6% in the total number of subscribers of the undertaking. As in the previous year, in 2024, the share of subscribers to optical access of Vivacom in the total number of the undertaking's subscribers continued to increase and reached 71.3% compared to 67% at the end of 2023. In absolute terms, the reported increase in the number of subscribers using fibre-optic networks was 36.8%.

In 2024, the share of LAN access subscribers remained small - 3.2% of the total number of fixed broadband access subscribers, with a registered insignificant increase of 0.5 percentage points. The share of subscribers to "other type of access"[36] was preserved (1.9%), with the largest share in the total number of subscribers to "other type of access" being held by RLAN access with a share of 78.1%, followed by access via leased lines and dedicated access with 18.8%, and access via satellite networks with 3.1%, respectively.

The upward trend in the speed of Internet services offered continued in 2024. Figure 28 presents the breakdown of the number of subscribers to fixed broadband Internet access according to the international download speed for the three-year period 2022-2024.

[35] VDSL subscribers are included in the total number of subscribers to Internet access via xDSL technology.

[36] "Other types of access" includes the following types of access: RLAN access, access via satellite networks, and access via leased lines and dedicated access.



Source: Data submitted to CRC

Figure 28

In 2024, as in the year before, in the structure of subscribers distributed by speed intervals, the leadership position was occupied by users of ultra-high-speed access (at least 100 Mbps) with a share of 65.4%. The reported year-on-year increase was 8.1 percentage points, or as much as 15 percentage points compared to 2022, which is a result of the growing number of subscribers using optical connectivity, DOCSIS 3.0 cable access protocol and fixed access through mobile networks.

The largest share was held by subscribers using speeds from 100 to 999,99 Mbps. At the end of 2024, 62.9% of subscribers used speeds in the above interval, with the reported increase being 6.8 percentage points compared to 2023, and over 13 percentage points since 2022. The share of subscribers in the "above and including 1000 Mbps" speed range doubled compared to the previous year and reached 2.5% in the total number of subscribers to fixed access. In this range, the largest growth of subscribers in absolute terms was reported – compared to 2022, they grew more than 3 times.

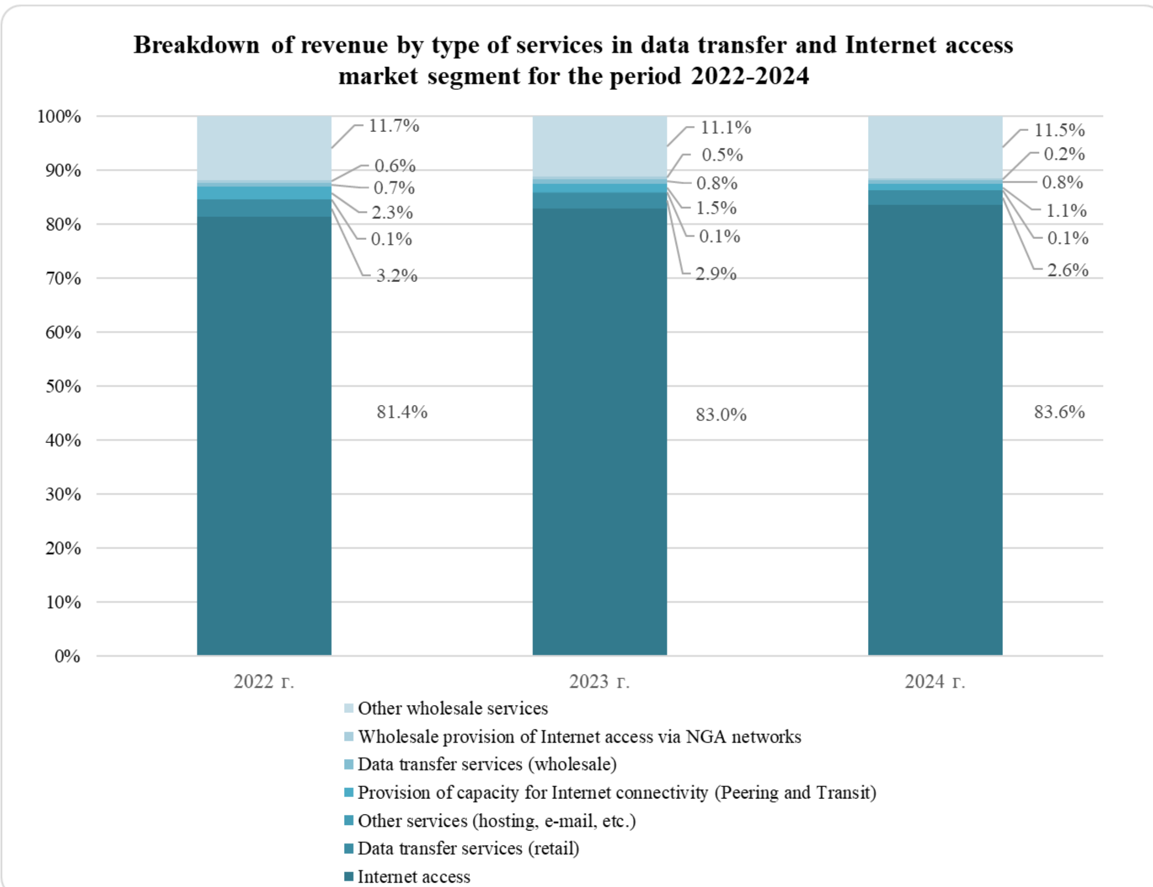
The relative share of subscribers who used high-speed access with international download speed from 30 Mbps to 99.99 Mbps decreased to 27.6% at the end of 2024, with a registered decline of 7.7 percentage points. They are followed by subscribers using speeds up to 29.99 Mbps whose share was reduced to 6.9%.

In absolute terms, the number of broadband access subscribers using speeds in the range from 100 to 999.99 Mbps reported an increase of 17.8%, at the expense of subscribers in the range from 30 to 99.99 Mbps, who decreased by 17.7%. A decrease of 0.8% was registered by subscribers using speeds up to 29.99 Mbps.

Revenue from data transfer and Internet access

In 2024, compared to 2023, revenues[37] from the data transfer and Internet access segment reached BGN 2,176.068 million. The registered increase of 11.4% compared to the 2023 data was mainly due to the increased revenue from retail services which reported growth of 11.8%. The total amount of revenue from retail services was BGN 1,879.791 million, 96.8% of which was revenue from Internet access services (BGN 1,819.894 million). Revenue from wholesale services amounted to BGN 296.276 million, preserving its upward rate for yet another year. The total amount of revenue from retail services grew by 0.3 percentage points and accounted for 86.4% of the revenue from the data transfer and Internet access segment, while that from wholesale services made up 13.6% of the revenue in the segment under consideration.

Figure 29 presents the breakdown of revenue generated for the period 2022-2024.



Source: Data submitted to CRC

Figure 29

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[37] Including revenue from standalone services for retail fixed and mobile Internet access, retail data transfer services and wholesale services (capacity for Internet connectivity, wholesale access services, wholesale provision of Internet access via next-generation access (NGA) networks, wholesale data transfer services and revenue from Internet access (fixed and mobile) provided bundled with other electronic communication services.

In 2024, there was no significant change in the overall revenue structure in the segment. The highest relative share (83.6%) continued to be held by revenue from retail Internet access services which recorded an increase of 12.3% in absolute terms over the past year compared to 2023. The upward trend in the total revenue from the provision of mobile Internet access was preserved, as the registered increase over the one-year period was 12.9%. Revenue from the provision of fixed Internet access at retail level rose by 10.4% compared to the 2023 data. Growth of 14.9% compared to 2023 was reported in the distributed revenue from bundled services related to the mobile Internet access[38] service, and for the period 2022-2024, this revenue increased by 43.3%. In the part of revenue from bundled services related to the fixed Internet access[39] service, the growth was 10.8% for the one-year period and 43.9% versus 2022. In all revenues from the types of services mentioned above, there was a slowdown in the growth rate compared to the previous year.

Summary

The trends observed in the data transfer and Internet access segment in recent years largely remained the same in the past year 2024. Compared to 2023, the following was reported:

- The total number of subscribers to fixed and mobile Internet access continued to grow. For yet another year, there was an increase in both the share of FTTH access subscribers in the total number of fixed Internet access subscribers and the share of 5G mobile access subscribers in the total number of mobile Internet access subscribers;
- The share of subscribers using ultra-high-speed Internet access,[40] including those who use gigabit speeds, in the total number of fixed Internet access subscribers, is increasing;
- There was an increase in the share of subscribers to fixed access over mobile networks in the total number of subscribers to fixed Internet access, both due to the wide national coverage of LTE networks and to the continued deployment of 5G NR networks;
- Growth was again reported in the total volume of revenue in the segment, with an increase in revenue from both retail and wholesale services;
- Following the above-mentioned acquisition and merger transactions carried out by Vivacom in 2024, the undertaking's position in the market segment of retail fixed Internet access grew stronger;
- There was no shift in the positions of undertakings providing retail mobile Internet access by market shares based on the number of subscribers and revenue. For all three undertakings, market shares reported minor changes compared to the previous year.

5. Transmission and/or distribution of radio and TV programmes services

In 2024, the volume of the "transmission and/or distribution of radio and TV programmes services" market segment reached BGN 543.555 million, without any significant change since 2023.

Summarised information on the number of undertakings that provided transmission and/or

[38] The part of revenue relating to mobile Internet access included in the package.
[39] The part of revenue relating to fixed Internet access included in the package.
[40] With download speed from the international space at least 100 Mbps.

distribution of radio and/or TV programmes services, the number of their subscribers/users, and on the volume of revenue generated from them, along with the structure of the segment, is presented in Table 12 and in Figure 30.

Table 12

Number of undertakings, number of subscribers/users and revenues by type of transmission and/or distribution of radio and TV programmes services in the segment provided in 2024

Service	Number of undertakings providing the service in 2024	Number of subscribers/users as of 31.12.2024		Revenues (in millions BGN, excl. VAT)	
		Total[1]	incl. bundled services subscribers	Total[2]	incl. revenue from bundled services
1. Retail distribution of radio and TV programmes services	**251**	**2,017,183**	**877,070**	**506.064**	**213.564**
1.1. Cable TV	208	418,323	222,445	106.093	60.218
1.2. Satellite TV	3	635,031	50,824	149.767	16.222
1.3. IPTV	83	963,829	603,801	250.204	137.124
2. Terrestrial broadcasting of radio and TV broadcasting	**55**	///	///	///	///
3. Transmission and/or distribution of radio and TV programmes	**12**	///	///	**37.491**	///
3.1. Transmission of radio and TV programmes services	6	///	///	2.063	///
3.2. Distribution of radio and TV programmes services, incl. wholesale service (via IPTV and/or DVB-C method)	9	///	///	35.428	///
Total	///	///	///	**543.555**	///

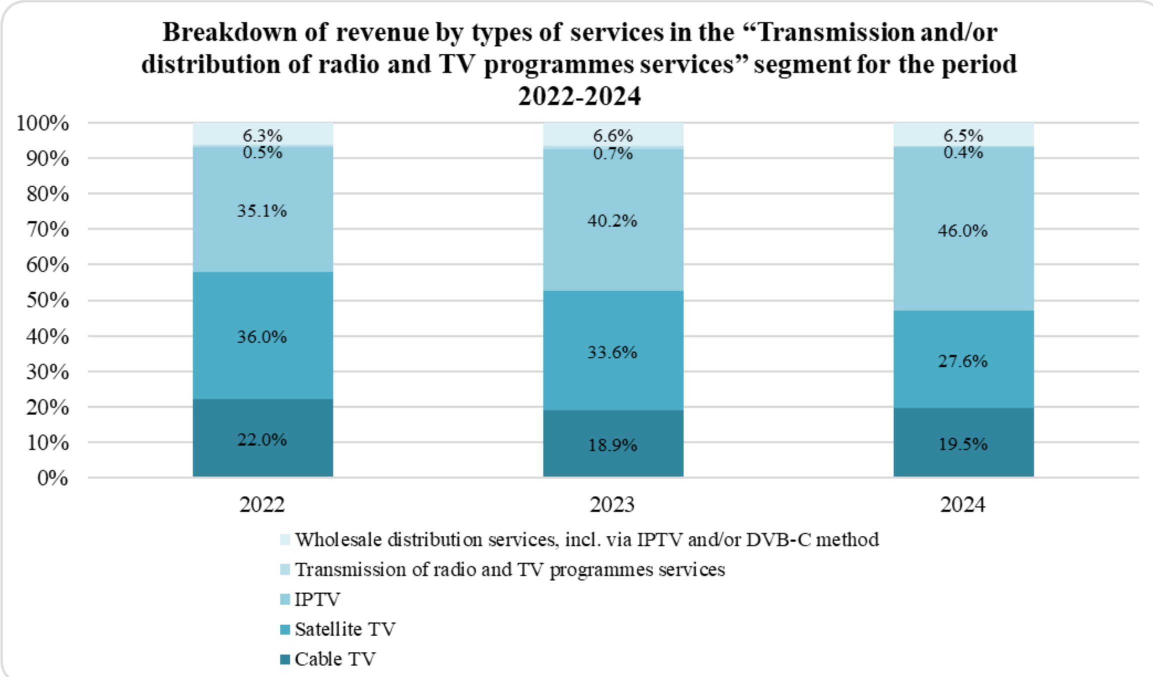
[1] Including subscribers to bundled services.

[2] Including revenue from bundled services.

[3] Revenue from bundled services by TV platforms was measured on the basis of the distribution of subscribers to bundled services by platforms.

Source: Data submitted to CRC

In 2024, according to the data reported by the undertakings, an increase was registered by revenue from IPTV – by 15.1%, and from cable TV – by 3.5%, compared to the previous year. Revenue generated from the other services in the segment decreased over the one-year period considered, with the largest decline recorded in revenue from wholesale transmission of radio and TV programmes services – 42.0%, followed by revenue from satellite television by 17.7%. Revenue from wholesale distribution of radio and TV programmes services, including wholesale services via IPTV and/or DVB/C method, dropped by 1.2% year-on-year.



Source: Data submitted to CRC

Figure 30

In 2024, the largest share in the total volume of the segment (93.1%) continued to be occupied by revenue from the provision of retail radio and TV programmes services (Figure 30): cable television, satellite television and IPTV. In 2024, revenue from IPTV continued its upward development and already occupies the highest share in the total volume of the segment, as this share grew by nearly 6 percentage points over the one-year period in relative terms to arrive at 46.0%. The share of revenue from satellite TV ranked second, as it declined by 6 percentage points to 27.6%, followed by that of cable TV revenue which grew by 0.6 percentage points and accounted for 19.5% of the total volume of the segment in 2024. The shares held by revenue generated from wholesale services in this market segment did not show a significant change compared to the previous one-year period.

5.1. Retail distribution of radio and TV programmes

Market players

In 2024, 251[41] undertakings provided retail distribution of radio and TV programmes services (Table 13), with a negligible increase compared to the previous year.

As of 31.12.2024, the total number of undertakings actually providing cable TV amounted to 208 (up by 1 compared to 2023), while the number of IPTV providers was 83.

[41] Including undertakings that notified CRC for suspension of their activity in 2024 and declared revenue during the year.

The undertakings that declared to have provided the satellite TV service in Bulgaria at the end of 2024 decreased to 3[42] – Vivacom, A1, and Neosat AD.

The table below presents the relative shares of the first three undertakings, calculated based on the number of subscribers and the revenue from the provision of retail television services, including the part of revenue from bundled services with television included, for the period 2023-2024.

Table 13

Market shares of undertakings providing retail pay TV for the period 2023-2024

Undertaking	2023		2024	
	Share based on number of subscribers	Share based on revenue	Share based on number of subscribers	Share based on revenue
VIVACOM BULGARIA EAD	36.3%	32.7%	59.6%	56.5%
A1 BULGARIA EAD	27.3%	28.9%	26.5%	31.6%
BULSATCOM EOOD*	22.1%	26.0%	-	-
YETTEL BULGARIA EAD	0.3%	0.003%	1.5%	0.3%
All other	14.0%	12.5%	12.4%	11.5%

* As of 10.07.2024, Bulsatcom EOOD was incorporated into Vivacom Bulgaria EAD.

Source: Data submitted to CRC

In 2024, the largest undertakings providing pay TV were Vivacom, A1, and Yettel. The market leader based on the number of subscribers to this market segment remained Vivacom with a share of almost 60% based on the number of subscribers and 56.5% based on revenues. The undertaking's shares have grown significantly over the one-year period, mainly because of the incorporation of Bulsatcom and TVN Distribution Bulgaria EOOD into Vivacom, the two undertakings occupying the third and fourth position by market share for 2023 of this segment. The data on the activities of the two undertakings were submitted in the Vivacom's annual report for 2024.

A1 kept the second position, as in 2024 the undertaking's share based on subscribers fell by 0.8 percentage points, whereas it decreased by 2.7 percentage points based on revenue, covering 26.5% of pay-TV subscribers and 31.6% of the revenue generated, respectively.

In 2024, Yettel entered the top three, up from number 14 in 2023 to number 3 within the one-year period. The undertaking provides pay TV through its 5G network, with subscribers using the Yettel service at the end of 2024 accounting for 1.5% of the total number of pay-TV subscribers, registering growth in relative terms of 1.2 percentage points. The undertaking's declared revenue from the provision of the service in 2024 covered only 0.3% of the total volume of revenue from pay TV, up by 0.3 percentage points year-on-year.

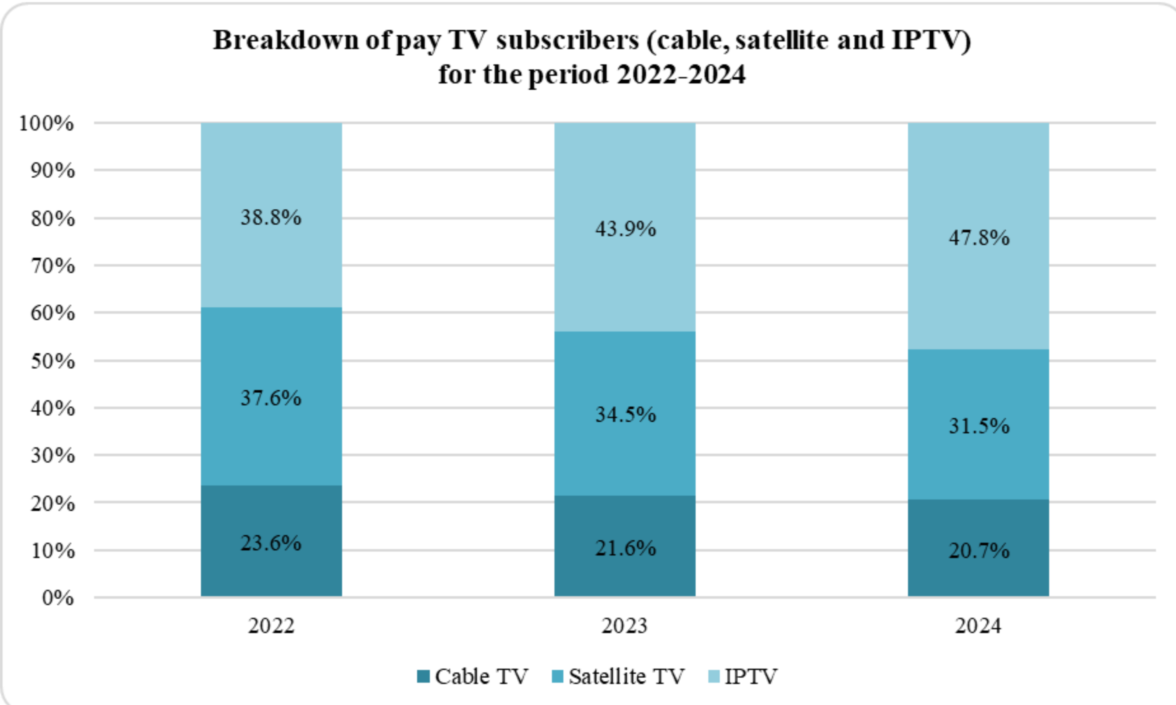
All other participants in the market segment, outside the top three, covered 12.4% of subscribers (a decline of 1.6 percentage points) and 11.5% of revenue (a decline of 1 percentage point).

[42] As of 10.07.2024, Bulsatcom EOOD was incorporated into Vivacom Bulgaria EAD.

Subscribers to retail distribution of radio and TV programmes services

As of 31.12.2024, the number of subscribers to retail pay TV registered minor growth of 0.5% compared to the end of the previous year and amounted to 2.02 million subscribers.[43]

Figure 31 presents the shares of subscribers[44] by platforms in the total number of pay-TV subscribers for the period 2022-2024.



Source: Data submitted to CRC

Figure 31

At the end of 2024, the number of IPTV subscribers continued to grow compared to the previous reporting period - by 9.4%, with its share registering growth of 3.9 percentage points and already accounting for 47.8% as of 31.12.2024, reaffirming its position as the platform with the largest share in the subscriber structure of the pay-TV market. Five undertakings started providing IPTV in 2024, with the share of subscribers to these undertakings in the total number of IPTV subscribers as of 31.12.2024 amounting to 0.5%. Although there has been an increase in the number of subscribers, in 64.0% of all other undertakings providing IPTV, the growth in the total number of subscribers to this TV platform during the one-year period was mainly due to the reported increase in the number of subscribers of Vivacom, A1, and Yettel that make up 95.0% of the IPTV subscribers in the country.

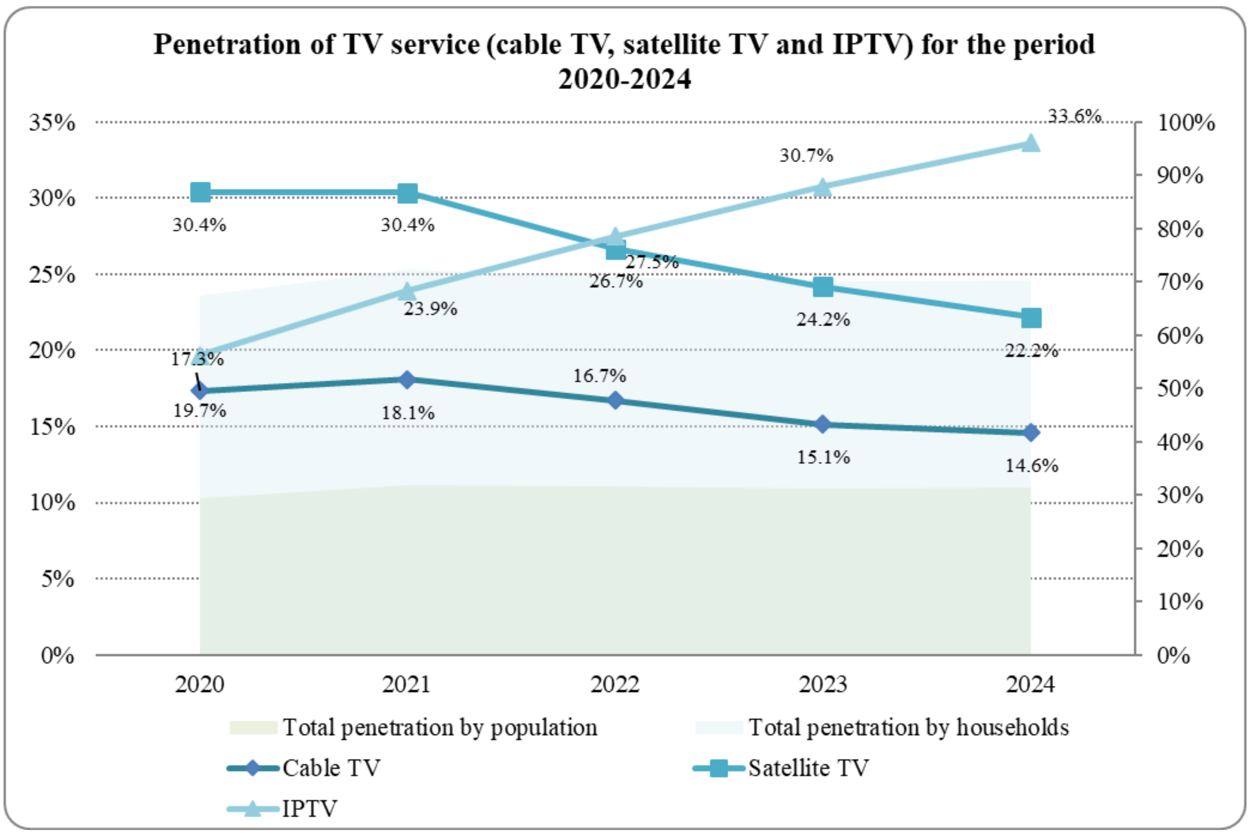
The share of subscribers to satellite TV registered a decline for yet another year - down by 3 percentage points for the one-year period. This negative trend, as well as the significantly increased share of IPTV, left satellite TV second with a share of 31.5% (Figure 31). In absolute values, a decrease of 8.4% was reported in the number of satellite TV subscribers compared to 31.12.2023. In view of the 2024 incorporation of the largest satellite TV provider – Bulsatcom -

[43] Including subscribers to bundled services who amounted to 877,070 as of 31.12.2024.
[44] The data for 2023 have been updated.

into Vivacom, the Regulator's expectations expressed in the previous annual report were justified, as the share of Vivacom's subscribers to satellite TV exceeded 80.0% by the end of 2024.

The number of cable TV subscribers continued to decline during the current reporting period as well, as it fell by 3.5%, and their share in the total number of pay-TV subscribers dropped by 0.9 percentage points to 20.7%.

During the period under consideration, the penetration[45] of pay TV among households in Bulgaria did not report a significant change compared to the previous reporting period. As of 31.12.2024, there was an increase of 0.3 percentage points, and the value of this indicator reached 70.4%. The penetration of cable and satellite TV fell by 0.5 and 2 percentage points, respectively, compared to 2023. IPTV continued its upward development and, toward the end of 2024, the penetration of the service among households was already 33.6%, marking an increase of 2.9 percentage points compared to the year before (Figure 32). The penetration of pay TV among the Bulgarian population[46] remained at almost the same level as in the previous reporting period and amounted to 31.3%, increasing its value by only 0.2 percentage points compared to 2023.



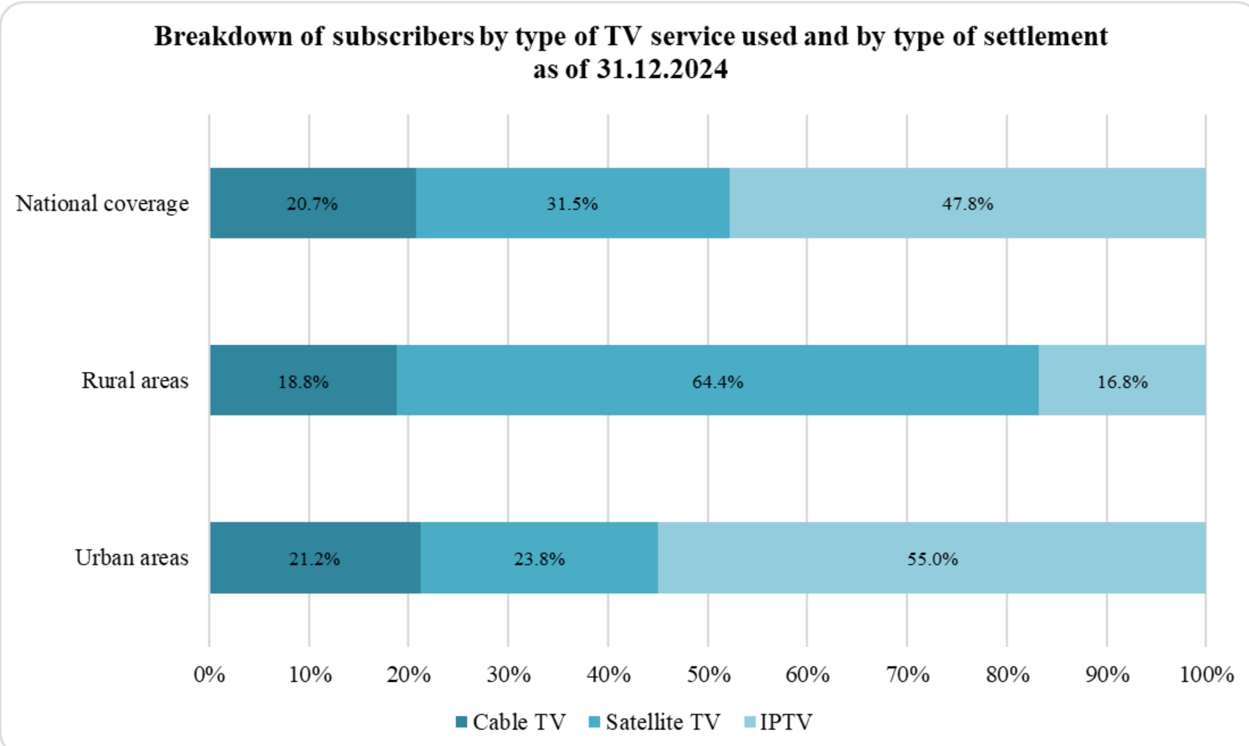
Source: Data submitted to CRC

[45] The indicator was calculated as the ratio between the number of subscribers to pay TV as of 31.12.2024 and the number of households according to the census carried out by NSI in 2021 (2,866,657 households). https://www.nsi.bg/sites/default/files/files/pressreleases/Census2021_Households.pdf).

[46] The indicator was calculated as the ratio between the total number of subscribers to pay TV as of 31 December of the respective year and the number of population according to NSI data as of the same date (https://www.nsi.bg/en/statistical-data/206/651).

Figure 32

Figure 33 displays the breakdown of subscribers of pay TV according to the settlement where they use this service as of 31.12.2024.



Source: Data submitted to CRC

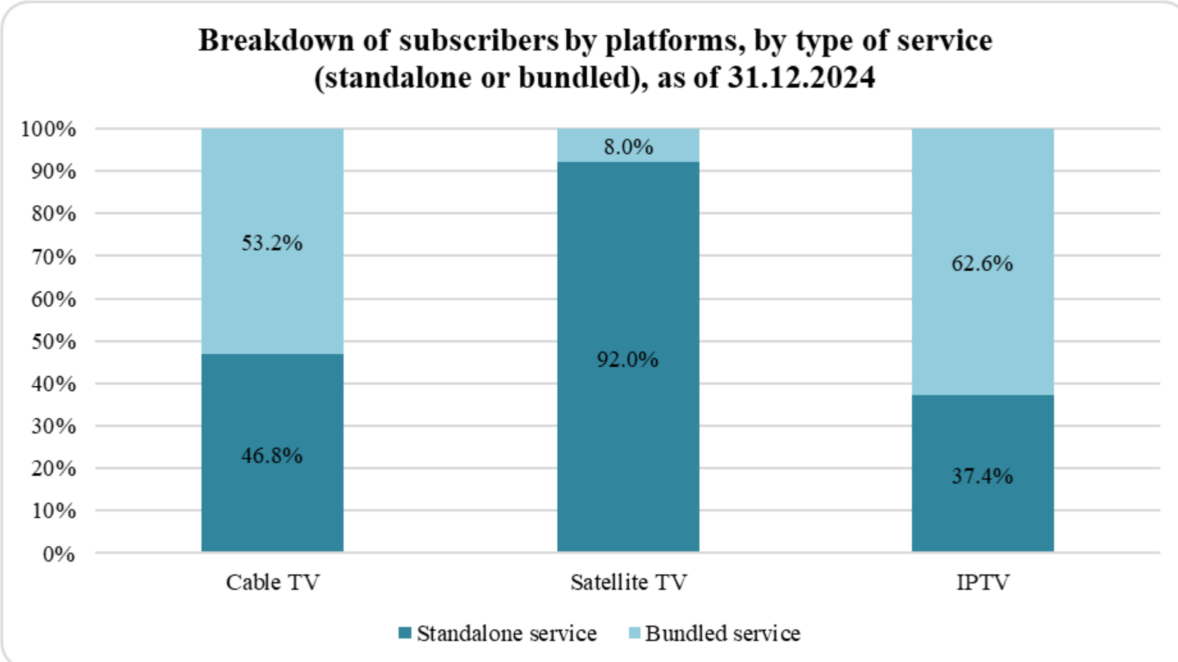
Figure 33

For yet another year, the share of satellite TV subscribers in rural areas declined, as it fell by 4.6 percentage points to 64.4%. As a result of the launch of IPTV in 410 new villages and the reported growth in subscribers to this platform in almost 1,990 villages compared to 2023, at the end of 2024, the number of IPTV subscribers in rural areas rose by 30.0%. This growth also affected its share which increased from 12.8% in 2023 to 16.8% at the end of the period considered. The number of cable TV subscribers in rural areas also increased – by 2.8%, with the share it occupies in the total number of pay-TV subscribers outside the cities growing by 0.6 percentage points to reach 18.8% as of 31.12.2024.

In the cities, IPTV subscribers accounted for the highest share, with an increase of 3.8 percentage points in relative terms compared to their share at the end of 2023, reaching 55.0% of the total number of pay-TV subscribers in urban areas. The shares of subscribers to the other two platforms continued their downward trend in 2024 as well, with the share of cable TV subscribers falling by 1.2 percentage points to 21.2%, and that of satellite TV down by 2.6 percentage points to 23.8%, in line with the overall decline observed at national level (Figure 33).

The number of subscribers to bundled services with a TV service included continued to increase and, in 2024, compared to the year before, the reported growth was 3.0%, and the share it covers in the total number of pay-TV subscribers grew by over 1 percentage point to arrive at

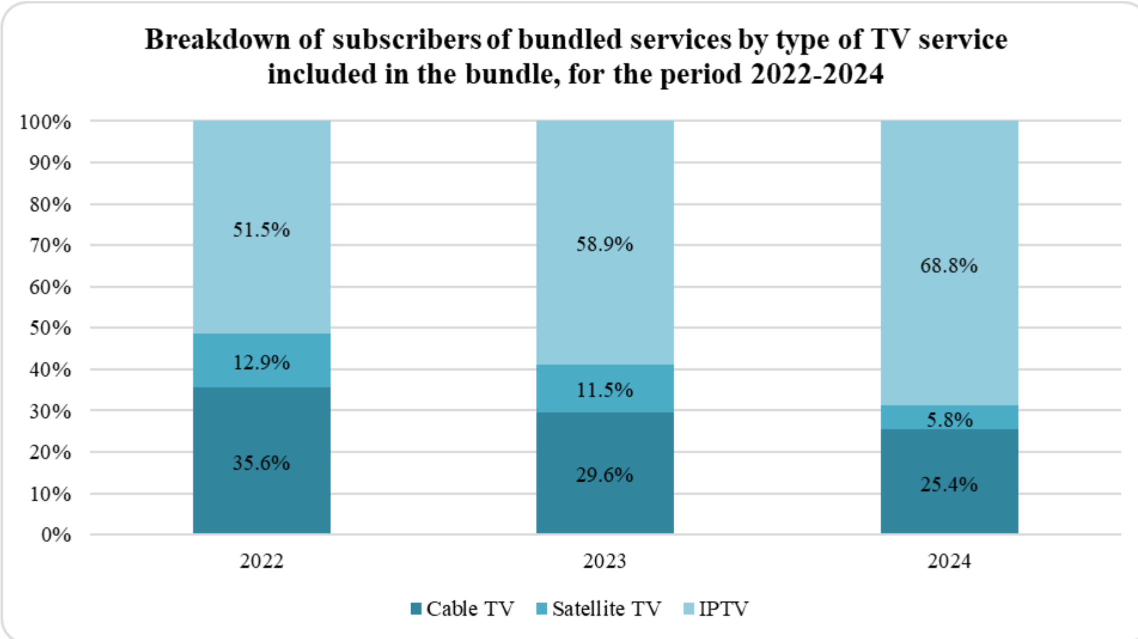
43.5%. Figure 34 shows the share of subscribers to bundled services with a TV service included in the total number of subscribers distributed by platforms, as of 31.12.2024.



Source: Data submitted to CRC

Figure 34

Over the one-year period under consideration, there was a certain change in the structure of subscribers by type of service used. As compared to the end of 2023, the share of IPTV subscribers who used the service in a package increased by nearly 6 percentage points to 62.6%. Over the same period, the relative share of subscribers to bundled services with satellite TV included decreased by 6.1 percentage points to as little as 8.0%, and the share of subscribers with cable TV included decreased by 5 percentage points to 53.2% of the total number of subscribers to the respective platform (Figure 34).



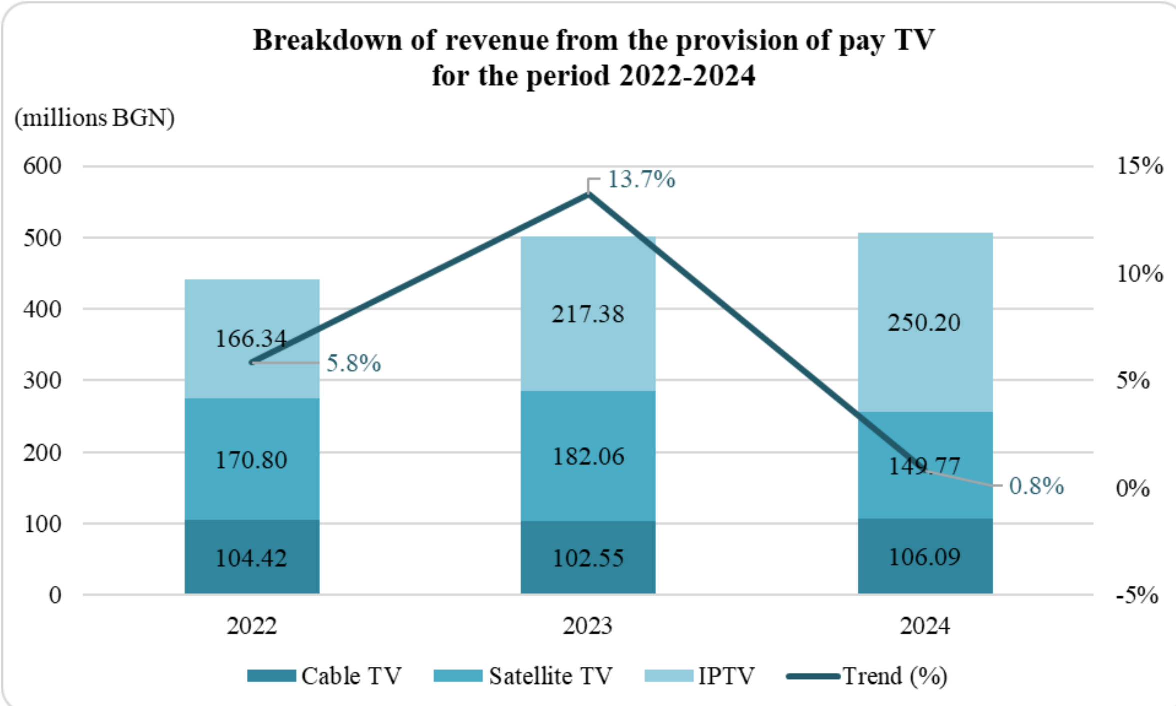
Source: Data submitted to CRC

Figure 35

As of 31.12.2024, compared to the previous year, there was growth in the number of subscribers to packages with IPTV included - by 20.0%, as well as in its share in the total number of subscribers to TV service in a package which, for the one-year period, grew by 10 percentage points to cover 68.8% (Figure 35). At the end of 2024, the share of subscribers to bundled services with cable TV included amounted to 25.4%, registering a decrease of 4.3 percentage points over the one-year period, and the share of subscribers to bundled services with satellite TV included fell to 5.8%.

Revenue from retail distribution of radio and TV programmes services

The volume of total revenue, including revenue from bundled services with pay TV included, continued to grow and amounted to BGN 506.064 million in 2024, up by 0.8% compared to the previous one-year period. Figure 36 presents the breakdown of revenue from the provision of pay-TV by platforms in the retail segment.



Note: *The presented data on revenue from cable television, satellite television and IPTV includes revenue from bundled services with television included, calculated based on the breakdown of bundled services subscribers with television included, by platforms, for each undertaking.*

Source: Data submitted to CRC

Figure 36

Revenue from both cable and IPTV grew in 2024 compared to the previous year, up by 3.5% and 15.1%, respectively, year-on-year. The shares of revenues generated from both platforms also increased, by 0.5 percentage points for cable TV to arrive at 21.0%, and by 6.1 percentage points for IPTV, occupying 49.4%, respectively. In contrast to the previous one-year period, when growth in absolute terms was reported in revenue from satellite TV, there was a decrease of 17.7% in 2024. This decrease affected the change in its share in the total volume of the retail market segment, which also dropped – by 6.7 percentage points to 29.6%.

The share of revenue from the provision of bundled services with television[47] included grew by 3.7 percentage points compared to the previous year to 42.2% of the total volume of the retail segment. In terms of revenues generated from standalone service, there was an increase in two of the TV platforms – cable TV and IPTV, by 10.2 and 3.7%, respectively, and a drop in revenue from standalone provision of satellite TV – by 15.4%.

5.2. Wholesale transmission and/or distribution of radio and TV programmes and IPTV

In 2024, wholesale transmission and/or distribution of radio and TV programmes services, including via wholesale IPTV and/or DVB-C method, was provided by 12 undertakings - down by 1 compared to 2023.

Detailed information on the number of undertakings which in 2024 provided wholesale

[47] The part of revenue relating to the television service included in the package.

transmission and/or distribution of radio and TV programmes services, the number of users of these services and the volume of revenue generated from them, is displayed in Table 14.

Table 14

Number of undertakings, number of subscribers/users and revenue from the provision of wholesale transmission and/or distribution of radio and TV programmes services in 2024

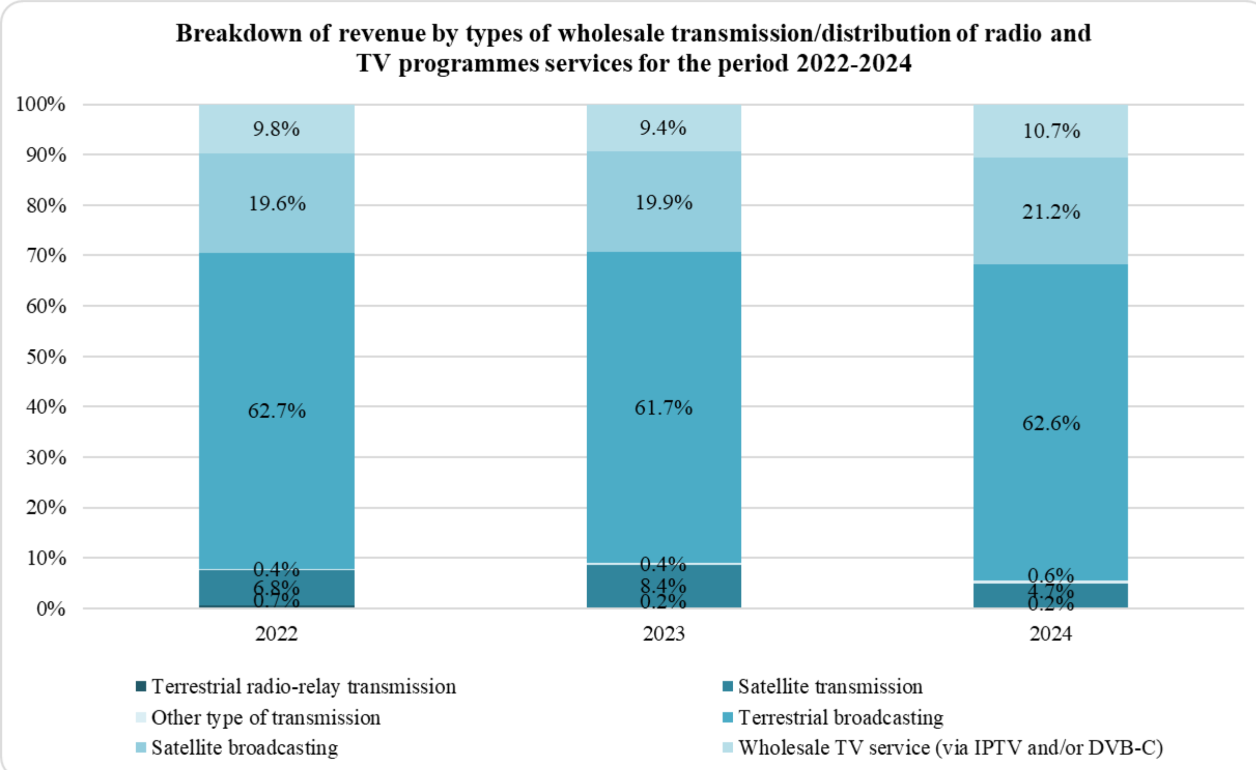
Type of wholesale transmission and/or distribution of radio and TV programmes services	Number of undertakings providing the service in 2024	Number of users of the service as of 31.12.2024	Revenues from the service in 2024 (in millions BGN, excl. VAT)
1.1. Transmission of radio and TV programmes services	6	///	2.063
1.2. Distribution of radio and TV programmes services	4	///	31.433
1.3. Wholesale TV service (via IPTV and/or DVB-C method) provided to other undertakings for resale purposes	5	57	3.995
Total	**12**	**///**	**37.491**

Source: Data submitted to CRC

In 2024, the number of undertakings providing distribution of radio and TV programmes services, as well as wholesale TV service via IPTV and/or DVB-C method, remained unchanged from the previous year, with their number amounting to four and five undertakings, respectively. Transmission of radio and TV programmes services in 2024 were provided by six undertakings, by one less than the year before.

The revenue from the provision of wholesale transmission and distribution of radio and TV programmes services fell by 4.9% compared to the previous year to BGN 37.491 million. Compared to the previous year, growth was observed only in the wholesale TV service provided via IPTV and/or DVB-C method – by 8.1%, but due to its still low relative share in the subsegment structure (Figure 37), this growth is not able to affect the positive change in the total revenue for the one-year period. The revenue generated from the other wholesale services decreased, as follows: wholesale transmission of radio and TV programmes – by 42%, wholesale distribution of radio and TV programmes services – by 2.3%.

Figure 37 shows the breakdown of revenues by type of wholesale transmission/distribution of radio and TV programmes services for the period 2022-2024.



Source: Data submitted to CRC

Figure 37

The data in Figure 37 show that in 2024 the largest share in the total volume of revenues from the provision of wholesale transmission and/or distribution of radio and TV programmes services was again held by terrestrial broadcasting – 62.6%, registering growth of nearly 1 percentage point since the year before. Growth in relative terms was observed in the share of revenue from satellite broadcasting and wholesale service via IPTV and/or DVB-C method, which increased by 1.3 percentage points to 21.2% and 10.7%, respectively. A decline in relative terms was recorded only in revenue from satellite transmission, with a share of 3.7 percentage points less in the volume of revenues. In the case of other wholesale services, there were no significant changes in the shares compared to the previous reporting period.

5.3. Terrestrial broadcasting of radio programmes – VHF broadcasting

At the end of 2024, the number of undertakings holding registration with CRC for the provision of services for terrestrial broadcasting of radio programmes remained unchanged compared to 2023 - 56, with 55 of them actually providing the service during the year. The undertakings with national coverage as of 31.12.2024 remained two – Bulgarian National Radio and Darik Radio AD.

Summary

In 2024, the following changes were observed in the “transmission and/or distribution of radio and TV programmes services" segment versus 2023:

- Growth in the total volume of revenue from the segment as a result of the reported increase in revenue from the provision of cable TV and IPTV;

- Growth in the number of retail subscribers and in the penetration of the television service among households and the population;
- Growth in the consumption of bundled services with retail television included;
- Decline in the revenue from wholesale transmission and/or distribution of radio and TV programmes services;
- Vivacom remained the leader in the market segment, as its positions grew stronger as a result of the concentrations achieved in 2024. The main competitor continued to be A1, keeping its shares stable, and the new name in the top three – Yettel, despite its relatively low market share, has the potential to become a major player in the pay-TV market segment.

6. Prospects for development of the Bulgarian electronic communications market

The Bulgarian electronic communications market is firmly established as one of the most stable in the structure of the economy of the Republic of Bulgaria. In 2024, electronic communications services successfully facilitated the functioning of a number of areas of the country’s social and economic life. The market development is dynamic and this is evident by the continuous development of electronic communications service providers already directing investments in the deployment of very high capacity networks (VHCN) to ensure the provision of higher speeds and connection quality. In the reporting year, the accelerated development rate of the 5G NR networks, which give a strong impetus to the development of digital services, further enhancing the opportunities for end-users of services – Internet of things (IoT), artificial intelligence (AI) solutions, machine learning (ML), cloud-based solutions, autonomous vehicles, smart cities, etc.

The electronic communications market is developing in the line with the rapid transformations in the sector and is keeping up with trends, technological changes, and changing consumer behaviour. The electronic communications sector in Bulgaria has all the necessary prerequisites to maintain its upward rate of development, introduce innovations, as well as for a positive socio-economic impact which could successfully position our country as one of the digital leaders in the region.

The trends that are also reported in 2024 and are expected to be preserved and to continue in the coming years are summarised below:

- The decline in the consumption of the fixed voice service will continue in the next reporting period, evidently not only by the assessment of the condition and development of the service itself, but also by changes in consumer demand. The 2024 data show a decline in the main indicators characterising the service – number of fixed telephone lines, traffic and revenues, as well as in the share of the service in the total revenues in the “Interpersonal communications services” segment. End-users of the traditional voice service are increasingly redirected to the use of Internet applications for interpersonal communication.
- The indicators for penetration, consumption, revenues and number of subscribers to the mobile voice service in Bulgaria show that the service has passed its maturity phase, reaching its consumption peak in 2021 during the COVID-19 crisis. At present, this

service no longer holds the highest market share based on revenue in the electronic communications market in the country and the volume of its market segment is continuously shrinking. The annual decline in the total volume of calls on mobile networks, combined with the downward demographic trend in Bulgaria, shows that in general, mobile undertakings can attract new subscribers only from their competitors. This task, however, is a challenge, as each of the market participants must both attract new subscribers and keep their current ones, ensuring the appropriate level of revenue which will allow them to maintain their competitiveness by investing in new technologies and improving the quality and portfolio of services offered.

- At the "Data transfer and Internet access" segment has been continuing to observe: 1) an increase in the share of subscribers who use ultra-high-speed Internet access, including those who use gigabit speeds, in the total number of fixed Internet access subscribers; 2) an increase in the share of fixed access via mobile network subscribers in the total number of fixed Internet access subscribers, both due to the nationalwide coverage of LTE networks and to the continued deployment of 5G NR networks, which enables mobile operators to exert an even more intensive competitive pressure on fixed broadband Internet access providers; 3) an increase in the share of 5G networks subscribers in the total number of mobile Internet subscribers.
- IPTV will remain its leading position also in 2025, and is expected to exceed the 50% in terms of both subscribers and revenues generated. Thanks to the continued expansion of 5G networks by mobile operators, including in rural and sparsely populated areas, IPTV is becoming more and more widespread nationwide – a trend expected to intensify in 2025. The development of IPTV through the 5G infrastructure will continue to be a key technology driver that is changing the focus of competition to a race to offer interactive services, exclusive content, and a comprehensive user experience. The integration of the TV service into bundles with mobile Internet included, cloud and streaming platforms is expected to gain an even greater importance.
- Bundled services have preserved the trends established over the last few years, but even though double-play packages have remained dominant (99.3% of subscribers), there is a significant increase in the number of subscribers (50%) who use triple-play packages, which shows an increased interest in more comprehensive services. In 2025, demand for triple-play packages is expected to continue to grow. The total volume of revenue from bundled services is growing and this is expected to continue in 2025 as well. In 2024, the segment continued to be highly concentrated, with A1, Vivacom, and Yettel holding over 97.8% of the bundled services market, as this is not expected to change, given the wide variety of services they offer.

7. Provision of the universal service

7.1. Degree of satisfaction from the universal service provision

In 2024, Vivacom continued to ensure public payphones and/or other points of public access to voice telephony services of certain quality that had been installed as of the date of adopting Decision No 350/30.09.2021, which abolished the obligations to provide public payphones and/or other points of public access to voice telephony services of certain quality, ensuring telephone directory and provision of telephone enquiry services imposed as an obligation for the provision of the universal service as part of the services within the scope of the universal service.

In 2024, the telephone density by households[48] continued to decline, which is a consequence of the established steady downward trend in the total number of Vivacom's residential subscribers. Compared to the previous year, the indicator fell by a little over 2 percentage points.

7.2. Bringing the regulatory framework in compliance as regards the universal service

Considering that ensuring appropriate broadband Internet access at a fixed location is included in the scope of the universal service, the Commission, by Decision No 30 of 08.02.2024, determined the appropriate broadband Internet access service at 5 Mbps. The speed was determined by taking into account the opinions received from the stakeholders within the public consultation procedure, opened under Article 37 LEC by Decision No 367 of 30.11.2023. The speed determined by CRC is in accordance with the requirement of Article 182, paragraph 4 LEC and this speed is used by and affordable to most users on the territory of the Republic of Bulgaria[49].

An analysis was prepared to determine the appropriate speed, examining market trends and social factors related to the use of broadband access. In this regard, all the technologies through which the Internet access service is provided in Bulgaria and the speeds achievable through them were considered, taking into account the requirements for ensuring appropriate broadband Internet access at a fixed location, through which at least the following services can be supported:

(a) e-mail;

(b) search engines for any type of information;

(c) on-line basic learning and education tools;

(d) on-line newspapers or news;

(e) on-line purchase or ordering of goods or services;

(f) job search and job search tools;

(g) networking communities for professional purposes;

(h) Internet banking;

(i) use of electronic administrative services;

(k) social media and real-time communication through text messages;

(l) voice and video calls.

In addition, the requirements of the various platforms for carrying out a normal work and learning process in an electronic environment, including video call and on-line meetings, were examined, taking into account the growing importance of Internet access services with regard to the need for remote work and learning during the pandemic.

With the appropriate speed so determined, all citizens were guaranteed the opportunity to participate in the social and economic life of the country, and the requirements of the platforms for

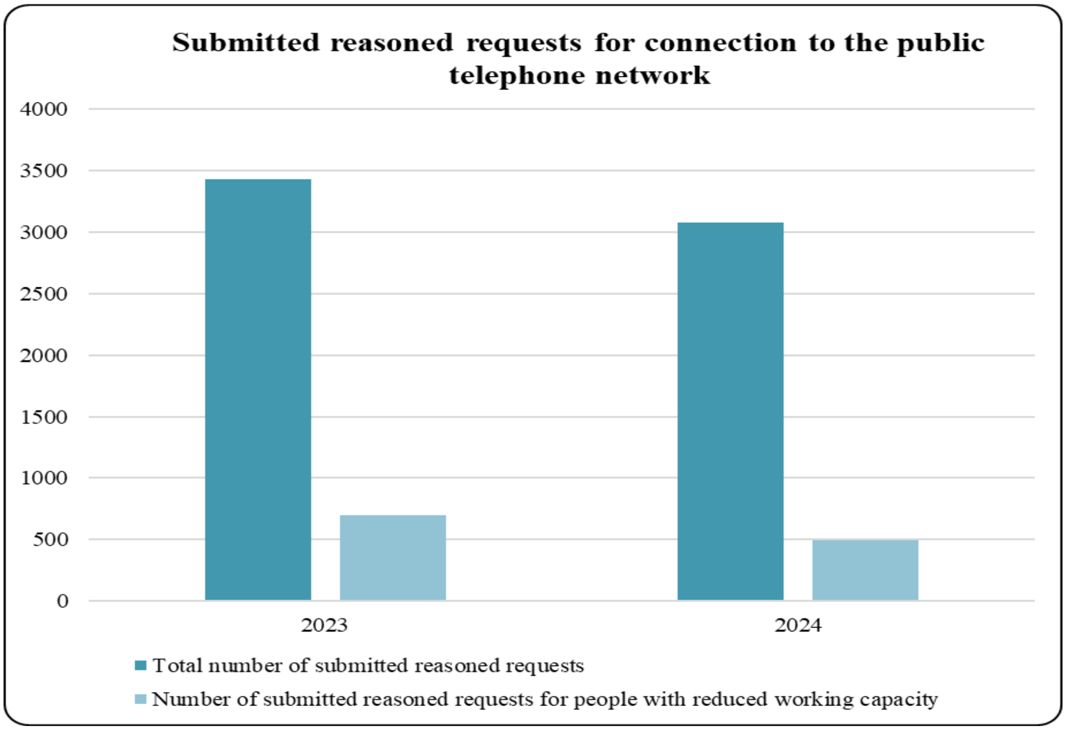
[48] The ”density by households“ indicator is measured by dividing the total number of residential lines by the number of households in the country (based on data from the last official census carried out by NSI in 2021).
[49] Determining an appropriate broadband Internet access service as part of the scope of the universal service pursuant to Article 182, paragraph of the Law on Electronic Communications

productive work and learning in an electronic environment were fully satisfied.

7.2.1. Access to and provision of the universal service

As of 31.12.2024, the total number of reasoned applications for connection submitted decreased by a little over 10% compared to the previous year, as shown in Figure 38. In the case of applications for connection submitted by persons with disabilities, there was a significant drop of nearly 30% in 2024 compared to 2023. As of December 2024, only 0.6% of the submitted reasoned applications are expected to be satisfied by the undertaking.

The reported decline in the number of reasoned applications for connection confirms the fading interest in the use of a fixed voice service. The main reason for this is the widespread penetration of the mobile voice service. The operators offer a variety of subscription plans, including minutes for calls to national networks, as well as advantageous pricing conditions for mobile packages to people with disabilities or people with low income. In turn, these packages are more convenient for users to request and use, given the absence of the restrictive condition – a fixed location. All of these factors play a significant role for the reduced interest in fixed voice service.



Source: Data submitted to CRC

Figure 38

The share of rejected applications for connection in the total number of applications submitted makes up 10% for 2024; to compare with, it was 9% in 2023. In 2024, as in previous periods, the predominant reason for rejection of applications was the decreasinginterest on the part of customers. In the past year, they accounted for 79% of rejections. These values confirm the trend of a progressive decrease of the interest of users to use a fixed voice service.

7.2.2. Access to public payphones, ensuring telephone directory and provision of enquiry services

With a view to ensuring access to telephone services for consumers, Vivacom continued to provide public payphones[50] that had been installed as of the date of adopting Decision No 350/30.09.2021. Accordingly, in 2024 Vivacom continued to provide the possibility of making free-of-charge calls to national emergency numbers and to the single European emergency number 112, which can be made from all public payphones.

Although the obligation to provide a telephone directory has been abolished, Vivacom continued to provide a telephone directory in electronic form. The telephone directory is available at the undertaking’s official website.[51]

[50] The provision of public payphones was limited to the main points of entry to the country and places with increased traffic of users, as well as in the places mentioned in item 2.5 of Vivacom's license, namely: airports, ports, railway and bus stations serving international destinations, motorways, hospitals and police stations.

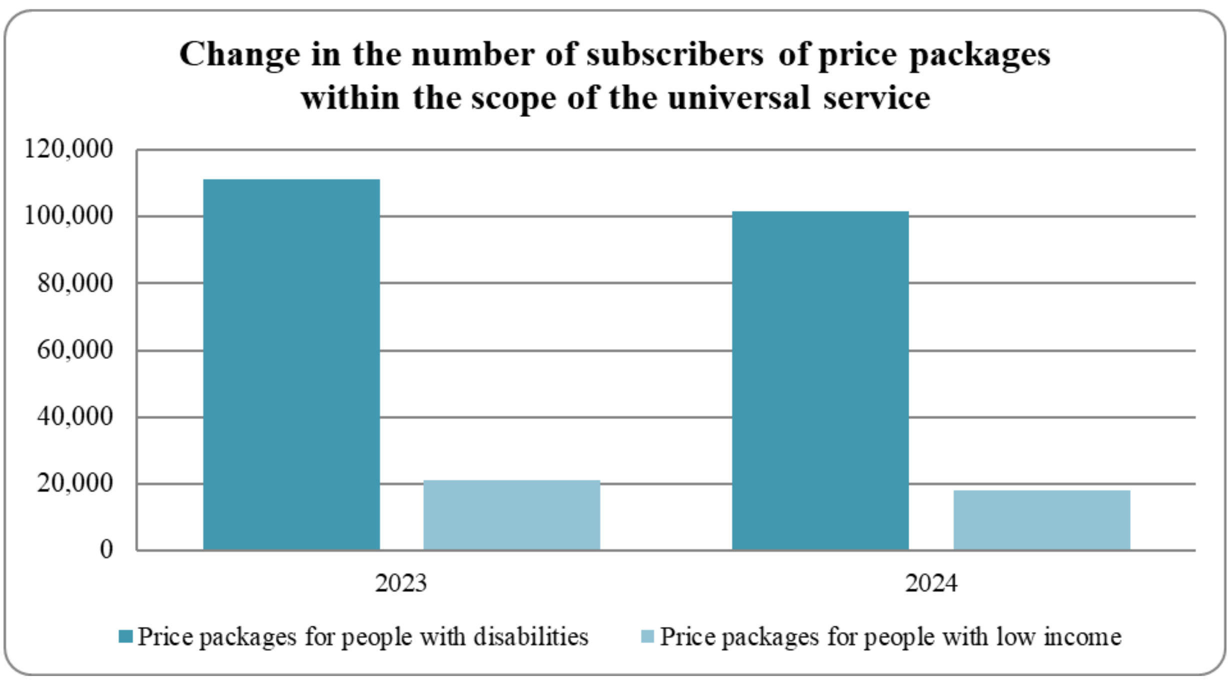
[51] http://www.vivacom.bg/online/cgi-bin/wpd.cgi?temp=home.html&ls=0;

As of 31.12.2024, Vivacom performs its obligation to ensure free-of-charge calls to emergency numbers. The traffic generated to them for the past year was by 6% less than in 2023, with the number of calls to emergency numbers down by 16% compared to the previous period.

7.2.3. Affordability of tariffs of the universal service

In 2024, in fulfilment of its obligations to provide price packages within the scope of the universal service at affordable[52] prices, Vivacom continued to offer, without any change either in prices or in conditions, price packages intended for users who are: people with low income (”Limited” plan, as named by Vivacom); with over 90% impaired work capacity or capacity for social adaptation (“Handicap 160” plan, as named by Vivacom); with over 50% impaired work capacity or capacity for social adaptation (“Handicap 300” plan, as named by Vivacom); people with special social needs admitted to social or health institutions (“Social and health institutions” plan, as named by Vivacom).

As of 31.12.2024, the subscribers of price packages within the scope of the universal service decreased by 10% compared to those in 2023. Figure 39 displays the trend in the number of subscribers of price packages within the scope of the universal service for 2023 and 2024.



Source: Estimates based on data submitted to CRC

Figure 39

[52] Stipulated in the Methodology for determining prices and price packages for the universal service adopted with Ordinance No 254 of 23.10.2008 of the Council of Ministers, prom. SG, no. 94 of 31.10.2008.

The long-term trend of decline in the use of universal service price packages continued in 2024, with the percentage change in the number of subscribers to price packages for people with low income and in the number of subscribers to price packages for people with disabilities fell by 15% and 9%, respectively, compared to 2023. In Figure 39, the number of subscribers using price packages for people with special social needs is not displayed, as no change was observed in the number of subscribers to these packages in the past period, and their relative shares was below 0.3% of the total number of users of price packages that are part of the universal service.

7.3. Quality of the universal service provision

The Quality of Service parameters of the universal service provision are stipulated in Ordinance No 6, as the target values of the parameters were adopted by Decision No 345/31.03.2011 of CRC and are publicly accessible at the Commission's official website.[53] According to the data submitted by Vivacom,[54] in 2024, the undertaking reported fulfilment of all target values.

7.4. Compensation of net costs accrued due to the universal service provision

In 2024, Vivacom did not submit to the CRC a request for compensation of the unfair burden from the universal service provision within the statutory deadline - 30.06.2024. Therefore, the amount of net costs was not determined in the past year and it was not established whether those costs constituted an unfair burden for the incumbent undertaking.

As regards the amendment of the rules of activity of the Universal Service Compensation Fund in order to bring it into compliance with the current regulatory framework, adopted by Decision No 1 of 30.03.2021, in 2024, no meeting was held due to the absence of a request for compensation of net costs by the incumbent undertaking.

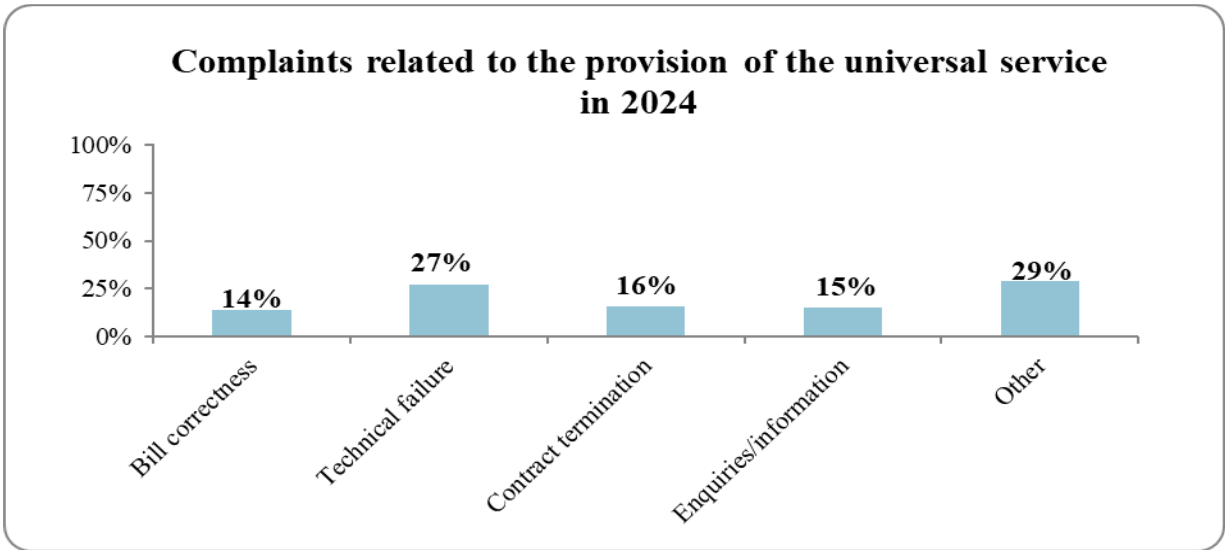
7.5. Complaints and complaint resolution

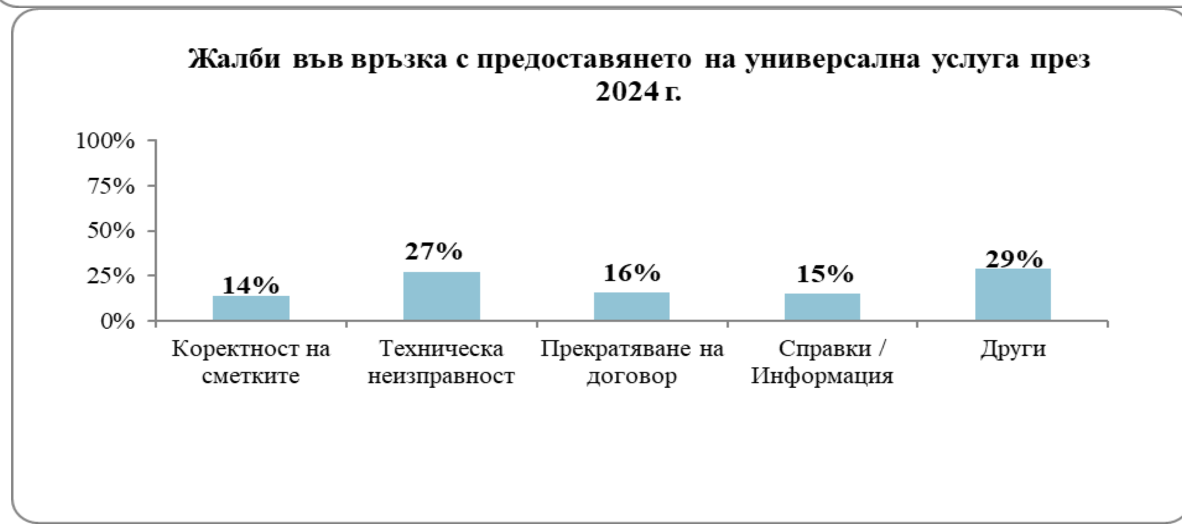
According to the General Terms and Conditions governing the relations between Vivacom and the end-users, the undertaking gives options to the users to individually track and control their costs through: the provision of itemised bills free of charge,[55] selective limitation of outgoing calls free of charge, and deferred payment when connecting to public telephone networks.

As of the end of 2024, compared to the previous period, there was a significant drop of 46% in the number of complaints received by Vivacom regarding the provision of the universal service. In 2024, the complaints were mostly over technical failures, accounting for 27% of the total number of complaints received in the past year in connection with the provision of the universal service.

The predominant causes for filing complaints are illustrated in Figure 40.

[53] http://www.crc.bg/section.php?id=904&lang=bg
[54] Through the CRC's electronic system for on-line questionnaires.
[55] The content of the itemised bill is defined in Article 260, paragraph 3 LEC.





Source: Data submitted to CRC

Figure 40

A percentage decrease was also reported in complaints over bill correctness and those concerning the receipt of statements and information, making up 14% and 15%, respectively, of the total number of complaints concerning the provision of the universal service. The breakdown of complaints over bill correctness for 2024, compared to 2023, registered a decrease of 2 percentage points, while the complaints over enquiries and information dropped drastically – by 15 percentage points (in 2023, these complaints made up 30% of the complaints filed in relation to the universal service). The main reason for the decline reported in the respective categories is the ability to check monthly bills and statements through Vivacom's electronic portal, thus providing users with more options for accessing information about the services they use.

A significant increase in the number of complaints filed was reported for those concerning termination of contractual relations with the operator; as of 31.12.2024, the complaints received accounted for 16% compared to 2% for 2023. The "other" category also saw an increase of 18 percentage points for 2024 compared to 2023. The category summarises various reasons for filing complaints, which represent 29% of the total number of complaints filed concerning the provision of the universal service.

In 2024, there were no complaints from consumers regarding bill clarification and service.

7.6. Prospects for development of the universal service

The inclusion of broadband access in the scope of the universal service reflects the modified concept of the minimum set of services to be provided to all citizens of the country with a view to ensuring equal consumer access to a larger set of services and full participation in the social relations and the country's development.

Internet access has become a necessity in connection with the effective inclusion in the social and economic life of the country. For this reason, the purpose of the law is to provide it as a universal service, given the essential importance of the service for the development of all spheres, including economy, trade, banking sector, healthcare, etc. In turn, this has had a significant impact on the telecommunications market, both globally and in Bulgaria. The service is widespread and is used daily by millions of subscribers for personal and business purposes, communication, travel, etc.

In this regard, the inclusion of broadband Internet access at an appropriate speed as a mandatory part of the scope of the universal service takes into account consumer attitudes and needs, ensuring the protection of vulnerable groups in society. Access to affordable broadband Internet access will provide more opportunities for this group of users, both for communication and connectivity, providing opportunities to improve quality of life and living conditions.

II. LEGAL AND REGULATORY FRAMEWORK

1. EU regulatory framework for electronic communications

At present, the legal framework in the sphere of electronic communications at European level is based on Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code. Regulation (EU) 2022/612 of the European Parliament and of the Council of 6 April 2022 on roaming on public mobile communications networks within the Union (the Roaming Regulation) which revised the European legal framework for the use of roaming services in the Community is also applicable.

Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market for Digital Services and amending Directive 2000/31/EC (Digital Services Act)[56] has been applied since 17 February 2024. The Digital Services Act regulates online intermediaries and platforms such as markets, social networks, content sharing platforms, app stores and online travel and accommodation platforms. Its main objective is to prevent illegal and harmful online activities and the spread of disinformation. It ensures consumer safety, protects fundamental rights and creates a fair and open environment for online platforms.

In line with the Digital Services Act, online platforms must introduce a number of measures to better protect users and increase transparency, as well as to address and respond quickly to illegal content (fake news, propaganda, hate speech, harassment, and child abuse) and to enable users to report such content. The Act aims to combat the sale of illegal products and services, the use of content moderation tools that include the possibility of challenging decisions when users'

[56] Digital Services Act

content is removed or restricted, increasing transparency for users regarding the terms and conditions and the way in which algorithms recommend content. A prohibition on advertising targeting children and the use of sensitive personal data for ad targeting (such as gender, sexual orientation, race, religion, or political beliefs) was regulated.

On 8 May 2024, Regulation (EU) 2024/1309 of the European Parliament and of the Council of 29 April 2024 on measures to reduce the cost of deploying gigabit electronic communications networks, amending Regulation (EU) 2015/2120 and repealing Directive 2014/61/EU (Gigabit Infrastructure Act) was published in the Official Journal of the European Union. This legislative act will apply from 12 November 2025, but by way of derogation from this rule, part of the provisions will apply from an earlier or later date. Currently, only the provisions that provide for consultations for the purpose of issuing guidelines by the Body of European Regulators for Electronic Communications (BEREC) on the coordination of works and on conditions for access to physical infrastructure in buildings, as well as the provisions that provide for amendments to Regulation (EU) 2015/2120 (Open Internet Regulation), are in force (as of 11 May 2024).

The Regulation aims to simplify and speed up the deployment of high-speed networks and to reduce the unnecessarily high costs of deploying high-capacity networks, partly due to authorisation granting procedures. The Regulation also provides greater transparency and ensures efficient planning for operators of public electronic communications networks. In order to improve public and business access to information society services, the Regulation also addresses the deployment and access to physical infrastructure in buildings. In this regard, CRC has a new power as a dispute settlement body.

The Regulation lays down minimum requirements to achieve the objectives of facilitating and promoting the deployment of very high capacity networks (VHCN) by promoting the joint use of existing physical infrastructure and by enabling a more efficient deployment of new physical infrastructure. Member States may preserve or introduce rules in accordance with the Union law which are stricter or more detailed than those minimum requirements when measures serve to promote the joint use of existing physical infrastructure or favour a more efficient deployment of new physical infrastructure.

Commission Implementing Regulation (EU) 2024/2000 of 24 July 2024 amending Implementing Regulation (EU) 2020/1070 laying down the characteristics of short-range wireless access points pursuant to Article 57(2) of Directive (EU) 2018/1972 of the European Parliament and of the Council establishing a European Electronic Communications Code also introduced changes in order to streamline reporting on its implementation and to allow the use of active antenna systems.

2. Legal and regulatory framework in Bulgaria

In the Republic of Bulgaria, the main legislative act containing regulatory norms in the field of electronic communications is the Law on Electronic Communications. It transposed Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code. In addition, the Law on Electronic Communications Networks and Physical Infrastructure (LECNPI), which regulates the provision of access to and use of existing physical infrastructure, is also applied. In view of the powers of CRC, it is important to note that the Commission is a dispute settlement body under the said laws.

In the past year 2024, these legislative acts were not substantially amended.

Regulation (EU) 2024/1309 introduces certain changes to the part concerning the provision of access and the use of physical infrastructure, and provides for a new power of CRC as a dispute settlement body.

3. Important regulatory decisions of CRC in 2024

- By Decision No 13 of 25.01.2024, CRC adopted Instructions for the procedure of carrying out joint on-the-spot inspections under Article 108, paragraph 4 of the Measures against Money Laundering Act by the Financial Intelligence Specialised Administrative Agency of the State Agency for National Security and the Communications Regulation Commission for the implementation of the measures for prevention of the use of the financial system for the purposes of money laundering;
- By Decision No 12 of 25.01.2024, CRC ruled on a dispute between NETCOM EOOD and ELEKTRORAZPREDELENIE YUG EAD (ERYUG);
- By Decision No 11 of 25.01.2024, CRC ruled on a dispute between ET DIMITAR VASILEV-9 and ERYUG;
- By Decision No 32 of 08.02.2024, CRC ruled on a dispute between a group of operators and VIVACOM BULGARIA EAD;
- By Decision No 30 of 08.02.2024, CRC determined the appropriate broadband Internet access service;
- By Decision No 38 of 15.02.2024, CRC adopted a summary report on received notifications of security-related incidents that have had a significant impact on the functioning of networks or services and on the actions taken in this regard in 2023 by the undertakings providing public electronic communications networks or services;
- By Decision No 81 of 28.02.2024, CRC adopted an amendment and supplement to the Rules for free use of radio spectrum;
- By Decision No 46 of 29.02.2024, CRC coordinated an amendment to the System for allocation of the costs of Bulgarian Posts EAD;
- By Decision No 67 of 14.03.2024, CRC ruled on a dispute between NETGUARD OOD and ERYUG;
- By Decision No. 83 of 28.03.2024, CRC adopted an amendment to the Rules for determination of the terms and conditions for the provision of information on the user location and end-user data by undertakings providing interpersonal communications services with emergency numbers.
- By Decision No 80 of 28.03.2024, CRC amended and supplemented the Rules for free use of radio spectrum;
- By Decision No 107 of 18.04.2024, CRC ruled on a dispute between AYTOSNET and ERYUG;
- By Decision No 131 of 09.05.2024, CRC adopted a Position on the prospects and conditions for use of the free resources in the 1.5 GHz, 2.6 GHz, 3.6 GHz and 26 GHz frequency bands;
- By Decision No 128 of 09.05.2024, CRC adopted an opinion on a submitted hypothetical scenario for calculating the net costs of performing the universal postal service in 2023 by BULGARIAN POSTS EAD;
- By Decision No 141 of 17.05.2024, CRC adopted Instructions for interaction between the Communications Regulation Commission, the Ministry of Transport and Communications, the Ministry of Interior, the Ministry of Defence, the State Agency for

National Security, the State Agency for Metrological and Technical Supervision, and the Ministry of Regional Development and Public Works – National Construction Control Directorate;

- By Decision No 164 of 12.06.2024, CRC adopted the 2023 Annual Report of the Communications Regulation Commission pursuant to Article 5, paragraph 1 of Regulation (EU) 2015/2120;
- By Decision No 163 of 12.06.2024, CRC endorsed a supplement to the List of settlements and settlement formations located in difficult-to-access areas;
- By Decision No 177 of 20.06.2024, CRC adopted the 2023 Analysis of the Postal Market Report;
- By Decision No 176 of 20.06.2024, CRC adopted a final annual report under the LEC;
- By Decision No 189 of 04.07.2024, CRC adopted an amendment and supplement to the Rules for free use of radio spectrum;
- By Decision No 206 of 18.07.2024, CRC adopted an amendment and supplement to the Rules for the use of radio spectrum for terrestrial networks enabling the provision of electronic communications services following the issue of an authorisation;
- By Decision No 220 of 30.07.2024, CRC defined a wholesale market for access to passive (physical) infrastructure as a relevant market subject to ex-ante regulation and imposed specific obligations;
- By Decision No 249 of 29.08.2024, CRC coordinated the results from the implementation of the System for allocation of the costs of Bulgarian Posts EAD;
- By Decision No 250 of 29.08.2024, CRC accepted the total amount of the net costs of providing the universal postal service by Bulgarian Posts EAD for 2023 and the amount of the unfair burden;
- By Decision No 295 of 24.10.2024, CRC adopted Rules of Procedure of the Communications Regulation Commission and Its Administration;
- By Decision No 294 of 24.10.2024, CRC coordinated the prices of the services included in the universal postal service provided by Bulgarian Posts EAD;
- By Decision No 328 of 07.11.2024, CRC imposed temporary obligations on UNITED FIBER BULGARIA EOOD on the wholesale market of access to passive (physical) infrastructure.

4. Disputes under the LEC

- Disputes under the LEC procedures raised in 2024 concerned interconnection and access under the LEC, with one dispute over the imposition of penalties for termination of traffic with manipulated caller line identification. One mediation procedure under the LEC was conducted.
- As of 31.12.2024, there were five pending disputes under requests for binding instructions, on which specialised committees have been appointed to conduct the legal procedure.

5. Provision of electronic communications

5.1. Authorisations for the use of individually assigned scarce resource

Table 15 lists the number of authorisations issued during the year for the use of a scarce resource, the number of amendments and/or supplements to the authorisations issued, the number of authorisations terminated, revoked and transferred, and the number of authorisations expired.

Table 15

Authorisations for 2024 under the Law on Electronic Communications				
Electronic communications network	Amendments/Supplements (number)	Authorisations issued (number)	Terminated/Revoked/ Expired (number)	Transfers (incl. partial) / Lease (number)
Electronic communications networks for terrestrial digital broadcasting of TV signals with national and local coverage	2	-	-	-
Electronic communications networks for terrestrial analogue broadcasting of radio signals with national and local coverage	57	2	-	5
Terrestrial networks in the 1800 MHz frequency band	5	-	-	-
Use of radio spectrum in the 26 GHz band	1	-	-	-
Electronic communications networks from a mobile radio service – PMR/PAMR	31*	25*	27	6
Electronic communications networks from the aeronautical mobile radio service	3	2	-	-
Electronic communications networks from the fixed radio service of the “point-to-point” type	21**	-	-	1
Authorisations for the use of numbering resources	13	-	2	-
Electronic communications networks from satellite radio services	11***	2***	-	1

Temporary authorisations	-	17*	-	-
TOTAL:	144	48	29	13

* The total number of assigned radio frequencies for these authorisations was 432.

** Amendments and supplements to the technical data of a total of 1,659 radio links, including assigned radio frequency spectrum for new 691 links.

*** The authorisations issued and amended assign spectrum for earth stations to connect to 27 satellite systems

5.2. Notifications for the provision of public electronic communications networks and/or services

The activities related to the notifications submitted in 2024 for the provision of public electronic communications networks and/or services are presented in Table 16.

Table 16

Type of activity	2024 (number)
Processed notifications for provision of public electronic communications networks and/or services	55
Processed notifications for termination of the provision of public electronic communications	70
Issued certificates for entry in the Register	6
Undertakings entered in the Register	35
Undertakings deleted from the Register	146

5.3. Provision of electronic communications through radio equipment from the amateur radio service

The authorisations, certificates and licenses for radio amateur capacity issued during the year are presented in Table 17.

Table 17

Type of activity	2024 (number)
Issued authorisations for radio amateur capacity	414
Issued HAREC certificates	28

Issued CEPT licenses	46
Assigned call signs	417

In 2024, 10 amateur radio exams were held in the cities of: Sofia, Plovdiv, Varna, Gabrovo, and Troyan. Four hundred and four people were examined, with an increased interest in amateur radio activity being observed in recent years.

5.4. Interconnection and access

In accordance with its powers under the LEC, CRC provides assistance or gives binding instructions for dispute resolution. In this regard, in 2024, CRC received a request for assistance under Article 54 LEC on unjustified charging of penalties related to traffic termination with manipulated caller line identification (CLI) and a large amount of penalties imposed. The parties did not reach an agreement within the framework of the procedure, as a result of which a request for binding instructions under Article 56 LEC was received.

In addition, four more requests for binding instructions for cases of dispute were filed with CRC during the year in accordance with Article 56 LEC. They were related to excessive delays in the negotiation process and the actions taken to conclude access and/or interconnection contracts by operators providing such services. Each dispute was considered in compliance with the legal procedure, a specialised commission was appointed, the reasons for filing requests were clarified, as well as all supporting evidence. Meetings between the parties were arranged to discuss the request and the evidence gathered on the case in the presence of the parties or their authorised representatives. Following the meetings, the parties were given the opportunity to provide additional evidence and opinions on the disputed items. The work on the disputes raised continued in 2025.

III. ACTIVITIES UNDER THE LAW ON ELECTRONIC COMMUNICATIONS, THE LAW ON ELECTRONIC DOCUMENT, ELECTRONIC TRUST SERVICES AND THE LAW ON ELECTRONIC COMMUNICATIONS NETWORKS AND PHYSICAL INFRASTRUCTURE

1. Activities in implementation of the CRC's priorities

1.1. Effective management of scarce resources

1.1.1. Radio frequency spectrum

Wireless communications are playing an increasingly important role in our lives and in many sectors of the country’s economy. They allow us to stay connected with friends and family, remotely control household devices, receive and disseminate news, automate production, support public services, and enable environmental monitoring, etc. The rapidly advancing wireless communication technologies provide opportunities for the deployment of innovative applications and business models, leading to a significant increase in the number of people and organisations using wireless connectivity. Radio spectrum on the one hand is a fundamental resource for wireless communications, and on the other hand, it is limited in nature. Amid growing and competing demand for radio spectrum, managing it has become a real challenge. In connection with the implementation of one of the CRC’s strategic objectives to *promote a sustainable competitive market and consumer protection*, the Commission has been working in the past year to ensure availability and efficient management of radio spectrum in order to achieve the Digital Decade targets. The provision of radio spectrum and the setting of appropriate regulatory conditions for the introduction and development of innovative wireless technologies, applications and services, including for the introduction and development of 5G and 6G networks, was one of the main activities in the past year.

In order to create prerequisites for achieving effective and efficient use of the frequency resource through harmonised allocation of the radio spectrum, the activity of introducing the new decisions of the European Commission (EC) into the Bulgarian legislation continued. CRC experts participate in the interdepartmental working group, which has the task to prepare a proposal for amendment and supplement of the National Radio Spectrum Allocation Plan in connection with the introduction of the decisions of the World Radiocommunication Conference held in 2023 (WRC-23) in the Bulgarian legislation.

In 2024, a draft of an updated Regulatory Policy for the Management of Radio Spectrum for Civil Needs was also developed, which is to be adopted in 2025.

As a result of a procedure, CRC provided an additional frequency resource from the 1800 MHz band to Vivacom Bulgaria EAD, A1 Bulgaria EAD, and Yettel Bulgaria EAD. This provided conditions for the entry into the market of new technologies and services in the interest of end-users.

In order to fulfil the objectives set out in Decision (EU) 2022/2481 of the European Parliament and of the Council establishing the Digital Decade Policy Programme 2030 and the tasks set out in the Regulatory Policy for the management of radio spectrum for civil needs, and in order to comply with the principles of transparency, publicity and consultation, after holding public consultations and conducting an analysis of the opinions presented within the framework of the public consultations, CRC adopted a Position on the prospects for use of the free resource in the 1.5 GHz, 2.6 GHz, 3.6 GHz and 26 GHz bands.

The contract concluded during the past year for upgrading the Information System providing the activities for registration of transceiver stations of terrestrial networks capable of providing electronic communications services, the activities under Article 151, paragraph 1, item 16 of the Spatial Planning Act (SPA), and the short-range wireless access points was aimed at introducing the changes in the regulatory framework in connection with the implementation of the National Plan for the introduction of the Euro in the Republic of Bulgaria and creating a higher regulatory efficiency in implementing the Commission's regulated powers.

In 2024, CRC concluded Contract No 03-08-94/18.10.2024 with subject "Adaptation for operation in Euro of the Information System supporting the provision of individual rights of use for radio frequency spectrum under a registration regime". The implementation of this project will allow the functioning of the information system in accordance with the adopted legislative framework and in implementation of the National Plan for the introduction of the Euro in the Republic of Bulgaria.

Allocation, planning, assignment and efficient use of the frequency spectrum

In the past year, CRC adopted an amendment and supplement to the Rules for the Use of the Radio Frequency Spectrum for Terrestrial Networks capable of providing electronic communications services upon authorisation, as well as to the Rules for the Free Use of the Radio Frequency Spectrum.

The amendment and supplement of the Rules for the Use of the Radio Frequency Spectrum for Terrestrial Networks capable of providing electronic communications services after authorisation, introduced into the Bulgarian legislation the provisions of Commission Implementing Decision (EU) 2022/173 of 7 February 2022 on the harmonisation of 900 MHz and 1800 MHz frequency bands for terrestrial systems for the provision of electronic communications services in the Union and repealing Decision 2009/766/EC. Harmonised technical conditions were established for the efficient use of the 900 MHz and 1800 MHz frequency bands for terrestrial systems capable of providing electronic communications services, including 5G terrestrial wireless systems. Conditions were created for the coexistence of narrowband and broadband systems, with block edge masks being defined for the different systems. The added conditions are essential to ensure technological neutrality in the 900 MHz and 1800 MHz bands.

Following a public consultation, CRC adopted an amendment and supplement to the Rules for free use of radio spectrum, which transposed into the Bulgarian legislation the provisions of Electronic Communications Committee (ECC) decisions on the harmonised use of radio spectrum, as well as the provisions of the following EC decisions:

- Commission Implementing Decision (EU) 2024/340 of 22 January 2024 on harmonised conditions of use of radio spectrum for mobile communications services on board vessels in the Union and repealing Decision 2010/166/EU;
- Commission Implementing Decision (EU) 2024/1467 of 27 May 2024 amending Implementing Decision (EU) 2019/785 on the harmonisation of radio spectrum for equipment using ultra-broadband technology in the Union.

The amendment to the Rules for free use of radio spectrum set out harmonised technical conditions for the use of the 880-915 MHz and 925-960 MHz bands (900 MHz range), the 1710–1785 MHz and 1805–1880 MHz bands (1800 MHz range), the 1920–1980 MHz and 2110–2170 MHz bands (2 GHz range), and the 2500–2570 MHz and 2620–2690 MHz bands (paired band in the 2.6 GHz range) for the provision of MCV services using GSM, UMTS and 5G NR networks with non-active antenna systems (non-AAS). Also, conditions were created for the use of the 6-8.5 GHz band for fixed outdoor usage for location tracking applications, general vehicular applications and higher-power indoor-only applications. The overall harmonisation of the regulatory framework for ultra-broadband technology (UWB) was supported and innovative solutions in the field of this technology were made possible by reducing regulatory limits and defining interference-reduction techniques to ensure efficient use of spectrum while ensuring coexistence with other spectrum users.

In 2024, CRC conducted a public consultation procedure on draft Rules for the use of radio spectrum for production purposes after the issuance of an authorisation and Rules for the use of radio spectrum for electronic communications networks from a fixed radio service after the issuance of an authorisation.

In the past year, CRC extended the authorisation of Yettel Bulgaria EAD for use of radio spectrum in the 26 GHz band, and thus enabled the undertaking to continue to use the frequency resource provided to it for the transmission network of mobile undertakings.

In line with the amendments of and supplements to the above regulations in the frequency information system of the European Communications Office - EFIS (ECO Frequency Information System), the data on the use of the frequency resource in the Republic of Bulgaria were updated, this ensuring transparency in terms of allocation and use of the frequency resource in Bulgaria at international level.

Mobile radio service

The possibility of applying a flexible approach to the creation and configuration of networks from mobile radio service, such as PMR/PAMR networks, is the reason for their use both for large groups, mainly in the public sector (energy, transport, health, environmental protection, municipal voluntary formations, etc.), and also for small and medium-sized groups of users, mainly in the private sector (taxi, construction and security services, service providers, etc.). Depending on the objectives, hierarchically structured networks with local, regional or national coverage can be created.

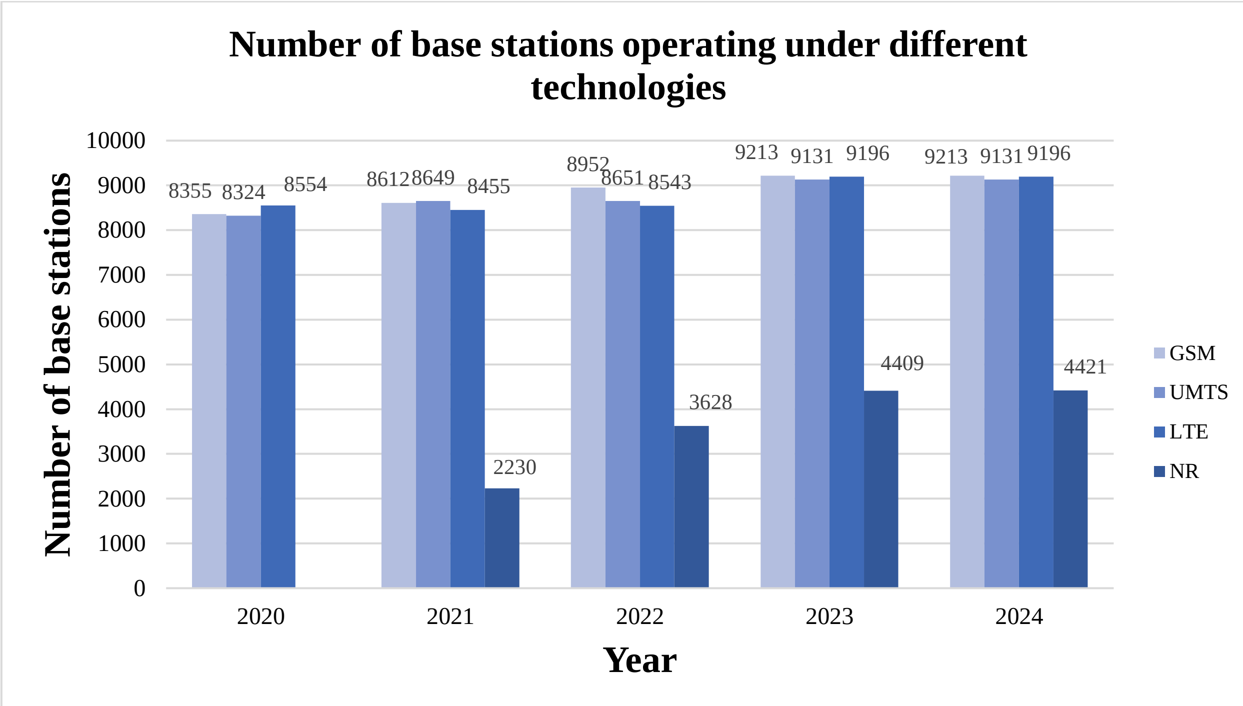
Last year, there was a growing interest in the use of radio spectrum for short-term events – concerts, sports events, film and television production. A total of 14 authorisations were issued, with 157 radio frequencies granted.

Demand for PMR/PAMR network frequency resource has been relatively constant in recent years. The interest of undertakings in Bulgaria is mainly focused on the use of radio spectrum for narrowband networks. The existing authorisations are mainly in the 160 MHz and 460 MHz bands, the least being in the 80 MHz band, whereas in the other bands the number of authorisations is fairly evenly distributed.

A total of 5 transceiver stations were entered, 126 were changed, and 10 were removed from the Register of transceiver stations on terrestrial networks capable of providing electronic communications services, the activities under Article 151, paragraph 1, item 16 Spatial Planning Act and the small-range wireless access points. A total of 57 short-range wireless access points were entered, 2 were changed, and 4 were removed.

In relation to ensuring compliance with the restrictions for Sanitary Zone 1, in accordance with the Procedure for Interaction between the Air Force, undertakings providing electronic communications networks and/or services, and CRC, the locations of 62 base stations were inspected, and 43 base stations (whose locations were compared with the inspected ones) of terrestrial networks capable of providing electronic communications services using radio frequency spectrum in the 700 MHz and 800 MHz bands were put into operation.

As the chart in Figure 41 clearly shows, the number of base stations operating under the NR technology is increasing at the highest rate.



Source: CRC

Figure 41

Fixed radio service

In 2024, amendments and supplements were made to 21 authorisations for the use of frequency spectrum, for the provision of electronic communications via electronic communications network of the point-to-point type concerning the technical data of a total of 1,659 radio relay links (RRLs). They assigned radio spectrum for 691 new links, and so their total number reached 21,547.

In 2024, the largest number of newly built links were registered in the 18 GHz band. They are immediately followed by the 23 GHz and 13 GHz bands in terms of new RRLs. The number of RRLs in the 13 GHz, 18 GHz and 23 GHz bands made up 60% of all authorised RRLs. This shows which bands are preferred by undertakings for the development of networks on the territory of Bulgaria.

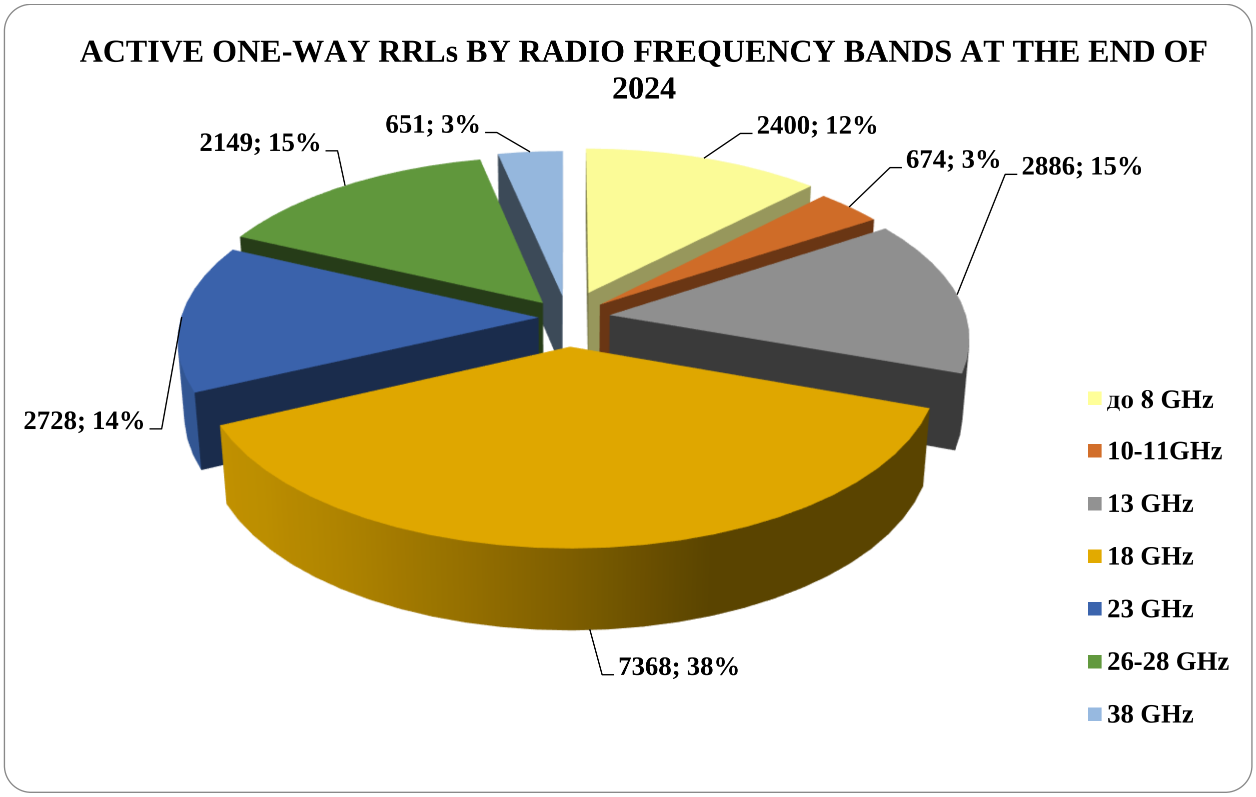
A reduction in the total RRLs in the 8 GHz and 38 GHz bands was reported, by approximately 32%. The 38 GHz links migrated to 76 GHz/86 GHz due to the specific technical parameters of the RRLs and the increased capacity of the information transmitted.

As of 31 December 2024, 1,962 RRLs were registered in the electronic system for registration of the granted rights for the use of radio spectrum in the 71-76 GHz and 81-86 GHz bands, of which 70 use XPIC/CCDP technologies. There was a 200% increase in the number of RRLs.

For the reporting period, the following were considered:

- 8 applications for registration of 431 links;
- 6 applications for deletion of registration of 88 links;
- 1 application for change of 4 links.

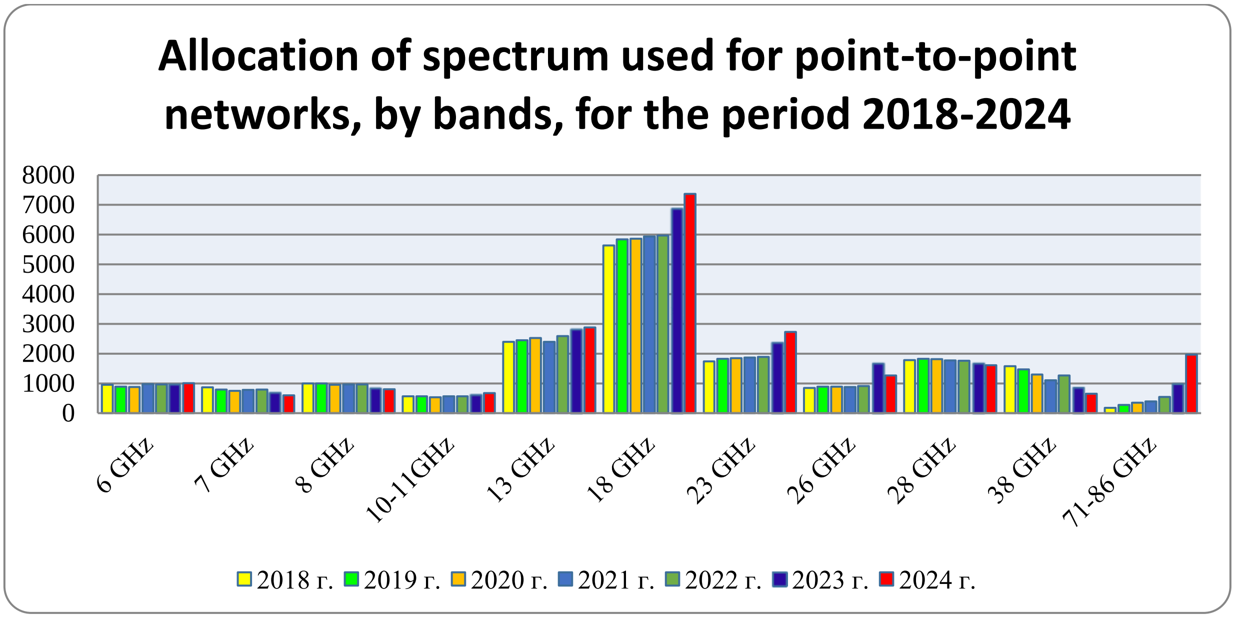
Figure 42 presents information on the share distribution of the active RRLs by radio frequency bands assigned with authorisations for the use of frequency spectrum, for electronic communications network of the point-to-point type, at the end of 2024, by percentage.



Source: CRC

Figure 42

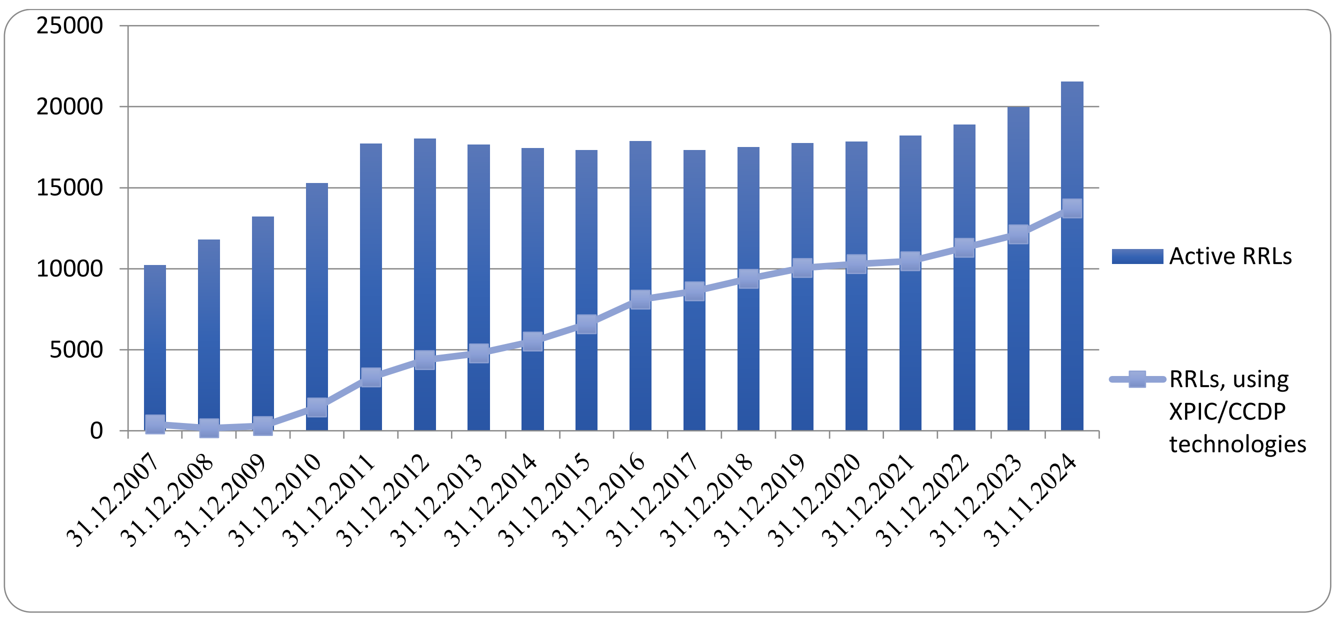
Figure 43 presents the allocation of spectrum used for point-to-point networks, by bands, for the period 2018-2024.



Source: CRC

Figure 43

Figure 44 displays the active RRLs by years, compared with the part of them which uses XPIC/CCDP technologies.



Source: CRC

Figure 44

With the development of 5G networks and the offering of new services, there is a need to increase the transmission capacities. Therefore, in 2024, the number of RRLs using technical solutions for higher transmission speeds increased:

- using two radio frequency bands in one direction (band channel aggregation (BCA) or super dual band (SDB));
- using two adjacent channels in one direction (channel aggregation (CA));
- using both polarisations in a single RRL (cross-polar interference canceller/co-channel dual polarisation (XPIC/CCDP)).

The trend towards migration of the RRLs with a bandwidth of 3.5 MHz, 7 MHz, and 14 MHz to 28 MHz, 56 MHz, and 112 MHz bands was maintained. The number of links using XPIC/CCDP technologies reached 13,724 in 2024 (compared to 12,119 in 2023). The amendments to the authorisations reflect the increased need of undertakings to use higher transmission capacity, which in turn leads to an increase in the frequency band used in the various directions.

The radio relay network can be defined as supporting and complementing other networks providing electronic services. There is a constant development of radio relay networks of operators, and modern equipment is aimed at using new technologies to ensure high-speed connectivity of all types of networks through the use of less energy resources with better technical characteristics.

Satellite radio services

In 2024, the activities related to the regulation of satellite radio services continued to focus on coordinating and protecting the national positions on the geostationary orbit with the relevant radio spectrum and the radio spectrum used by non-geostationary satellite systems. The purpose of this process is to prevent potential interference to the Bulgarian planned and non-planned systems located at 1.9°E (BSS) and 56.02°E (FSS) and satellite systems located on non-geostationary orbit.

The activities of enabling Bulgarian undertakings to operate geostationary and non-geostationary satellite systems and thus to increase Bulgaria’s presence on the satellite services market continued. Two requests for preliminary publication and one request for modification of Bulgarian satellite systems on non-geostationary orbit were submitted. Two requests for coordination of new Bulgarian geostationary satellite systems were also submitted.

In 2024, two radio spectrum authorisations were issued and 11 were amended for the use of radio spectrum for electronic communications networks by satellite radio services, and so spectrum was assigned to ground stations that connect to 27 satellite systems.

The coordination activities continued through analyses of the biweekly circulars (BR International Frequency Information Circular - BRIFIC) issued by the Radiocommunication Bureau of the International Telecommunication Union. As a result of the analyses of all biweekly circulars for 2024, the relevant objections were sent in view of performing the regulatory functions of CRC in terms of the efficient use and effective management of the frequency spectrum.

In addition, an analysis was also made of the proposals received from other administrations to conclude agreements with a view to the successful coordination of the Bulgarian satellite systems.

Broadcasting

In 2024, with regard to a request of the Council for Electronic Media (CEM) for the assignment of free frequency resource to 10 cities concerning open procedures to hold competitions, technical analysis and frequency planning were performed for the assignment of frequency resources and the relevant technical parameters (admissible capacities, points of broadcasting as well as other technical information). In compliance with the provisions of the LEC, CEM was provided with information on the lack of free frequency resource needed for terrestrial analogue broadcasting for the territory of the following cities: Velingrad, Dupnitsa, Svishtov, Radnevo, Sandanski, Razgrad, Balchik, Beloslav, Vidin, and Obzor.

In 2024, a total of 66 technical parameters of electronic communications networks for terrestrial analogue broadcasting of radio signals in the VHF band (87.5-108.0 MHz frequency band) were examined and analysed, of which 6 were of undertakings authorised to use radio frequency spectrum for electronic communications network for terrestrial analogue broadcasting with national coverage, and 60 were of undertakings authorised to use radio frequency spectrum for electronic communications network for terrestrial analogue broadcasting with local coverage.

In connection with an authorisation for use of radio spectrum for electronic communications network for terrestrial digital broadcasting of Vivacom, 4 technical parameters were examined and analysed.

Two temporary authorisations for a short-term event (ensuring event and drive-in cinema sound system) were issued for the use of 29 frequencies from the VHF band.

National and international coordination

In 2024, in the Advisory Council for National Coordination and Agreement to CRC, 2,977 radio frequencies and frequency bands were coordinated and agreed. National coordination and agreement with all state authorities, departments and agencies concerned is carried out with the goal to ensure the aeronautical and maritime safety, the protection of national security, and the efficient use of the radio frequency spectrum.

In connection with the international coordination of terrestrial networks, requests were sent to the Radiocommunication Bureau for the addition of 198 radio frequency assignments of Bulgarian VHF radio stations under the terms of the Regional Agreement on the use of the 87.5-108.0 MHz frequency range for VHF (FM) sound broadcasting, Geneva, 1984 (Geneva 1984).

Requests for the entry of 5 Bulgarian radio frequency assignments in the Plan to the Geneva-84 Agreement were submitted.

Upon requests received from other administrations, international coordination of 4 radio frequency assignments with the appropriate technical parameters was carried out, in accordance with the Regional Agreement relating to the use of the 87.5-108.0 MHz frequency range for VHF (FM) Sound Broadcasting, Geneva, 1984 (Geneva 1984).

As a result of the processed and analysed publications in the biweekly BRIFIC circulars for terrestrial radio services, over the past year, 1,349 radio frequency assignments to foreign administrations with their respective technical parameters were coordinated under the terms of the Regional Agreement on the use of the 87.5-108.0 MHz frequency range for VHF (FM) sound broadcasting, Geneva, 1984.

In connection with the international coordination of frequency assignments in the terrestrial broadcasting ranges, a bilateral meeting at expert level was held with the regulator of the Republic of North Macedonia. The coordination zones and the mutual approach to be applied in the implementation of the international coordination of VHF frequency assignments of both parties were agreed at the meeting.

In accordance with the terms of the Regional Agreement on the introduction of terrestrial digital radio and television broadcasting in the 174-230 MHz and 470-862 MHz frequency bands (Geneva – 2006), two radio frequency assignments to foreign administrations were analysed and coordinated to amend the GE06D digital plan with the relevant technical parameters.

In accordance with the procedures under Article 12 of the Radio Regulations of the International Telecommunication Union, 162 (108 in season A and 54 in season B) frequency assignments for terrestrial analogue and digital broadcasting of radio signals within the short-wave bands were coordinated.

Radio frequency assignments for satellite networks from the biweekly BRIFIC circulars for satellite radio services were processed and analysed. In order to ensure protection from radio interference of the Bulgarian positions on geostationary and non-geostationary orbits and fixed radio service assignments, CRC sent to ITU and to the administrations whose satellite networks could potentially affect the Bulgarian networks, 121 written objections and 317 objections filed through specialised software products. As a result of the performed examinations of the technical parameters and the further calculations, correspondence was exchanged with ITU and the relevant foreign administrations which had filed their requests in the biweekly circulars. In order to protect the Bulgarian satellite systems on geostationary and non-geostationary orbit as well as the assignments for terrestrial radio service from interferences, CRC sent objections, in accordance with the procedural rules of the Radio Regulations, to ITU and to the administrations whose satellite networks might potentially affect us, as follows:

Written objections

- in coordination of satellite networks from the fixed-satellite radio service emitting in Space to Earth direction and a possible interference to the feeder link of a satellite from the broadcasting-satellite radio service, pursuant to Article 7 of Appendix 30A of the Radio Regulations – 5 objections;
- coordination between a satellite network on planned position from the broadcasting-satellite radio service and non-planned satellite network, pursuant to Article 7 of Appendix 30 of the Radio Regulations – 1 objection;
- comments under Article 9.3 of the Radio Regulations on planned satellite systems on non-geostationary orbits - 100 comments;
- coordination of a non-planned satellite station potentially affecting another non-planned satellite station, pursuant to Article 9.7 of the Radio Regulations - 12 objections.

Objections submitted via specialised ITU software products

- coordination of a satellite network on non-planned position from the broadcasting-satellite radio service and non-planned satellite network, pursuant to Article 4 of Appendix 30 of the Radio Regulations – 4 objections were made against 4 satellite systems;
- coordination of a satellite network on non-planned position from the broadcasting-satellite radio service and non-planned satellite network, pursuant to Article 4 of Appendix 30A of the Radio Regulations – objections were made against 7 satellite systems;
- comments under Article 9.3 of the Radio Regulations on planned satellite systems on

non-geostationary orbits - for 174 satellite systems, written notifications to the respective administrations were also sent;

- coordination of satellite station using non-geostationary orbit and satellite system on geostationary orbit, pursuant to Article 9.12 of the Radio Regulations – objections were made against 9 satellite systems;
- coordination of satellite station using non-geostationary orbit and satellite system on geostationary orbit, pursuant to Article 9.12A of the Radio Regulations – objections were made against 17 satellite systems;
- coordination of satellite station using geostationary orbit and satellite system on non-geostationary orbit, pursuant to Article 9.13 of the Radio Regulations – objections were made against 58 satellite systems;
- coordination of emitting satellite station and receiving station from fixed radio service included in the table of frequency assignments, pursuant to Article 9.14 of the Radio Regulations – objections were made against 22 satellite systems.

Electromagnetic compatibility

During the year, electromagnetic compatibility analyses of 99 Bulgarian and 1,213 foreign VHF radio broadcasting stations with the aeronautical systems ILS, VOR and COM were carried out.

Due to the identified possible interference while carrying out analysis for electromagnetic compatibility with aeronautical radio services, 35 radio frequency assignments were submitted for measurement under the Methodology for measuring A1 type intermodulation products generated by the operation of closely situated VHF-FM radio transmission stations.

1.1.2. Numbering resources

At the end of 2024, the total number of undertakings authorised to use numbering resources was 22.

During the year, two authorisations for use of numbering resources were terminated at the request of the respective undertakings – Bulsatcom and TELECOMMUNICATIONS COMPANY VARNA EAD.

Due to the need to ensure the right of users to use their numbers after they have been ported, more than 20,000 geographical numbers were transferred to other undertakings upon termination of authorisations for the use of numbering resources.

In 2024, geographic numbers from the "700” and “800” ranges were provided for use. The total number of geographic numbers provided at the end of the year was 8,478,000.

Due to optimisation of networks and services of the undertakings in 2024, the following numbering resources were released:

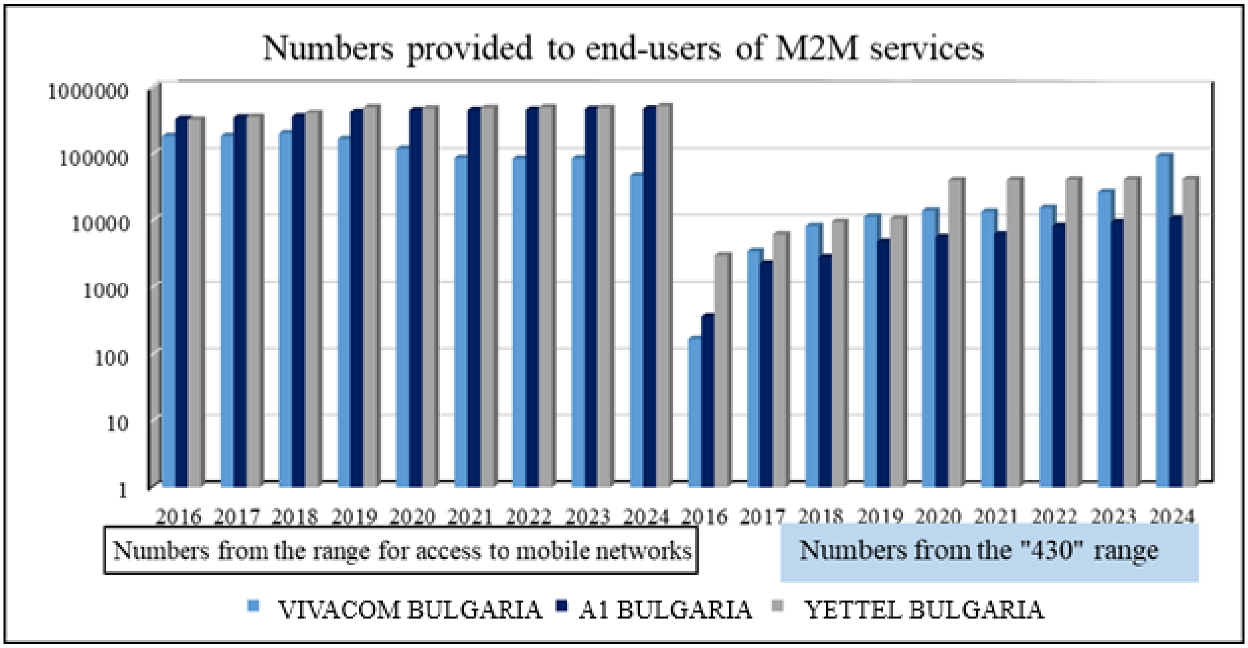
- 322,100 geographic numbers;
- 100 numbers from the “800” range;
- 2 national signaling point codes;
- 1 code for the “carrier selection” service;

The numbering resource within the “430” range – for access to services using Machine-to-Machine (M2M) communication - was assigned to three undertakings:

- A1;

- Vivacom;
- Yettel.

In 2024, an increase was reported by the three undertakings in the number within the “430” range provided to end-users.



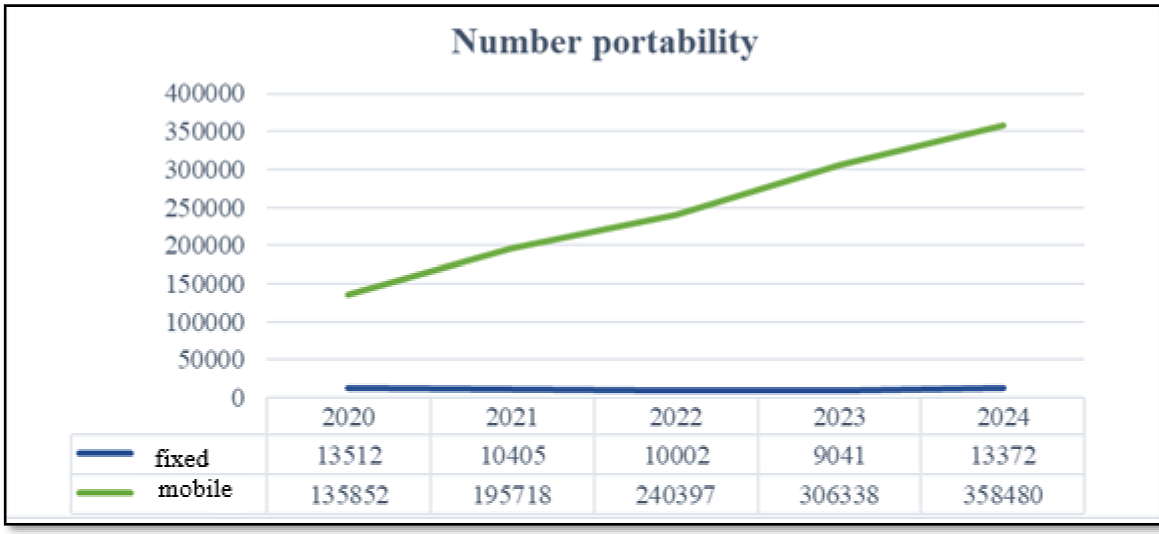
Source: CRC

Figure 45

Number portability

In 2024, an increase was observed, compared to 2023, in the number of end-users who took advantage of their right to retain the number used when changing the mobile and fixed service provider.

The trend for porting more numbers in mobile networks than numbers in fixed networks was preserved. Data on numbers ported over the last five years are presented in Figure 46.



Source: CRC

Figure 46

Electronic trust services

In fulfilment of its powers under the Law on Electronic Document and Electronic Trust Services, CRC maintains up-to-date the national trust list, which contains information about qualified trust service providers and the services provided by them. In 2024, the qualified trust service provider System for Electronic Payments Bulgaria /SEP Bulgaria/ AD ceased its activity, which was also reflected in the trust list. CRC registered one new provider of qualified trust services – Idox Bulgaria EOOD, and the services provided by it, in the national trust list.

In 2024, there was an increase in the number of qualified certificates for electronic signature issued. The increased interest is due, on the one hand, to the possibility of remote signing with a qualified electronic signature and the issue of short-term qualified certificates for qualified electronic signature and, on the other hand, to the development of the financial sector and the remote access to the services it offers. Last but not least, the development of electronic administrative services in the public sector plays a big role for the increased number of qualified electronic signature certificates issued and used, as well as for qualified electronic time stamp.

Summarised data on the trust services provided in the last four years is presented in Table 18.

Table 18

Trust service	2021	2022	2023	2024
	number	number	number	number
Issued qualified certificates for electronic signature	**1,002,763**	**1,395,881**	**1,888,322**	**2,870,764**
Issued qualified certificates for electronic seal	**167**	**189**	**267**	**406**

Trust service	2021	2022	2023	2024
	number	number	number	number
Issued qualified electronic time stamps	**219,610,192**	**526,426,850**	**855,553,914**	**1,068,614,164**
Issued qualified certificates for website authentication	**234**	**318**	**309**	**298**
Issued electronic evidence for qualified validation of electronic signature/seal	**2,233,080**	**2,399,804**	**2,138,936**	**956,332**
Qualified electronic signature/seal storage service	**7,064**	**189,864**	**223,010**	**241,098**
Issued electronic evidence of a qualified service for an electronic registered mail	**218,802**	**503,163**	**861,461**	**625,127**

1.2. Regulation and monitoring of the electronic communications markets

In pursuance of one of the main objectives of CRC – promoting a sustainable competitive market and consumer protection, in 2024 the Commission continued to monitor and analyse the competitive environment of the markets for electronic communications networks and services with a view to establishing the need for regulatory intervention in accordance with the legal powers.

1.2.1. Regulation of the electronic communications markets

In the first half of 2024, the work on definition, analysis and assessment of the wholesale market for access to passive (physical) infrastructure, which started in 2023, continued. On 30 July 2024, after a notification procedure, which concluded with an opinion of the European Commission without comments on the analysis prepared and the proposed specific obligations, CRC adopted a final decision on definition, analysis and assessment of the wholesale market for access to passive (physical) infrastructure.

CRC Decision No 220/30.07.2024 took into account the results of the public consultation with the stakeholders, the opinions of the Commission for Protection of Competition and of the European Commission.

In accordance with the provisions of the national legislation and the European regulatory framework and given the fact that the wholesale market for access to passive (physical) infrastructure is not included in the list of markets of Recommendation (EU) 2020/2245 of the European Commission (EC) of 18 December 2020, CRC applied the three criteria test to define the market subject to *ex ante* regulation. As a result, it found that the market under consideration was subject to *ex ante* regulation. The analysis carried out and the assessment of the existence of effective competition on the market in question found that there was no effective competition on the wholesale market for access to passive (physical) infrastructure. In view of this, CRC proceeded to analyse the market situation of the participants in the market under consideration to identify the undertaking with significant impact. Given the specificity of the market under consideration, CRC considered the following criteria relevant to the analysis: market share; control of infrastructure that cannot be easily duplicated; existence of economies of scale and scope; existence of vertical integration; lack of or insufficient buyer power; lack of potential competition. Based on the analysis performed, CRC defined Vivacom as an undertaking having significant individual impact on the relevant wholesale market for access to passive (physical) infrastructure. In line with the conclusions made regarding the need for regulatory intervention and the identified competitive problems on the market under consideration, CRC imposed on Vivacom the following specific obligations: obligation to provide access to and use of passive infrastructure; obligation of non-discrimination; obligation of transparency; obligation to prepare and publish a Reference Offer for access to passive infrastructure; and price control obligations aimed at preventing its anti-competitive behaviour.

As a result of a subsequent restructuring by transferring part of Vivacom's rights and obligations to United Fiber Bulgaria EOOD by the will of the sole owner of both companies – Slovenia Broadband S.a.r.l., the duct network that is subject to the imposed obligations and was owned by the incumbent undertaking was transferred to the new company. In this regard, after making checks, requesting information and analysing the collected information, CRC, by its Decision No 328 of 07.11.2024, imposed temporary obligations on United Fiber Bulgaria EOOD with regard to the duct network transferred from Vivacom.

In the second half of 2024, CRC launched a fourth round of analysis of the wholesale market for local access. According to the Explanatory Note to the 2020 Recommendation on relevant markets (EC Recommendation 2020/2245 of 18 December 2020), the starting point in defining the wholesale market is the assessment in terms of supply and demand on the retail market. In order to define the product range of the retail market by examining the interchangeability between all possible alternatives (optical (FTTx), copper (xDSL, LAN), and cable (CaTV) networks) for broadband Internet access provided at a fixed location, including access via terrestrial networks using radio spectrum, by means of 3G, 4G and 5G technologies (fixed access via mobile network), CRC, by Decision No 251/29.08.2025, ordered the collection of additional information regarding the provision of the "fixed access via mobile network" service as of 31 December for the period 2021–2023. The collected, processed, and validated information provided data on the type of mobile technology used (3G, 4G, and 5G) for providing access services at a fixed location, as well as information on the existence of a speed limit once a specified data volume is exceeded.

1.2.2. Monitoring of the electronic communications market

In accordance with Article 40 LEC, as well as Article 15 of the Methodology for the terms and procedures of relevant markets definition, analysis and assessment (the Methodology), CRC regularly collects information from the undertakings providing electronic communications on the basis of a set of parameters for which data is collected by means of special-purpose questionnaires. By Decision No 381 of 14.12.2023, CRC approved the model forms and the instructions to them concerning the undertaking's reports on their activity in the provision of public electronic communications in 2024.

In the second half of the year, in order to ensure the activity of definition, analysis and assessment of the wholesale market for local access at a fixed location, as mentioned above, a questionnaire was developed, approved and disseminated to collect additional information on the provision of the “fixed access over mobile network” service as of 31 December for the period 2021-2023.

1.3. Development and technical support of the National Radio Frequency Spectrum Monitoring System

In the past year 2024, the development of the National Radio Frequency Spectrum Monitoring system (NRFSMS) under the Development Plan for the period 2021-2025 continued. Four fixed radio monitoring stations of "compact systems" type were delivered. The stations are intended to expand the possibilities for radio monitoring in the frequency range from 20 MHz to 6 GHz on the territory of the cities of Ruse, Vratsa, Smolyan, and Kardzhali. Measuring equipment for 1 (one) mobile radio monitoring station in the range from 20 MHz to 26.5 GHz, intended for radio monitoring in the region of Central South Bulgaria, was delivered. One mobile station with a dedicated system for coverage and quality measurements of the mobile services provided by the terrestrial GSM/UMTS/LTE/5G networks, intended for measurements in the region of Central South Bulgaria, was also put into operation. Measuring equipment for upgrade of 7 (seven) operating fixed stations from the NRFSMS was delivered.

To ensure the control and monitoring activities of electronic communications networks using radio spectrum, activities related to technical maintenance of specialised technological equipment of fixed and mobile radio monitoring stations, as well as of portable specialised measuring equipment of the NRFSMS, including calibration (where applicable), were regularly carried out.

At the end of 2024, for the implementation of its control functions, CRC had at its disposal the following main measurement systems:

- 32 (thirty-two) fixed stations for RFS monitoring (1 (one) manned and 31 (thirty-one) unmanned RMS) of which: 15 (fifteen) in frequency range from 20 MHz to 3000 MHz and 18 (eighteen) in the bands from 20 MHz to 6000 MHz;
- 1 (one) mobile station for RFS monitoring in frequency range from 20 MHz to 3 GHz;
- 1 (one) mobile station for radio monitoring, detection and localisation of radio interference frequency range from 20 MHz to 6 GHz;
- 5 (five) mobile stations for radio monitoring in frequency range from 20 MHz to 26.5 GHz;
- 3 (three) mobile stations for radio monitoring, detection and localisation of radio interference in frequency range from 20 MHz to 6 GHz and measurements of the coverage and quality of mobile services provided by terrestrial GSM/UMTS/LTE/5G networks;
- 2 (two) dedicated mobile stations for measurements of coverage and quality of mobile services provided by terrestrial GSM/UMTS/LTE/5G networks;
- 1 (one) portable system for measurement of the coverage and quality of services provided by GSM/UMTS/LTE/5G networks;
- 6 (six) portable measurement systems for measurement of the coverage and quality of the DVB-T networks;
- 5 (five) portable measurement systems in frequency range from 9 GHz to 26.5 GHz;

- 2 (two) portable measurement systems for measurement in the bands from 10 kHz to 3 GHz;
- 14 (fourteen) portable measurement systems:
  - 4 (four) systems in the bands from 8 kHz to 8 GHz;
  - 7 (seven) systems in the bands from 9 kHz to 20 GHz;
  - 3 (three) systems in the bands from 20 MHz to 31 GHz;
  - 4 (four) systems in the bands from 680 MHz to 32 GHz.

According to the NRFSMS Development Plan for the period 2021-2025, the future development is aimed at further expanding the functional and technological capabilities of the radio monitoring system in the following aspects:

1. Enabling the efficient and interference-free use of radio spectrum by lawful users, preventing the illegal use of spectrum and controlling the quality of services provided to end-users.

2. Construction of new fixed radio monitoring stations "compact systems" type in order to ensure greater territorial coverage of the country and effective regular monitoring of higher frequency ranges.

3. Providing systems for measurement of the coverage and quality of mobile networks in connection with the use of new frequency bands and 5G networks in the Republic of Bulgaria.

4. Enabling the control of the quality of services provided through terrestrial digital broadcasting, as well as preventing the illegal distribution of digital radio and TV programmes.

The development of a modern and effective system for radio spectrum monitoring for civil needs requires investment of significant financial resources for development and maintenance.

The funds provided in 2024 contributed to the development of the NRFSMS and the expansion of the territorial and frequency coverage of the performed radio spectrum monitoring for civil needs, thus increasing the efficiency of the Commission’s control over electronic communications networks using radio spectrum.

1.4. Construction of a laboratory for electromagnetic compatibility

In 2024, the construction of a building and deployment of a specialised laboratory for electromagnetic compatibility (EMC) with anechoic chamber and shielded working premises according to the issued Building Permit under the Spatial Planning Act and approved working project began. The construction started with the opening of a construction site on 09.05.2024. The construction of the laboratory's building is at the stage of completed structural works, for which an on 23.12.2024 a Certificate for acceptance of structure was drawn up (Form No 14) and an application was submitted to the Architecture and Urban Planning Section of Sofia Municipality for issuance of a certificate of completed “structural works”.

With a procedure under the Public Procurement Act (PPA) for the supply of measuring equipment for the EMC laboratory – robotic system for automated SAR measurement, the provision of measuring equipment for the laboratory in order to carry out the necessary tests was also started.

1.5. International activity of CRC in 2024

In 2024, CRC continued to maintain effective and fruitful international cooperation by taking an active part in the activities of specialised organisations in the field of electronic communications and postal services at global, European and regional level. This has helped implement good regulatory practices, exchange of experience and better functioning of the internal market for electronic communications networks and services.

Participation in the work of European structures

In order to protect the country's interests, CRC continued to cooperate actively with the European structures through a consistent and coherent national position regarding EU legislation.

In 2024, CRC participated again actively at management and expert level in the work of the Independent Regulators Group (IRG) and the Body of European Regulators for Electronic Communications (BEREC), contributing to the development of common regulatory practices. Within the framework of the four IRG general assemblies and BEREC plenary meetings held during the year, as well as meetings of the Contact Network, a number of documents were discussed and adopted in implementation of the BEREC Work Programme 2024, more important of which are:

- BEREC Opinion on the White Paper "How to master Europe's digital infrastructure needs?"[57];
- BEREC Report on cloud and edge computing services;
- BEREC Report on the entry of large content and application providers into the markets for electronic communications networks and services;
- BEREC Report on M2M and permanent roaming;
- BEREC Report on the IP interconnection ecosystem;
- BEREC Opinion on the national implementation and functioning of the general authorisation;
- BEREC Report on empowering end-users through environmental transparency of digital products and services;
- BEREC Report on the development of private and public 5G networks in Europe.

In 2024, CRC participated in the two Plenary Meetings of the European Regulators Group for Postal Services (ERGP/the Group[58]), in the two meetings of the Group's Contact Network and its five subgroups.

The most important documents that were adopted during the plenary meetings of the ERGP are as follows:

- *ERGP Work Programme 2025 and report on the public discussion of a draft ERGP Work Programme 2025, as well as short project assignments of the work subgroups in 2025;*

The draft Work Programme 2025 follows up on the work initiated in previous years and addresses the medium- and long-term challenges and developments in the postal sector, such as the necessary review of the regulatory framework, the Green Deal, digitisation, changes in consumer needs, and e-commerce. The document has been adapted and developed in accordance with the provisions of the ERGP Medium Term Strategy 2023-2025, with the 2025 tasks structured within the three strategic pillars.

[57] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14168-White-Paper-How-to-master-Europes-digital-infrastructure-needs_en?_en=

[58] European Regulators Group for Postal Services

- ERGP Report on access to the infrastructure for delivery of parcels
- ERGP Report on the needs of postal services for vulnerable users;
- ERGP Report on core postal indicators;
- ERGP Report on quality of service, consumer protection and complaint handling;
- ERGP Report on the regulation of end-user pricing;
- ERGP report on exploring the possibilities to support environmental sustainability within the Postal Regulatory Framework;
- ERPG Communication Plan for 2025;
- An internal ERGP report on the work done and the experience gained by the Task Force on the European Commission Prospective Study.

The first plenary meeting was preceded by a stakeholder workshop aimed at contributing to the preparation of the ERGP Report on the needs of postal services for vulnerable users which, according to the Group's Work Programme, should be submitted for approval at the second plenary meeting for 2024. The event was on topic: “Vulnerable users in postal world: Who? Which needs? What’s next?”

As a result of the discussions, the workshop participants agreed on the following key points to be taken into account regarding the needs of vulnerable users:

- It is necessary to ensure the availability of choice/information for users and transparency, as well as specific regulation for vulnerable users;

- Do not forget users from small islands;

- The current directive contains elements for the protection of vulnerable users, but also shortcomings;

- It is of key importance to introduce a definition for "vulnerable user”.

- The way forward: A universal, targeted, and horizontal approach, along with engagement of stakeholders.

The second plenary meeting was preceded by an internal workshop on the "Outline of the future postal regulatory framework". The workshop was part of the process of preparing a report on the outlines of the future postal regulatory framework, including the following key topics:

1. In which areas is minimum harmonisation of the competences of national regulatory authorities necessary?

2. What data do regulators need to monitor the market?

3. In what direction can regulatory authorities develop if there is no change in the regulatory framework?

4. If the regulatory framework changes, in what direction should the changes be?

With its active participation in the work of BEREC and ERGP, CRC contributed to the preparation and adoption of a number of documents in implementation of the European Electronic Communications Code.

In 2024, CRC was appointed as coordinator for the digital services for Bulgaria by Decision No 405/13.06.2024 of the Council of Ministers. CRC’s representatives took part in all 12 meetings of the European Board for Digital Services and in the meetings of its working groups, which discussed key issues related to the implementation of the Digital Services Act.[59] The Digital

[59] Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market for Digital Services and amending Directive 2000/31/EC (Digital Services Act)

Services Act provides for harmonised rules for achieving a safe, predictable and reliable on-line environment and has been fully implemented since 17 February 2024. Due to the lack of a law that imposes the specific obligations under Article 49 of the Digital Services Act, CRC was prevented from performing the coordinator functions in full.

CRC experts, as representatives of the authority supervising the trust service providers in the Republic of Bulgaria and responsible for the creation, maintenance and publication of the national trust list, took part in the work of the Forum of European Supervisory Authorities for trust service providers (FESA[60]) and the joint 23rd and 24th meetings of an ENISA expert group under Article 19 of Regulation (EU) No 910/2014 – ENISA ECATS EG. At the meetings, a document on remote identity authentication containing the minimum requirements for remote authentication of users using trust services was adopted and the new trust services included in eIDAS 2[61] – services for electronic archiving, electronic data recording in an electronic register, management of devices for creating electronic signature/seal remotely and issuing electronic certificates for attributes were examined.

CRC experts also participated in the Trust Services and eID Forum and CA-Day. The new trust services, the qualified electronic signature for the digital wallet, identity verification, and best practices for the implementation of eIDAS2, as well as the timelines for the development and adoption of the implementing acts regarding the EUDI Wallet, were discussed.

Participation in the activity of specialised international organisations

For yet another year, CRC participated in various forums organised by the International Telecommunication Union (ITU), the European Conference of Postal and Telecommunications Administrations (CEPT), the European Telecommunications Standards Institute (ETSI), the Network of French-speaking telecommunications regulators (FRATEL[62]), etc.

Representatives of the Communications Regulation Commission participated in the Ministerial Programme and BEREC-GSMA Roundtable where BEREC members traditional hold policy dialogues. Within three sessions, issues related to fairness in the Internet ecosystem, investment environment for infrastructure and migration to next- generation networks were discussed.

In the framework of the Roundtable, European operators declared the need to introduce a uniform regulatory framework in relation to the new convergence environment.

The Ministerial Programme was drawn up at the following sessions in the field of mobile communications and technology:

- 5 Years of 5G: Insights for Policymakers;
- Mobile Money: Instant Payments;
- Responsible Artificial Intelligence: Following an Ethical Compass;
- Managing the Digital Economy;
- Investing in Policy Skills to Foster Digital Innovation;
- Mobilising for a Greener Future;

[60] Forum of European Supervisory Authorities for trust service providers
[61] Regulation (EU) 2024/1183 of the European Parliament and of the Council of 11 April 2024 amending Regulation (EU) No 910/2014 as regards the establishment of a European Digital Identity Framework
[62] Réseau francophone de la régulation des télécommunications

- Digitalising Government and Industry;
- Achieving Global Alignment on Security.

The stands of mobile operators (Orange, Telekom, Telefonica, and Vodafone) and telecommunications equipment suppliers (Nokia and Huawei) were visited, with many operators and suppliers demonstrating services and products using artificial intelligence.

At the invitation of Amazon Web Services, the company's stand was visited, where developed AI applications for monitoring mobile operators' networks, distance education of medical professionals, video monitoring of events, and smart homes were demonstrated.

Other stands were also visited, including Rohde&Schwarz, where 5G XR applications, a broadband receiver R&S®ESMW for monitoring broadband networks, including 5G networks, a compact radio monitoring and measurement system UMS400, were tested.

Representatives of CRC, as part of the official delegation of the Republic of Bulgaria, took part in the 5^{th} Global Standards Symposium (GSS-24) and the World Telecommunication Standardization Assembly (WTSA-24).

The Global Standards Symposium (GSS) is a forum where ITU members participate in discussions and coordinate efforts on the most pressing issues shaping the future digital life.

GSS-24 was attended by more than 3,200 delegates from about 160 countries, including ministers, heads of regulators and industry leaders, to discuss the goals of digital transformation and related requirements, as well as the challenges and opportunities for a fast-growing digital world. The theme for GSS-24 was "Charting the Next Digital Wave: Emerging Technologies, Innovation, and International Standards," setting the basis for discussions and cooperation initiatives aimed at shaping the future landscape of global standards.

Conducted every four years, WTSA sets the priorities of experts from all over the world who work year-round to develop the international standards established by ITU. The Assembly also reviews the strategy, structure and working methods of the ITU's telecommunications standardisation sector (ITU-T). WTSA also approves the mandates and appoints the ITU-T study group leadership teams for international standardisation.

WTSA was also attended by politicians, regulatory leaders, industry leaders, and technology experts who discussed global actions to strengthen ITU's standardisation activity.

The WTSA-24 programme included opening ceremony, plenary sessions, meetings of the heads of delegations, committee meetings, and working groups of these committees.

The existing guidelines were revised and amended at WTSA-24. Eight new resolutions were agreed to strengthen the organisation's work in the field of standards to meet the rapidly evolving global needs and 44 resolutions were amended.

CRC also took part in the activities of the Network of French-speaking telecommunications regulators (FRATEL). The two events, a seminar and an annual meeting that took place in 2024, focused on topics related to the future of networks and regulation and to regulatory issues related to data markets and digital services.

A seminar was held in Lomé, Togo, on 21st and 22nd of May, with theme: "Data economy and mobile payments: what are the technical and economic challenges facing regulators?". At the event, the new challenges in terms of data and technical and economic regulatory measures regarding the potential weaknesses in the cloud computing market ("cloud"), as well as initiatives to develop these services at local or regional level through the development of cloud interoperability and data portability were discussed.

An annual meeting was held on 26th and 27th of November in Libreville, Gabon, with theme: "What are the future business models and strategies of telecom operators?". The meeting discussed the trends in the structuring of the telecom sector and their impact on the market organisation, as well as on the business models of operators. The development and adaptation of regulation to support new technologies was the subject of debate. The issue of strengthening the cooperation between electronic communications regulators with those in other sectors related to the protection of personal data, mobile payments, and the environment was also discussed.

At the beginning of the year, a questionnaire was sent to FRATEL member regulators on the future of networks, regulation, data markets, and mobile payments. The Communications Regulation Commission answered all questions related to its competence.

In 2025, FRATEL will focus on topics related to the state and prospects of international connectivity and, more importantly, on the international challenges of electronic communications and digitisation.

CRC participated both virtually and physically in the regularly convened meetings of the General Assembly of ETSI held in April and November, as well as in the meetings of the National Standards Organisations (NSOs) groups for ETSI - NSOG and NSBG. These meetings discussed and made decisions related to the Institute’s effective functioning, as well as decisions supporting the work of the NSOs in the implementation of the obligations for the introduction of European standards as national, and the approval and voting procedures related to the EC proposals for the development of harmonised standards.

Experts took part in a workshop organised by ETSI and CEN on the latest standards in relation to Regulation (EU) 2024/1183 of the European Parliament and of the Council of 11 April 2024 amending Regulation (EU) No 910/2014 on the establishment of a European digital identity framework.

Radio spectrum experts participated in the World Radiocommunication Seminar of the International Telecommunication Union (WRS-24). The forum presented the specialised software for the submission of applications, coordination and notification of terrestrial and satellite services, and the amendments following the decisions of the World Radiocommunication Conference in 2023 (WRC-23).

Representatives of CRC participated in the third workshop on “Postal Regulation Challenges in the Digital Age”. The workshop was mainly focused on the need for the regulation to follow the continuous changes in the postal sector caused by the introduction of new technologies, as well as deepening the cooperation and dialogue between the regulatory authorities at international level. The participants in the event discussed topics such as: new business models in the postal market, ways to more effectively protect consumer rights, and mechanisms to finance the universal postal service.

1.6. Information technology for 2024

The provision of suitable information service of CRC and the maintenance of the electronic administrative services offered is of significant importance for the efficient performance of its regulatory and monitoring functions. The Commission's priorities for the development of information services were:

- Maintenance of existing business and citizen-oriented electronic services and development and maintenance of internal electronic services;
- Creating an organisational, communication and information environment for efficient and at the same time transparent functioning of the CRC administration.

In 2024, CRC performed the following projects related to e-governance:

- Conduct of a public procurement procedure, contractor selection and conclusion of a contract with subject: "Upgrading the information system that ensures the activities of registration of the transceiver stations of terrestrial networks capable of providing electronic communications services, the activities under Article 151, paragraph 1, item 16 Spatial Planning Act, as well as of small-range wireless access points".
- Conduct of a public procurement procedure, contractor selection and conclusion of a contract with subject: "Development of a system for formation of postal codes in the Republic of Bulgaria"
- Public procurements were conducted, contractors were selected and contracts were concluded for adaptation of the CRC's information systems to the transition to Euro;

In 2024, CRC fulfilled the following projects related to improving the information and communication environment:

In connection with the improvement of the information and communication environment, the following projects were implemented:

- "Upgrade of the 'Licensing and Registers' information system and the portal for electronic administrative services of CRC";
- Renewal of anti-spam and web filter licenses, as well as providing an additional e-mail protection license;
- Update of licensed Oracle software;
- Providing licenses for the protection of end-devices by using WithSecure;
- Providing licenses for a multi-factor authentication system for employees in CRC and for external contractors to the systems supported by them;

Improvement of the technical and communication procurement and related services:

- Conducting a procurement with subject: "Supply of communication equipment".
- Conducting a procurement with subject: "Supply of computer equipment"
- Provision of post-warranty service of existing communication equipment and ensuring DNA licenses.

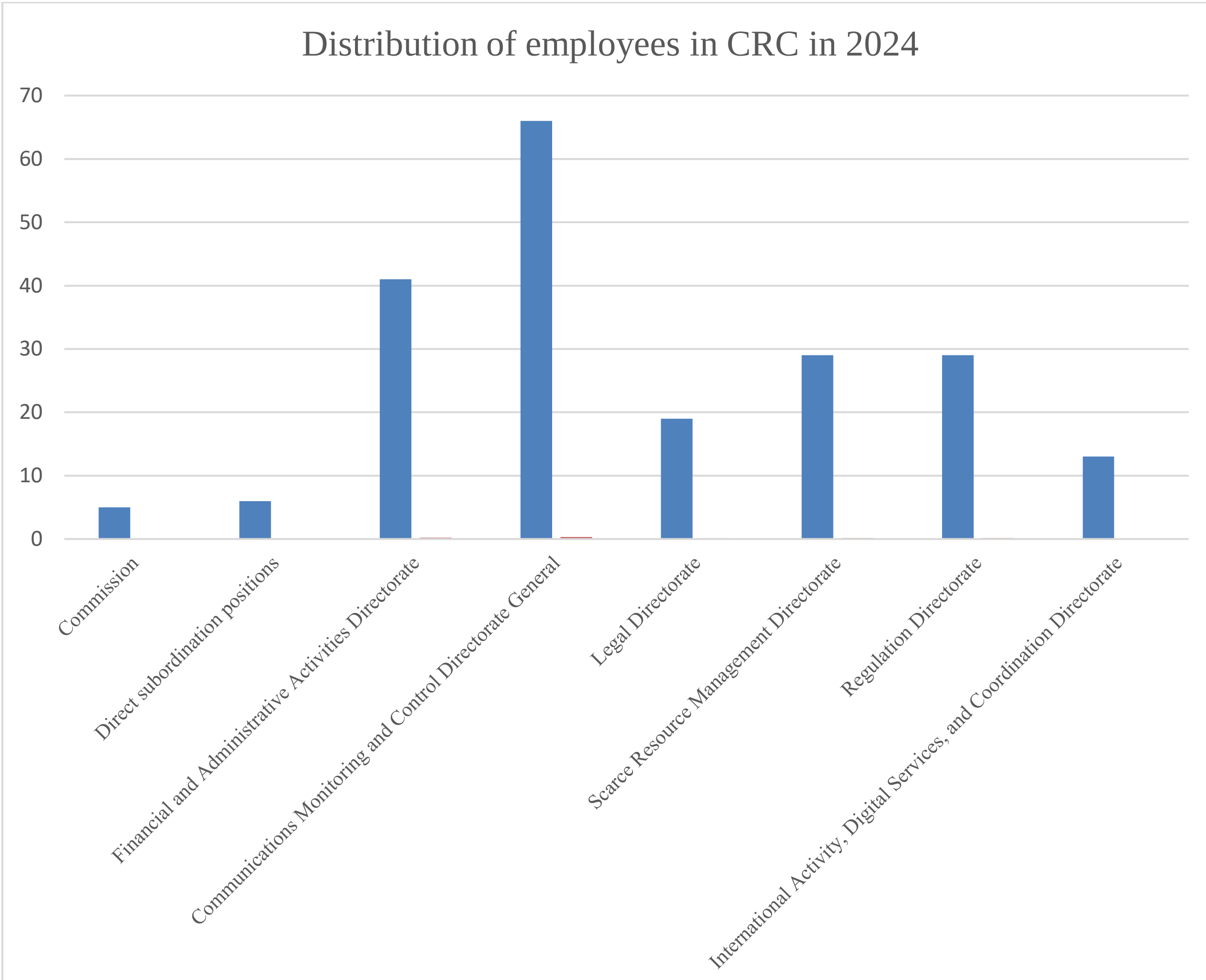
1.7. CRC's administrative capacity

Effective human resource management is a key factor for the sustainable development of the Communications Regulation Commission (CRC). The creation of prerequisites for staff training and development is a fundamental component that guarantees higher competence, motivation, and professional skills of employees.

During the past year, CRC continued to improve its training system, focusing on the research and identification of needs, strategic planning, targeted trainings, and assessing the results. In addition, a system for collecting, storing and dissemination of knowledge was launched and developed, which supports the professional development and effectiveness of the administration.

In 2024, CRC performed its activity with the following distribution of employees:

• Committee	5
• Direct subordination positions and units	6
• Financial and Administrative Activities Directorate	41
• Communications Monitoring and Control Directorate General	66
• Legal Directorate	19
• Scarce Resource Management Directorate	29
• Regulation Directorate	29
• International Affairs, Digital Services, and Coordination Directorate	13

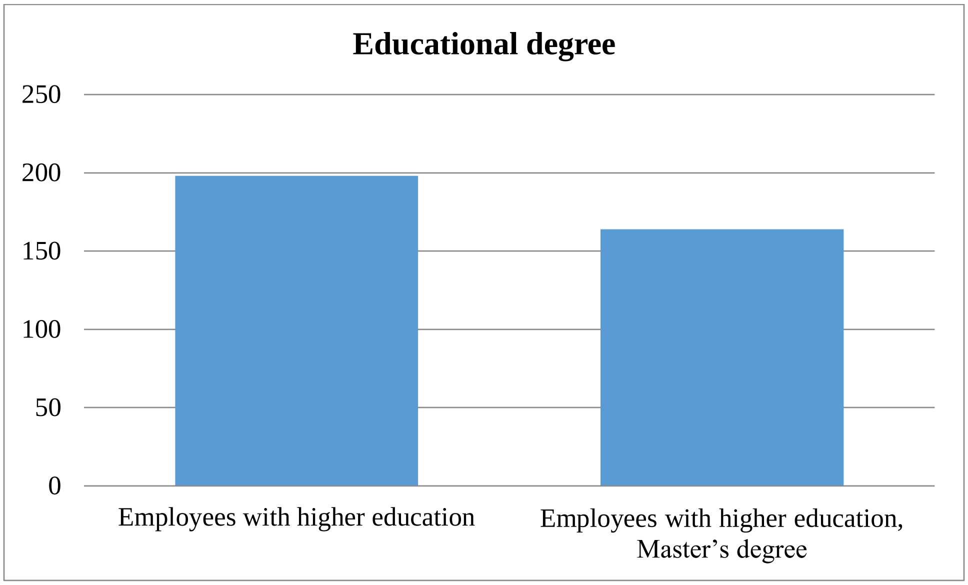


Source: CRC

Figure 47

The total number of CRC's staff was 255 full-time employees.

Of the total number of CRC employees, 198 had higher education, as 164 of them had an educational and qualification degree "Master".



Employees with higher education Employees with higher education, Master’s degree

Source: CRC

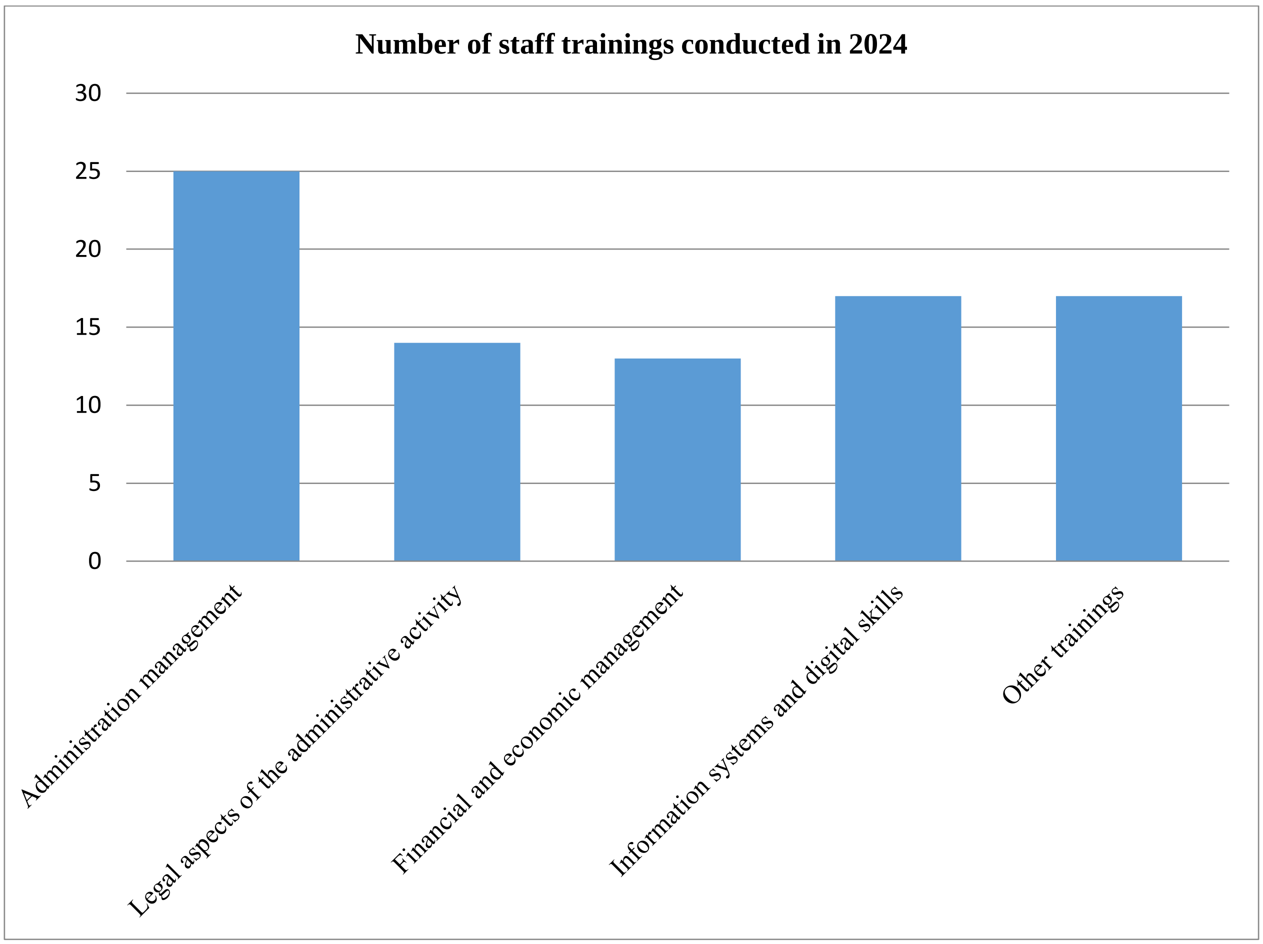
Figure 48

Staff education and administrative capacity development: The employees at the CRC administration had education in various areas, including technical, legal, economic and humanitarian sciences. The highest share was held by specialists with technical education, followed by those with economic education which is in line with the specifics of the Commission's activities. The employees at the CRC administration are appointed and dismissed in accordance with the provisions of the Law on Civil Servants (LCS), the Ordinance on the conduct of competitions and the selection for mobility of civil servants, and the established CRC’s internal rules.

Development of administrative capacity in 2024: In 2024, a total of 25 competition procedures were organised and conducted, resulting in 13 new employees being appointed by the end of the year. Additionally, under the procedure of Article 81a LCS, three employees from other administrations were appointed in the CRC’s administration, and one more employee was appointed under the procedure of Article 81b LCS. During the same period, 12 legal relationships were terminated on various legal grounds.

Trainings, increasing the competence and professional skills of employees: In 2024, in order to enhance the employees’ administrative capacity and update their knowledge, as well as to acquire new competencies necessary for the fulfilment of new functions of CRC, specialised trainings and seminars were organised as follows:

Area of training	Number of trainings conducted	Number of trained employees
Administration management	26	116
Legal aspects of the administrative activity	14	46
Financial and economic management	13	20
Information systems and digital skills	17	128
Specialised trainings	17	102



Source: CRC

Figure 49

In order to increase efficiency and effectiveness, CRC carried out an analysis of the training needs by planning and largely providing appropriate programmes tailored to the specifics of the activity and the financial capacity.

As part of the Commission's good practices, feedback on the satisfaction and practical usefulness of the trainings is regularly collected and their long-term impact is monitored. In 2024, the employees who had attended training took part in three e-surveys aimed both at assessing the trainings carried out and studying the interest in future topics deemed important for their professional development. The results of these surveys were systematised and analysed, which allowed effective planning of new trainings for the coming year.

Ensuring health and safety at work: Maintaining a safe and healthy working environment and improving working conditions is part of CRC's effective human resources management. The Commission's management is committed to the continuous improvement of the organisation and management in this field. During the reporting period, periodic medical examinations were carried out for all employees in order to prevent and protect their health. Illumination and electrical measurements were carried out in the working rooms. The employees of the Communications Monitoring and Control Directorate General received new personal protective equipment, tailored to the specifics of their work, as part of the efforts to ensure a safe working environment.

2. Other important activities

2.1. Standardisation

As a National Standards Organisation for the European Telecommunications Standards Institute (ETSI), pursuant to Article 30 of the LEC, and a national standardisation body under Article 27 of Regulation (EU) No 1025/2012, the Communications Regulation Commission has fulfilled its obligations by providing access through its website to all stakeholders in the Republic of Bulgaria for providing opinions and comments on the draft European standards of ETSI and has ensured the implementation of the approved and published ETSI standards as national.

The Commission has participated in all public consultation procedures on ETSI's draft standards and procedures in relation with standardisation requested by EC (SReq). On its website, the Commission maintained up-to-date information on the procedures opened by ETSI for the approval of the draft European standards drawn up by ETSI, as well as useful information for stakeholders.

All standards published by ETSI have been introduced as Bulgarian standards (BDS) and have been part of the work programmes of the Technical Committees for Standardisation TC 47 "Radiocommunication Systems and Radio Equipment" and TC 57 "Information and Communication Technology" of the Bulgarian Institute for Standardisation (BIS).

With regard to Regulation (EU) 2022/2480 of the European Parliament and of the Council on European standardisation (the Regulation) in force since 2023, which amended Regulation (EU) No 1025/2012, the European Commission requested that all existing ETSI standards, including TBR and ETS, which have not been introduced as BDS, to be introduced as national standards. To this end, a large amount of work was carried out on checking the databases of ETSI and BIS and drawing up lists of the titles of the standards, according to the BIS requirements. Within short periods of time, BDS was introduced by recognising the 1664 ETS standard and 60 TBR. Following their publication in the BIS Official Bulletin, a notification was sent to ETSI for their introduction as Bulgarian standards, and lists were drawn up for all these standards in a format that meets the requirements of the ETSI database. Furthermore, in 2024, 31 European ETSI standards were introduced together with the BIS, with their titles translated into Bulgarian.

In 2024, CRC participated, through its representatives, in the work of four technical committees for standardisation of BIS (TC 47, TC 57, TC 75, TC 80), which dealt with electronic communications and postal services.

2.2. Performance of obligations related to Chapter 15 of the LEC

In 2024, CRC received notifications about eleven security incidents that had a significant impact on the operationof the networks or services. Most of them occurred due to the interruption of an optical cable from the transmission network, which has led to the interruption of mobile voice service, Internet and television in different districts of the country. In the period 25.12.2024-30.12.2024, as a result of the deteriorating weather conditions, there was a power outage of individual base stations in some districts. A total of 79,400 mobile users were affected by the incidents over the period. Other incidents were related to short-term service interruptions caused by issues in the software platforms used for the provision of services. In fulfilment of its obligation under Article 243b, paragraph 5, CRC sent the above information to the EC and to the European Union Agency for Cybersecurity (ENISA).

In 2024, A1, Vivacom Bulgaria, and Yettel provided the annual reports on fulfilment of the Multivendor Strategy developed by them .

2.3. Electronic trust services

In fulfilment of its powers under the Law on Electronic Document and Electronic Trust Services, CRC maintains up-to-date the national trust list, which contains information about qualified trust service providers and the services provided by them. In 2024, the qualified trust service provider System for Electronic Payments Bulgaria /SEP Bulgaria/ AD ceased its activity, which was also reflected in the trust list. CRC registered one new provider of qualified trust services – Idox Bulgaria EOOD, and the services provided by it, in the national trust list.

In 2024, there was an increase in the number of qualified certificates for electronic signature issued. The increased interest is due, on the one hand, to the possibility of remote signing with a qualified electronic signature and the issue of short-term qualified certificates for qualified electronic signature and, on the other hand, to the development of the financial sector and the remote access to the services it offers. Last but not least, the development of electronic administrative services in the public sector plays a big role for the increased number of qualified electronic signature certificates issued and used, as well as for qualified electronic time stamp.

Summarised data on the trust services provided in the last four years is presented in Table 19.

Table 19

Trust service	2021	2022	2023	2024
	number	number	number	number
Issued qualified certificates for electronic signature	**1,002,763**	**1,395,881**	**1,888,322**	**2,870,764**
Issued qualified certificates for electronic seal	**167**	**189**	**267**	**406**
Issued qualified electronic time stamps	**219,610,192**	**526,426,850**	**855,553,914**	**1,068,614,164**
Issued qualified certificates for website authentication	**234**	**318**	**309**	**298**
Issued electronic evidence for qualified validation of electronic signature/seal	**2,233,080**	**2,399,804**	**2,138,936**	**956,332**
Qualified electronic signature/seal storage service	**7,064**	**189,864**	**223,010**	**241,098**
Issued electronic evidence of a qualified service for an electronic registered mail	**218,802**	**503,163**	**861,461**	**625,127**

2.4. Communications control

During the communications control and monitoring carried out in 2024 regarding compliance with the LEC and the secondary legislation requirements in the area of electronic communications on the territory of the Republic of Bulgaria, CRC focused on protecting the interests of end-users in accordance with the principles of legality, equality and transparency.

CRC carries out effective control on the compliance with the requirements of the Law on Electronic Communications and the regulations in the field of electronic communications. For the fulfilment of its control functions, the Commission has built a territorial structure - a central unit in the city of Sofia and five administrative units in the cities of Vratsa, Veliko Tarnovo, Varna, Burgas and Plovdiv.

2.4.1. Monitoring and control of the radio frequency spectrum for civil needs

CRC carries out its main activities for monitoring and control of the RFS for civil needs through the established and continuously developing NRFSMS.

The regular preventive monitoring of the spectrum from the radio monitoring stations of NRFSMS ensures appropriate conditions for the provision of electronic communications to the lawful spectrum users and guarantees a certain quality of services provided through them to end-users.

On the other hand, the need for sufficient free spectrum is increasingly deepened by the introduction of new technologies and the continuous improvement of electronic communications, which is also essential for the development of competition in the sector.

To ensure the normal operation in the constantly increasing workload of the spectrum, it is necessary to carry out continuous monitoring and control in order to timely locate and eliminate the sources of interference and identify illegal radio broadcasting means.

With the development of modern technologies and the continuous improvement of electronic communications, the number of users of services provided through the use of RFS is constantly increasing and the essential role of monitoring and control in its effective management is also growing.

In 2024, the main activities in the area of RFS monitoring and control were:

2.4.1.1. Protection of the interests of end-users

A main task of the performed preventive and follow-up monitoring and control of RFS is to set up conditions for the normal work of lawful users of frequency spectrum for civil needs; guarantee a certain quality of services provided to end-users, as well as prevent the occurrence of illegal broadcasting.

In 2024, as a result of regular scheduled monitoring, the undertakings were provided electronically with results for 8,088 measurements from the conducted monitoring of the main technical parameters of radio transmission stations on the territory of the country.

In 2024, as a result of the preventive control, the steady trend towards maintaining the technical parameters of broadcast radio signals within norms and reducing the generated out-of-band and intermodulation emissions, including in the range of the aeronautical service, was preserved.

2.4.1.2. Control regarding conformity with the rules for the use of radio frequency bands for civil needs

Throughout the year, daily scheduled monitoring in the 20-3000 MHz frequency band was carried out through the fixed (manned and unmanned) radio monitoring stations from the NRFSMS on the territory of their serviced zones, and through the mobile radio monitoring stations – periodic control and monitoring on the territory of the whole country.

On the territory of the cities of Sofia, Plovdiv, Burgas, Varna, Veliko Tarnovo, Pleven, Shumen, Stara Zagora, Targovishte, Lovech, Kazanlak, Yambol, Sliven, and Gabrovo, the monitored frequency band was expanded to 6 GHz through the new fixed stations of the "compact radio monitoring systems" type.

2.4.1.3. Monitoring and control of the conformity of the established broadcasting stations for analogue terrestrial broadcasting of radio signals and digital terrestrial broadcasting of television signals with the approved technical parameters

- ***by CRC decisions*** – measurements of basic technical parameters of 67 transmission stations for analogue terrestrial radio broadcasting of radio signals and digital terrestrial television broadcasting for fulfilment of CRC decisions and for assessment of their compliance with the approved technical characteristics were carried out. Only one of the inspections found non-compliance and gave instructions for bringing a transmission station in compliance, where the subsequent inspection found that the undertaking had taken the necessary measures to bring the transmission station in compliance.

- ***Compliance with the conditions of the issued authorisations*** - in two of the performed measurements of basic technical parameters of transmission stations for terrestrial analogue broadcasting of radio signals, a deviation of the technical parameters for which prescriptions were given was observed. During the follow-up inspections, it was found that both prescriptions given had been fulfilled.

2.4.1.4. Monitoring for evaluation of the electromagnetic environment

- ***VHF frequency ranges for radio and television broadcasting for evaluation of the electromagnetic environment and cross-border interferences***

In 2024, special attention was paid to the monitoring in the VHF frequency bands for radio and television broadcasting in the border areas of the country for evaluation of the electromagnetic situation and cross-border penetration from neighbouring countries of the Republic of Bulgaria. On the territory of 33 (thirty-three) settlements, specialised measurements were carried out to evaluate the electromagnetic situation and register cross-border penetration from the territories of the neighbouring countries. The results were summarised and documented in the prepared 294 measurement reports. All data obtained from the measurements were analysed for compliance with the protection ratio between the EMF intensity of broadcasting transmission stations (under Rec. ITU-R BS.412 and ITU-R BT.1368 of the International Telecommunication Union (ITU). The electromagnetic environment and cross-border penetration on the Bulgarian Black Sea coast was carefully monitored during the summer months when the penetration due to the influence of the environment (air temperature, sea water temperature and the state of the sea surface) is intensified.

To evaluate the electromagnetic situation in support of spectrum management, in 2024, measurements were also carried out in 23 (twenty-three) settlements from the interior of the country, included in 305 measurement reports.

- ***Monitoring of frequency ranges intended for mobile PMR networks*** - evaluation of the actual RFS occupancy and registration of illegal broadcasting.

On the territory of 25 settlements, through the radio monitoring stations (fixed and mobile), monitoring of frequency ranges intended for mobile PMR networks was conducted, and the results were summarised in 296 measurement reports**.**

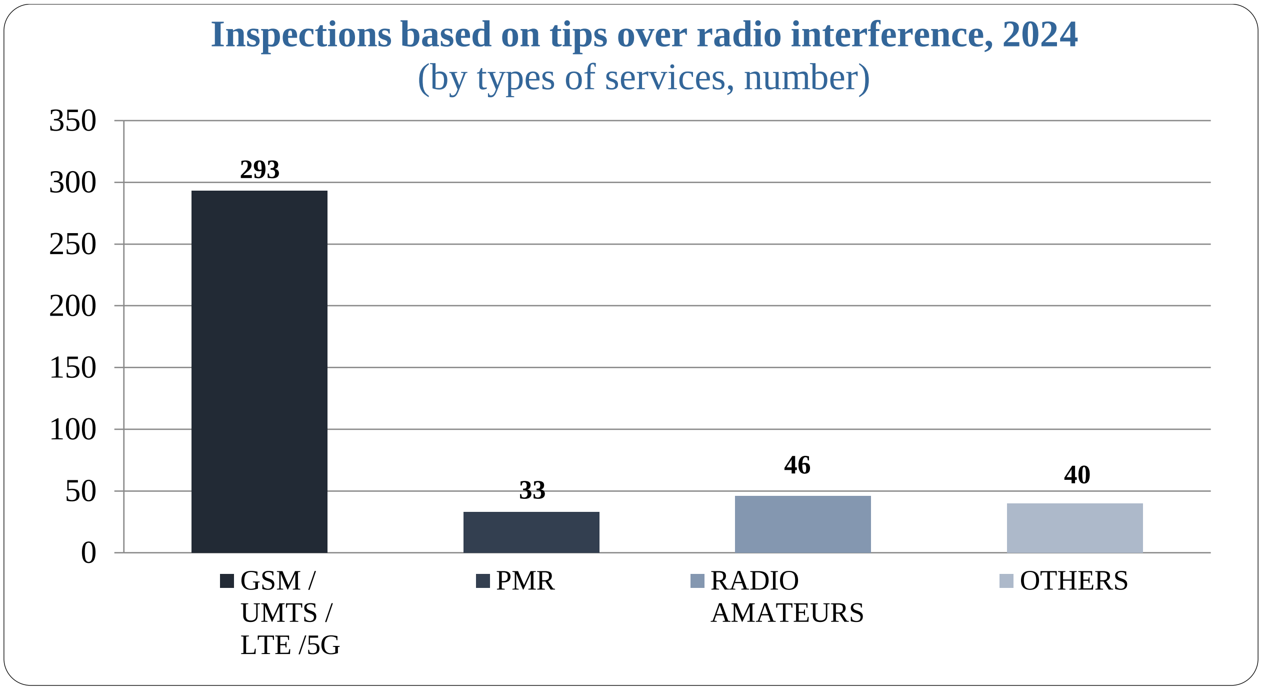
- ***Evaluation of the electromagnetic compatibility of VHF/FM radio broadcasting stations in the 87.5-108.0 MHz band and the radio navigation and communication equipment of the aeronautical services operating in the 108.0-137.0 MHz frequency band.***

In order to ensure electromagnetic compatibility and trouble-free operation of the radio navigation and communication equipment of the aeronautical services, 18 (eighteen) measurements were carried out on 12 (twelve) radio transmission sites according *to the Methodology for measurement of intermodulation products of type "A1", obtained when operating at nearby VHF radio transmission stations*.

2.4.1.5. Monitoring and control over the quality of provided services with a view to the protection of public and end-user interest

- ***Monitoring with regard to tips over radio interference received*** from lawful spectrum users, citizens, organisations and agencies;

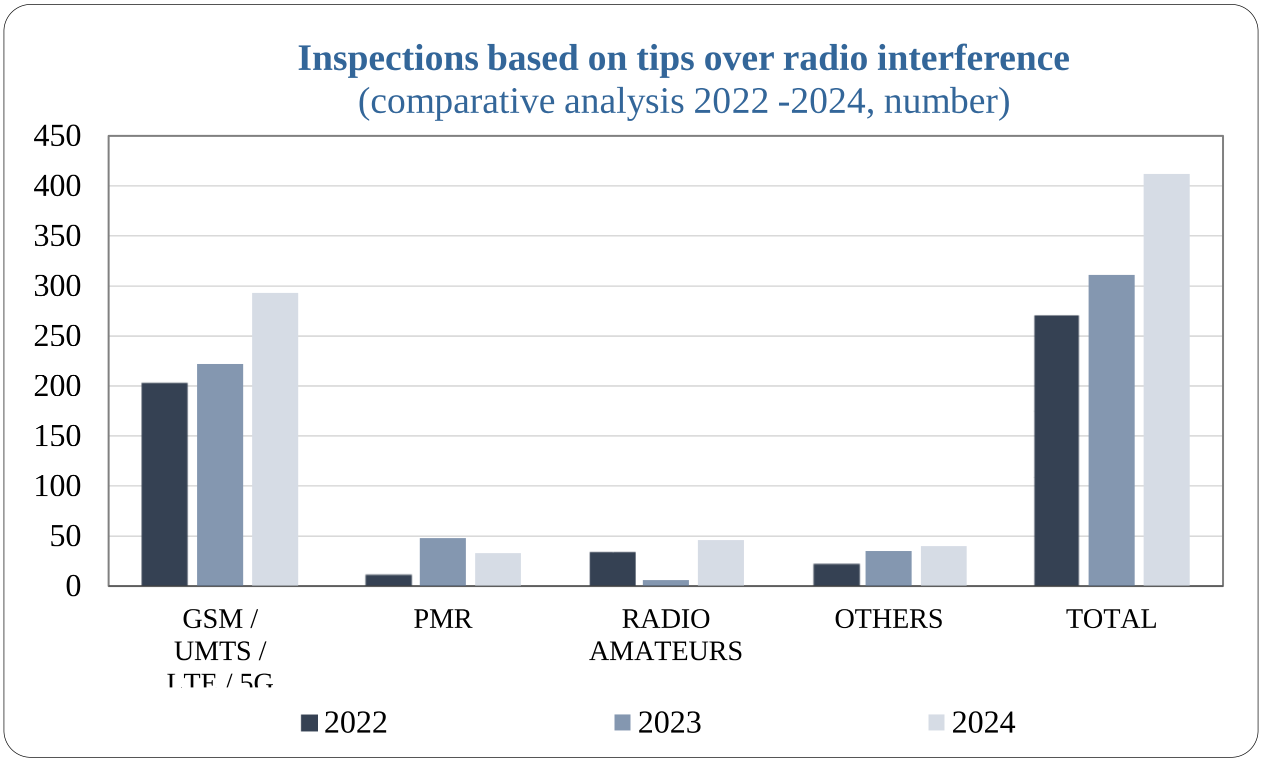
In 2024, 269 (two hundred sixty-nine) cases of radio interference were investigated and 412 measurement reports were drafted for the results (Figure 50). The necessary measures for quick localisation and elimination of interfering sources were timely undertaken. The interferences from GSM/UMTS/LTE/5G repiters transmitting in frequency ranges intended for public electronic communications through mobile terrestrial networks had a relatively high share in 2024 as well. They are followed by cases of detected interference transmissions from short-range RFID devices (operating according to the US standard) and defective (domestic and network) radio equipment. Interference transmissions resulting from the use of jammers were also registered.



Source: CRC

Figure 50

A comparative analysis of the studied cases of interference in connection with inspections related to the received tips, by types of services for the period 2022-2024, is presented on Figure 51.



Source: CRC

Figure 51

▪ ***Monitoring and inspections with relation to tips received regarding coverage provided by mobile terrestrial networks, terrestrial digital television networks under the DVB-T standard;***

In 2024, 101 (one hundred and one) tips concerning problems with the coverage from mobile terrestrial networks, DVB-T terrestrial digital television networks were investigated, and 320 measurement reports were drawn up for the results:

– coverage of ***mobile terrestrial networks*** - in connection with 86 (eighty-six) tips received for lack of coverage of mobile terrestrial networks (GSM/UMTS/LTE/5G), in 2024, an analysis of the declared coverage was made and the necessary measurements were carried out, documented in 303 measurement reports; scheduled measurements of the ensured coverage and quality of the provided GSM/UMTS/LTE/5G mobile terrestrial networks in 38 settlements and 11 routes from the Republican road network were carried out, and the results were included in 192 measurement reports;

– coverage of ***terrestrial digital television under the DVB-T standard*** - in connection with received 15 (fifteen) tips, inspections and measurements were carried out on the territory of the country, included in 17 (seventeen) measurement reports; scheduled inspections of the coverage and quality of the services provided by DVB-T networks were also carried out and the results were included in 58 measurement reports;

The results of the monitoring and control of the RFS carried out in 2024 are summarised in a total of 5,444 measurement reports, as 3,920 measurement reports were drawn up for the conducted scheduled monitoring, with data from the conducted monitoring by the fixed and mobile radio monitoring stations of the NRFSMS on the territory of the whole country.

2.4.2. Inspection activity

In 2024, in connection with the CRC's control functions related to electronic communications provision pursuant to the LEC, 2,582 inspections were carried out.

In 2024, the main focus was again on compliance with the requirements of the LEC in terms of ***protection of the interests of end-users***, as the more important groups of inspections carried out in connection with tips received from users of electronic communications services are as follows:

- ***problems with the use of mobile roaming services*** – in 2024, a significant increase in the received tips regarding problems with the use of mobile roaming services was observed – 160 inspections were carried out (by about 43% more than in 2023) in connection with tips received over problems with mobile roaming services; 3 (three) administrative offence acts were drawn up for the violations found during the inspections.

- ***compliance with the requirements of Chapter 14 of the LEC*** concerning the contracts signed with undertakings providing electronic communications services:

  – ***dispute of bills and charged penalties*** - in 2024, there was an increase in the number of tips received in connection with disputed bills and charged penalties in using mobile services - a total of 40 inspections were carried out (by about 48% more than in 2023).

  – ***prices of the services offered*** – in 2024, there was a certain decrease in the tips received in relation to price packages or tariffs (and terms of their use), details of individual contracts offered, unilateral amendment of contracts by undertakings, general terms and conditions of individual contracts, etc. – 133 inspections were carried out (by about 20% less than in 2023);

For ascertained violations of Chapter 14 of the LEC, in 2024, 4 (four) administrative offence acts were drawn up.

In 2024, the majority of inspections on incoming consumer tips continued to be related to problems with the use of mobile roaming services and problems with contracts signed with undertakings.

- ***compliance with the requirements of Chapter 15 of the LEC*** on confidentiality of communications and data protection of users – 62 inspections were carried out (by about 47% less inspections since 2023):

  – ***sending of unsolicited messages for the purposes of direct marketing and advertising without the prior consent of the users*** as well as problems in the use of value-added services - amounts charged when registering in games, quiz games, purchase of information and entertainment contents and other Information Society Services - 55 inspections were carried out (by about 36% less than in 2023).

In connection with the inspections carried out in 2024 for compliance with Chapter 15 of the LEC, 3 (three) administrative offence acts were drawn up for the violations found.

▪ ***quality of the services provided*** - problems with the quality of services provided, non-provision of services, provision of and quality of the universal voice service, speed of fixed Internet, failures, etc. – 106 inspections were carried out (by about 57% more than in 2023). One administrative offence act was drawn up for non-provision of the “universal voice service”.

▪ compliance with ***the General requirements for carrying out public electronic communications*** – 188 inspections were carried out, 181 of them were inspections of undertakings ***that have not provided information*** or have provided incomplete or inaccurate information to CRC about their activities in 2023, or about their activities related to Internet access provision.

In connection with ascertained violations regarding compliance with the general requirements for carrying out public electronic communications, 9 (nine) administrative offence acts were drawn up.

▪ problems in carrying out ***number portability*** in case of change of the telephone service provider - in 2024, 51 inspections were carried out (by about 8% more than in 2023). For violations of the *Functional specifications for portability of nationally significant numbers*, 5 (five) administrative offence acts were drawn up.

In 2024, the major share (about 87%) of the inspections on consumer tips received by the Commission were carried out on the three largest undertakings providing electronic communications services (Figure 52). A total of 579 inspections were carried out in relation to consumer tips from end-users concerning the services they offer, as follows: Vivacom – 243 inspections, A1 – 189 inspections, and Yettel – 143 inspections.

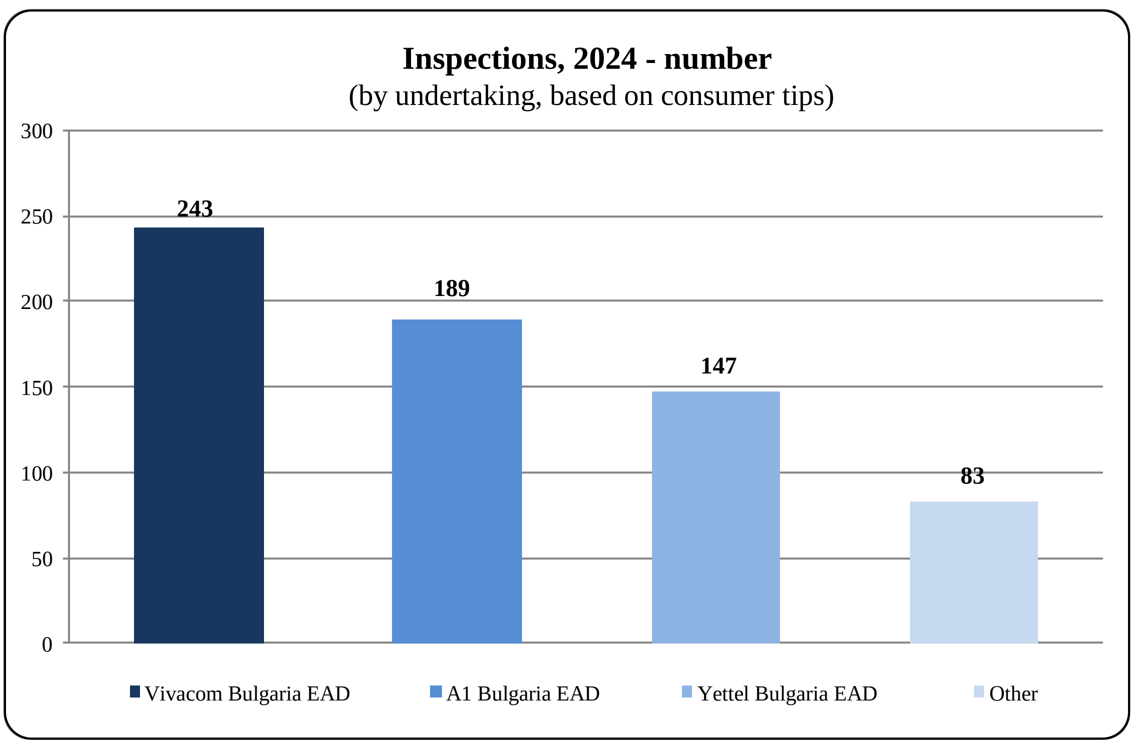


Figure 52

In 2024, 377 inspections (about 14%) were defined on the basis of *risk analysis* – scheduled inspections regarding the provision of electronic communications by undertakings that have submitted notifications to CRC to terminate their activity, inspections regarding the performance of activity after terminated authorisations or expired authorisations, inspections of coverage and quality of DVB-T networks and mobile terrestrial networks, inspections of mobile undertaking's base stations for compliance with the Register of transceiver stations and mobile access points. During the scheduled inspections, no violations of the LEC were found, defined on the basis of a risk analysis.

A total of 178 inspections were carried out ***for compliance with the conditions of the authorisations and decisions of CRC***, compliance with specific obligations and inspections of electronic communications networks for terrestrial analogue broadcasting for compliance of the transmission stations with the technical characteristics approved by CRC, for compliance with prescriptions given. No violations of the LEC were found during the inspections.

In 2024, inspections were carried out of 7 (seven) undertakings providing electronic communications services for compliance with the *Rules for minimum security requirements for public electronic communications networks and services and methods for managing the risk to their security*. During the inspections, the undertakings provided materials and evidence of the security measures they had taken in accordance with Appendix 1 of the Rules for minimum security requirements for public electronic communications networks and services and methods for managing the risk to their security.

Scheduled inspections were carried out on 18 undertakings providing Internet access and distribution of radio and TV programmes services concerning the services provided, the network architecture, and the networks and services provided. No violations of the LEC were found during the inspections.

In connection with Council Regulation (EU) No 833/2014 of 31 July 2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, namely prohibition on the distribution of Russian television programmes, in 2024, 90 scheduled inspections and 2 inspections based on the tips received by CRC were carried out to undertakings providing the *"distribution of radio and TV programmes"* services, where no violations for the provision of prohibited TV programmes were found.

In 2024, inspections were conducted on the actual coverage and quality of mobile services provided in 15 settlements in the Veliko Tarnovo Municipality: village of Natsovtsi, village of Hotnitsa, village of Rusalya, village of Vaglevtsi, village of Gabrovtsi, village of Voneshta Voda, vilalge of Novo Selo, village of Vetrintsi, village of Ledenik, village of Momin Sbor, village of Plakovo, village of Tserova Koria, village of Emen, village of Balvan, and village of Shemshevo, and in 2 settlements in the Kaynardzha Municipality: village of Kaynardzha and village of Zanik. Measurements and inspections of the three mobile undertakings – Vivacom, A1, and Yettel - were carried out for the following:

- the actual coverage and quality of the mobile services provided in certain settlements through the terrestrial networks;
- comparison of the coverage actually provided with the coverage declared by the undertakings on their websites;

- registration of the constructed base stations (BS) in the Register of transceiver stations and wireless access points of CRC (the Register), providing coverage of the inspected settlements;
- backup power provided to each of the randomly inspected BS.

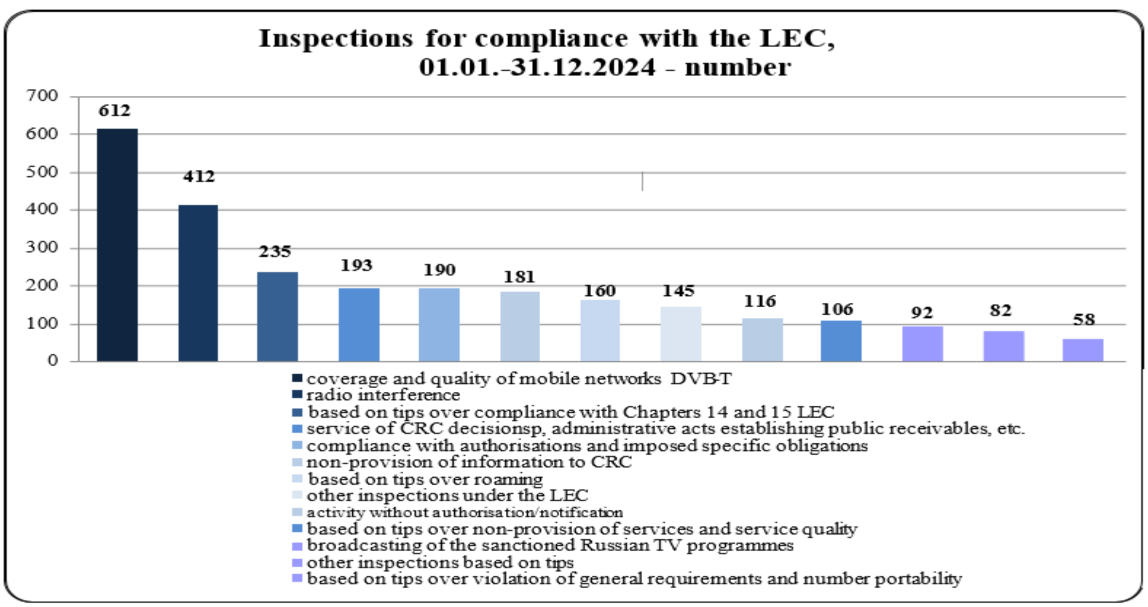
A comparative analysis was prepared to compare the declared coverage with the coverage actually established through the measurements. Mobile undertakings were required to take action to improve the coverage and quality of the mobile services provided through their networks.

In 2024, inspections were carried out on the availability and occupancy of the duct network of Vivacom and 7 other undertakings. The inspections were carried out at the undertakings' head offices and randomly selected cable pits were inspected as follows:

- of Vivacom - in the village of Arbanasi, city of Aheloy, city of Krivodol, city of Plovdiv, city of Sofia (Lyulin residential district), and village of Shkorpilovtsi;
- of A1 and Bulsatcom - in the city of Sofia and in the city of Plovdiv;
- of Cable Active OOD- in the city of Kyustendil;
- of MSAT Cable EAD - in the city of Varna;
- of Skat TV OOD and Com Net EOOD - in the city of Burgas;
- of Digital Cable Corporation OOD- in the city of Plovdiv.

In connection with the authorisations issued to mobile undertakings in the 26 GHz range, inspections were carried out of A1, Yettel, and Vivacom regarding their obligations to build and put into service at least 15 base stations within 2 years from the date of entry into force of the authorisations.

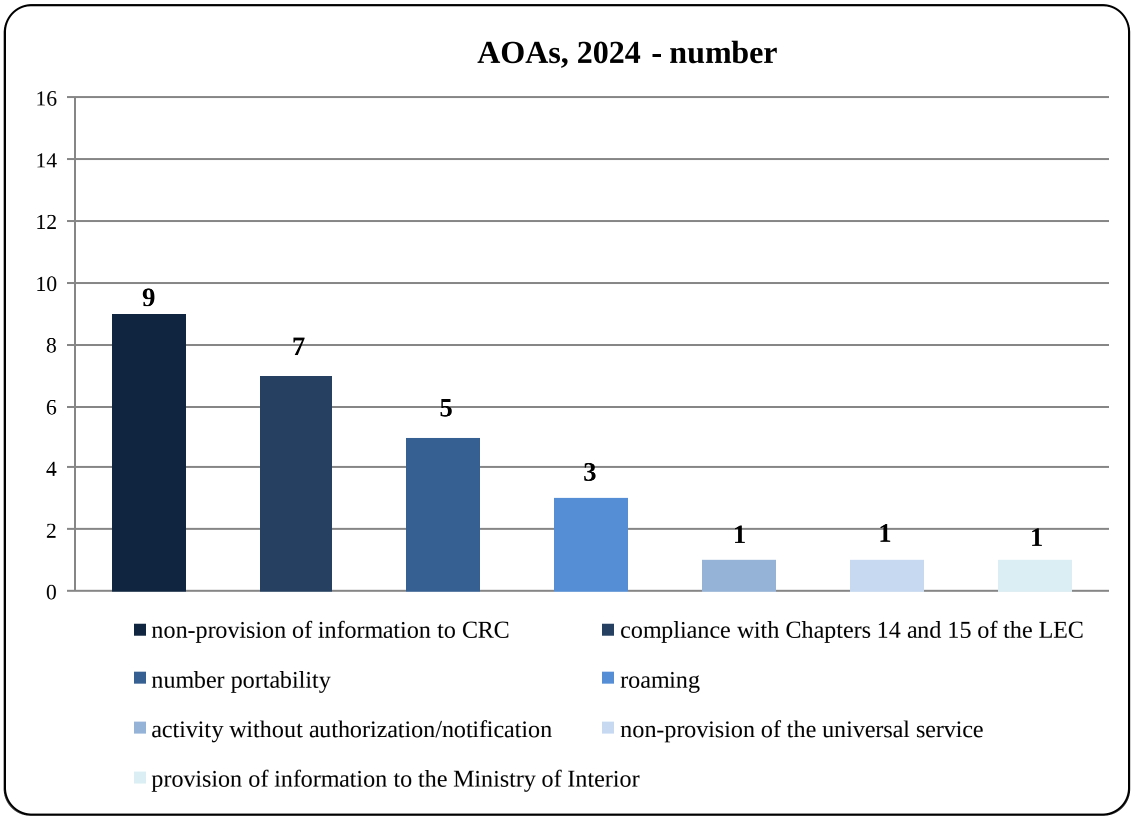
Summarised data for the performed control activity and the engaged administrative and punitive liability in offences of the LEC and secondary regulations in 2024 are displayed in Figure 53 and Figure 54.



Source: *CRC*

Figure 53

As a result of the inspections, for the administrative offences of the LEC found, ***27 administrative offence acts*** were drawn up in 2024, as the main share (63%) was held by non-provision of information to CRC and for non-compliance with Chapters 14 and 15 of the LEC.



Source: *CRC*

Figure 54

2.5. Quality of the Internet access and net neutrality service

According to Regulation (EU) 2015/2120 on open Internet (the Regulation), providers of Internet access service to end-users are subject to obligations contained in Articles 3 and 4 of the Regulation.

In order to verify the fulfilment of these obligations, CRC annually collects and processes information about the activity of the providers of electronic communications services (ECSs) providing Internet access service (IAS) at retail level, received through the electronic system for on-line filling in of CRC questionnaires. These providers are obliged to provide information, in accordance with the requirements of the Regulation, on the measures they apply to ensure access to open Internet and net neutrality, as well as on the quality of the services they provide.

The undertakings that provided IAS at retail level in 2024 were 612. The analysis of the information received from these undertakings regarding the fulfilment of the requirements of Articles 3 and 4 of the Regulation shows that the requirements of the Regulation have been met, as:

- they do not implement network traffic management measures that include blocking or delaying certain categories of users, application/content, ports or protocol, save for the cases defined as exceptions in accordance with Article 3 of the Regulation;
- they do not dedicate capacity and/or manage traffic to ensure the quality of their own content/services or of a contracted content provider;
- quality parameters, traffic management measures and information under Article 4 of Regulation (EU) 2015/2120 for the majority of undertakings are contained in their General Terms and Conditions, in contracts with end-users or are contained in a separate document on their website;
- contracts with end-users do not contain restrictions on the services they use.

In addition, in connection with the possibility of applying traffic management measures pursuant to Article 3, paragraph 3 of the Regulation and applying national legislative acts, CRC has notified the undertakings of the National Revenue Agency’s additional instructions to restrict the access to gambling and implement Article 17, paragraph 6 of the Gambling Act.

During the year, CRC has monitored and maintained the functioning of the Mechanism for measuring and monitoring of the quality parameters of IAS (the Mechanism), which has been available to end-users since 2023. It provides the ability to measure the parameters of fixed Internet access - through the public portal **nettest.crc.bg,** and of mobile Internet access - through the **CRC Network Quality** application, available in Google Play and the App store. In 2025, a smaller number of measurements were conducted compared to the previous year - a total of 974 successful measurements for fixed and mobile networks. The measurements conducted on fixed Internet access at a fixed location were 583, in 22 districts of the country. The most measurements were made in the capital and in the big cities - Varna, Plovdiv, etc. The measured values of download speed were in a large range - from several Mbit/s to almost 1 Gbit/s. These data show that the Mechanism is used as a means of measuring both problems with the service provided and for monitoring the quality of service in accordance with the subscription plan used.

In many cases, when considering complaints filed with CRC over the quality of the service used, in its replies to the complainants, the Commission provides information about the existing Mechanism and refers them to the relevant links on the CRC’s website, where they can get acquainted with the conditions for carrying out measurement of the quality parameters and other useful information.

During the year, no complaints were received based on the results of certifield loop mode measurements that allowed for legal protection.

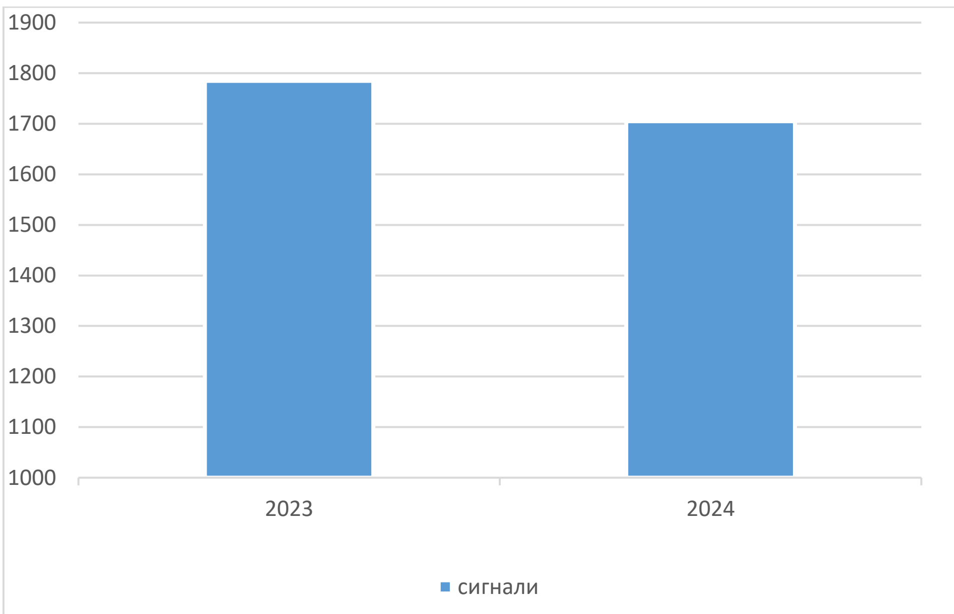
Outside the activities under Regulation (EU) 2015/2120, activities related to Regulation (EU) 833/2014 concerning restrictive measures in relation to Russia’s actions destabilising the situation in Ukraine were carried out. All undertakings holding a registration in a Register of persons who have notified the Commission of their intentions to provide a public electronic communications service were notified in due time of the amendment and supplement to the Regulation made in 2024, which entered into force on 25.06.2024, which extended the list of entities creating television programmes referred to in Article 2f, which are subject to sanctions and a ban on their broadcasting and distribution.

2.6. Protection of the interests of the electronic communication services users

In 2024, CRC received 1,705 complaints from end-users of electronic communication services within the meaning of Chapter 14 of the LEC. To compare with, in 2023, the number of complaints was 1,785. For yet another year, there is a decrease (in this case, by nearly 5%) in the tips submitted in 2024 compared to those received by the regulator in 2023. This is due both to the active preventive actions of CRC against the service providers and to the follow-up control for the fulfilment of the legal requirements under Chapter 14 of the Law on Electronic Communications (LEC).

Most of the complaints (the trend of previous years continues) concern dispute of bills, charging of digital content (information, entertainment and other services for access to paid content), unilateral amendment of contracts, termination of contracts for electronic communications services, and the use of "accidental roaming" (border roaming on the territory of the Republic of Bulgaria).

Tips received by CRC, 2023 and 2024



Source: **CRC**

Figure 55

Most of the tips received during the year concern issues that are beyond the control and regulatory powers of CRC. In such cases, the regulator acts as a mediator and refers the dispute to the relevant provider with the aim of reaching an out-of-court settlement within a short timeframe. In the framework of this procedure, most of the disputes brought before CRC were resolved in whole or in part in favour of the consumer concerned: the disputed amounts were returned, the concluded contract was terminated without penalties or transformed into open-ended ones, the unsolicited services were deactivated, the affected users were granted discounts and other preferences such as compensation, etc.

In connection with the complaints received in 2024 against one of the mobile operators concerning a planned unilateral increase in retail prices, CRC carried out an inspection[63] of the undertaking for compliance with Articles 230, paragraphs 2 and 3 and Article 230d LEC, with the applicable General Requirements for the provision of public electronic communications, as well as with the functional specifications for number portability under Article 134, paragraph 3 LEC.
During the inspections, it was found that no violations of the LEC were committed. Also, the undertaking has followed the procedure for prior notification of consumers, as set out in Article 230 LEC.

Pursuant to Article 194, item 1 Law on Consumer Protection (LCP), the results of the CRC's inspections were sent to the Commission for Consumer Protection in order to assist its assessment as to whether the LCP allows such unilateral price change on part of the trader.

A number of signals have been forwarded to other state control bodies, according to their competence and in compliance with Article 112 Administrative Procedure Code.

In the past year, CRC representatives held a total of three work meetings with representatives of mobile undertakings. During the meetings, the following issues were discussed:

- the information introduced by the undertakings in their tariff plans in the Tariff Comparison Tool maintained by CRC;
- fulfilment of Article 13, paragraph 6 Roaming Regulation;
- the protection of end-users in the event of disturbing/unwanted calls;
- the time limits for the elimination of faults and failures in the providers' networks and facilities, as stipulated in the general terms and conditions;
- the procedures for the termination of individual contracts by the undertaking in the event of late payment of invoice obligations, in accordance with the applicable general terms and conditions;
- fulfilment of Article 8, paragraph 2, subparagraph 1, second sentence of Regulation (EU) 2022/612 on roaming on public mobile communications networks within the Union;
- discussion of the results of the ongoing inspections on the coverage of the undertakings' mobile networks, with a view to ensuring quality services to end-users.

Cooperation with the Commission for Consumer Protection

There is a shared competence between CRC and the Commission for Consumer Protection (CCP) regarding a number of issues related to consumer protection in the area of electronic communications services. In this regard, in 2024, the Chairmen of the Commission for Consumer Protection and the Communications Regulation Commission signed a Memorandum of Cooperation and Joint Action[64].

The Memorandum aims at improving the effectiveness of interaction between the two commissions, ensuring a higher level of consumer protection, strengthening the good practices for exchange of information and experience between CRC and CCP, as well as, if necessary, carrying out joint inspections by both authorities. The parties also agreed to cooperate against unfair commercial practices within the meaning of the Law on Consumer Protection, the violated right of information, and unilateral change in contracts.

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[63] https://www.crc.bg/bg/novini/1655/komisiqta-za-regulirane-na-saobshteniqta-zapochva-proverka-na-mobilni-predpriqtiq-zaradi-promqna-v-cenite-na-uslugite-im

[64] https://www.crc.bg/bg/novini/1626/komisiqta-za-regulirane-na-saobshteniqta-i-komisiqta-za-zashtita-na-potrebitelite-shte-rabotqt-savmestno-sreshtu-neloqlnite-targovski-praktiki

Tips related to distance contracts, unfair trade practices, removing unfair contract clauses, charging of unsolicited services, information services, digital content, etc., have been referred to the Commission for Consumer Protection with a view to its competence pursuant to the Law on Consumer Protection.

In 2024, CRC and CCP continued their joint work in the framework of the work of the Sectoral Conciliation Committee for the consideration of disputes in the field of electronic communications, established with the provision of Article 182, paragraph 4 Law on Consumer Protection.

Legal representation in cases of CRC

In 2024, procedural representatives of CRC participated in 72 meetings on administrative/administrative-criminal cases before the regional and administrative courts of the country.

During the year, 21 confirmatory decisions on contested penal decrees of CRC were issued, while the number of revocation decisions was 5.

According to the individual administrative acts issued by CRC, 8 complaints were filed before the administrative courts. During the year, 4 CRC decisions were confirmed in full, and 2 were confirmed partially.

2.7. Activities under the Law on Electronic Communications Networks and Physical Infrastructure (LECNPI)

In 2024, 5 procedures under the LECNPI were finalised, another 5 procedures for the giving of binding instructions and 1 procedure for assistance in voluntary dispute resolution under the LEC were started and conducted.

The most important decisions of CRC were related to disputes under the LECNPI, which concern requests for giving binding instructions for providing access to and use of poles – part of the low-voltage overhead network of ELEKTRORAZPREDELENIE YUG EAD, and CRC gave binding instructions for compliance with the procedures for granting access / respectively, removal of electronic communications networks located on the pole network of the electricity distribution company. Another decision under the LECNPI concerned setting prices for access to and/or sharing of the passive infrastructure of VIVACOM BULGARIA EAD, where CRC considered that there were no grounds for giving binding instructions.

IV. BUDGET

CRC budget implementation for 2024

The Commission Chairman is a primary budget administrator pursuant to Article 50 LEC. Pursuant to Article 38, paragraph 1 Law on State Budget of the Republic of Bulgaria (LSBRB) for 2024, CRC was allocated with:

- revenue in the amount of BGN 253,335 thousand;
- expenses in the amount of BGN 15,466.3 thousand;
- transfers in the amount of BGN 237,868.7 thousand

The Commission administered revenue pursuant to Article 51, paragraph 1 LEC.

In 2024, the revenue earned from fees, fines, financial sanctions and interest amounted to BGN 179,633.3 thousand - 71% of the annual plan.

In June 2024, revenue of BGN 104,8 million was reported from one-off fees for the extension of two authorisations for the use of radio spectrum in the 900 and 1800 MHz bands. The reason for the non-implementation of the revenue part of the Commission's budget is the difference in the planned 20-year period of the above authorisations while the undertakings have requested and have been granted by the Commission 10 years for the use of a scarce resource.

In 2024, revenue from one-off fees amounting to BGN 19.95 million were reported from the provision of additional radio spectrum in the 1800 MHz band.

In 2024, a total of 7 adjustments were approved to the expenditure part of CRC's budget, bringing the updated annual plan to BGN 32,258.7 thousand. Of these, BGN 31,319.7 thousand were reported, which represents 97% implementation of the updated annual plan.

In 2024, transfers were made to the Ministry of Transport and Communications and the Ministry of Electronic Governance, amounting to BGN 214,081.8 thousand and BGN 23,786.9 thousand, respectively. - the total amount of transfers provided was BGN 237,868.7 thousand, which makes up 100% of the regulated level in Article 38, paragraph 1, Article 25, paragraph 1, and Article 26, paragraph 1 LSBRB for 2024, in implementation of Article 19, paragraph 1 LEC.

Review of fees collected and administrative costs incurred in 2024

The structure of revenue from fees under the CRC budget for 2024 was as follows:

Table 20

Revenue from fees	Value (BGN'000)
Revenue generated for 2024, incl.:	179,394.9
- one-off fees under the LEC	125,852.0
- one-off fees under the PSA	0.3
- one-off fees under the Spatial Planning Act	8.6
- one-off fees under the LECNPI	5.4
- administrative fees under the LEC, including: administrative annual charge on control under the LEC one-off fees for administrative services under the LEC	5,347.1 5,319.6 27.5
- administrative annual charge on control under the PSA	751.8
- annual fees for use and temporary use of radio spectrum	41,895.7
- annual fees for the use of the positions on geostationary orbit with the appropriate radio frequency spectrum	156.8
- fees for the use of numbering resources	5,377.2

Additionally earned revenues from fees, sanctions and interest in the amount of BGN 61.5 thousand.

In connection with the enforcement of acts for the establishment of public state receivables to be collected and enforced punitive decrees, revenues in the amount of BGN 21.7 thousand were collected in 2024 by NRA.

The funds in the expenditure part of the Commission’s budget, determined in the LSBRB for 2024 and the Ministerial Decrees on additionally provided funds to the Commission’s budget for 2024 were spent on financing the activities of CRC and its administration, including projects and studies, analyses and expert opinions related to market regulation and liberalisation, for participation in the work of the Body of European Regulations for Electronic Communications and to ensure effective and efficient control.

The Commission's expenditure structure for 2024 was as follows:

Table 21

Type of expenses	Value (BGN’000)	Share (%)
1. Salaries	9,496.6	30.3
2. Social security contributions	2,545.0	8.1
3. Other remunerations and payments	215.8	0.7
4. Operative costs	2,820.4	9.0
5. Taxes and fees paid	41.8	0.1
6. Membership fee	114.1	0.4
7. Capital expenditure	16,086.0	51.4
Total expenditure:	31,319.7	100

According to Section B "Expenditure", Group I "Current Non-Interest Expenditure", item 3 of the CRC’s Profit and Loss Statement for 2024, the amount of the allowances for depreciation for 2024 was BGN 3,657 thousand. The amount of expenditure in Section B "Expenditure and Acquisition of Non-Financial Assets", Group I "Payments for Current Non-Interest Expenditure" of the Cash Fulfilment Statement for 2024 of CRC, was BGN 15,234 thousand.

The amount of the administrative expenses of CRC for 2024, within the meaning of Article 139, paragraph 1 LEC, is greater than the collected administrative fees. This difference, on the basis of Article 53, paragraph 1 LEC, leads to the need to increase the amount of the administrative annual charge on control.

The budgetary funds spending was carried out in strict compliance with the financial discipline and the principles of legality, appropriateness, effectiveness and efficiency. Projects assigned to CRC by regulatory acts were implemented of priority.

The investment policy of CRC in 2024 included:

- ICT projects - supply of computer, UPS and communication equipment;
- Continuing the project for construction of the building of a laboratory for electromagnetic compatibility for testing and control of radio electronic equipment. The laboratory will allow supervision and control of the radio electronic equipment distributed on the market and used in Bulgaria for verification of its compliance, as required by Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member

States relating to the making available on the market of radio equipment and Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility;

- Equipment of the National Radio Frequency Spectrum Monitoring system (NRFSMS) – supply of specialised measuring equipment for NRFSMS; upgrade of measuring equipment and antenna systems of fixed stations for radio monitoring by NRFSMS;
- Intangible fixed assets - system for formation of postal codes in the Republic of Bulgaria, upgrade of the Information system, ensuring the activities of registration on transceiver stations of terrestrial networks and upgrade of information systems owned by the Commission.

CONCLUSION

Based on the foregoing, we can note that 2024 was another year of challenges during which the Commission took consistent and targeted actions to improve the regulatory framework, promote competition, protect consumers, create the conditions for the development of the telecommunications sector and the promotion of a stable, competitive, and technologically advanced telecommunications environment.

At the end of the reporting year, CRC developed and adopted a new Strategic Plan for its activities for the period 2025–2028, with a clearly defined mission and objectives, following its vision of establishing itself as a modern and highly efficient state regulatory authority, through the continuous improvement of its regulatory and supervisory activities in response to the challenges of the constantly evolving communications environment, in order to contribute to the effective functioning of the Digital Single Market.

In 2025, in compliance with the national and European priorities, CRC will continue the introduction in the Bulgarian legislation of European Commission (EC) decisions on harmonised use of radio spectrum.

Over the next one-year period, CRC is about to finally adopt an updated Regulatory policy for radio spectrum management for civil needs which will ensure predictable and transparent conditions related to its use.

With regard to the adopted Position on the prospects for the use of the free resource in the 1.5 GHz, 2.6 GHz, 3.6 GHz and 26 GHz frequency bands as a result of the public consultations carried out on the basis of the information provided by the undertakings on the development of terrestrial networks enabling the provision of electronic communications services and fixed radio service networks in the 26 GHz band, CRC will carry out an analysis on the need to continue the operation of the fixed radio service networks in the band and its allocation for 5 GHz networks entirely. Thus, conditions will be provided for the entry into the market of new technologies and services in the interest of end-users.

The Commission will continue its work in supporting the activities of exploring and studying the possibilities for the introduction of 6G, and, if free resource is available, it will issue temporary authorisations for the use of radio spectrum for a short-term project.

Another important priority in 2025 will be the introduction of the decisions of the World Radiocommunication Conference (WRC-23) in the Bulgarian legislation, and to this end, Commission’s representatives will participate in the interdepartmental working group on amendment of the National Radio Spectrum Allocation Plan.

In line with the current regulatory framework and the regulatory authority’s obligations to carry out an analysis of the state of the relevant market, the fourth review of the wholesale market for the provision of local access at a fixed location is due to be completed.

In fulfilment of its regulatory functions and its commitments to international organisations in the field of electronic communications, the Commission will continue the activities of collecting, processing and validating data on the development of electronic communications networks and/or services in the Republic of Bulgaria.

As a National Organisation for Standardisation of the European Telecommunications Standards Institute (ETSI), CRC will continue to conduct a public consultation on draft ETSI standards and to participate in voting on tasks assigned by the EC to ETSI for the development of new standards.

The Commission will also continue its work on the implementation of business and citizen-oriented information systems; to this end, the necessary public procurements will be conducted to ensure the maintenance of these systems and the upgrade of some of them next year. In view of the transition to Euro, the activities for testing and implementation of solutions aimed at adapting the information systems of CRC for processing of financial information in the new currency will continue.

Another important task, which is to be performed in 2025, is the completion of an EMC laboratory with specialised equipment for checking the radio devices for compliance with the regulatory documents related to EMC. This will allow for a wide range of tests to assess the conformity of products, in relation to the control of the product market with regard to EMC and the provision of conditions for favourable business environment and normal operation, without harmful interference, to the lawful users of radio spectrum.

The prepared Annual Report of the Communications Regulation Commission reflects the actual results achieved and the future goals set, taking into account the peculiarities of the economic environment in Bulgaria in line with the evolution of the European and international economic and social challenges and in line with the global trends in the development of the telecommunications and information technology sector. In this environment, as part of the global telecommunications community, the Communications Regulation Commission continues its mission and objectives to ensure an adequate regulatory environment and radio spectrum management policy in 2025 as well.