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# REPORT ON NET NEUTRALITY

- may 2019 to april 2020 -

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ANACOM

AUTORIDADE  
NACIONAL  
DE COMUNICAÇÕES

**Report on network neutrality**

**Application of articles 3 and 4 of Regulation (EU) of the European Parliament  
and of the Council of 25 November 2015**

**– May 2019 to April 2020–**



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## **1. Executive summary**

The report on network neutrality arises from the requirement laid down in article 5 of Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015<sup>1</sup> (hereinafter “TSM Regulation<sup>2</sup>”), which establishes measures concerning open internet access, amends Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services, and Regulation (EU) 531/2012 on roaming on public mobile communications networks within the Union.

This report reflects the oversight exercised by the National Communications Authority (hereinafter “ANACOM”), during the period from May 2019 to April 2020, pursuant to articles 3 and 4 of the TSM Regulation, with the ultimate aim of assuring open internet access.

Throughout the period under review in this report, ANACOM continued to analyse the zero-rating and similar offers, in order to assess and effects of this type of commercial practice in the open internet area, in particular on the rights of the end-users. As a result of the scale and complexity of these practices, the analysis is still underway.

On matters of transparency, ANACOM detected some flaws, namely in the information on transmission speeds provided in the contracts and on the websites of the providers of internet access services (hereinafter “PSAI”) with a larger presence in the market. In light of the above, in May 2019, ANACOM sent notices to these PSAI, advising on the necessity of compliance with the requirements related to the provision of the information, under the terms established by the TSM Regulation. Since then, ANACOM monitored the changes that were gradually implemented by the PSAI, following these notices and subsequent interactions between the Authority and the PSAI in question. By the end of the month of April 2020, all the providers had already adapted their websites, in general safeguarding the aspects indicated by ANACOM. The same occurred in relation to their contracts, with the exception of one PSAI, which had not yet finalised the changes in its contracts. This provider informed that it would complete these changes and deposit the new versions of their contracts at ANACOM during the month of June 2020.

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<sup>1</sup> The Regulation is available at <https://eur-lex.europa.eu/legal-content/PT/TXT/?uri=CELEX%3A32015R2120>.

<sup>2</sup> TSM stands for Telecoms Single Market.

ANACOM's measurement tool, NET.mede, for assessment of the quality of the internet access service (hereinafter "SAI") by the users, was optimised in 2019, with improvements having been made both in terms of the features of the tests, such as, in particular, the introduction of various new functionalities that simplified the use of the application (NET.mede app) and the reserved area (My NET.mede). ANACOM disclosed the renewal of the service at the end of January 2020.

At the same time, in 2019, ANACOM also resumed its studies on the evaluation and performance of mobile services and GSM, UMTS and LTE coverage, which include ascertainment of the quality of the internet access service in the mobile networks.

Cooperation actions have also been promoted, with a view to the exchange of knowledge and experiences, embodied in bilateral meetings with the National Regulatory Authority (hereinafter "ARN") of Brazil (ANATEL) and Slovakia (Teleoff). Notwithstanding these initiatives, ANACOM has closely followed the studies prepared by the ARN on the challenges posed in the context of the open internet, developing some reflection in this regard.

The last few months addressed in this report were marked by the Covid-19 pandemic, including the declaration of the state of emergency on 18 March 2020, which was enforced for 45 days, which had strong implications on the electronic communications sector, in particular on internet access services. This exceptional situation created new requirements for PSAI and a strengthening of ANACOM's monitoring and supervisory role.

## **2. Regulatory framework**

The TSM Regulation establishes the common rules concerning open internet access, with a view to ensuring equal and non-discriminatory treatment of the traffic in the provision of internet access services and safeguarding the rights of the end-users related to this provision (see whereas 1 of this Regulation).

To this aim, the National Regulatory Authorities "(...) *shall closely monitor and ensure compliance with Articles 3 and 4, and shall promote the continued availability of non-discriminatory internet access services at levels of quality that reflect advances in technology*", according to number 1 of its article 5.

Pursuant to number 1 of article 3, “*End-users shall have the right to access and distribute information and content, use and provide applications and services, and use terminal equipment of their choice, irrespective of the end-user’s or provider’s location or the location, origin or destination of the information, content, application or service, via their internet access service.*” In this context, as arises from number 2 of the aforesaid article, neither the agreements between the PSAI and the end-users, nor the commercial practices used by the PSAI, can limit the exercise of the rights of the end-users in access to the open internet.

The TSM Regulation, in number 3 of its article 3, establishes the obligation that PSAI shall treat all traffic equally when providing internet access services, “*(...) without discrimination, restriction or interference, and irrespective of the sender and receiver, the content accessed or distributed, the applications or services used or provided, or the terminal equipment used.*” Even so, this Regulations leaves space for PSAI and services, and providers of content, applications and services (hereinafter “CAP”) to be free to “*(...) offer services other than internet access services which are optimised for specific content, applications or services, or a combination thereof*”. However, as arises from number 5 of its article 3, these services, frequently known as specialised services, cannot be used or offered as a replacement for internet access services, and cannot affect the availability or general quality of the internet access services.

The National Regulatory Authorities are also responsible for ensuring compliance with the transparency measures established in article 4 of the TSM Regulation, in order to assure access to the open internet. Pursuant to number 1 of article 4, PSAI must ensure that any contract which includes internet access services specifies information on (i) how traffic management measures applied by that PSAI could impact on the quality of the internet access services, on the privacy of end-users and on the protection of their personal data; (ii) the impact of changes in quality of service parameters on the use of internet access services, content, applications and services; (iii) the impact of the aforesaid specialised services on the internet access services; (iv) various indicators of speeds (or their estimates) associated to the internet accesses services; and (v) the remedies available to the users in in the event of discrepancy between the actual performance of the internet access services and the performance indicated in the contract. The information referred to above should also be published by the PSAI, namely on their websites. Furthermore, PSAI

must put in place “*transparent, simple and efficient procedures to address complaints of end-users*”, pursuant to number 2 of article 4.

The activities developed by the National Regulatory Authorities, in the process of supervision and application of the provisions in articles 3 and 4 of the TSM Regulation, and the conclusions derived thereof, should be presented in the annual report submitted to the European Commission (hereinafter “EC”) and the Body of European Regulators for Electronic Communications (hereinafter “BEREC”<sup>3</sup>). Under this monitoring process, the National Regulatory Authorities rely on the BEREC guidelines for compliance with the obligations laid down in the TSM Regulation. These guidelines, originally issued in August 2016<sup>4</sup>, were revised in 2020<sup>5</sup>, in order to incorporate the experience gained by the National Regulatory Authorities over the last few years, and are currently materialised in the document named “BEREC Guidelines on the implementation by National Regulators of European Net Neutrality Rules” (hereinafter “BEREC Guidelines”).

### **3. Supervision and application of the TSM Regulation in Portugal**

#### **3.1. Supervisory and monitoring activities developed by ANACOM under number 1 of article 5 of the TSM Regulation**

This report, which corresponds to the third annual report prepared by ANACOM, reflects the monitoring and supervision carried out by this Authority, under the TSM Regulation, during the period between 1 May 2019 and 30 April 2020.

In the previous annual report, relative to the period between 1 May 2018 and 30 April 2019, ANACOM highlighted the decision on zero-rating commercial practices and similar in Portugal, approved on 3 July 2018, as well as the fact that some flaws were detected in terms of the transparency measures established in the TSM Regulation, in particular in the published information, contracts and websites of the PSAI with greatest presence in the market, on the transmission speeds associated to the internet access services.<sup>6</sup>

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<sup>3</sup> BEREC is the acronym for Body of European Regulators for Electronic Communications.

<sup>4</sup> The document BoR (16) 127, of 30 August 2016, is available at:

[http://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/regulatory\\_best\\_practices/guidelines/6160-berec-guidelines-on-the-implementation-by-national-regulators-of-european-net-neutrality-rules](http://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/6160-berec-guidelines-on-the-implementation-by-national-regulators-of-european-net-neutrality-rules).

<sup>5</sup> The document BoR (20) 112, of 11 June 2020, is available at:

[https://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/regulatory\\_best\\_practices/guidelines/9277-berec-guidelines-on-the-implementation-of-the-open-internet-regulation](https://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/9277-berec-guidelines-on-the-implementation-of-the-open-internet-regulation).

<sup>6</sup> Decision available at <https://www.anacom.pt/render.jsp?contentId=1456674>.

In the period covered by this report, ANACOM sent, on 13 February 2020, a request for information to the PSAI with greatest presence in the market. This request for information, of a periodic nature, primarily entails questions already formulated in the request for information sent in February 2019, for the purpose of continuing the analyses already started, but it also incorporates some new questions.

Under number 1 of article 5 of the TSM Regulation, the National Regulatory Authorities are responsible for monitoring and ensuring compliance with articles 3 and 4 of the TSM Regulation. In view of the supervision and monitoring activities developed with greater prominence by ANACOM, this section addresses the following topics:

- Zero-rating and similar practices;
- Transparency.

### **3.1.1. Zero-rating and similar practices**

Under the monitoring of compliance with the rules on open internet, ANACOM has dedicated special attention to the zero-rating and similar offers. These types of offers have become increasingly relevant due to the growth, in size and diversity, of offers with zero-rating features over the last few years.

It should be recalled that zero-rating offers are normally offers that enable access to specific content(s) and/or application(s) whose traffic does not count for purposes of the general ceiling of the internet access service, hence, this has no traffic limit or associated cost. Offers similar to zero-rating offers correspond to offers that are equivalent or have similar effects, due to enabling free access to specific content(s) and/or application(s) with a limit of additional traffic, or due to enabling the user to subscribe to specific content(s) and/or application(s) at a price associated to the traffic, different from that fixed for the basic offer.

Although the TSM Regulation does not specifically refer to these types of practices, the BEREC Guidelines included examples of zero-rating practices in their initial version, and also in their most recent version. However, the TSM Regulation, and consequently the BEREC Guidelines, does not prohibit zero-rating and similar practices, *per se*. Nonetheless, these, and other commercial practices, must respect the rules on open internet.

The analysis of zero-rating and similar offers was initially incident on traffic management aspects, having culminated in the approval, on 3 July 2018, of the decision on zero-rating and similar commercial practices in Portugal. By this decision, ANACOM determined that PSAI should change their procedures adopted in offers that include internet access services, in cases where there is differentiated handling of the traffic, once the general data ceilings are reached, in order to comply with the provisions established in number 3 of article 3 of the TSM Regulation.

In addition to the imposed determination, the decision formulated a series of recommendations, to protect the freedom of choice of the end-users and limit any barriers to new CAP. To be precise, ANACOM recommended, on the one hand, the approximation of the traffic volumes included in the general data ceilings to the traffic data volumes of the specific ceilings and, on the other hand, the publication of the specific conditions imposed on potentially interested entities for inclusion of their contents and/or applications in zero-rating and similar offers.

ANACOM found that the PSAI adjusted their commercial practices of the zero-rating type, in order to ensure compliance with the determination imposed by ANACOM on matters of traffic management, albeit not considering the solutions proposed by this Authority. In contrast, they did not follow the recommendations issued by this Authority. Although ANACOM stressed the importance of the recommendations, at a later date, up to date no improvements have been detected on the part of the PSAI in relation to the aspects mentioned in the recommendations, with the zero-rating and similar offers having remained practically unchanged in this regard.

This situation also strengthened ANACOM's intention, already indicated in the last annual report, to continue its analysis of zero-rating and similar offers. Consequently, ANACOM continues to monitor these types of offers, not only in the aspects covered by the decision which essentially refer to traffic management practices, but also concerning all the other aspects laid down in the TSM Regulation.

Specifically, ANACOM has analysed the zero-rating and similar offers for the purpose of appraising the potential impact of their underlying commercial practices on the end-users, whether consumers or CAP. It should be noted that, under number 2 of article 3 of the TSM Regulation, the PSAI cannot adopt commercial practices that limit the exercise of the rights of the end-users.

This analysis, which follows a case-by-case approach to the different zero-rating and similar offers, seeks to assess any effects of this type of commercial practice in the open internet area, in particular on the rights of the end-users.

Furthermore, to support this analysis, the main PSAI on the market were sent, in February 2020, a request for information focusing on zero-rating and similar offers. Concerning the answers sent by the PSAI to this Authority, the following aspects are noteworthy:

- In general, the number of internet access associated to zero-rating and similar offers, made possible by the existence of stand-alone mobile voice tariffs or internet additives, continued on the trend of growth already shown in the past;
- The data traffic of zero-rating and similar offers does not show a common pattern among the various offers: on the one hand, there seems to a certain stability in related to the figures reported in previous years, on the other hand, there is evidence of some atypical situations that require greater analysis;
- Generally speaking, the procedures in force, with respect to the treatment of the traffic associated to the different data ceilings available in the zero-rating and similar offers, do not reveal significant changes in view of the measures implemented by the PSAI in September 2018 following ANACOM's decision relative to zero-rating and similar commercial practices in Portugal;
- The PSAI indicated that they do not market mobile voice tariffs without a data component which enable the adherence of internet additives for access to a specific series of contents and/or applications;
- The PSAI did not identify any commercial offers whose content is sponsored or compensated by third-party entities.

### **3.1.2. Transparency**

#### **3.1.2.1. Contractual information**

The provisions of the TSM Regulation also imply a strengthening of the right of the users to the information via the obligations imposed by the PSAI in this area.

Indeed, in compliance with number 1 of article 4 of this Regulation, the PSAI must ensure that the contracts they conclude contain clear and specific information about the respective service, in order to enable full knowledge of their associated conditions of use.

These measures, relative to the conditions included in the internet access service contracts for the end-users, contribute to transparency in terms of the different offers available in the market.

It is found that, generally speaking, the PSAI seek to reflect in the contractual conditions they use in their customer relations the information established in number 1 of article 4 of the TSM Regulation.

Thus, making a detailed analysis of the contractual information provided during the reference period, it is noteworthy that, in general, the PSAI provide in their contracts, and in some cases in a detailed manner, covering the different segments for which the offers are designed (residential and business), the information required in the TSM Regulation, namely, the respective traffic management measures, the circumstances of their application and their possible impact on the service provided to the end-users, the various factors that could condition the different speeds, and the measures taken when the volumes of traffic established in their offers are depleted.

However, having noted that the information contained in the contracts, specifically in relation to the different speeds provided, was not yet entirely clear and complete, the National Regulatory Authority promoted a series of interactions during 2019 with the PSAI with a view to rectifying the detected inadequacies (see 3.1.2.2. below).

It is found that, currently, the main PSAI have progressively corrected, adjusted, completed and made clearer their contractual conditions with respect to the different speeds (download and upload), both for the fixed service and for the mobile service, pursuant to subparagraph d) of number 1 of article 4 of the TSM Regulation.

### **3.1.2.2. Information published on the websites of the PSAI**

In striving for transparency in the assurance of access to the internet, ANACOM has progressively monitored the information that is provided by the PSAI, not only in their contracts, but also on their websites.

As mentioned in the last annual report, during its monitoring actions, ANACOM detected some deficiencies in the information published by the PSAI with larger presence in the market with respect to the transparency measures established in number 1 of article 4 of the TSM Regulation, particularly in transmission speeds of the internet access services. With a view to promoting the correction of these deficiencies (namely omissions, incomplete or incongruent information, rather unclear aspects), ANACOM sent specific notices to the PSAI in question, on 15 May 2019, advising on the necessity of compliance with the requirements related to the provision of the information, under the terms established by the TSM Regulation. These notices also requested that these PSAI send this Authority information on the measures taken or to be taken towards ensuring this compliance.

The answers of the providers in question were received by the stipulated deadline, with this information already having started or with the intention having triggered a series of actions, rectifying not only the websites but also the adherence contracts. ANACOM monitored the subsequent alterations that, since then and also during the beginning of the present year, were carried out by the PSAI in this regard, advising on the need for additional corrections when justified.

By the end of April 2020, the websites of the PSAI with greater presence in the market already showed values for the different speeds (download and upload) associated to the internet access service offers provided through fixed technologies (minimum speed, the speed normally available, maximum speed and announced speed) and mobile technologies (estimated maximum speed and announced speed), as well as clearer and more comprehensive explanations about them. ANACOM considers that the monitoring carried out and the requests made to the PSAI contributed, generally speaking, to improve transparency in the assurance of access to the open internet.

Regarding the other aspects established in subparagraphs a), b), c) and e), of number 1 of article 4 of the TSM Regulation, it is found that there is still room for improvement, by publishing more complete information in a clearer manner, to benefit the end-users.

### **3.2. Complaints associated to non-compliance with the TSM Regulation**

For purposes of ascertainment of compliance with articles 3 and 4 of the TSM Regulation, ANACOM has taken into account the complaints sent by the end-users of communications services directly to this Authority, as well as the sample of complaints submitted via the physical and electronic complaint book<sup>7</sup>. The analysis of these complaints enables identifying the motives of complaint that are given by the users and grouping them according to major subjects. This aspect proves to be pertinent for identification of any problems that could compromise the provisions established in the TSM Regulation, although the classification of the complaints was not actually designed for this purpose.

In this regard, it was found that most of the complaints recorded by ANACOM are incident on the sector of supported electronic communications and services, which accounts for 71% of the total complaints in 2019 (-3 p.p. in relation to 2018). In 2019, the complaints increased as a whole by around 4% in relation to 2018, with the electronic communications sector having recorded, however, a 1% reduction.

In view of the existing information for 2019, the proportion of complaints referring to internet access speed is low, around 5% of total complaints (-1 p.p. in relation to 2018). With respect to the distribution of the complaints among providers, it is found that this issue gains more relevance among the three providers with a strongest presence in the market, although almost half of the complaints refer to a single provider.

Observing the complaints whose internet access is identified, it is notable that the majority fall on fixed accesses. Generally speaking, complaints related to the quality of the internet access service, whether due to speed issues or as a result of failures, mainly refer to fixed accesses, being lesser in the case of mobile accesses. This situation is common to the different PSAI with greater presence in the market.

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<sup>7</sup> The sample is selected by the simple random sampling method, corresponding to around 13% of the total number of complaints.

### **3.3. Main results of the assessment of technical parameters under the application of the TSM Regulation**

#### **3.3.1. NET.mede**

ANACOM provides the NET.mede services to the users, enabling them to test, from a computer, smartphone or tablet, various performance parameters of their internet access service, particular speed, and check whether there are indications of broadband management for two specific applications: BitTorrent (peer-to-peer) and Flash Video (streaming).

The speed tests can be done<sup>8</sup> through a browser<sup>9</sup>, for measurement of speeds up to 430 Mbps, or through the NET.mede app<sup>10</sup>, for measurement of speeds up to 1 Gbps. Tests to broadband management can also be done through the application provided by ANACOM for this effect<sup>11</sup>.

The test carried out through the browser enables measuring the download/upload speeds, as well as latency and jitter. The NET.mede app enables carrying out a more complete test, also including measurement of the loss of bundles and a reference web page loading test. The NET.mede app is designed for more regular use, and also enables each one of the users to consult their My NET.mede reserved area<sup>12</sup>, in an interactive and systematised form, the historical record of two years of tests with the NET.mede app, in the different accesses (fixed and mobile) and equipment (computer, smartphone or tablet).

The aggregate results of the tests carried out through the browser, as well as the broadband management tests, made by the users of NET.mede, in the last 90 days, are also disclosed online<sup>13</sup>, based on the type of access to the internet, user and equipment, as well as an approximate geolocation.

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<sup>8</sup> At <https://netmede.pt/>.

<sup>9</sup> The recommended browsers and operative systems are indicated on <https://netmede.pt/requisitos-tecnicos>.

<sup>10</sup> Application provided at <https://netmede.pt/app> or on the platforms that provide information technology contents of this nature.

<sup>11</sup> At <https://netmede.pt/traffic-shaping>.

<sup>12</sup> At <https://app.netmede.pt>.

<sup>13</sup> At <https://netmede.pt/estatisticas>.

The collection and processing of the results of the tests done on NET.mede by the users provide useful information and indications for ANACOM's monitoring of the quality of the internet access service. However, it should, considering that:

- The tests are of voluntary nature and not random;
- The specific motivations of the users to conduct the tests are not controllable;

the findings presented cannot be extrapolated to the entirety of the internet users in Portugal, because this method does not assure the necessary statistical representativeness of this group. The results of these tests depend on the internet speeds hired by these users of NET.mede as well as other factors that influence them<sup>14</sup>.

During the period from 1 May 2019 to 30 April 2020, around 1,233 thousand tests were carried out, through NET.mede, to internet access speed. This figure shifts to around 864 thousand tests, after elimination of incongruent tests<sup>15</sup> and those done internally by ANACOM, as well as aggregates, in a single test, systematic tests from the same IP address and at the same time, when conducted from fixed accesses<sup>16</sup>. The findings of this report include the tests done by users through the NET.mede browser, and from 2020 onwards also incorporate the tests done through the NET.mede app.

The evolution of the number of tests conducted per month remained constant throughout 2019, with an average number of 48 thousand tests per month. During the period of 2020 under review, the monthly average number of tests more than doubled, in relation to the same months of 2019 analysed, due to the sharp increase in the last two months of the analysis (March and April 2020), during which over 120 thousand tests were recorded in each month. This increase could have been driven by the strong growth of internet use, due to the scenario associated to the pandemic situation.

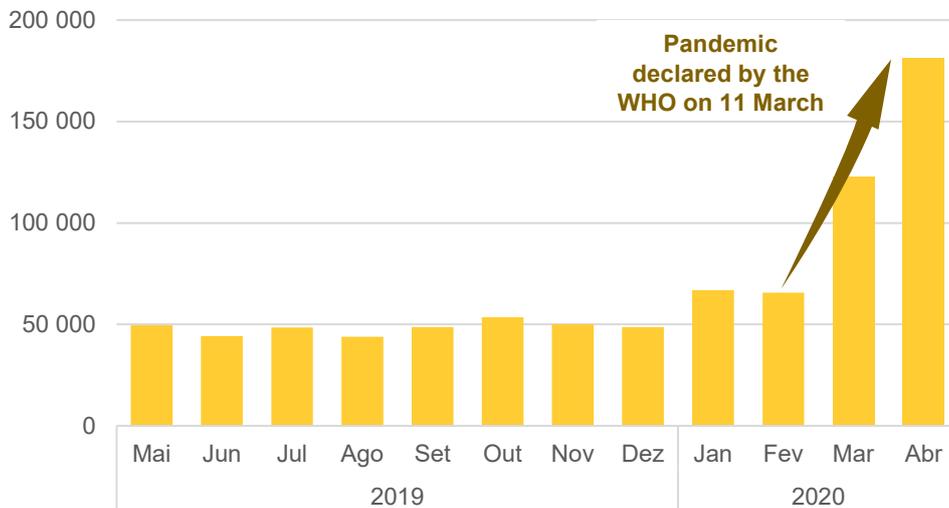
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<sup>14</sup> Primarily in terms of the user's environment, such as the terminal equipment, type of its connection and possible existence of parallel traffic on the same access.

<sup>15</sup> Tests whose results do not obey a series of permissible restrictions, including the limits of the existing commercial offers in Portugal and those of the conditions of use of NET.mede, such as, among others, the browsers/versions and operative systems recommended for testing via browser.

<sup>16</sup> The processing resulted in 864 thousand tests, which are referred to throughout the following chapters as speed tests, to simplify the reading of this document.

**Figure 1: Monthly evolution of the number of speed tests**



**Source:** ANACOM, based on NET.mede data.

**Note:** Total tests done through NET.mede, including aggregation by IP address, date and time of the day in the case of tests from residential fixed accesses.

The increased data traffic and number of tests carried out through NET.mede are extremely evident in the respective and finer analyses carried out by ANACOM during the state of emergency, and whose reports are available in the statistics area on ANACOM's website<sup>17</sup>.

The following analyses of this section of the report exclusively address the tests identified as being from residential fixed accesses (73%) and mobile accesses (19%), in both cases originating from national providers. Thus, tests identified as originating from accesses of providers operating outside Portugal (0.1%) and non-residential fixed access (6.8%) were excluded from our analysis, as they are not targeted for use of the NET.mede tool, nor these analyses, in addition to tests where it was not possible to determine the type of access tested (1,0%).

It should be noted that an optimisation was done of the classification of the type of accesses used in these testes, based on information of the ranges of IP addresses supplied by the actual providers, which, combined with a finer triage of the tests done via browser (restricting the analysis to the browser/versions and operative systems indicated in the technical requirements of NET.mede) further enhanced the quality of the classification of the results of this report, but prevents comparative analyses with the previous reports.

<sup>17</sup> Reports available at <https://www.anacom.pt/render.jsp?categoryId=3476>.

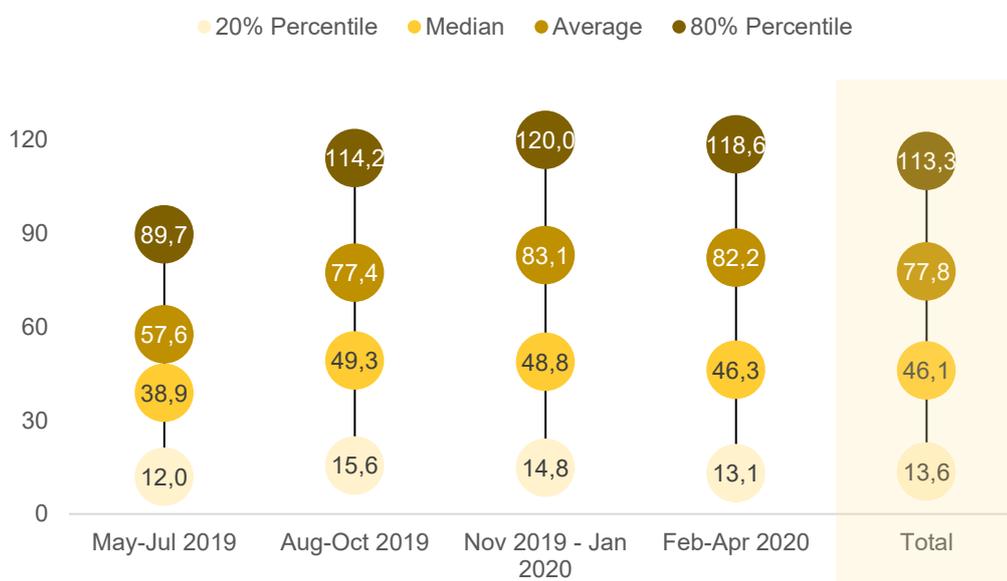
### 3.3.1.1. Residential fixed accesses

During the period under review, the average figure obtained for download speed measured by the users with residential fixed accesses that conducted one or more tests on NET.mede was 78 Mbps. However, only half of the users obtained a speed higher than 46 Mbps (median).

It was found that there was an increase of the download speed measured throughout the period under review, both in average and median terms: in May-July 2019 the median speed obtained was 39 Mbps, while in February-April 2020 it was 46 Mbps, a difference in the order of 7 Mbps.

There was a notable slowdown of the figures recorded towards the end of the period under review, possibly due to the higher use of the internet, associated, among others, to the strong growth of telework and remote schooling, as well as greater use of entertainment services, derived from the measures decreed under the state of emergency, due to the pandemic situation.

**Figure 2: Quarterly evolution of download speed measured at residential fixed accesses**

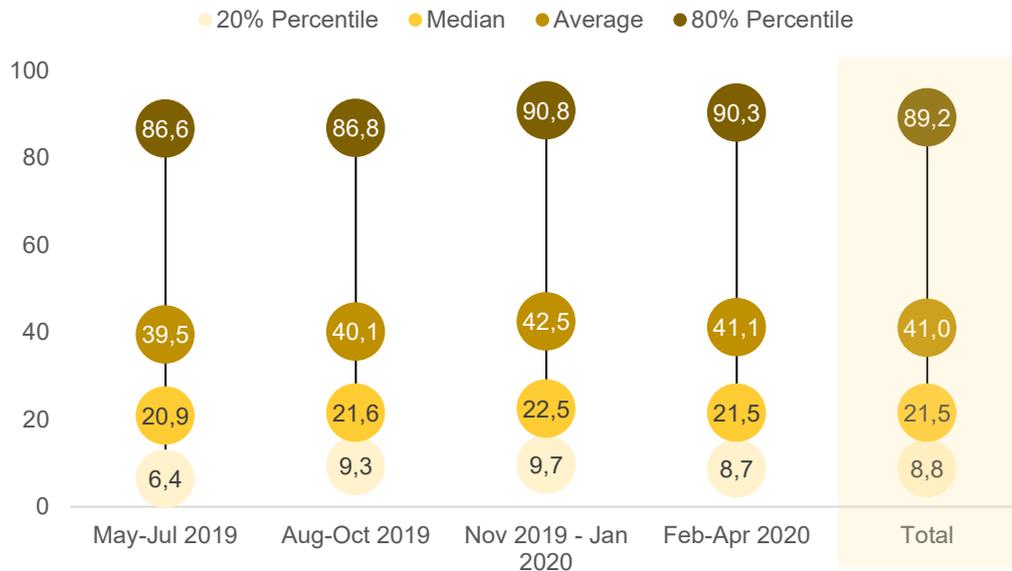


**Source:** ANACOM, based on NET.mede data.

For upload speed, the average value obtained in the period was 41 Mbps while the median value was 22 Mbps. As in the case of download speed, there was a slight improvement of

the average and median values of the upload speed measured during the period under review.

**Figure 3: Quarterly evolution of upload speed measured at residential fixed accesses**



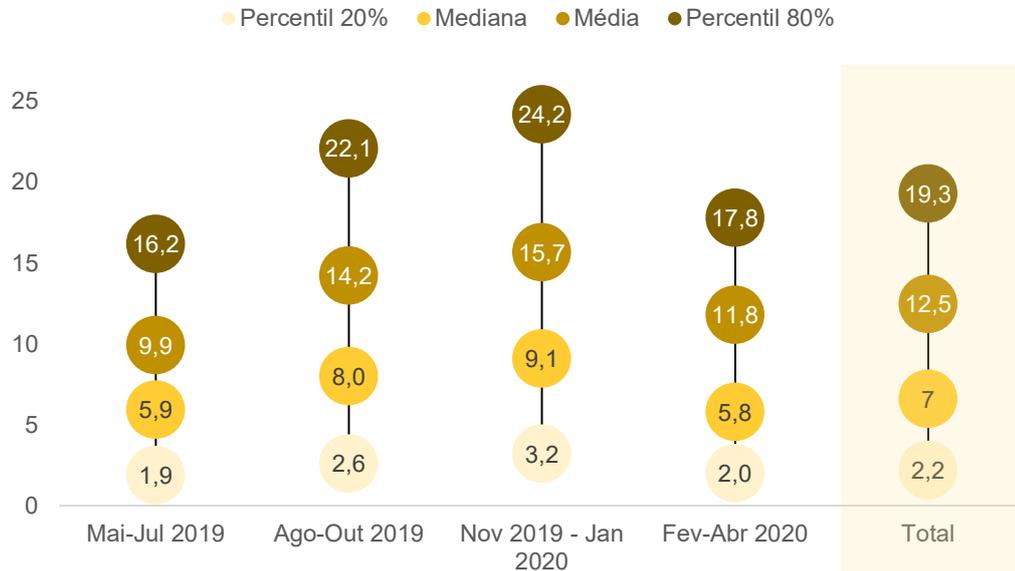
**Source:** ANACOM, based on NET.mede data.

### 3.3.1.2. Mobile accesses

With respect to mobile accesses, the average value of the download speed measured by users who made one or more tests on NET.mede was 12 Mbps, compared to a median of 7 Mbps, for the period under review.

As in the case of the tests done from residential fixed accesses, there was an increase of the download speed measured throughout the period under review in average and median terms during 2019. However, as occurred in residential fixed accesses, in 2020 these figures also fell, which could also be associated to the increased use of the internet, in this case on mobile networks, derived from the aforesaid pandemic situation.

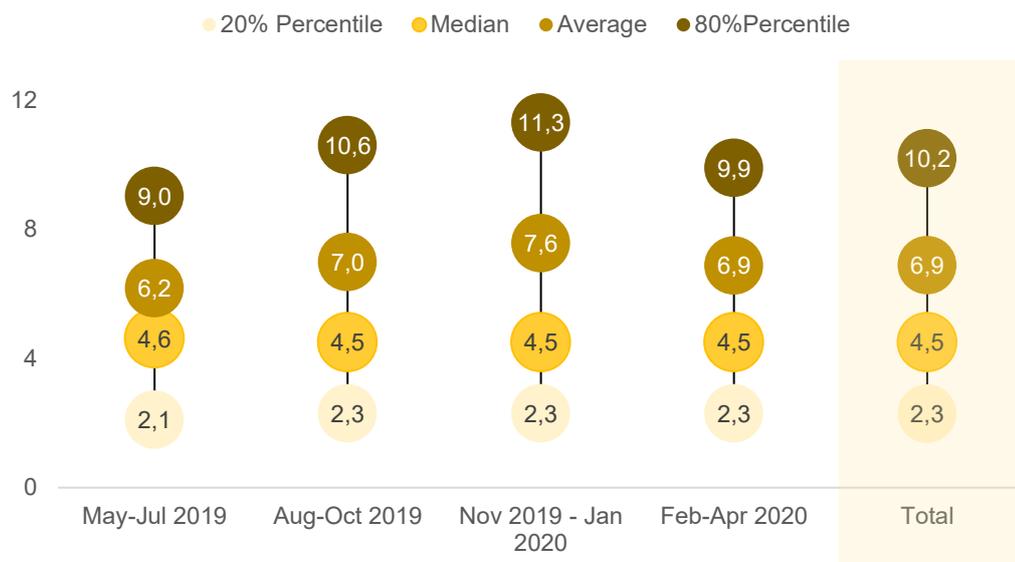
**Figure 4: Quarterly evolution of download speed measured in mobile accesses**



**Source:** ANACOM, based on NET.mede data.

In terms of the average upload speed measured, the average value derived from the tests done in the period was 7 Mbps and the median value was 5 Mbps. As was the case of the measured download speed, there was an increase of the average upload speed value associated to mobile accesses, with a decrease of these values in February-April 2020. The median value was relatively similar throughout the entire period under review.

**Figure 5: Quarterly evolution of upload speed measured in mobile accesses**



**Source:** ANACOM, based on NET.mede data.

### **3.3.2. Studies of evaluation of the performance of mobile services and GSM, UMTS and LTE coverage in the Alentejo and North regions**

In 2019, ANACOM started a study to evaluate the quality of electronic communications services supported by mobile communications systems, in the user perspective. The study evaluates, among other aspects, the performance of the mobile data services provided by the three main PSAI: MEO, NOS and Vodafone. The user's experience in terms of accessibility, retention and integrity, specifically in data services, is assessed through the transfer of files, downloading of web pages and videos from the YouTube portal. Measurements are performed systematically, with standardised procedures and without human intervention or decision, and under equal conditions for the various providers, enabling objective and comparative analysis of performances.

The study was developed in a phased manner for the different NUTS II regions<sup>18</sup>, having started in the NUTS II region of Alentejo between 7 and 28 May 2019, followed by the NUTS II region of the North between 3 and 13 February 2020. In these regions of the Alentejo and North, 5,853 and 6,475 data sessions were carried out, respectively, corresponding to approximately 325 and 360 data sessions per indicator and provider.

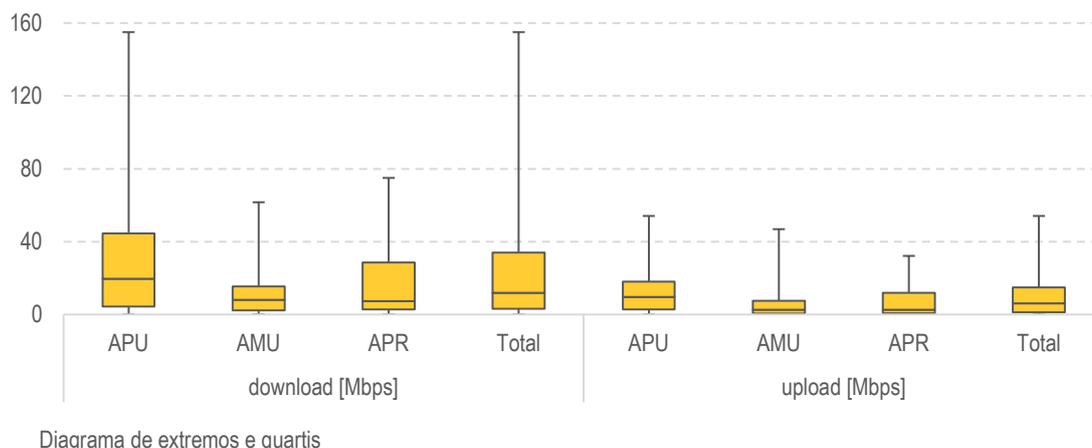
#### **3.3.2.1. Summary of the results in the NUTS II region of Alentejo**

In the Alentejo region, and specifically in the analysis of the data services, it was found that the transfer of files showed good overall performances, with differences between providers and between types of urban areas being more visible in terms of speed of data transfer, both for download and upload. The measurements made for data transfer speed capture a high variability, with records having been obtained with maximum values above 100 Mbps and 50 Mbps, respectively for download and upload, and minimum values of around 0.004 Mbps. The median and average values were, respectively, 11.94 Mbps and 22.33 Mbps, for download, and 6.19 Mbps and 10.09 Mbps, for upload.

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<sup>18</sup> NUTS is an acronym for “Nomenclature of the Territorial Units for Statistical Purposes”, a hierarchical system of division of the territory into regions. The nomenclature is subdivided at 3 levels (NUTS I, NUTS II, NUTS III), defined according to demographic, administrative and geographic criteria.

**Figure 6: Data transfer speeds of the file transfer service, by type of urban areas in Alentejo**



**Source:** ANACOM.

**Notes:** APU – Predominantly Urban Area | AMU – Moderately Urban Area | APR – Predominantly Rural Area.

Internet browsing and YouTube video streaming services, as well as data transmission latency, performed considerably less well than the other indicators analysed. These indicators also showed, in most cases, significant differences between providers and between types of urban areas.<sup>19</sup>

### 3.3.2.2. Summary of the results in the NUTS II region of the North

The tests done on the NUTS II region of the North, and specifically concerning data services, also recorded good performance in file transfer, both in download and upload, with some differences being observed between providers and, in a more accentuated manner, between types of urban areas. The capacity to establish and retain file transfer sessions, during download and upload, showed a strong deterioration in the predominantly rural areas. It was also observed that the speed of file transfer recorded in areas that are moderately urban and predominantly rural was significantly lower than that recorded in the predominantly urban areas, both for download and upload. This indicator showed very high variability, with maximum values above 249 Mbps and 64 Mbps, respectively for download and upload, and minimums below 0.05 Mbps. The median and average values were,

<sup>19</sup> The results of the analysis related to the Alentejo region can be consulted in greater detail at <https://www.anacom.pt/render.jsp?contentId=1499819>.

respectively, 27.59 Mbps and 38.40 Mbps, for download, and 15.06 Mbps and 18.86 Mbps, for upload.

**Figure 7: Data transfer speeds of the file transfer service, by type of urban areas in the North**

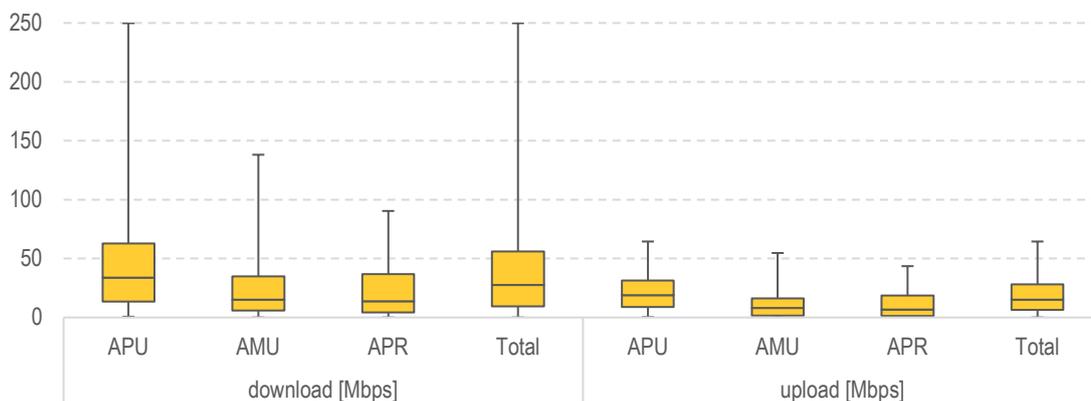


Diagrama de extremos e quartis

**Source:** ANACOM.

**Notes:** APU – Predominantly Urban Area | AMU – Moderately Urban Area | APR – Predominantly Rural Area.

Internet browsing and YouTube video streaming services, as well as data transmission latency, performed considerably less well, compared to file transfer, and some differences were also observed between providers and types of urban areas. In general, worse performance was recorded in moderately urban and predominantly rural areas<sup>20</sup>.

### **3.4. Assessment of the continuous availability of non-discriminatory internet access services**

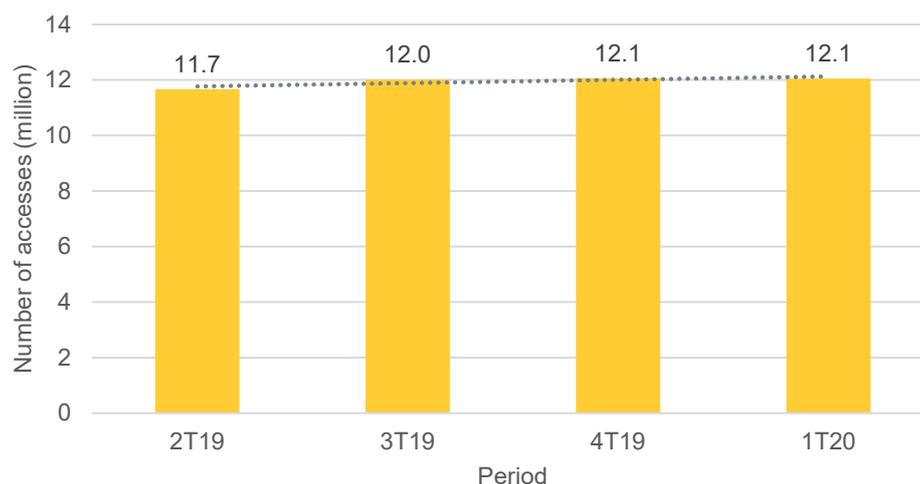
In order to assess whether there is continuous availability of non-discriminatory internet access services and with quality levels that reflect technological progress, under number 1 of article 5 of the TSM Regulation, ANACOM has progressively monitored the evolution of various indicators associated to internet accesses services.

It is noteworthy that the total number of broadband accesses (fixed and mobile) continue on the trend of growth observed the last few years, albeit suggesting a new trend of stabilisation considering the results of the last quarter, with around 12.1 million accesses

<sup>20</sup> The findings of the analysis of the North region can be consulted in greater detail at <https://www.anacom.pt/render.jsp?contentId=1533325>.

having been recorded in the first quarter of 2020. This trend is primarily the result of the growth observed in the number of mobile accesses. The weight of mobile accesses in total accesses has also accompanied this evolution, having reached 67% in the aforesaid period.

**Figure 8: Evolution of the total number of broadband accesses (fixed and mobile)**



**Source:** ANACOM statistics – Internet access service and mobile telephone service 1Q2020.

**Unit:** Million accesses.

Even so, the number of broadband accesses continues to grow, especially via optical fibre (FTTH<sup>21</sup>) accesses.

**Table 1: Evolution of the number of internet accesses by supporting network**

Technology	2Q2019	3Q2019	4Q2019	1Q2020
FTTH/B	1863	1939	2008	2073
Cable modem	1184	1191	1196	1198
xDSL	542	512	483	455
Mobile networks	274	276	276	275
Other	5	5	5	5
<b>Total</b>	<b>3868</b>	<b>3923</b>	<b>3968</b>	<b>4006</b>

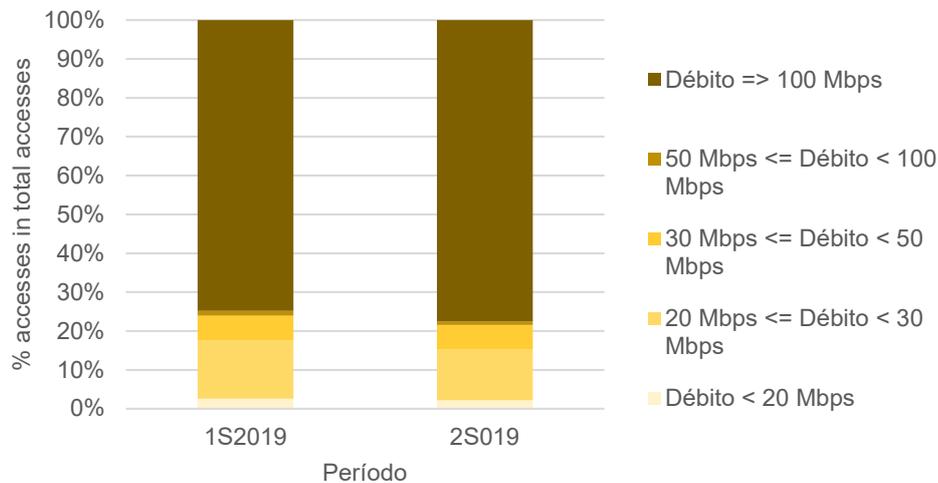
**Source:** ANACOM statistics – Internet access service 1Q2020.

**Unit:** Thousand accesses.

With respect to fixed broadband accesses, it is also important to mention the continued trend of growth in terms of number of accesses with speeds equal to or above 100 Mbps, which represented 78% in December 2019.

<sup>21</sup> FTTH stands for Fibre-To-The-Home.

**Figure 9: Evolution of the distribution of fixed internet accesses by speed**



**Source:** ANACOM statistics – Internet access service 4Q2019.  
**Unit:** Thousand accesses.

Additionally, it was found that the monthly average internet traffic continues to grow, both in terms of fixed and mobile accesses. In view of the available information, namely the complaints analysed by ANACOM, there are no indications of deterioration of the quality of the internet access services.

### 3.5. Disclosure of the application of the TSM Regulation

Concerning the disclosure of the application of the TSM Regulation, it is important to refer to the renovation of ANACOM's measurement tool, at the beginning of 2020, which was reflected both in the NET.mede application and in “My NET.mede” reserved area, incorporating new functionalities<sup>22</sup>. Furthermore, the test algorithm has been optimised, to improve its performance at higher speeds. The changes now enable the possibility of extracting aggregate results of the tests carried out by users on the NET.mede application.

This renovation is yet another among various already developed by ANACOM, so that users can easily assess the quality of their internet access service in their different equipment. It should be noted this measurement tool is also particularly relevant for ANACOM in the process of monitoring the application of the TSM Regulation, as it helps to monitor the performance of the internet access service.

<sup>22</sup> Details available at <https://www.anacom.pt/render.jsp?contentId=1501870>.

Moreover, it is also important to highlight the cooperation actions accomplished, with a view to promoting reflection and the exchange of knowledge and experiences, around network neutrality, among other topics. An example of this are the bilateral meetings with European and foreign National Regulatory Authorities. In particular, reference is made to the working meeting, held in September 2019, with the Brazilian National Regulatory Authority (Anatel)<sup>23</sup>, and the meeting, held in November 2019, with the National Regulatory Authority of Slovakia (Teleoff).

### **3.6. Monitoring and supervision in the context of Covid-19**

In the context of the Covid-19 pandemic and the proliferation of cases of contagion recorded in the country, a state of emergency was declared in Portugal on 18 March 2020, by Decree of the President of the Republic 14-A/2020 of 18 March 2020<sup>24</sup>, which, by virtue of its successive renewals (Decree of the President of the Republic 17-A/2020 of 2 April 2020 and Decree of the President of the Republic 20-A/2020 of 17 April 2020), was enforced for 45 days. Decree 2-A/2020 of 20 March 2020<sup>25</sup>, which proceeded with the execution of the first declaration of the state of emergency, reinforced the need for exceptional and temporary measures to be taken in response to the situation and safeguard the services considered essential, in which electronic communications are included.

Specifically for electronic communications, the above was followed by the approval of Decree-Law 10-D/2020 of 23 March 2020<sup>26</sup>, which establishes the exceptional and temporary measures of response to Covid-19 for the sector, that shall be enforced up to the end of the date of termination of the measures of prevention, containment, mitigation and treatment of the SARS-Cov2 epidemiological infection and the Covid-19 disease, as determined by the national public health authority. The purpose of this Decree-Law is to ensure the sound operation of the networks and the uninterrupted provision of critical services, as a considerable part of the shifted to staying permanently at home, the majority under telework or remote schooling arrangements, therefore giving rise to a more intensive use of electronic communications services. It follows from the Decree-Law that exceptional traffic management measures can be applied, provided that they are strictly necessary and

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<sup>23</sup> Further information on the meeting is available at <https://www.anacom.pt/render.jsp?contentId=1484064>.

<sup>24</sup> Decree available at <https://data.dre.pt/eli/decpresrep/14-A/2020/03/18/p/dre>.

<sup>25</sup> Decree available at <https://data.dre.pt/eli/dec/2-A/2020/03/20/p/dre>.

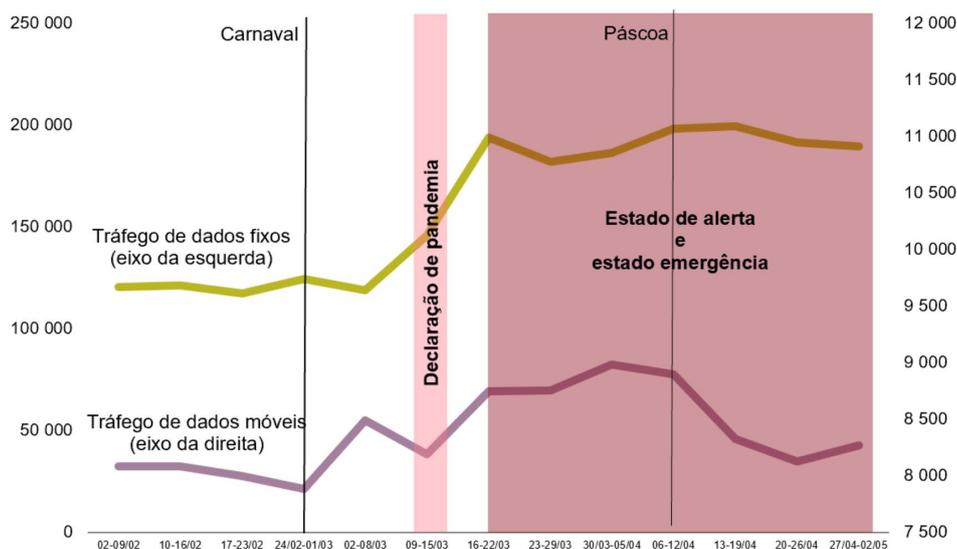
<sup>26</sup> Decree-Law available at <https://data.dre.pt/eli/dec-lei/10-D/2020/03/23/p/dre>.

only to ensure the objectives of this Decree-Law, and should be disclosed to the Government and to ANACOM before their implementation.

This scenario led ANACOM to strengthen its monitoring of the sector during the period in question. To this end, periodic requests for information were made (twice a week) to the PSAI, in order to obtain details about the situation of the fixed and mobile networks, namely the traffic evolution and the existence of situations of network congestion, as well as the measures adopted by the PSAI to meet the requirements derived from the increased demand, so as to assure connectivity in access to the internet.

The obtained information revealed a significant increase (around 49%) of data traffic, compared to the period before Covid-19, as can be seen in the figure below.

**Figure 10: Evolution of data traffic between February and April 2020**



**Source:** ANACOM.

**Unit:** TB.

Despite the increase recorded in data traffic, the PSAI did not report any significant problems of network congestion. Even so, various PSAI adopted measures to strengthen their network capacity at diverse points of the country. Notwithstanding the above, the PSAI indicated not having implemented exceptional traffic management measures.

In addition to this, ANACOM monitored the different measures adopted by the PSAI, in particular the following:

- The three PSAI with larger presence in the market offered their customers with mobile telephone tariffs the possibility of activating the offer of 10 GB of data, valid for the period of 10 days. Furthermore, they decided not to charge the monthly fee for some sports channels during the period of suspension of the majority of sports events.
- The three PSAI with greatest presence in the market put in place a joint plan to mitigate the impacts of Covid-19, based on six axes of action: 1) maintain the quality of service of the communications networks; 2) assure the necessary network capacity for critical functions of the State; 3) promote the containment of the expansion of the virus; 4) draw attention to anti-fraud procedures, 5) contribute to encouraging telework in companies; and 6) support the community.
- The four largest PSAI in the market signed an agreement with the Government to attribute communications benefits to healthcare professionals<sup>27</sup>.

The monitoring of the situation derived from Covid-19 was also done using the NET.mede measurement tool. The obtained results revealed a significant increase of the number of tests to the speed of the internet access services carried out with NET.mede (through browser), both in residential fixed accesses and mobile accesses. The obtained results were published regularly on ANACOM's website.

The situation derived from the Covid-19 pandemic also contributed to an increase of the volume of complaints and requests for information associated to electronic communication services, with ANACOM having started to publish weekly statistics on the “Portal do Consumidor”<sup>28</sup> [Consumer Portal], in this regard. The main concerns expressed by the users were the following:

- Assured maintenance of communications services without penalisation due to payment in arrears or lack of payment, or the possibility of temporary suspension of contracts and cancellation of services without penalisation, as a result of economic difficulties.

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<sup>27</sup> Details available at <https://covid19estamoson.gov.pt/apoio-digital-aos-profissionais-de-saude/>.

<sup>28</sup> Details available at <https://www.anacom-consumidor.pt/covid-19>.

- The non-resolution of failures in the services or delay in the initial connection of services, as a result of the inability of the technicians to visit the residence of the user due to security and public health issues.
- Breakdowns and low speed of the fixed internet, considered insufficient by the users in view of the requirements of telework and remote schooling.
- The cost of the calls and delay in attendance of the customer support lines of the service providers.

In light of the above, ANACOM took various measures both with a view to protecting the consumers and the normal operation of the sector in this exceptional context, especially the following:

- The disclosure of recommendations for an appropriate use of the internet, in order to prevent service interruptions, derived from any congestion and overloading of the telecommunications networks<sup>29</sup>.
- The issue of warnings on the increased situations of cyberattacks and fraud related to Covid-19, through the internet and face-to-face<sup>30</sup>.
- The launch of a practical guide to answer the main doubts of communication consumers, in the current scenario<sup>31</sup>.
- The submission of a proposal to the Government with a series of measures aimed at protecting electronic communications users<sup>32</sup>, some of which were included in Law 7/2020 of 10 April 2020, approved by Parliament<sup>33</sup>. Subsequently, ANACOM submitted a new proposal to Parliament aimed at strengthening the protection of the rights of electronic communications users<sup>34</sup>.

This new reality also gave rise to a regular exchange of information with other National Regulatory Authorities, under the coordination of BEREC, on the evolution of the situation in the different European countries and on the measures taken in each country. There was also exchanges of information about procedures and actions with the other Portuguese regulatory authorities.

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<sup>29</sup> Details available at <https://www.anacom.pt/render.jsp?contentId=1522194>.

<sup>30</sup> Details available at <https://www.anacom.pt/render.jsp?contentId=1522189>.

<sup>31</sup> Guide available at <https://www.anacom-consumidor.pt/covid-19>.

<sup>32</sup> Details of the measures are available at <https://www.anacom.pt/render.jsp?contentId=1520186>.

<sup>33</sup> Law available at <https://data.dre.pt/eli/lei/7/2020/04/10/p/dre>.

<sup>34</sup> Details available at <https://www.anacom.pt/render.jsp?contentId=1530841>.

#### **4. Main conclusions**

During the period between May 2019 and April 2020, the period to which this report refers, ANACOM continued to perform its monitoring and supervisory role, seeking to ensure compliance with the provisions laid down in articles 3 and 4 of the TSM Regulation.

Throughout this period, ANACOM continued to analyse the zero-rating and similar offers, in order to assess any impacts on end-users, namely in terms of the rights established in number 1 of article 3 of the TSM Regulation. This analysis is thoroughly comprehensive and finely detailed, incident on the various zero-rating and similar offers, and, for this reason, is still ongoing.

The actions undertaken also included the initiatives promoted with the PSAI with strongest presence in the market, aimed at greater transparency in the assurance of access to the open internet. The communications sent by ANACOM to the PSAI, in May 2019, warning on their need to ensure compliance with the transparency measures, triggered adjustments by the PSAI in their contracts and websites. The changes implemented by the PSAI were monitored by ANACOM. In general, these interactions enabled improving the level of transparency associated to the internet access services, especially in terms of speed indicators and their estimates, for fixed and mobile accesses, respectively.

A series of updates of the NET.mede tool were concluded at the beginning of 2020, both in terms of the NET.mede application and the “My NET.mede” reserved area. These updates enabled expanding the functionalities of the measurement tool, and at the same time improve its usability.

Special reference should also be made, on the one hand, to the cooperation actions established between ANACOM and other European and international regulatory entities, and on the other hand, the follow-up of other studies conducted by various National Regulatory Authorities around the challenges in the internet's ecosystem, namely in terms of operative systems and app stores. Generally speaking, these initiatives enabled the exchange of experiences and reflection on various aspects related to the open internet.

The situation derived from the Covid-19 pandemic, taking effect from mid-March 2020, led ANACOM to strengthen its monitoring and adopt specific measures aimed at protecting the consumers. Cooperation, both at a European and national level, was also strengthened in this exceptional context.

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