

Network neutrality report

**Application of Articles 3 and 4 of Regulation (EU) 2015/2120 of the European
Parliament and of the Council of 25 November 2015**

– May 2018 to April 2019 –



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I. Executive summary

1. The report on network neutrality covers the monitoring and supervision undertaken by the National Communications Authority (ANACOM) during the period between May 2018 and April 2019 to promote open internet access. The above actions aim to ensure compliance with Articles 3 and 4 of Regulation (EU) 2015/2120 of the European Parliament and of the Council dated 25.11.2015, which lays down measures concerning open internet access, amending 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 (also known as the "Telecoms Single Market" – TSM – Regulation and hereinafter referred to as the "TSM Regulation"), by providers of internet access services (hereinafter "PIAS") in Portugal, with the ultimate purpose of protecting the rights of end-users and the continuous functioning of the internet ecosystem as an engine of innovation.
2. The presentation of the conclusions reflected in this report resulting from the monitoring and supervision to the European Commission (hereinafter referred to as "the EC") and the Body of European Regulators for Electronic Communications (hereinafter referred to as "the BEREC"¹) stems from that Regulation and is applicable to the various National Regulatory Authorities (hereinafter referred to as "NRA") at European Union level (hereinafter "the EU").
3. Among the various actions initiated by this Authority within the above-mentioned period, it is highlighted the one that culminated in the decision of 03.07.2018 on zero-rating and similar commercial practices in Portugal². This intervention led the PIAS to change the procedures associated with these offers to ensure compliance with the prevailing regulatory framework concerning network neutrality. In view of the foregoing, the providers conformed with the decision.
4. In terms of the monitoring of transparency measures to guarantee open internet access, it should be noted that this Authority detected some shortcomings and gaps in the information concerning transmission speeds available in the contracts

¹ BEREC is the acronym for the *Body of European Regulators for Electronic Communications*.

² Decision available at <https://www.anacom.pt/render.jsp?contentId=1456674>.

and on the websites of the PIAS with a greater market presence. Accordingly, these PIAS were sent communications alerting them to the need to ensure compliance with the requirements relating to the provision of the information concerned, under the terms established by the TSM Regulation.

5. The providers concerned responded to the ANACOM communications within the stipulated deadline and reported that they had initiated or would soon put in place an array of measures that, under preliminary scrutiny, appear to cover most of the aspects identified by the Regulator, and also indicated the expected timetable for their respective implementation and the date of their termination, which for most providers will occur in July of this year, and in one case, in August of this year.
6. Additionally, other initiatives were developed, some of which continued the analysis of zero-rating and similar practices, which is still ongoing.

II. Regulatory framework

7. In addition to amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services and Regulation (EU) 531/2012 concerning roaming on public mobile communications networks within the EU, the TSM Regulation establishes common rules on open internet access at Union level.
8. With regard to open internet access, this Regulation aims to "*safeguard equal and non-discriminatory treatment of traffic in the provision of internet access services and related end-users' rights*", in accordance with Article 1(1) thereof.
9. In order to ensure consistent application of the existing legal framework, the TSM Regulation provides for the issuance by the BEREC of guidelines for compliance with the obligations laid down for the NRA, in particular the obligations arising from Articles 3 and 4 in relation to open internet access. These guidelines were implemented in 2016, resulting in the document "*BEREC Guidelines on the*

*Implementation by National Regulators of European Net Neutrality Rules*³ (hereinafter the “BEREC Guidelines”).

10. In accordance with Article 5(1) of the TSM Regulation, the NRA are responsible for monitoring and ensuring compliance with the provisions of the Regulation on open internet access. At the same time, however, *“the continued availability of non-discriminatory internet access services at levels of quality that reflect advances in technology”* should be promoted. In addition, the NRA are obliged to publish annually a report on the monitoring carried out and their respective conclusions (hereinafter the “Annual Report”), communicating it to the EC and to the BEREC, in accordance with the above-mentioned Article.
11. Accordingly, this document corresponds to the third Annual Report on supervision and implementation of the TSM Regulation in Portugal⁴, and covers the period from 01.05.2018 to 30.04.2019, in compliance with the obligation set forth in said Regulation. As in previous reports, the preparation of this document takes into account the BEREC Guidelines.
12. Under their supervisory activities, the NRA must ensure the application of Article 3 of the TSM Regulation. According to Article 3(1), *“[e]nd-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.”*
13. In this context, the TSM Regulation provides that both commercial agreements between the PIAS and end-users and the commercial practices conducted by the PIAS shall not limit the exercise of end-user rights (see Article 3(2)).
14. In particular, with regard to the commercial practices adopted by the PIAS, safeguards should be put in place ensuring that all traffic is treated fairly, in the

³ Document BoR(16)127, dated 30.08.2016, 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.

⁴ The first report, covering the period from 30.04.2016 to 30.04.2017, is available at <https://www.anacom.pt/render.jsp?contentId=1414219>; and the second report, relating to the period from 01.05.2017 to 30.04.2018, is available at <https://www.anacom.pt/render.jsp?contentId=1456671>.

provision of the internet access service (hereinafter “IAS”), *“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”*. Thus, as far as traffic management is concerned, PIAS *“shall not block, slow down, alter, restrict, interfere with, degrade or discriminate between specific content, applications or services, or specific categories thereof, except as necessary, and only for as long as necessary”*, in particular to ensure compliance with legal obligations of the EU and national authorities, to preserve the integrity and security of the network and to prevent network congestion in exceptional and temporary situations (cf. Article 3(3) of the TSM Regulation).

15. Notwithstanding the foregoing, the TSM Regulation recognises that *“[p]roviders of electronic communications to the public, including providers of internet access services, and providers of content, applications and services shall be free to offer services other than internet access services which are optimised for specific content, applications or services, or a combination thereof, where the optimisation is necessary in order to meet requirements of the content, applications or services for a specific level of quality.”* Such optimisation is possible provided that the capacity of the network is sufficient to provide such specialised services, in addition to the IAS already provided, which shall not be offered as a replacement for the IAS, nor affect the availability or general quality of the IAS for end-users, as laid down under Article 3(5) of the TSM Regulation.
16. The NRA also have a duty to ensure compliance with Article 4 of the TSM Regulation concerning transparency measures to ensure open internet access. According to paragraph 1 of this Article, PIAS must clearly inform end-users, both in the contractual conditions and in a pre-contractual context (see last point of this paragraph), of the various speed indicators (or estimated speed) associated with their IAS and the potential impact that the implemented traffic management practices may have on IAS quality, on the privacy of end-users and in the protection of their personal data. They should also provide information regarding the possible impact of the specialised services subscribed to and the limitations on the quality parameters on the use of the IAS. The PIAS should also inform

end-users of the remedies available under national law in the event of non-compliance of the performance of the IAS with that laid down in the contract.

17. Similarly, the NRA shall ensure, under Article 4(2), that “[p]roviders of internet access services shall put in place transparent, simple and efficient procedures to address complaints of end-users relating to the rights and obligations laid down”.

III. Supervision and application of the TSM Regulation in Portugal

A. Description of the general situation in Portugal with regard to compliance with the TSM Regulation

18. It should first be mentioned that in the first Annual Report, covering the period from 30.04.2016 to 30.04.2017, ANACOM had already pointed out the need for a deeper analysis of the commercial practices adopted by the PIAS, in particular zero-rating and similar practices⁵, in order to assess the conformity of their respective commercial offers with the TSM Regulation. Following on from this, research was carried out by ANACOM, which consisted, namely, of requests for information from the PIAS and the monitoring of the information published by them via their information channels.
19. Once the information gathered was analysed, it was found that there was a certain degree of incompatibility with the provisions of the TSM Regulation both in relation to net neutrality and roaming. Specifically, with regard to open internet access, a number of commercial offers where traffic was treated differently in the provision of the IAS were identified, contravening the provisions laid down in Article 3 of the TSM Regulation.
20. The evidence resulting from the analyses carried out gave rise to a draft decision (hereinafter referred to as “DD”) concerning zero-rating and similar commercial practices in Portugal⁶, approved by ANACOM on 23.02.2018, as referred to in the second Annual Report on the period between 01.05.2017 and 30.04.2018. This DD was submitted to a prior hearing of the interested parties and to a

⁵ Similar offers to zero-rating offers correspond to comparable offers or having similar effects, as they consist of free access to specific contents and/or applications with an additional traffic limit, or to allow the user to subscribe to specific content and/or applications with a price associated with traffic other than that fixed for the basic offer.

⁶ Document available at <https://www.anacom.pt/render.jsp?contentId=1430814>.

general public consultation procedure, with the corresponding period ending on 19.04.2018. Therefore, given that as of 30.04.2018 (the cut-off date for the second Annual Report), ANACOM was still analysing the contributions received in the context of this public consultation (which ended on 19.04.2019), it proved impossible to incorporate into this second report the conclusions reached.

21. By determination of 03.07.2018, ANACOM approved the final decision on zero-rating and similar commercial practices in Portugal, which essentially confirmed the content of the DD, and determined that the PIAS must change the procedures adopted in the commercial offers that include the IAS, in cases where there was differential traffic treatment after the general data allowances have been exhausted, between content and/or applications included in specific data allowances or that are made available without traffic limits and the other content and/or applications included in general data allowances. As set out in the decision, a deadline of 50 working days from the date of publication of the decision was set for the PIAS to make the necessary amendments to ensure compliance with the TSM Regulation, as well as the appropriate adaptation of the information published on the respective websites, points of sale, customer support services and other information channels made available to end-users. In addition, with this decision, ANACOM sent recommendations to the PIAS with a view to ensuring the freedom of choice of end-users. These recommendations provided for the approximation of the traffic volumes included in the general data allowances to the traffic volumes of the specific data allowances and the publication of the specific conditions imposed by the PIAS on entities potentially interested in including their content and/or applications in the zero-rating and similar offers to better ensure the free choices of the end-users.
22. At the end of the period stipulated in the decision, ANACOM, in view of the information provided directly by the PIAS, as well as the information published on the respective websites, found that the PIAS amended the procedures associated with zero-rating and similar offers to ensure compliance with the TSM Regulation in terms of traffic management.
23. On 22.02.2019, ANACOM questioned the PIAS concerning the way in which they followed the recommendations made, since this involved important aspects that

should be safeguarded in order to increase end-user choice and limit any barriers to entry of new content and application providers (hereinafter “CAP”).

24. In addition, in the same request for information addressed to the PIAS, several requests related specifically to the zero-rating and similar offers were introduced in order to better understand the development of these offers, the consumption patterns of their users and the alternatives to these offers, as well as the possible existence of offers sponsored or compensated by CAP.
25. In view of the replies received from the PIAS by this Authority, the following comments can be made:
 - a. The PIAS explained the current procedures associated with the zero-rating and similar offers in terms of traffic management, confirming the suitability of these offers under net neutrality rules. In most cases, the solution adopted by the PIAS to ensure compliance with the TSM Regulation was the automatic activation of an extra data limit through the charging of a predefined price, or the blocking of all data consumption in cases where there is an insufficient balance. One PIAS also mentioned the application of a pay per use system as a means of guaranteeing data access.
 - b. Some PIAS stated that they have taken note of the ANACOM recommendation regarding the approximation of traffic volumes of the general allowances to the specific allowances under the zero-rating and similar offers, but they did not clarify the extent to which they will be taken into account, and there is no evidence of their having followed the recommendation. One PIAS stated that it would not make any changes, considering that *“the current allowances are in line with demand”*.
 - c. Regarding the ANACOM recommendation related to the publication of specific conditions imposed on entities potentially interested in incorporating their content and/or applications into the zero-rating offers, one of the PIAS indicated that it will only make the information available at the request of those entities. Although the remaining PIAS reiterate their willingness to incorporate new content and applications into their zero-rating and similar offers, they are not clear about the publication of the criteria underlying the

integration process, which none of them has conducted so far, and which one of them is still in the process of finalising.

- d. In general, the PIAS confirmed an increase in the number of zero-rating and similar offers under the mobile IAS (since these do not exist in the fixed IAS), accompanied by an increase in the number of accesses under this type of commercial offers. This scenario contrasts with the evolution of the number of mobile IAS plans without zero-rating characteristics, which is not uniform among the various providers and has no identifiable common pattern. All providers have indicated that they do not have commercial offers under which the content is sponsored or compensated by third parties.
- e. In terms of data traffic, although in general there has been an increase in the traffic consumed in the general allowances of the zero-rating and similar offers of some PIAS, user behaviour does not allow a uniform consumption pattern to be predicted in relation to the specific allowances of those offers. Also, there do not appear to be any common pattern in data traffic trends under the non-zero-rating offers. However, this is an analysis that has not yet been concluded, and which may also result from an insufficient number of empirical observations. Nevertheless, ANACOM intends to continue the analysis, using the data obtained under this information request in conjunction with information collected in previous years.

B. Monitoring and supervisory activities carried out by ANACOM

- 26. Within the framework of the monitoring and supervisory activities carried out by ANACOM in the light of the provisions of the TSM Regulation, from the outset, the Authority has sought to analyse the commercial practices of the PIAS, namely zero-rating and similar practices. This action is evident both in the first and in the second Annual Report. In addition, this most recent report reiterated the importance of continuing the analysis of zero-rating and similar offers, given the reach and complexity of these offers in Portugal. It should be noted that the analyses carried out so far (covering the period from May 2017 to April 2018) focused more on traffic management issues, specifically on traffic handling after the general data allowances had been used up and on roaming, and thus did not

exhaust the broad scope of the TSM Regulation for guaranteeing open internet access. Therefore, it is considered relevant to continue to monitor and supervise such offers, assessing their compliance with the prevailing rules regarding open internet access.

27. In this regard, during the period 2019-2021, ANACOM plans to carry out an analysis of zero-rating and similar offers with the objective of examining the impact of these commercial practices on the exercise of the rights of end-users under the TSM Regulation. To this end, it is important to continue to explore, among other elements, the motivations and incentives underlying the definition of such practices, as well as the impacts they may have on end-user choice, with the ultimate aim of assessing whether or not these constitute restrictions on the rights of end-users.
28. To start this project, as well as to prepare the Annual Report, as mentioned above, on 22.02.2019, a request for information was sent to the most representative market providers: MEO - Serviços de Comunicações e Multimédia, SA (MEO), NOS Comunicações, SA (NOS) and VODAFONE PORTUGAL - Comunicações Pessoais, SA (VODAFONE). It should be noted that, in February 2019, these providers together accounted for more than 99% of the market for broadband accesses (landlines) and mobile IAS users.
29. This request for information sought to deepen some of the issues inherent to zero-rating and similar offers, in order to evaluate the content and/or applications selected for this type of offers in view of the usage profiles of content and applications services. Moreover, it also sought to assess how the PIAS decided or intend to implement the recommendations addressed by this Authority in its decision dated 03.07.2018.
30. Additionally, it also included questions regarding the level of internet usage under the various types of commercial offers (in particular zero-rating and similar), content and applications made available and the existence of commercial agreements.
31. In terms of the monitoring of transparency measures to guarantee open internet access, as provided for under Article 4 of the TSM Regulation, several additional

questions related to open internet transparency were included in the “Annual Questionnaire on Electronic Communications (2019)” (hereinafter the “AQEC2019”), to be answered by all the PIAS. These answers are under analysis.

32. As in previous years, contracts and information displayed on PIAS websites were also monitored, with a particular focus on PIAS with a greater presence in the market, in order to verify their compliance with the requirements that, in terms of information availability, are provided for under the TSM Regulation.
33. Taking into account the monitoring and supervisory activities carried out during the period covered by this Annual Report, this section is broken down into the following areas:
 - a. Zero-rating and similar practices;
 - b. Transparency;
 - c. Other topics.

B.1 Zero-rating and similar practices

34. In the context of the guarantee of open internet access, the TSM Regulation imposes restrictions not only on the commercial and technical conditions agreed between the PIAS and end-users and the characteristics of the IAS itself, but also on the commercial practices adopted by the PIAS themselves. Regarding the latter element, Article 3(2) of the TSM Regulation states that “(...) *any commercial practices conducted by providers of internet access services, shall not limit the exercise of the rights of end-users*”.
35. However, the TSM Regulation does not detail the commercial practices mentioned in the above-mentioned Article. Only the BEREC Guidelines identify the nature of these practices, making reference to one specific type, zero-rating practices. As set out in the BEREC Guidelines, zero-rating practices consist of allocating a zero price to the traffic associated with a specific application or a set of applications, without this traffic being discounted from the general data allowance provided under the basic user tariff.

36. Due to their importance, these zero-rating practices have been analysed by ANACOM in recent years. Given the multiplicity of commercial offers around mobile IAS, this Authority has also analysed practices similar to zero-rating, as they are likely to have similar effects. As referred to in the Annual Report for the period from May 2017 to April 2018, examples of such practices include those consisting of free access to specific content and/or applications with a traffic limit, such as access to specific content and/or applications by subscription, usually with a lower price than the basic IAS offer, and which may or may not be subject to a traffic limit.
37. The analyses conducted by ANACOM of zero-rating and similar offers with regard to open internet access have so far focused more on traffic management in relation to traffic management after the general data allowances have been used up. The increasing proliferation and diversification over recent years in Portugal of these types of offers, which were initially very much directed towards a young target audience, has led to this Authority paying renewed attention to these practices. The investigation and monitoring carried out have made it possible to identify some incompatibilities between the zero-rating and similar offers and the provisions of the TSM Regulation, in terms of traffic management practices. In particular, offers were found in which providers had distinct traffic management practices for general data allowances and for specific data allowances or for limitless traffic applications where the general data allowance was used up, infringing the rules regarding net neutrality and roaming.
38. In view of the evidence detected, on 03.07.2018, ANACOM approved a decision regarding zero-rating and similar commercial practices in Portugal, following comprehensive public consultation procedures involving not only the PIAS, but also industry associations, organisations belonging to the national scientific and technological system, a television station and various individual citizens. Highly divergent positions were adopted. On the one hand, some entities strongly disagreed with zero-rating business practices, even suggesting that they should be banned. On the other hand, the PIAS expressed their support for these practices, and expressed their disagreement with the intentions of the Regulator to end the differential traffic management in the provision of IAS.

39. In the decision adopted, ANACOM ordered the PIAS to change the procedures adopted in the offers that include IAS (also including internet services on mobile phones), within 50 working days from the date of publication of the decision, in the cases where there has been differential traffic management after the general data allowances have been used up, in order to comply with the provisions laid down in the TSM Regulation. That determination covered any offer with the aforementioned characteristics.
40. In approving the aforementioned determination, ANACOM aimed to ensure compliance with the provisions of Article 3(3) of the TSM Regulation in order to ensure that PIAS treat all traffic equally, preventing improper traffic management, specifically, preventing content and/or applications included in general data allowances from being subject to blocking or delays when such limits are used up in situations where the content and/or applications included in the specific data allowances or without traffic limit are not subject to these limitations.
41. In addition to the decision on net neutrality, ANACOM also established the modification, within the same period and where applicable, of the procedures adopted in offers containing content and/or applications subject to roaming conditions in the European Economic Area (hereinafter the “EEA”) which are not equivalent to those made available on national territory, in order to ensure compliance with international roaming rules.
42. Specifically with regard to net neutrality, both in the decision and in the report on the prior hearing and public consultation, ANACOM identified some possible options to ensure the compliance of the analysed tariffs with the TSM Regulation, namely:
 - a. No blocking or delays introduced in IAS traffic where the general data allowance has been used up, by means of the application of an internet add-on (additional data value);
 - b. Option of using the specific data allowance to access any application or content, where the general data allowance has been used up;
 - c. Blocking all traffic (both general and that forming part of the zero-rating and similar offers) at the time at which the general data allowances is used up.

ANACOM also warned of the importance of ensuring that the choices made by the PIAS not only guarantee compliance with net neutrality rules, but also safeguard consumer expectations.

43. In the context of the analyses carried out, ANACOM also noted that, in general, zero-rating and similar offers tend to have specific data allowances much higher than the general data allowances. Therefore, in its decision, ANACOM recommended that, in their mobile internet access offers, the PIAS should approximate traffic volumes included in the general data allowances to the traffic volumes of the specific data allowances, preferably by increasing the general data allowances. This recommendation is intended to ensure the free choice of end-users in terms of access to content, not limiting the rights provided for under the TSM Regulation.
44. In fact, by making access to certain content and/or applications available without the respective traffic being deducted from the general data allowance, zero-rating and similar offers are likely to influence end-users to use such zero-rated content and/or applications in detriment to those not included in the offer. At the time of the decision, zero-rated content and/or applications incorporated in the zero-rating and similar offers were generally the result of choices made by the PIAS, and not all the offers provide for the integration other content and/or applications from other CAP. ANACOM understands that this limitation may constitute a barrier to the entry of new CAP, reducing the options available in the market, and consequently jeopardising the spirit of innovation associated with the internet ecosystem. Likewise, in the absence of feasible alternatives to zero-rating and similar offers for users, this may contribute to a reduction in the options available in the applications and content market.
45. Taking account of the manner in which the changes made by the PIAS were communicated to end-users, giving the impression that ANACOM was responsible for the specific option they adopted in order to ensure the respective tariffs complied with the provisions of the TSM Regulation (which generally results in the blocking of all traffic, where the user has used up the general data limit, even though the user still has data available under the specific data

allowance), this Authority published a public clarification⁷ on 17.09.2018 providing information regarding the various alternatives that could have been implemented and that could have met the expectations of end-users, and pointing out that each provider was solely responsible for the choice made. This Authority also reinforced, together with the PIAS, the need to ensure objective and clear communication to users of changes in implementation.

46. Regarding the recommendation presented by ANACOM regarding the approximation of the traffic volumes included in the general data allowances to the traffic volumes of the specific data allowances, it is noted that none of the PIAS made changes to the traffic limits of these offers to reduce the traffic volume differential existing between general and specific data allowances under the zero-rating and similar offers. However, two providers did implement new internet add-ons for general internet access, at more competitive prices, although these are only available to customers with specific commercial offers.
47. Moreover, none of the providers considered the ANACOM recommendation regarding the publication of the specific conditions imposed on potentially interested entities in incorporating their respective applications and/or content into the zero-rating and similar offers. Although MEO and VODAFONE have indicated a willingness to include new content and/or applications in their zero-rating and similar offers by providing a contact email address for interested parties on their websites, it should be noted that the published content does not detail the information required to proceed with the process. When questioned about this recommendation under the request for clarification formulated on 26.09.2018, NOS initially stated that it was still developing the process for integrating new content and/or applications into its zero-rating and similar offers, and only a few months later did this provider start to provide a contact email address for those interested in including their content and/or applications under its WTF offer.
48. In response to the request for information submitted on 22.02.2019, one PIAS indicated that it would not follow the ANACOM recommendations. The remaining PIAS were not entirely clear as to their actions in terms of traffic volumes under

⁷ Clarification available at <https://www.anacom.pt/render.jsp?contentId=1461601>.

the general data allowances of the zero-rating and similar offers, nor in relation to the possible publication of the specific conditions imposed on potentially interested entities in incorporating their respective applications and/or content into this type of commercial offers. In the context of the latter recommendation, one PIAS stated that it is in the process of finalising the procedure associated with that integration process, but this does not preclude it from analysing any requests that may be received in the meantime.

49. ANACOM will continue to monitor all matters concerning these recommendations.
50. Notwithstanding the analyses already carried out with regard to zero-rating and similar offers, there remain elements that may be analysed in the context of the guarantee of open internet access. In view of this situation, ANACOM considers that the commercial practices adopted by the PIAS, in particular zero-rating and similar practices, are of sufficient relevance to justify further analysis in the context of net neutrality, as already evidenced by this Authority on previous occasions.
51. Additionally, in order to continue the analysis of zero-rating and similar offers, ANACOM has proposed to develop, during the period 2019-2021, an analysis report on this type of commercial offers, giving priority to aspects other than management practices after the general data allowances have been used up, although this aspect will still be monitored. The plan is to address not only the motivations underlying the provision of zero-rating and similar offers, but also the impact of these practices on the exercise of the rights of end-users provided for under the TSM Regulation, taking into account the zero-rating and similar offers and alternatives to these existing in the national market.
52. To this end, a request for information which was addressed to the PIAS on 22.02.2019 also included questions related to the scope of this analysis. It should be noted that, in most cases, the answers to this request for information have not been very detailed, as was the case with previous requests. However, from the responses received, it can be seen that zero-rating offers remain significant in Portugal, not only due to an increase in the number of offers with these characteristics marketed by the PIAS, but also due to a general increase in the

number of accesses associated with them. As regards trends in data traffic, these have not been completely uniform among the various PIAS for the different types of data allowances and the different mobile IAS (both zero-rating and other) offers. Nevertheless, the average monthly percentage of the general data allowance used for access generally tends to be higher in offers without zero-rating characteristics than in zero-rating and similar offers. However, these values and their trends will be the subject of a more detailed assessment under the current analysis.

B.2 Transparency

Contractual information

53. The provisions of the TSM Regulation also result in a strengthening of users' right to information by means of obligations imposed on service providers in this domain. Indeed, in compliance with Article 4(1) of the Regulation, the PIAS must ensure that the contracts they conclude contain clear and specific information regarding the respective service, so as to enable customers to fully understand the associated conditions of use. These measures relating to the conditions contained in the IAS contracts for end-users contribute towards transparency in terms of the different offers made available on the market.
54. It appears that, in general, the PIAS have sought to make available and reflect the information provided for in Article 4(1) of the TSM Regulation in the contractual conditions they use in their relationship with customers.
55. To this end, it has been established that providers should state in their contractual conditions the respective traffic management measures, the circumstances of their application and the impact of the measures taken on the service provided to end-users, the measures adopted where traffic volumes included in the offers are used up, and information on the traffic volumes of the offers and the quality of service indicators.
56. However, if, on the one hand, the PIAS make available in the contracts, in some cases in a detailed manner, the information provided for under points a) and b) of Article 4(1) of the TSM Regulation covering the different segments for which

the offers are intended (residential and business), on the other hand, subscription contracts are still in use, the conditions of which are currently insufficient to ensure full compliance with the requirements relating to the provision of the other information provided for therein, in particular that mentioned under points d) and e) of paragraph 1 of this provision of the Regulation.

57. Thus, from a detailed analysis of the contractual information provided, it is worth noting the following:
- a. The fact that one of the PIAS fails to undertake to ensure minimum levels of quality of service for both the fixed and mobile IAS suggests poor compliance with Article 4(1) point d) of the aforementioned Regulation;
 - b. The failure, by most of the providers, to provide sufficient contractual information regarding the “corrective measures” available to users enabling them to act upon differences between the actual performance of the IAS and those publicised or contained in the contracts (point e) of Article 4(1) of the TSM Regulation);
 - c. In relation to the fulfilment of the requirements of clarity and comprehensibility, the information made available in some cases with regard to speeds, both for the fixed service and for the mobile service, as provided for under point d) of Article 4(1) of the TSM Regulation, refers users to the PIAS websites, which leads to the conclusion that the contractual conditions do not contain complete information, in particular, that enabling users to use the mechanisms provided for under subdivision e) of Article 4(1) of the TSM Regulation.
58. In view of the foregoing, it is noted that, although most of the providers have reflected the provisions of Article 4(1) of the TSM Regulation in the contractual conditions made available to users, there are still some situations in which greater clarity in the contracts concerned is justified in order to adequately reflect the applicable regulatory provisions and to ensure that all information provided to users is clear and easily understood.
59. Accordingly, ANACOM will continue to monitor these matters in order to develop a more detailed analysis regarding the issues already identified, with a view to

assessing the adequacy and proportionality of intervention in conjunction with providers to ensure compliance with the provisions of the TSM Regulation.

Information published on PIAS websites

60. As part of the supervisory and control activities provided for under Article 5 of the TSM Regulation, ANACOM has been monitoring the information provided by the PIAS pursuant to the aforementioned Article 4(1) of the same Regulation, not only in their respective contracts, but also in their information channels, in particular on websites, to ensure compliance with the obligations relating to the guarantee of open internet access in the area of transparency.
61. In addition, in 2019, a number of additional questions on some of the information provided for under Article 4(1) of the TSM Regulation were included in the AQEC2019. Specifically, this request for information related to transparency measures in the open internet, was addressed to all PIAS and focused specifically on the information published on the respective websites in relation to the following aspects of the aforementioned points a), b) and d) of Article 4(1) of the TSM Regulation:
 - a. Information on the impact that traffic management measures applied by the PIAS may have on the quality of the IAS, on the privacy of end-users and on the protection of their personal data;
 - b. A clear and comprehensible explanation of the practical impact that the limiting of volume, speed and other quality of service parameters may have on the IAS, and in particular on the use of content, applications and services;
 - c. A clear and comprehensible explanation of the minimum speed, the normally available speed, the maximum speed and the advertised speed of the IAS for download and upload, in the case of fixed networks, or the estimated maximum speed and advertised download and upload speed, in the case of mobile networks.
62. Previous Annual Reports had already identified weaknesses regarding the transparency measures implemented by the PIAS. Against this background, ANACOM indicated in those same documents several aspects that could be

improved. Although some improvements have been noted, there is still a good deal of scope for action in relation to transparency.

63. From the monitoring carried out during the period covered by this Report, it is noted that the information published regarding transparency measures on the websites of the PIAS with a greater presence in the market is not always easily accessible. In particular, there is a lack of information on the speeds associated with the offers placed on the market. In some cases, it is possible to access information on transparency measures under the ambit of the open internet by following links on the pages concerning tariffs to reach other page(s) or documents, but in other cases the process is less straightforward. Ultimately, some of this information appears only in the contracts published on the websites, without any links being provided to them from the pages concerning tariffs or the “conditions of supply of services” pages. It should also be noted that, in general, the information published differs according to the type of service. With some exceptions, information regarding the fixed internet tends to be more complete than the information regarding the mobile internet.
64. The PIAS have to make information available on their websites, in particular in relation to the impact of traffic management measures on the user experience. However it is noted that, in general, the content of the information published in this regard lacks clarity and specificity. Most of the PIAS warn of the need to implement traffic management measures, in particular by justifying the need to ensure the efficient use of resources, improve the quality of service, preserve the integrity and security of the network or prevent congestion on the network. However, the actual impact that these traffic management measures may have on the quality of the IAS, end-user privacy and on the protection of their personal data is not clearly stated. In the few cases in which there is some additional information, it is not exhaustive. In general, where there is an impact on the IAS, only a reduction in speeds is publicised, and, in the case of privacy and data protection, that the rights of users will be safeguarded.
65. In relation to information regarding the impacts of the specialised services subscribed to by the users under the IAS, this assumes different forms among the various providers with greater presence in the market. Regarding fixed internet, one provider states that, in general, specialised services have an effect

on the ability to reach the advertised speed; but further details on the subject are not provided. In turn, in addition to specifying the specialised services that may affect the IAS, another provider details the technical limitations by type of physical access. At the mobile internet level, one provider indicates that this type of service does not affect the availability or overall quality of internet access services because it is not offered as a replacement for the IAS.

66. Concerning the information presented on speeds (minimum, normally available, maximum and advertised speeds, in the case of fixed networks, and estimated maximum and publicised speed, in the case of mobile networks), the most critical aspects detected in relation to the PIAS with greater presence in the market related to the fact that:
- a. In most cases, the minimum speeds are not disclosed on the websites;
 - b. In some cases, the maximum and normally available speeds published on the websites appear to be inconsistent (being sometimes the same) or incomplete (for example, the period of time during which the customer may take advantage of the advertised speeds is not specified, or the respective definition is not even provided);
 - c. In cases of speeds of the IAS based on mobile technology, in most cases, reference to the fact that these are estimates has been omitted;
 - d. Some situations were detected where the information concerned was spread across different pages that were not always connected to one another, making it difficult for users to access the information or, in the case of one provider, situations where information regarding speeds is predominantly accessed by means of a link to the “conditions of supply of services”, which is very difficult to find and identify on the company’s website.
67. With a view to promoting the remedying of the shortcomings identified in the contractual information (as referred to in the preceding paragraph) and the information published by these PIAS concerning the transmission speeds in question (this information being essential for the protection of the rights of end-users as well as to enable them to make an informed choice), ANACOM forwarded specific communications to the PIAS concerned on 14.05.2019,

alerting to the need to comply with the requirements related to the provision of the information concerned, under the terms established by the TSM Regulation. Through the same communications, the PIAS were also asked to send to this Authority, within a maximum of 15 working days, information regarding the measures adopted or to be adopted in order to ensure compliance and regarding the schedule foreseen for its respective implementation and the date of the respective term.

68. The providers' responses were received within the stipulated deadline and under the terms requested, these providers stating that they had already put in place, or intended to put in place, a range of actions to be implemented by the end of July/August of this year, mainly focusing on changing the subscription contracts and the information contained on their respective websites, namely with a view to displaying all the various speeds (both download and upload) associated with the IAS offers made available through fixed technologies (minimum speed, maximum speed and advertised speed) or mobile technologies (estimated maximum speed and advertised speed), as well as clear and comprehensible explanations of them, and a proposal to correct any inconsistencies detected. According to the preliminary analysis already carried out, the actions that the providers concerned have indicated are ongoing and/or that they intend to put in place in the short term seem to cover most of the aspects identified by ANACOM in the communications sent to them. Nevertheless, the Regulator will continue its review, in particular through the verification of the PIAS websites and their subscription contracts as the changes to them are implemented.
69. Information on the practical impact that the volume limitation, speed and other quality of service parameters may have on the IAS, and in particular on the use of content, applications and services, is one of the topics most commonly omitted by providers on the internet. Information regarding the corrective measures available to users in the event of a significant, continuous or recurring discrepancy between actual and advertised performance is likewise scarce. Only one of the providers with greater presence in the market provides information on the process in the event of non-compliance with agreed quality levels, which consists of a system of compensation and reimbursement to the end-user.

70. Regarding the information on open internet transparency received through the AQEC2019, which is still under analysis, it is possible to state from the outset that, in the case of the remaining PIAS, other than those with greater presence in the market and in comparison with those, the information is much scarcer and is significantly less detailed at all levels than that required under the TSM Regulation.
71. ANACOM believes that it is important for the PIAS to commit to greater levels of transparency so that users may gain a full understanding of the commercial and technical conditions associated with IAS, thus bolstering open internet access. In compliance with the TSM Regulation, this commitment must be based on the information provided in the contracts, on their websites, as well as in the other information channels directed towards users, which should be clearer, more detailed and more accessible.

B.3 Other topics

72. In addition to the themes inherent to commercial practices (generally referred to under Article 3(2)) and to transparency (as set out in Article 4), the TSM Regulation focuses on other matters within the scope of guaranteeing open internet access. Although restrictions on traffic management practices are imposed, this Regulation allows reasonable traffic management measures, as set out in Article 3(3) thereof. Additionally, the PIAS are free to provide specialised services, in accordance with Article 3(5) of the same Regulation.
73. In the previous Annual Report, under its supervisory activities, ANACOM addressed issues related to traffic management, specialised services and the methodologies and systems used to determine quality indicators, as well as zero-rating commercial practices and transparency measures. Regarding these matters, it should be pointed out that, as of the date of this Report, ANACOM is not aware of any changes in relation to that which was previously reported.
74. However, new topics for reflection are emerging, involving new technologies and services and their consequent compatibility with open internet principle. This is what is happening with respect to the implications of 5G in terms of net neutrality,

around which there is not always consensus, especially in the context of network slicing and edge computing.

75. Given that the TSM Regulation encourages innovation in the internet ecosystem, but also aims to guarantee open internet access, 5G has received increased attention from ANACOM. With the emergence of 5G in the field of electronic communications and the consequent availability of new services, such as M2M⁸ and IOT services⁹, there is an increasingly urgent need to understand to what extent the new technologies, and the services that result from them, are in line with provisions of the TSM Regulation.

C. Complaints relating to non-compliance with the TSM Regulation

76. Monitoring trends in the number of complaints, in particular those relating to net neutrality, is important in order to assess compliance with Articles 3 and 4 of the TSM Regulation. However, given the high volume of complaints and the existence of very broad classifications of complaints, it is often difficult to identify the actual number of complaints related to open internet access.
77. Generally speaking, for the period covered by this report, the Marktest Telecommunications Barometer evidences a decrease in the complaint rate in relation to electronic communications services,¹⁰ from 18.8% in May 2018 to 16.6% in September of 2018, the point at which the trend was reversed, rising to 19.8% in December 2018. However, when analysing mobile phone services (voice and data), the complaint rate¹¹ assumes a linear trend pattern, with a slight drop in September 2018.

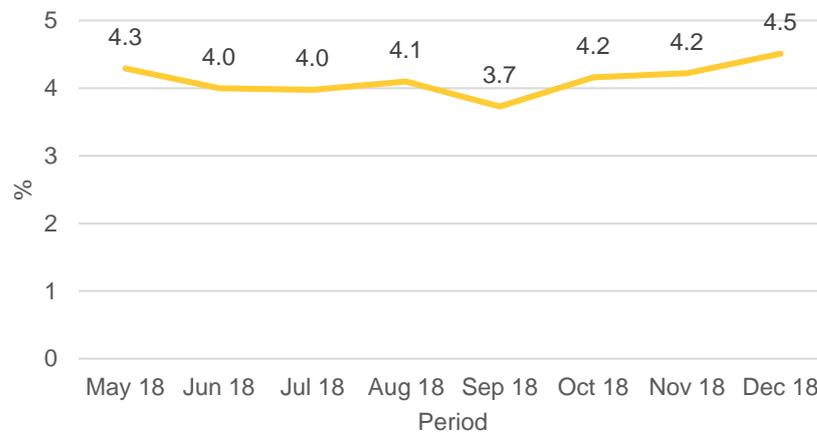
⁸ *Machine to machine.*

⁹ *Internet of things.*

¹⁰ The complaint rate is the proportion of individuals aged 15 or over, who have complained in the last six months about any electronic communications service.

¹¹ The complaint rate is the proportion of individuals aged 15 or over, who have made a complaint in the last six months regarding the mobile phone service.

Figure 1: Mobile telephone service complaint rate (voice and data)



Source: Marktest Telecommunications Barometer.

Basis: Individuals aged 15 years or over, customers of the respective mobile telephone service (voice and data).

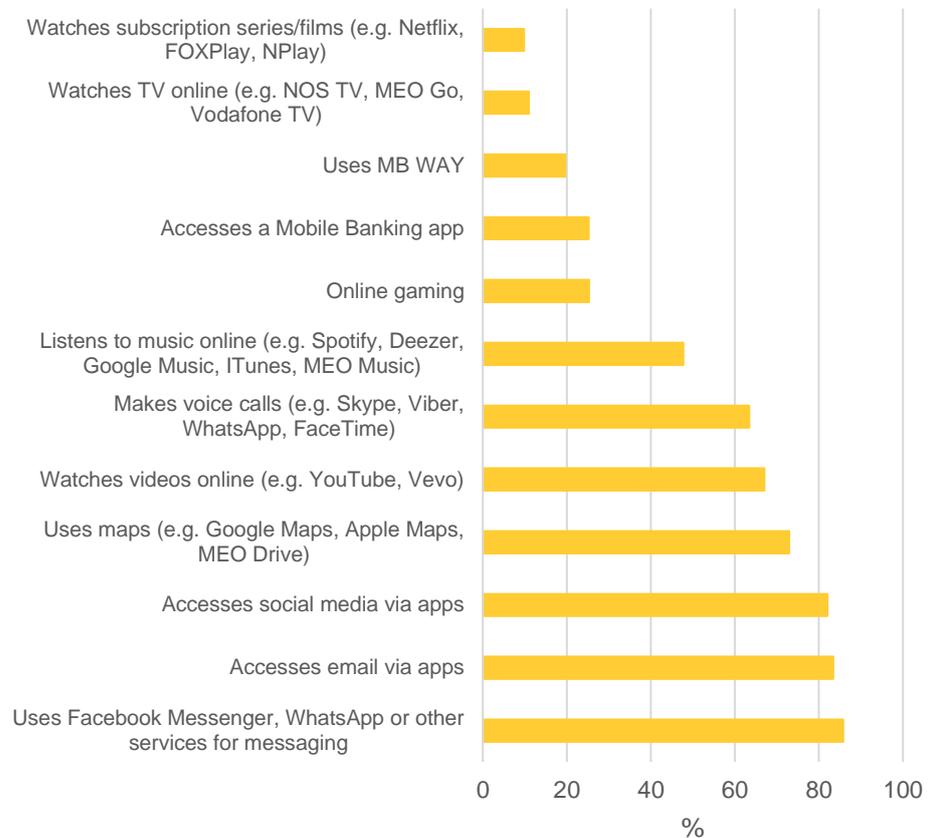
78. The main motivations for submitting a complaint to this service did not differ much over the periods covered, with the following reasons being notable in December 2018: (i) price increase/high price, (ii) improperly charged services, (iii) billing errors and (iv) lack of network/coverage. These reasons represent about 59% of the complaints made regarding the mobile phone service (voice and data).
79. Although not very widely reported, lack of information on the minimum speed in contracts (and on the websites of some of the PIAS) was also the subject of complaint.
80. Without prejudice to a detailed analysis on this issue, on the basis of the information existing at the time, the presence of a direct relationship, namely cause and effect, cannot be inferred between the implementation of the amendments by the PIAS as a result of the decision of ANACOM regarding zero-rating and similar offers, with effect from mid-September 2018, and the rate of complaints.
81. Regarding average satisfaction with the resolution of complaints regarding mobile phone services (voice and data), this ranges from 5.1 to 5.8, on a scale from 1 (totally dissatisfied) to 10 (totally satisfied) for the period between May and December 2018, and there were no significant fluctuations from this reference value worth mentioning in the period under review.

D. Studies carried out in the context of the implementation of the TSM Regulation

82. Given the relevance of this topic in the context of the open internet, ANACOM continues to monitor the development and use of over-the-top (hereinafter “OTT”) applications and content services in Portugal. One of the OTT services of particular note is on-demand streaming. According to the Marktest Telecommunications Barometer, subscription to on-demand streaming services has been growing, with, in December 2018, 10.9% of individuals claiming to subscribe to an on-demand streaming service (such as Netflix, NOS Play, FOX Play and Amazon Prime Video), up 4.5 percentage points (p.p.) over the same period of last year. Despite the greater prevalence of subscriptions among the 10/14 and 15/24-year age groups in December 2018, the trend of growth is evident in the various age groups, in particular the 15/24 and 35/44-year bands, where there was higher growth when compared to May 2018. Netflix stands among the services with the highest number of subscriptions, with a subscriber ratio of 9.6% in December 2018.
83. The growing use of smartphones has contributed to an increase in the use of the internet on mobile phones, and consequently an increase in the use of OTT services in mobile phone internet access. Under this type of access, most individuals use OTT services to send messages (85.8%), access email (83.4%) and access social media (82%). It should be noted that among the various OTT services used, MB WAY¹² exhibited the highest growth, being used by 19.6% of individuals in December 2018, which corresponds to an increase of 5 p.p. in relation to May 2018, and an increase of 8.5 p.p. over the previous year.

¹² MB WAY is an application that allows users to make transfers, online and physical purchases, generate virtual cards and withdraw money using a smartphone, tablet or computer.

Figure 2: Proportion of individuals with internet access via a mobile phone, by means of OTT services, as of December 2018



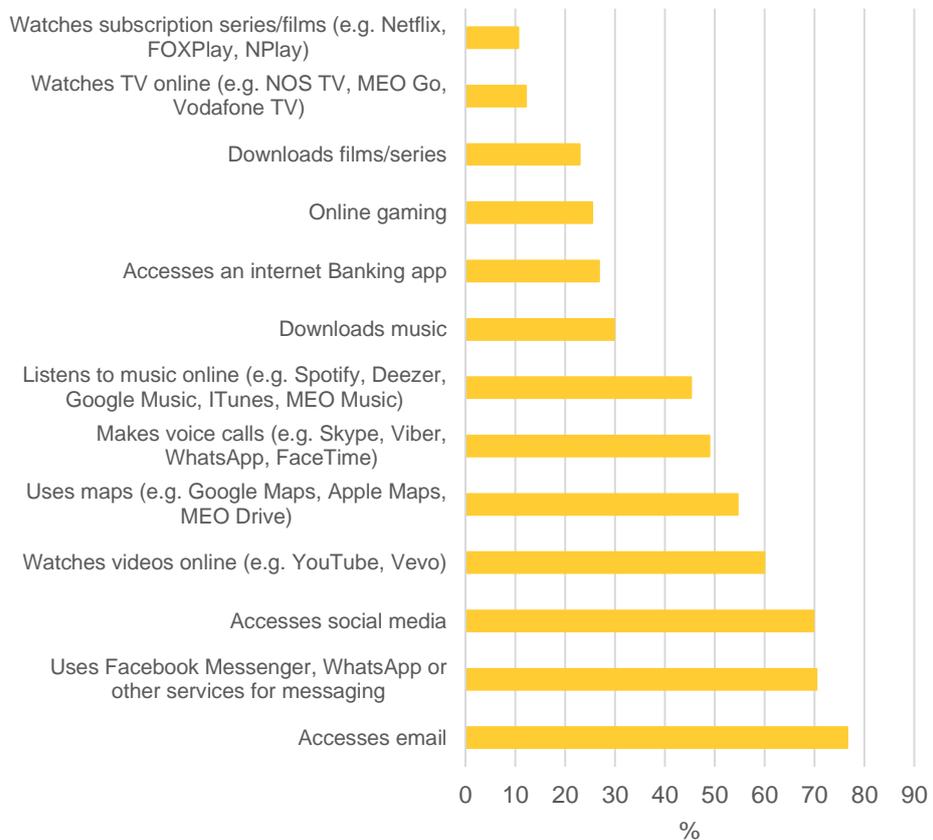
Source: Marktest Telecommunications Barometer.

Basis: Individuals aged 10 years or over with internet access via mobile phone.

Note: Multiple choice question.

84. The use of OTT services in fixed internet access has also increased. In this case, the most used services are similar to those identified in mobile phone internet access, although the most prevalent are services for accessing email, with 76.6% in December 2018, followed by messaging services, with 70.4% in the same period. However, the services that reported the highest growth in use are subscription services for viewing series and/or films (an increase of 3.6 p.p. between May and December 2018).

Figure 3: Proportion of individuals with fixed internet access, by means of OTT services, as of December 2018



Source: Marktest Telecommunications Barometer.

Basis: Individuals aged 15 years or over living in households with fixed internet access.

Note: Multiple choice question.

E. Main results of the evaluation of technical parameters carried out in the context of application of the TSM Regulation

- 85. ANACOM provides users with the NET.mede service, which allows users to test, from a computer, smartphone or tablet, a range of performance parameters of their IAS, in particular speed, as well as check if there are any indications of bandwidth management for two specific applications: BitTorrent (peer-to-peer) and Flash Video (streaming).

86. The speed tests can be performed through a browser¹³, or through the NET.mede app, an application provided by ANACOM¹⁴ for installation and registration by users. The bandwidth management tests can be performed through the application made available by ANACOM for this purpose¹⁵.
87. The basic NET.mede speed test performed via the browser is intended for more immediate and occasional use, and provides the user with speed measurement data for download/upload, latency and jitter, as well as a qualitative report, indicative of the suitability of the user's connection for some examples of services/applications.
88. The NET.mede app, for its part, offers a more complete test (including download/upload, latency, jitter, packet loss and web browsing/HTTP performance measurements) and is intended for more regular use, allowing each user to consult in his/her private My NET.mede area¹⁶, accessible through the registration of credentials, a history of recent NET.mede app test results, in their various accesses (fixed and mobile) and equipment (computer, smartphone or tablet).
89. The results of the basic speed tests performed through the browser, as well as the bandwidth management tests, are the subject of aggregate disclosure¹⁷, based on the type of internet access (fixed or mobile), user (residential or other) and equipment¹⁸, as well as an approximate geolocation¹⁹.
90. The collection and processing of the results of the tests carried out by users provide useful information and indications for monitoring the quality of the IAS. It should also be noted that, given that:

¹³ From the page <https://netmede.pt/>.

¹⁴ From the page <https://netmede.pt/app> or platforms that provide computer content of this nature.

¹⁵ From the page <https://netmede.pt/traffic-shaping>.

¹⁶ From the page <https://app.netmede.pt/#/>.

¹⁷ On the page <https://netmede.pt/estatisticas>.

¹⁸ Information on the type of access (fixed or mobile) and type of user (residential or other) is derived from the IP addresses used in the tests and is obtained from third-party sources, on which the quality of this information depends. Information regarding the type of equipment is obtained from the browser.

¹⁹ Location information in the case of speed and bandwidth management tests is derived from the IP addresses used in the tests, obtained from third-party sources or, where authorised by the user and for speed tests only, is extracted through the browser, which allows greater accuracy.

- a. The tests carried out on the NET.mede are voluntary and non-random in nature;
- b. The results of the tests depend on the contracted speeds and also on other factors of consumer behaviour that influence them (such as situations of dissatisfaction with the speed received and speed validation associated with recent subscriptions to the service);
- c. The user-specific motivations for conducting the tests are not controllable.

The results presented cannot be extrapolated to internet users in Portugal as a whole, as the necessary statistical representativeness of this group cannot be guaranteed.

- 91. In July 2018, ANACOM created a direct connection from the NET.mede platform to the GigaPIX, in order to bolster the connection infrastructure and support a greater number of simultaneous tests, especially given the increase in the speeds contracted by users.

Access speeds

- 92. From 01.05.2018 to 30.04.2019, NET.mede carried out around 880,000 tests on the speed of internet access. This number is around 542,000 tests if the unexpected results are eliminated and the results of consecutive tests from a single IP address are aggregated into a single test²⁰.

²⁰ Firstly, it was eliminated results that did not comply with the following restrictions, which were defined taking into account the commercial plans existing in the Portuguese market:

Type of access	Download	Upload	Latency
Fixed residential; Non-residential; International; Undefined	[0.25 Mbps; 1250 Mbps]]0 Mbps; 250 Mbps]	[0 ms; 1000 ms]
Mobile	[0.25 Mbps; 500 Mbps]]0 Mbps; 60 Mbps]	

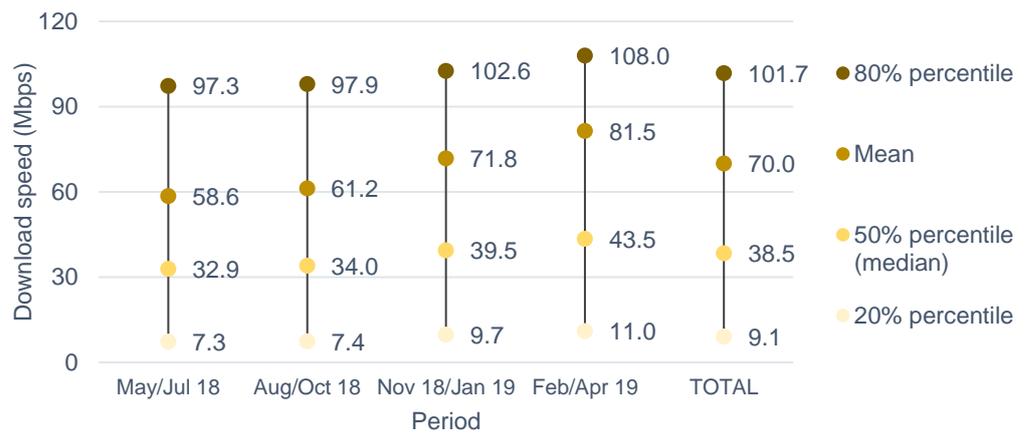
Secondly, in order to reduce the effect of the most frequent and systematic users on the total number of tests performed, the tests performed from the same IP address on the same day and at the same time were aggregated into a single test using the mean value of the aggregated tests. These averages are called average tests per IP and time, and the aggregation is done taking into account the type of access, type of device, type of operating system, location, IP and date and time of the test.

A total of 542,000 tests with average results resulted from this processing, identified below as speed tests, to simplify the reading of this document.

93. Note that the results of user tests conducted using the NET.mede app, which at the time did not offer the option of producing aggregated statistics, are not presented in this report.
94. The number of tests performed per month has been increasing. The last three months of the analysis (February, March and April of 2019) were those in which the most tests were registered, surpassing the 55,000 mark in each month.
95. The following analyses of this section of the report focus exclusively on the tests identified as coming from residential fixed accesses (79%) and mobile accesses (6%), in both cases originating from national providers. The tests identified as originating from accesses pertaining to providers operating outside Portugal (1.1%) and non-residential fixed accesses (1.1%) were excluded, as they were not the target of the use of the NET.mede tool, along with tests in which it was not possible to determine the type of access tested (12%).
96. It should be noted that the number of tests identified during the analysis period as coming from mobile accesses is much lower than those from fixed accesses, and this fact should be taken into account in the following analyses.
97. In the period under consideration, the average value obtained for the download speed measured by users with residential fixed accesses who performed one or more tests using NET.mede was 70.0 Mbps. Half of the users achieved a result higher than 38.5 Mbps (median value).

98. There was an increase in download speed measured over the analysis period, in both mean and median terms – while between May and July 2018, the median speed obtained was 32.9 Mbps, between February and April 2019 it was 43.5 Mbps, a difference of around 10.6 Mbps.

Figure 4: Quarterly trend in download speed measured in residential fixed accesses



Source: ANACOM, based on information collected from NET.mede results.

99. As recorded in the download speed, the upload speed also showed an increase in the values measured between May 2018 and April 2019, both in terms of mean and median results. The mean value obtained in the period was 35.2 Mbps, while the median value was 16.0 Mbps.

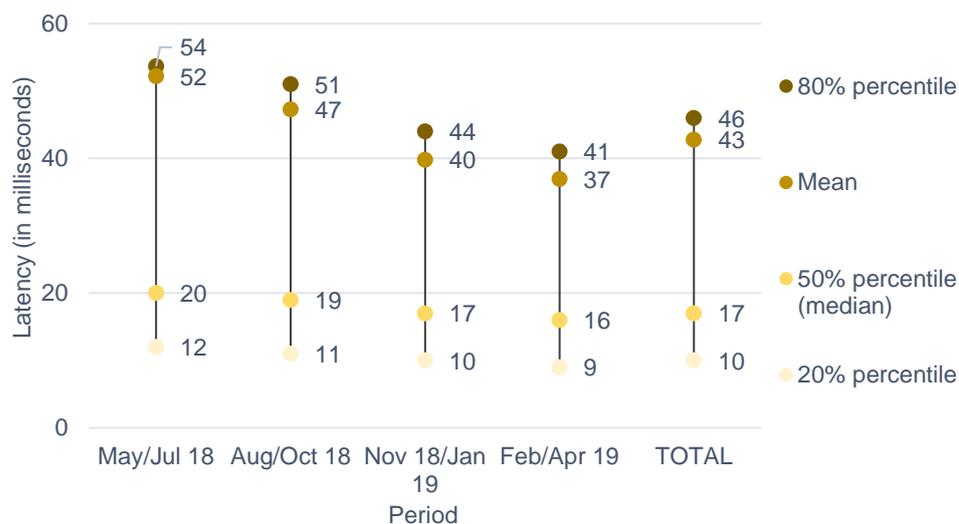
Figure 5: Quarterly trend in upload speed measured in residential fixed accesses



Source: ANACOM, based on information collected from NET.mede results.

100. The mean latency obtained in the period was 43 milliseconds, while half of the tests returned latency less than or equal to 17 milliseconds. As with the speeds, the values improved over the period.

Figure 6: Quarterly trend in latency measured in residential fixed accesses



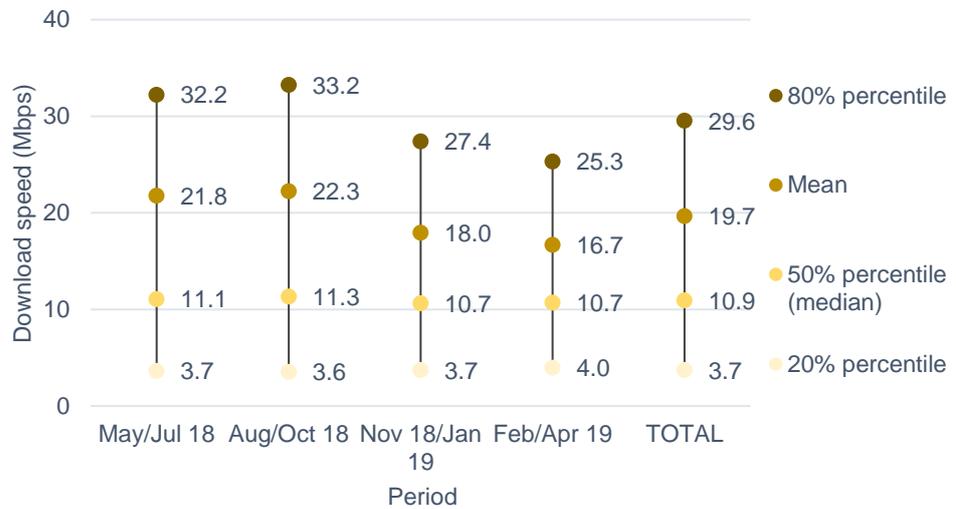
Source: ANACOM, based on information collected from NET.mede results.

101. The jitter obtained in the NET.mede tests carried out by residential fixed accesses improved in average terms in the period, from 10 ms between May and July 2018 to 6 ms between February and April 2019, while the median was 1 ms across the entire period under review.

102. Regarding the speed of mobile accesses, the mean value obtained for the download speed measured by users with mobile accesses who performed one or more NET.mede tests was 19.7 Mbps, which compares with a median of 10.9 Mbps for the period under analysis.

103. Contrary to the tests performed on residential fixed accesses, there was a slight decrease in the download speed measured during the period under analysis, especially in mean terms, with the median value remaining practically unchanged.

Figure 7: Quarterly trend in download speeds measured in mobile accesses



Source: ANACOM, based on information collected from NET.mede results.

104. In terms of the measured upload speed, in the period under analysis, the mean value resulting from the tests performed was 9.3 Mbps and the median value 5.5 Mbps. As with the measured download speeds, there was a decrease mainly in the mean value, with the median value of uploads associated with mobile accesses remaining practically unchanged.

Figure 8: Quarterly trend in upload speeds measured in mobile accesses

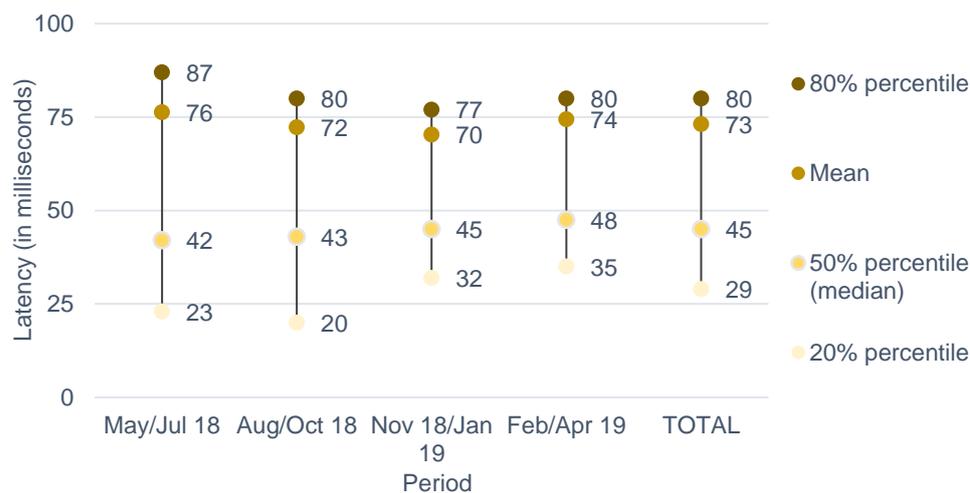


Source: ANACOM, based on information collected from NET.mede results.

105. In the mobile accesses, the measured latency was higher than that registered in residential fixed accesses, as expected. The mean obtained in the period was 73

milliseconds, while the median was 45 milliseconds. As in the other speed indicators, there was a slight degradation in the latency values recorded in both mean and median terms.

Figure 9: Quarterly trend in latency measured in mobile accesses



Source: ANACOM, based on information collected from NET.mede results.

106. Jitter was the only indicator associated with mobile accesses in relation to which values improved during the analysis period. In mean terms, a value of 12 ms was found, while the 50th percentile (median) was 3 ms.

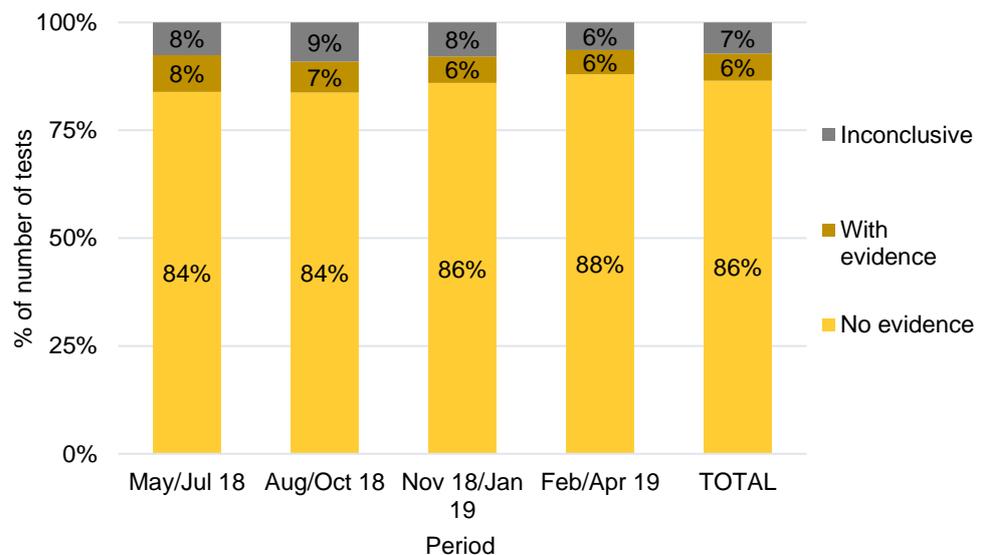
Bandwidth management

107. Between the beginning of May 2018 and the end of April 2019, around 13,000 bandwidth tests were performed through NET.mede, using two specific protocols: BitTorrent and Flash Video. It was during the month of February 2019 that the most tests were performed (27% of the total tests), followed by March of the same year (12%).

108. It should be noted that evidence of bandwidth management practices does not in itself indicate situations that fall outside the provisions of Article 3 of the TSM Regulation, which provides for a number of situations in which traffic management is permissible. In this context, above all, the information collected provides indications that may be useful in identifying situations that are likely to be developed further.

109. The following analysis will focus exclusively on the tests identified as coming from residential fixed accesses (69%) and mobile accesses (1.2%), originating from national providers, for the period concerned.
110. The tests identified as originating from accesses pertaining to providers operating outside Portugal (17%) and non-residential fixed accesses (0.4%) were excluded, as they were not the target of the use of the NET.mede tool, along with tests in which it was not possible to determine the type of access tested (12%).
111. In residential fixed accesses, evidence of bandwidth management was found in 6% of the tests performed in the period under analysis, and for 7% of the tests, the results were inconclusive.

Figure 10: Quarterly distribution of number of bandwidth management tests in fixed accesses



Source: ANACOM, based on information collected from NET.mede results.

112. The results showing evidence of bandwidth management were more frequent at the download level (4%) than at the upload level (2%) during the analysis period and considering the NET.mede tests performed from residential fixed accesses.
113. There was a decrease in the proportion of tests with evidence of bandwidth management throughout the period, both in terms of download and upload.

114. Regarding the results obtained by the tests performed on bandwidth management in mobile accesses, evidence was found of bandwidth management in 14% of the tests carried out in Portugal during the analysis period, a proportion higher than that observed in fixed accesses, which may be due to the fact that the number of tests associated with mobile accesses was very low (167 tests in one year). For 11% of the tests, the results were inconclusive.
115. By type of speed, more evidence of bandwidth management was found at download level (10%) than at upload level (7%).
116. A quarterly analysis is not performed due to the small number of tests of bandwidth management made from this type of access. It is also noted that the application to perform this test is only available for installation on a computer.

F. Assessment of the continued availability of non-discriminatory IAS

117. In accordance with the TSM Regulation, the NRA are responsible for ensuring compliance with Articles 3 and 4 of that Regulation and to promote the at levels of quality that reflect technological progress (cf. Article 5(1)).
118. In this context, ANACOM has followed the trend in various indicators associated with the IAS in order to assess the connectivity and coverage of the networks and determine the availability and quality of the services. Compared to the EU average, Portugal has been notable for having high levels of coverage, both in terms of fixed and mobile broadband networks. According to the study *“Broadband Coverage in Europe 2017”*²¹, Portugal was the country with the highest FTTH coverage²², availability of non-discriminatory IAS in mid-2017, reaching 89.4%²³ of dwellings. At the end of the first half of 2018, the number of cabled households with fibre to the home (FTTH) stood at around 4.2 million²⁴, 10.5% up on the same period of the previous year, according to ANACOM data²⁵.

²¹ Study available at <https://ec.europa.eu/digital-single-market/en/news/study-broadband-coverage-europe-2017>.

²² Acronym for “Fibre-to-the-home”.

²³ Includes double counting.

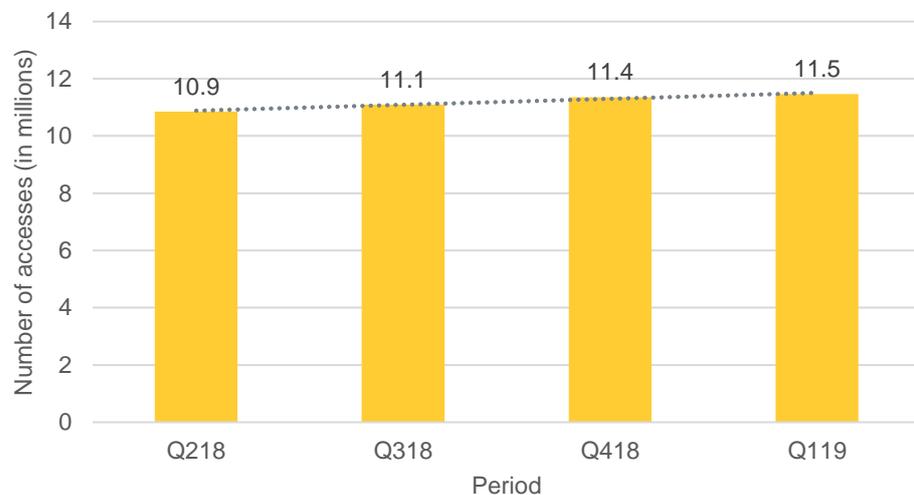
²⁴ Does not include double counting.

²⁵ Statistics available at <https://www.anacom.pt/render.jsp?categoryId=383973>.

Additionally, the coverage of high-speed networks at a fixed location in the first half of 2018 reached at least 71.8%²⁶, 3.1 p.p. higher than at the end of the first half of the previous year, according to ANACOM estimates.

119. In this regard, it should be noted that the total number of broadband accesses (fixed and mobile) has grown over the years, reaching 11.4 million accesses in the first quarter of 2019, translating into growth rate of 8.6% over the corresponding period of the previous year.

Figure 11: Trend in total number of broadband accesses (fixed and mobile)



Source: ANACOM Statistics – Internet access services Q12019.
Unit: Millions of accesses.

120. The growth in the number of broadband accesses is mainly explained by the positive trend in mobile access. By the end of 2018, mobile broadband accesses accounted for approximately 67% of total accesses.

121. Fixed broadband accesses have been growing, albeit to a lesser degree when compared to mobile accesses. In general terms, the number of fibre optic accesses has been increasing, with a corresponding reduction in the number of ADSL accesses being reported.

²⁶ Does not include double counting.

Table 1: Trend in the number of IAS accesses by support network

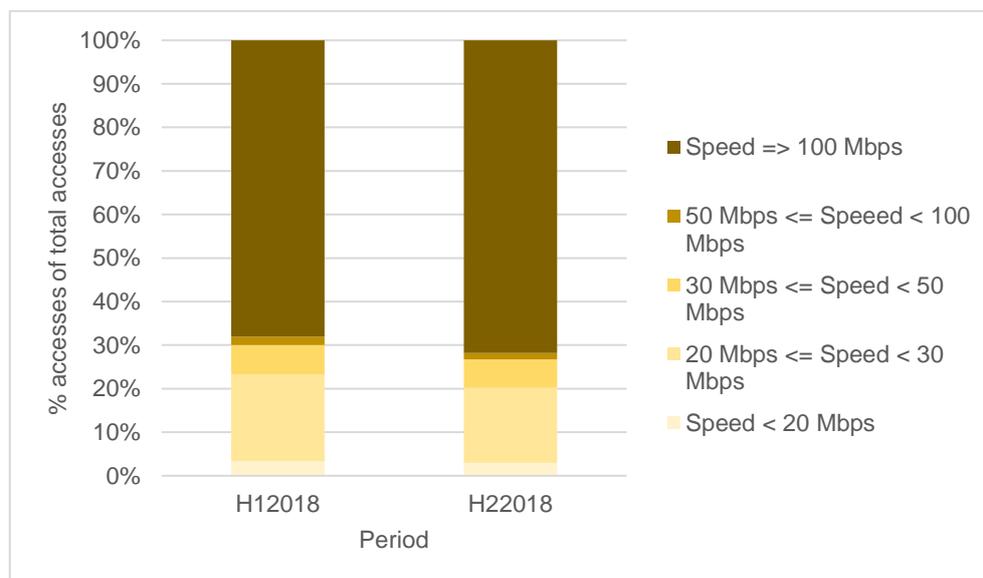
Technology	Q22018	Q32018	Q42018	Q12019
FTTH/B	1541	1622	1711	1795
Cable modem	1171	1177	1181	1181
xDSL	673	641	607	573
Mobile networks	283	285	285	276
Other	2	1	1	2
Total	3670	3727	3785	3826

Source: ANACOM Statistics – Internet access services Q12019.

Unit: Thousand accesses.

122. When observing the evolution of the number of fixed broadband accesses as a function of speed, over 2018, it is found that more than half of the accesses have speeds equal to or greater than 100 Mbps (72% in December 2018), up 4 p.p. compared to the first half of 2018.

Figure 12: Trend in distribution of fixed accesses by speed



Source: ANACOM Statistics – Internet access services Q12019.

Unit: Thousand accesses.

123. As a result, the internet penetration rate in the home has also been growing over the years, corresponding to around 86% by the end of December 2018.

Table 2: Trend in the internet penetration rate in the home

Indicator	Q22018	Q32018	Q42018
Internet penetration in homes	84.9%	84.7%	85.7%

Source: Marktest Telecommunications Barometer.

Basis: Homes.

124. As regards internet access traffic, it has grown both in terms of fixed and mobile broadband. In detail, the average monthly fixed broadband internet traffic per access grew 18% from June 2018 to March 2019, translating to 118.3 GB in the first quarter of 2019. In turn, broadband data traffic originating from mobile networks for internet access grew by 19% between June 2018 and March 2019.

G. Dissemination of the application of the TSM Regulation

125. With regard to the dissemination of activities carried out in the context of the application of the provisions of the TSM Regulation, the publication on the ANACOM website, on 09.07.2018, of the decision on zero-rating and similar commercial practices in Portugal is of particular importance. It should be noted that this publication received wide media coverage, resulting in very diverse opinions regarding the decision, as had already been observed in the contributions presented to ANACOM during the public consultation.

126. In order to ensure proper implementation of the determinations specified in the aforementioned decision, and consequently to ensure compliance with the TSM Regulation by the PIAS, ANACOM sent a communication to the providers affected by the decision, subsequently reflected in a clarification on the ANACOM website²⁷, elucidating some points and making the PIAS responsible for the options taken to conform to the decision. By doing so, this Authority reiterated the content of the decision by clarifying to providers the importance of adopting solutions that would comply with the principle of net neutrality and safeguard the interests of consumers. In the aforementioned communiqué, ANACOM also highlighted the benefits of the open internet, highlighting its role in the development of society and the economy, by providing an environment of innovation.

²⁷ Communiqué available at <https://www.anacom.pt/render.jsp?contentId=1461601>.

127. Notwithstanding the activities already carried out in terms of net neutrality, ANACOM decided to include in its 2019-2021 multiannual plan of activities²⁸, not only the preparation of the Annual Report provided for under the TSM Regulation, but also an activity to analyse the motivations underlying the availability of zero-rating offers and specialised services. The actions outlined in the net neutrality plan reflect the need for continuous assessment of zero-rating and similar offers and other traffic management practices, internet quality of service and transparency of information to end-users, safeguarding consumer rights.

H. Measures adopted by ANACOM under Article 5(1)

128. Article 5(1) of the TSM Regulation recognises the controlling and oversight role of the NRA to ensure law enforcement, in particular compliance with Articles 3 and 4, regarding open internet access. The above-mentioned article also assumes that these entities *“promote the continued availability of non-discriminatory internet access services at levels of quality that reflect advances in technology”*.

129. In the previous Annual Report, ANACOM had already mentioned the work carried out on zero-rating and similar offers, which culminated in the approval of a DD in early 2018. Once the parties interested in the DD had been consulted in the process of prior hearing and public consultation, and there being no changes to the evidence found in the analyses that underpinned the DD, ANACOM, as already mentioned in III.A of this report, approved on 03.07.2018, the decision on zero-rating and similar commercial practices in Portugal. This is one of the main measures adopted by ANACOM, within the framework of the control carried out by this Authority, during the period covered by this Annual Report.

130. As mentioned in the decision, ANACOM identified zero-rating commercial offers in which the applications were all blocked, except for zero-rated applications, when the general data allowance was used up. This situation constituted a breach of the requirements of the TSM Regulation, as it constituted a form of improper traffic management.

²⁸ Document available at <https://www.anacom.pt/render.jsp?contentId=1468622>.

131. In view of the above, ANACOM established changes to the procedures adopted in the offers that include mobile IAS, in cases where there is differential traffic treatment, after the general data allowances have been used up, between the content and/or applications included in the specific data allowances, or that are available without traffic limits, and other content and/or applications included in the general data allowances.
132. ANACOM also established changes to the procedures adopted in the offers that include mobile IAS in cases where there are content and/or applications, in relation to which the roaming conditions within the EEA are not equivalent to those available on the national territory, in order to safeguard the Roam Like At Home principle.
133. In order to guarantee the transparency of the changes implemented, ANACOM determined the adaptation of the information disseminated in the various information channels, by virtue of the changes that the providers chose to make in order to comply with the provisions of the TSM Regulation, in terms of traffic management and roaming. This measure was intended to provide consumers with relevant information regarding the changes implemented by the PIAS to the conditions of supply and use of their services, as well as regarding the underlying contractual conditions.
134. In the decision, ANACOM also submitted recommendations to the PIAS to better ensure users' free choice regarding content, applications and services available by means of the internet access. In this context, the Authority recommended that the PIAS approximate the traffic volumes included in the general data allowances to the traffic volumes in the specific data allowances in their mobile internet access offers. Additionally, it was recommended that the PIAS should publish the specific conditions imposed on entities potentially interested in incorporating their content and/or applications into zero-rating and similar offers.
135. This Authority has also continued to monitor the implementation of the recommendations set out in the decision on zero-rating and similar offers. However, it is noted that no significant changes in the PIAS offers have been reported in this regard.

136. As mentioned above, in view of the potential impacts of zero-rating business practices on net neutrality, ANACOM believes that continuous monitoring and assessment of this type of practice is justified. It should be noted, however, that as a result of the decision taken in July 2018, with regard to traffic management after the general data allowances have been used up, the PIAS complied with the decision of the Regulator and have adapted their offers to conform to the TSM Regulation.

IV. Key Conclusions

137. Throughout the period from May 2018 to April 2019, to which this Report refers, ANACOM carried out various activities and initiatives around the theme of the open internet in the light of the control obligations provided for under the TSM Regulation. Against this background, it is important to highlight, among other activities, the approval of the final decision of 03.07.2018 on zero-rating and similar commercial practices in Portugal. In short, by means of this decision, ANACOM sought to ensure compliance of zero-rating and similar offers with the provisions of the TSM Regulation on net neutrality and roaming, which was achieved, as the PIAS made changes to their offers in order to comply with its determinations.

138. In another area, in view of the shortcomings detected by ANACOM with regard to transparency in guaranteeing access to the open internet, in contracts and on the websites pertaining to the PIAS with greater presence in the market, this Authority sent communications to these PIAS to alert them to the need to ensure compliance with the requirements relating to the availability of the information concerned, in accordance with the provisions of the TSM Regulation. Following that, they were also requested to inform the Authority of the measures taken or to be taken to that end, and to provide a timetable for their implementation and their respective date of expiry. The responses that have been received in the meantime point to the fact that the PIAS have already begun or are about to initiate an array of actions, to be implemented by the end of July/August of this year, to correct the situations identified, which appear to cover the majority of the aspects detected by ANACOM. Nevertheless, ANACOM will continue to monitor this situation, in particular through the verification of the PIAS websites and their subscription contracts as the changes to them are implemented.

139. Under the TSM Regulation, it is incumbent upon the NRA to take action against agreements or commercial practices that, due to their scale, lead to situations that jeopardise the rights of end-users. For this purpose, ANACOM will continue to conduct research on this problem in order to evaluate possible effects of zero-rating and similar practices in the open internet domain.
140. The aim is to assess whether, due to their characteristics and by comparison to other IAS offers, zero-rating and similar market offers in Portugal negatively and significantly affect the rights of end-users. These issues may be particularly relevant in Portugal, as there is a wide range of zero-rating and similar offers at national level, and especially in a context where the IAS provides reduced data volumes under general data allowances in a number of cases.
141. Notwithstanding this analysis, with regard to the theme of the open internet, in its plan of activities for the period 2019-2021, ANACOM also undertook to perform a deeper analysis of specialised services. By doing so, the aim is to assess whether the optimisation applied in this type of service is actually necessary to respect the requirements of the content, applications and/or services with a specific level of quality, as well as to investigate the possible impacts on the exercise of end-user freedom of choice.
142. Additionally, ANACOM is committed to studying this problem in the context of new challenges, such as 5G, not only because it is a state-of-the-art technology, but also because it enables practices, the compatibility of which with open internet access has not been the subject of consensus. Other issues, such as those involving the use of terminal equipment, in particular for mobile IAS and respective operating systems, may be of some relevance, and have already been the subject of analysis by some european Regulators.

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