

**MARKETS FOR THE SUPPLY OF WHOLESALE (PHYSICAL) NETWORK
INFRASTRUCTURE ACCESS AT A FIXED LOCATION AND WHOLESALE
BROADBAND ACCESS**

**Definition of product markets and geographic markets, assessments of SMP and imposition,
maintenance, alteration or removal of regulatory obligations**

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1. INTRODUCTION

1.1. The conclusions of the latest market analyses

1.1.1. The market of wholesale provision of unbundled access

By determination of 30 March 2005, the Board of ICP-ANACOM approved the decision on the definition of product markets and geographic markets, assessments of significant market power (SMP) and imposition, maintenance, alteration or removal of regulatory obligations in the wholesale market of unbundled access¹.

In this analysis, ICP-ANACOM identified the following relevant market for the purposes of *ex-ante* regulation:

- Wholesale supply of unbundled access (including shared access) to metallic loops and sub-loops for the provision of broadband and voice services, covering the entire national territory.

Having made an analysis of the above market², ICP-ANACOM concluded that Grupo PT held SMP in the identified relevant market and as a consequence imposed the obligations set out in **Error! Not a valid bookmark self-reference.**

Table 1 – Obligations imposed on companies identified with SMP in the relevant market - Market 11

Obligations	Market of wholesale provision of unbundled access (including shared access) to loops and sub-loops for the provision of broadband and voice services
Access to and use of specific resources networks	<ul style="list-style-type: none"> ▪ Grant access to local loops and sub-loops and associated resources ▪ Negotiate in good faith with companies requesting access ▪ Not withdraw access already granted to determined resources
Transparency in the publication of information, including reference offers	<ul style="list-style-type: none"> ▪ Publication of the ORALL ▪ 30 days notice of alterations to the offer
Non-discrimination in the provision of access and interconnection and in the provision of the respective information	<ul style="list-style-type: none"> ▪ Not engage in undue discrimination with respect to the provision of access to local loops and sub-loops and associated resources
Separation of accounts for specific activities related to access and / or interconnection	<ul style="list-style-type: none"> ▪ Cost accounting system and accounting separation
Price control and cost accounting	<ul style="list-style-type: none"> ▪ Set cost-oriented prices ▪ Maintain the methodology used to estimate costs ▪ Possibility of moving towards forward-looking long-run incremental cost models
Financial Reporting	<ul style="list-style-type: none"> ▪ Provision of accounting records (AAS) including data on revenue from third parties

¹Market 11 of EC Recommendation 2003/311/EC of 11 February, 2003.

²Taking utmost account of the EC guidelines on the analysis and assessment of SMP within the scope of the community regulatory framework for electronic communication services and networks.

1.1.2. The market of wholesale provision of broadband access

By determination of 24 June 2005, the Board of ICP-ANACOM granted approval to the decision on the definition of product markets and geographic markets, assessments of significant market power (SMP) and the imposition, maintenance, alteration or removal of regulatory obligations in the wholesale broadband access market³.

In this analysis, after identifying the retail broadband access market⁴ as non-competitive, ICP-ANACOM identified the following related wholesale market:

- Wholesale supply of broadband access which includes services of broadband access supported over the public switched telephone network and cable distribution networks, covering the entire national territory.

Having identified the above market, ICP-ANACOM concluded that Grupo PT had SMP in the identified relevant market and consequently imposed the obligations set out in Table 2.

Table 2 – Obligations imposed on companies identified with SMP in the relevant market - Market 12

Obligations	Market for wholesale supply of broadband access which includes services of broadband access supported over the public switched telephone network and cable distribution networks
Access to and use of specific resources networks	<ul style="list-style-type: none"> ▪ Access to the PSTN at different points ▪ Negotiate in good faith with companies requesting access ▪ Not withdraw access already granted to determined resources
Transparency in the publication of information, including reference offers	<ul style="list-style-type: none"> ▪ Publication of the reference offer of broadband access which shall include SLAs and compensation for non-compliance
Non-discrimination in the provision of access and interconnection and in the provision of the respective information	<ul style="list-style-type: none"> ▪ Do not unduly discriminate in providing access to network ▪ 30 days notice of alterations to offer wholesale ▪ Launch of retail offers bound by the existence of equivalent wholesale offers in "Rede ADSL PT" ▪ Submit information with respect to maximum, average and minimum periods for delivery and repair of faults and the degree of availability (broken down by type of installation and operator)
Separation of accounts for specific activities related to access and / or interconnection	<ul style="list-style-type: none"> ▪ Cost accounting system and accounting separation
Price control and cost accounting	<ul style="list-style-type: none"> ▪ Set cost-oriented prices (services of broadband access supported over the public switched telephone network) ▪ Control of prices ("retail-minus")
Financial Reporting	<ul style="list-style-type: none"> ▪ Provision of accounting records (AAS) including data on revenue from third parties

ICP-ANACOM concluded that the obligations imposed at wholesale level would be sufficient to ensure competition in the retail market for broadband access.

³Market 12 of EC Recommendation 2003/311/EC of 11 February, 2003.

⁴Comprised of broadband access services supplied through ADSL and cable modem to residential and non-residential customers and covering the entire national territory.

1.2. Market developments

Since mid-2005, when the analyses referred to above were published, there have been a number of alterations which have had significant impact with respect to the defined markets.

Among other changes in the domestic market, the following are key:

- Concentration operations, including:
 - the acquisition in 2007, of full control by Sonaecom, SGPS, SA (Sonaecom) of the entire share capital of Telemilénio - Telecomunicações, Sociedade Unipessoal, Lda (Tele2);
 - the acquisition in 2007, of full control by Sonaecom⁵ of a range of assets corresponding to the residential and SoHo (Small Office/Home Office) segment of the fixed network communications retail business (voice and Internet) of Onitelecom - Infocomunicações, SA (OniTelecom).

- Prior notifications of concentration operations, under review by AdC:
 - the acquisition by CATVP - TV Cabo Portugal S.A. (TV Cabo) of full control of Bragatel - Companhia de Televisão de Cabos de Braga, S.A. (Bragatel), Pluricanal Leiria - Televisão por Cabo, S.A. (Pluricanal Leiria) and Pluricanal Santarem - Televisão por Cabo S.A. (Pluricanal Santarem), through the acquisition of shares currently held in these undertakings by Parfitel - SGPS S.A.;
 - the acquisition by TV Cabo of full control of TVTEL Comunicações, S.A. (TVTEL).

- Expansion of the supply of local loops (OLL), in terms of exchanges with co-installed operators, of the number of unbundled accesses and of the entry of new operators, in the cases of COLT TELECOM - Serviços de Telecomunicações, Unipessoal, Lda. (COLT), Tele2 and VODAFONE PORTUGAL - Comunicações Pessoais, S.A. (Vodafone);

- Expansion of mobile broadband, in particular, and for the purposes of this analysis, supported by data transmission cards connected to personal computers (desktop⁶ or portable), including cards of PCMCIA, PCI Express or USB format, allowing broadband Internet access⁷;

⁵ Through its subsidiary, Novis Telecom, S.A.

⁶ Commonly referred to as "desktops".

⁷ Currently up to 7.2 Mbps.

- Higher number of bundled offers, namely "triple-play", which had already been made available by some cable distribution network operators and which are now provided by most of the companies in the market;
- Introduction of the "Naked DSL" offer, which allows the broadband Internet access service to be contracted without the need of contracting the fixed telephone service (FTS);
- Increases in the speeds of broadband offer, while maintaining or even reducing prices;
- Definition of the procedure for the allocation of frequency usage rights for broadband wireless access (BWA)⁸.

Finally, one of the main changes with significant impact on the structure of markets was the separation (spin-off) of PT Multimédia - Serviços de Telecomunicações e Multimédia, SGPS, S.A., (now ZON Multimédia - Serviços de Telecomunicações e Multimédia, SGPS, S.A.) from Portugal Telecom, SGPS, S.A. (Portugal Telecom), occurring on 7 November 2007. This spin-off is considered to be a potential driver of greater competition in the markets where these companies operate.

Following the announcement of the spin-off of ZON Multimédia, ICP-ANACOM sought the opinion of AdC - Autoridade da Concorrência (The Competition Authority) with respect to the position and views of that Authority regarding whether or not ZON Multimédia should be included in the Portugal Telecom Group. That is, in order to clarify whether or not, despite conclusion of the separation process of ZON Multimédia and Portugal Telecom, they should be continue to be constituted as a single undertaking for the purposes of the Competition Law (Law no 18/2003 of 11 June).

The main concerns of ICP-ANACOM arose from the fact that:

- a significant part of obligations imposed under the regulatory framework currently in force were directed at the companies of Grupo PT, whereby it became relevant, for the purposes of the current process of (re)analysis of relevant markets, to assess whether ZON Multimédia would continue to included in Grupo PT following the spin-off;
- despite the disposal of shares that Portugal Telecom held in ZON Multimédia, the core of the undertakings which had the power of decision over these undertaking was, by force of the terms by which the operation was executed, the same.

Responding on 17 January 2008, AdC stated that it would be premature to adopt a definitive position on the issues raised by ICP-ANACOM, identifying (i) a set of indicators that appeared to suggest that Portugal Telecom and ZON Multimédia remained integrated as a single economic unit for purposes of Law no 18/2003 of 11 June, and (ii) other factors that were likely first signs of separation of Portugal Telecom from ZON Multimédia.

⁸ See <http://www.anacom.pt/render.jsp?categoryId=267122&languageId=1>

Subsequently, the Board of Directors of ICP-ANACOM, by determination of 3 April 2008, gave approval to its position on the spin-off of ZON Multimédia and its impact in terms of the market analysis and obligations arising as a result⁹.

ICP-ANACOM acknowledged that, in consequence of the spin-off process, there were certain aspects that could make it advisable to consider ZON Multimédia and Grupo PT as a single economic unit, and other elements that pointed to the contrary.

The reasons that might support the theory that ZON Multimédia and Grupo PT could form an integral part of the same undertaking, even after the announced completion of the spin-off, were linked to the two companies having a core shareholder of common reference - a situation that was inherent to the process of the spin-off itself. This does not justify ruling out the possibility that these two companies constitute an economic unit for the purpose of article 2 of Law no 18/2003 of 11 June.

The reasons that gave weight to the consideration of ZON Multimédia as being a separate economic unit from Grupo PT were connected to the fact of there being no common members on the Board of Directors of each company - although the members of the Boards of each company had been members of the other or of their subsidiaries - and further due to the emergence of competing offers between ZON Multimédia and Grupo PT.

Accordingly, having considered these factors, ICP-ANACOM concluded that it should give special emphasis to the fact that there was evidence that ZON Multimédia and Grupo PT were beginning to act competitively towards each other, in line with the essential advantage from a regulatory point of view of the spin-off process. Furthermore, this Authority was convinced that, at that time, to establish a transitory regime with respect to the analysis of markets would imply subjecting ZON Multimédia to all or some of the obligations to which Grupo PT was bound and that this might constitute a factor hindering competition and influencing the very conclusions of the analysis of markets. That is to say, the verification of one of the key conditions for considering ZON Multimédia as being separate from Grupo PT could be impeded, precisely, as a result of the continued consideration of this undertaking as part of Grupo PT - a situation that could lead to a vicious circle which would certainly fail to take advantage of the increased competition in the electronic communications market.

In this context, ICP-ANACOM clarified that, following the spin-off, ZON Multimédia was no longer to be included within Grupo PT, whereby the obligations arising from the market analyses conducted pursuant to Title IV of Chapter II of Law no 5/2004 of 10 February (Law no 5/2004) and applying to Grupo PT were not applicable to ZON Multimédia.

Accordingly, subsequent to the developments set out above, the spin-off of ZON Multimédia and given the position of ICP-ANACOM just described, clarification is needed of the regulatory situation, which clarification is provided in the present market analysis.

⁹ See <http://www.anacom.pt/render.jsp?categoryId=272931&languageId=1>

Looking ahead, potential concerns should be aired with respect to the development of next generation networks (NGN), particularly at the access network (NRA) level.

It should be added that in the meantime the Recommendation on relevant markets has been revised by European Commission (EC) and a definitive version published at the end of 2007.

1.3. The revision of the European Commission Recommendation on relevant markets

On 17 December 2007, the EC issued a revised recommendation on relevant markets¹⁰ - "Recommendation 2007/879/EC of 17 December, on relevant markets of products and services in the electronic communications sector susceptible to ex-ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services"¹¹ (hereinafter the Recommendation).

The present recommendation replaces Commission Recommendation 2003/311/EC of 11 February, the contents of which was revised due to the market developments witnessed over recent years. There is now provision for seven markets, one at retail level¹² and the other six at wholesale level¹³.

As in previous version of the Recommendation, the revised version is accompanied by an "Explanatory Note" in which the Commission seeks to explain the definition of the new markets¹⁴.

Following this review, the markets under consideration herein (markets 11 and 12 of the "previous Recommendation") are now defined by the EC as follows:

- Market 4: Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location.
- Market 5: Wholesale broadband access.

This market comprises non-physical or virtual network access including "bit-stream" access at a fixed location. This market is situated downstream from the physical access

¹⁰Published in the Official Journal of European Union (OJEU), 28 December 2007.

¹¹Available at <http://www.anacom.pt/render.jsp?contentId=547618&languageId=1>.

¹²Market 1: Access to the public telephone network at a fixed location for residential and non-residential customers.

¹³Which are the following:

- Market 2: Call origination on the public telephone network provided at a fixed location;
- Market 3: Call termination on individual public telephone networks provided at a fixed location;
- Market 4: Wholesale network infrastructure access at a fixed location;
- Market 5: Wholesale broadband access;
- Market 6: Wholesale terminating segments of leased lines; and
- Market 7: Voice call termination on individual mobile networks.

¹⁴"Explanatory Note" available at

http://ec.europa.eu/information_society/policy/ecomm/doc/library/proposals/sec2007_1483_final.pdf

covered by market 4 listed above, in that wholesale broadband access can be constructed using this input combined with other elements.

1.4. The need to review the analysis of relevant markets

In previous analyses of the market the following provisions were made:

- the need to revise the markets in the event that the EC recommendation on relevant markets was revised; or
- in the event of significant changes in the market which alter the conditions thereof.

Accordingly, it is considered that, for the reasons given above, it is now opportune and necessary to conduct a review of the analysis of relevant markets, specifically the market for wholesale provision of unbundled access and the market for wholesale provision of broadband access.

The priority and urgency given to the analysis of these markets is due to the greater impact of the spin-off of ZON Multimédia.

1.5. The process of markets analysis

Law no 5/2004 gave approval to the legal regime applicable to electronic communications services and networks and to related resources and services, setting out the powers of the National Regulatory Authority (NRA) in this area.

This law transposes Directives nos 2002/19/EC, 2002/20/EC, 2002/21/EC, 2002/22/EC, all of the European Parliament and the Council of 7 March, and Directive no 2002/77/EC of the Commission of 16 September.

ICP-ANACOM, as NRA, is charged with the definition and analysis of the relevant markets, with declaring undertakings with SMP and with determining appropriate measures to undertakings that offer electronic communications services and networks (Article 18 of Law no 5/2004).

This process is conducted in accordance with the following phases (Article 55 to 61 of Law no 5/2004)¹⁵:

- Definition of the relevant markets (Article 58 of Law no 5/2004)

The NRA is charged with the definition of the relevant markets of products and services of the electronic communications sector, including the relevant geographic markets, in accordance with the principles of competition law.

¹⁵See Framework Directive, articles 7 and 14 to 16.

In the definition of relevant markets the NRA shall, according to national circumstances, taking into account the Recommendation and Guidelines of the European Commission on the analysis and assessment of significant market power under the community regulatory framework for electronic communication networks and services¹⁶ (hereinafter referred to as the 'Guidelines').

- Analysis of relevant markets (Article 59 of Law no 5/2004)

The NRA is charged with carrying out an analysis of the relevant markets defined under the previous point, taking the Guidelines into utmost account.

The aim of the market analysis process is to investigate the existence of effective competition. There is no effective competition where it is possible to identify companies with SMP¹⁷.

It is considered that a company has SMP if, individually¹⁸ or jointly with others, it enjoys a position equivalent to dominance, or a position of economic strength which enables it to act largely independently of competitors, customers and consumers.

- Imposition, maintenance, alteration or removal of regulatory obligations (Article 66 of Law no 5/2004)

In the event that ICP-ANACOM concludes that a market is effectively competitive, it shall refrain from imposing any specific regulatory obligation and shall remove such obligations where they are already in place.

In the event that ICP-ANACOM determines that the relevant market is not effectively competitive, it should impose specific regulatory obligations on undertakings with SMP in that market, or maintain or modify these obligations where they are already in place.

The obligations imposed:

- shall be appropriate for the identified problem and shall be proportionate and justified in the light of the objectives of regulation set forth in article 5 of Law no 5/2004;

¹⁶ Available at <http://www.anacom.pt/template20.jsp?categoryId=55015&contentId=87568&languageId=1>.

¹⁷ Also according to the Guidelines (Paragraph 24), " Under the regulatory framework, markets will be defined and SMP will be assessed using the same methodologies as under competition law (...) and the assessment of effective competition by NRAs should be consistent with competition case-law and practice. To ensure such consistency, these guidelines are based on (1) existing case-law of the Court of First Instance and the European Court of Justice concerning market definition and the notion of dominant position within the meaning of Article 82 of the EC Treaty and Article 2 of the merger control Regulation"

¹⁸ It is noted that according to ECJ Judgement of 12 July 1984, *Hydrotherm*, the notion of undertaking "must be understood as designating an economic unit for the purpose of the subject-matter of the agreement in question even if in law that economic unit consists of several persons, natural or legal".

According to the article 2, paragraph 1 and 2 of Law no 18/2003 of 11 June (approving the legal competition regime), "1 - For the purposes of this Act, an undertaking is considered to be any entity exercising an economic activity that consists of the supply of goods and services in a particular market, irrespective of its legal status or the way in which it functions. 2 - A group of undertakings is considered as a single undertaking if, though legally distinct, they make up an economic unit or maintain ties of interdependence or subordination among themselves arising from the rights or powers set out in Article 10 (1)."

- shall be objectively justified in relation to the networks, services or infrastructure to which they relate;
- may not lead to undue discrimination with respect to any entity;
- shall be transparent with respect to the purposes for which they are intended.

In the Recommendation, specifically in the "Explanatory Note" (section 4.2.2), the Commission recommends that, given that Markets 4 and 5 are associated with the same retail market, the NRAs should carry out analyses of these markets in conjunction, assessing, subsequently, the impact of regulated infrastructure access and (virtual) access to the network on any market power that has been identified. The EC accepts that, depending on the degree of development of the networks and on the particular conditions of supply and demand in the various Member States, these two markets may remain distinct or have basis in a single market, whereby it recommends that the two markets be analysed jointly.

In this context, markets 4 and 5 of the Recommendation will be analysed jointly.

According to the methodology that continues to be adopted in the Recommendation¹⁹, the definition and identification of relevant wholesale markets should begin with a characterisation of relevant retail markets in a period of time, their geographical size and the competitive pressure to which they are subject on the demand and supply sides. In the first phase, the retail market of broadband access is defined and an analysis is made of SMP with respect to this market. Later, the associated wholesale markets are defined, taking into account the same dimensions and an analysis is made of the possible existence of SMP in these markets. Finally analysis is made of the regulatory obligations to be imposed on undertakings with SMP.

In the analysis (of SMP) the methodology recommended by the Commission in the Recommendation is followed²⁰, which explains that, in respect of wholesale markets, analysis shall be made, in the first place, of the markets which are located higher up in the vertical value chain (retail) and then, taking into account the regulation (if any) imposed in respect of these markets, analysis should be made of the markets lower down in the value chain - this is known as the "modified greenfield approach".

In this context, the present document substantiates the draft decision of ICP-ANACOM on the definition of product and geographic markets, the assessment of SMP and the imposition, maintenance, alteration or removal of regulatory obligations in the markets for wholesale supply of access (physical) to the network infrastructure at a fixed location and supply of wholesale broadband access.

¹⁹See Recommendation - Explanatory Note, Section 2.1.

²⁰See Recommendation - Explanatory Note, Section 2.5.

2. DEFINITION OF THE BROADBAND RETAIL MARKET

According to the community regulatory framework applicable to electronic communications, which follows community competition law, relevant markets are defined by the intersection of two different dimensions: the product market and the geographic market.

The process of defining the product market has the objective of identifying all the products and/or services which are sufficiently interchangeable or replaceable, not only in terms of their objective characteristics, thanks to which they are particularly suitable to meet the needs of consumers, but also in terms of their prices and their intended use²¹.

The exercise of defining the relevant market of the product or service begins with the group of products or services used by consumers for the same purpose / end use²², i.e., according to demand.

These products and services will be part of the same market if the behaviour of producers or suppliers of the services in question is subject to the same type of competitive pressures, i.e., on the supply side, notably in terms of pricing.

In this context, two main types of competitive pressures are identified: (i) demand-side substitution and (ii) the supply-side substitution²³.

These competitive pressures may, alternatively or together, constitute grounds for defining the same product market.

In theory, the degree to which there is substitutability or complementarity between two products can be estimated through the cross-elasticity of demand. However, in practice, such analysis is complex and there is limited data available. Therefore one of the forms used in evaluating the degree of substitutability on the supply and demand sides is the implementation of the so-called "hypothetical monopolist" test; (SSNIP test -Small but significant and non-transitory Increase in price)²⁴.

The relevant geographic market includes the area in which the undertakings concerned are involved in the supply and demand of relevant products or services, and where the competitive conditions are similar or sufficiently homogeneous in relation to neighbouring areas²⁵.

The definition of the geographic market presupposes the use of the same methodology as is used for defining the product market, namely the hypothetical monopoly test for identifying competitive pressures with respect to demand-side and supply-side substitution.

²¹ See Guidelines §44.

²² See Guidelines §44.

²³ See Guidelines §38. There is also a third source of competitive pressure on the behaviour of the operator which is potential competition - this possibility will be considered wherever relevant.

²⁴ See Guideline §40-43.

²⁵ See Guidelines §56.

In the cases of Market 4 - wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location - and Market 5 - wholesale broadband access - being analysed herein, their definition and analysis follows, as mentioned above, the methodology adopted in the Recommendation. This starts with the characterisation of the retail market at a given moment and with respect to a given geographic dimension, and of the competitive pressure to which it is subject, on the demand and supply sides.

It is noted that in its Recommendation the EC does not identify the retail broadband market as a relevant market for the purposes of ex-ante regulation, giving priority to regulation at the wholesale level. This does not, by itself, exclude the possibility of the retail broadband market being identified as a relevant market and proposed at the national level.

2.1. Definition of broadband

In the previous analysis of the market for wholesale supply of broadband access, ICP-ANACOM, also taking into account the positions of the EC²⁶ and of UMIC - Unidade de Missão Inovação e Conhecimento (The Knowledge Society Agency)²⁷, took the position that, while the concept of broadband is evolving from a regulatory and commercial point of view, the definition of the Recommendation could be adopted, i.e. the services characterised by the provision to end users of asymmetric speeds that, in the downward direction (i.e. originated in network and for the client) exceed 128 Kbps. In prevailing market conditions at the time of analysis, this Authority considered that the concept of permanent access ("always on") was not a relevant factor with respect to the characterisation of broadband, given the recent introduction of deals with time limits.

In the present Recommendation, the Commission again argued that broadband Internet services are characterised by the provision to end users of downstream speeds exceeding 128 Kbps, whereby ICP-ANACOM also maintained the view advocated in the previous market analysis, even though the reference bandwidth²⁸ is currently 4 Mbps downstream.

It is noted that in the case of mobile operators, the very nature of mobile networks can change the perception of end-users with respect to the "always on" nature of the broadband access service, given the greater number of interruptions to the service compared to broadband service supported on fixed networks, making it necessary to reboot the access.

²⁶ Which sets out that "There is no universally accepted definition of broadband, but its key characteristics are high speed and always-on functionality." (see eEurope 2005: An information society for all, COM(2002) 263 final, of 28.05.2002, page 8) e broadband Internet services may be characterised as allowing downstream capacity to end-users in excess of 128 kbits/sec. (see Recommendation – Explanatory Note, footnote no 33).

²⁷ Which argues that "the concept of Broadband encompasses all accesses, irrespective of the technology, which with appropriate performance, support the use of progressively more complex content and applications, which are adapted to the circumstances of its users, taking into account demands associated with the availability of time, mobility, the levels of sophistication required and the purposes of this use" (see "Iniciativa Nacional para a Banda Larga" (National Broadband Initiative) – document approved at Council of Ministers on 26.06.2003) and, along these lines, argues that accesses are classified as broadband where they are accesses which are "always on" and which permit the support of high speed interactive applications.

²⁸ Or the most commonly used class/offer by consumers.

There are several technologies that support the provision of broadband to end-users. Indeed, throughout the “Explanatory Note” there is recurring mention of DSL and cable modem access as alternative services.²⁹ In the future, optic networks and access will be used to provide services with very high speeds. This approach is also in line the principle of technological neutrality, which is a fundamental principle in the process of defining the current regulatory framework, as stated in article 8 of paragraph 1 of the Framework Directive. Therefore in principle and for the purpose of their definition, markets should be analysed with a neutral stance with respect to the network or infrastructure used for the provision of services.

The EC also determined that the market for "access" includes all types of infrastructure that can be used for the provision of a given service³⁰. An example given by the EC is that the users can use different services such as cable and satellite connections for the same purpose, including Internet access³¹.

The EC further notes that the question of “*whether the market for network infrastructures should be divided into as many separate submarkets as there are existing categories of network infrastructure, depends clearly on the degree of substitutability among such (alternative) networks*”.

Accordingly, analysis is then made of the characteristics and the current state of implementation of the different technologies and infrastructure supporting broadband access service, with a view to defining the retail market.

2.2. Characterisation of the retail broadband market

In terms of technology platforms that allow access to broadband, in Portugal this access essentially continues to be offered over the copper telephone network using ADSL technology or over the cable distribution networks³², using cable modems, although broadband access supported on wireless networks (mobile or BWA) is also starting to gain importance.

It should be noted that, with regard to broadband access supported by ADSL technology, data obtained at the wholesale level will be used, in view of the fact that this information is more disaggregated than data obtained at the retail level, with the exception of data regarding the provision of "triple-play" of Grupo PT (“MEO” offer) which refers to the retail market.

²⁹ E.g. page 23 of this document.

³⁰ See Guidelines, §67.

³¹ See Guidelines, §45.

³² HFC – *Hybrid Fibre Coax networks*, historically used for the provision of television distribution services.

2.2.1. Twisted metallic pair technologies (xDSL³³) and coaxial cable technologies

Among the xDSL services with asymmetric speed available to final customers, ADSL continues to stand out due to the significant growth in its market penetration³⁴.

In November 2000, a month before the entry into force *de jure* of Regulation (EC) no 2887/2000 on the OLL, PT Comunicações, S.A. (PTC) introduced a wholesale offer based on this technology in Portugal, the “Rede ADSL PT” offer, in which a number of retail offers, including offers from companies of Grupo PT, are supported.

Besides using this wholesale offer, alternative operators (hereinafter operators and service providers - OSPs) can also offer retail ADSL services by renting unbundled local loops / sub-loops (full or shared access) or can use their own networks (although currently in only very few cases³⁵).

Where OSPs do not have their own copper pair access network, the majority of retail ADSL offers are based on the “Rede ADSL PT” and OLL wholesale offers.

In the last quarter of 2007, Grupo PT launched a “triple-play” (“MEO”) offer, which includes television, Internet and phone services - according to information presented in the Report and Accounts of Grupo PT at the end of 2007 this offer had 21 thousand accesses. According to more recent information, Grupo PT announced that the number of Meo customers had reached a total of 100 thousand³⁶.

Unbundled accesses with use of broadband have been gaining prominence since 2005, representing approximately 29% of total ADSL accesses as at the end of 2007.

2.2.1.1. Retail offers based on the “Rede ADSL PT” wholesale offer and the evolution of this offer

The data presented in **Error! Not a valid bookmark self-reference.** shows that the number of ADSL access based on the “Rede ADSL PT” wholesale offer increased significantly between the end of 2004 and the end of 2007, with the number of accesses almost doubling during the period. It is noted that the drop in the number of accesses recorded from 2006 to 2007 results from 103 thousand customers (inactive pre-paid customers) being cleared from the database of Grupo PT at the end of 2007.

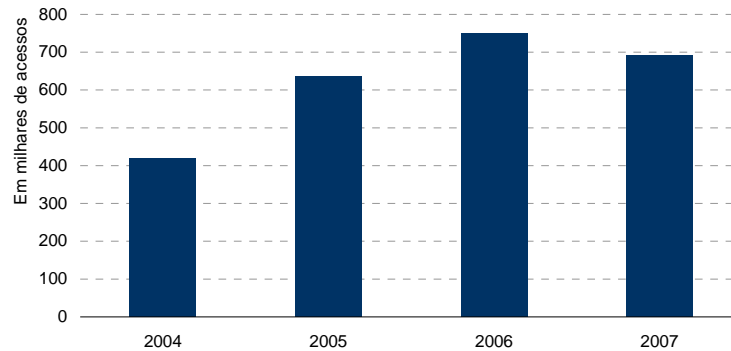
³³x Digital Subscriber Line – Set of digital subscriber line technologies, generically DSL, capable of transforming copper lines (for example, common telephone lines) into high-speed digital lines capable of supporting advanced services of greater bandwidth, such as high-speed Internet access and video-on-demand. Some of its common variants include ADSL (Asymmetric DSL), HDSL (High data rate DSL) and VDSL (Very high data rate asymmetric DSL).

³⁴Asymmetric Digital Subscriber Line – The most commonly used asymmetric transmission technology of the xDSL family. An ADSL connection provides a high-speed downstream channel (1.5 to 9 Mbps) and a lower speed upstream channel (16 to 640 Kbps), besides the standard telephone service in a low frequency range.

³⁵Not possessing a copper access network, the OSPs usually make use of other infrastructure to provide broadband services over their own infrastructure.

³⁶ See <http://www.telecom.pt/InternetResource/PTSite/PT/Canais/Media/DestaquesHP/Meo100mil.htm>.

Graph 1 - Evolution in the no of ADSL accesses based on the “Rede ADSL PT” offer



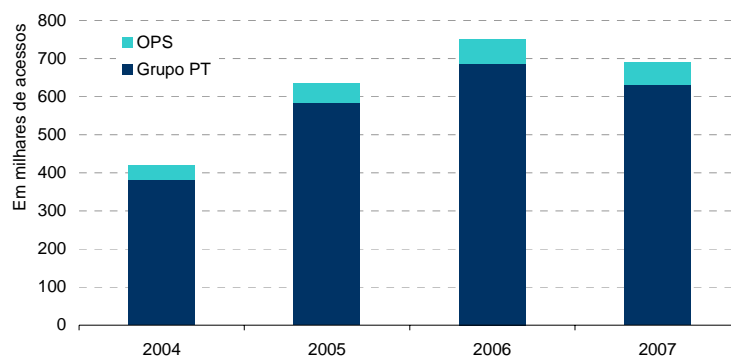
The total number of OSPs that base their retail offers on this wholesale offer has seen only slight change since 2004, in light of the fact that operators entered and exited the marker during this period (see Table 3).

Table 2 – Changes in the number of OSPs with broadband offers based on the “Rede ADSL PT” offer

	2004	2005	2006	2007
OSPs with broadband offers based on “Rede ADSL PT”	9	8	8	9

Even where there are several alternative operators benefiting from the “Rede ADSL PT” wholesale offer, most of these accesses are leased by companies of Grupo PT, as confirmed in **Error! Not a valid bookmark self-reference.**

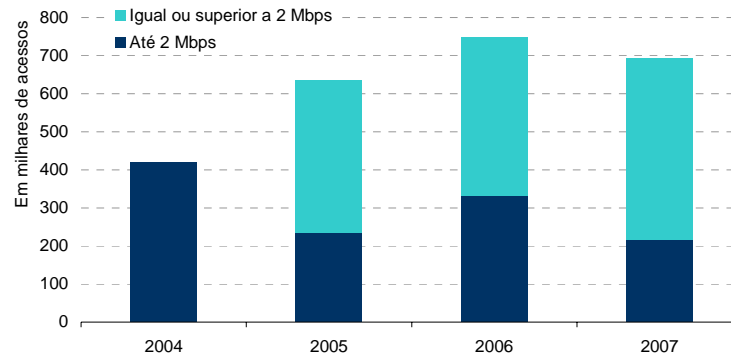
Graph 2 - Changes in the number of ADSL accesses based on the “Rede ADSL PT” offer, by number of operators



At the end of 2007, there were 31 product classes (which compares with 11 in 2004), which are distinguished by the maximum speed (upstream or downstream) and maximum contention

rate³⁷ offered, prices and other characteristics. It is noteworthy that, while in 2004 the maximum downstream speed available was 1 Mbps, at the end of 2007 there were already four classes of service offering a maximum downstream speed of 24 Mbps. It can be seen that accesses with service classes of downstream speeds equalling or exceeding 2 Mbps continue to gain importance (see Graph 3).

Graph 3 - Changes in the number of ADSL access based on the “Rede ADSL PT” offer, by downstream speed



With respect to the coverage of this offer, it can be seen that, at the end of 2004, the “Rede ADSL PT” offer covered around 1,270 exchange areas out of a total of 1,853 exchange areas of the PTC network. This allows a potential coverage of approximately 90%, in terms of active accesses. In the meantime, since June 2006, the 1,853 exchange areas of PTC's public telephone network have been equipped with DSLAM, corresponding to the entirety of the coverage of the areas where ADSL can be provided. Furthermore, in various exchange areas, there is more than one attendance point with DSLAM, whereby the length of the local loop can be reduced and broadband services with higher speeds can be supplied to customers.

In terms of the retail prices of currently available offers, it appears that the changes in this market since 2004 have enabled clear benefits for consumers: the prices charged (per Mbps) to the final customer have decreased significantly, especially in classes with speeds higher, while there are offers with much higher downstream speeds but with monthly charges that are equal to or less than previously available offers (which provided much lower speeds)

As an example, one can take the offer identified in 2004 as the most representative retail offer of Grupo PT (sold by Telepac) - the “Sapo ADSL.PT Standard” offer provided a downstream speed of 512 Kbps for which the final customer incurred a monthly charge of €29.40³⁸. Today, for an identical amount (€29.40³⁹) the “Sapo ADSL 16Mb” offer provides for a maximum

³⁷ The contention rate represents the relationship between the bandwidth contracted by the user (e.g. 4 Mbps downstream) and the effective bandwidth by user of the connection between the PTC network (exchange/DSLAM) and the network of the Internet Service Provider (ISP). Therefore, a contention rate of 1:20 indicates that the bandwidth of the connection from the ISP to the exchange central is shared by users at a rate, at a maximum, of 1 to 20. Therefore, at times of peak use, when various customers are connected simultaneously, the potential speed of the connection is less (by up to 1:20, in this example). At other times when there is little use (fewer users at the same time in respect of the exchange), a user may be able to use the total capacity contracted with the ISP.

³⁸ Information compiled from the website of Telepac in September 2004 (prices exclude VAT).

³⁹ Information compiled from the website of Telepac in February 2008 (prices exclude VAT).

downstream speed that is 32 times higher. It should be further noted that the alterations seen in the conditions of the offers are not limited to the increase in the downstream speed, but also include an increase in included monthly traffic, while in many cases the limit has been lifted entirely (i.e. downloads without limits).

Furthermore, with regard to the prices of retail offers, recurrent use of promotional activities can be seen involving free activation and a discounted monthly charge for the first months following the start of subscription.

In regulatory terms, ICP-ANACOM has continued to intervene with respect to the “Rede ADSL PT” offer, in order to ensure compliance with the applicable regulatory principles and taking into account the objectives of promoting competition and the pursuit of the public interest, in accordance with its remit⁴⁰.

2.2.1.2. Retail offers based on the OLL and evolution of this offer

With the objective of increasing competition and stimulating technological innovation in the local access market, through the establishment of harmonised conditions for OLL, on 18 December 2000 the European Parliament and the Council approved Regulation (EC) no 2887/2000⁴¹.

PTC published the first version of the Reference Unbundling Offer (ORALL) in March 2001, with ICP-ANACOM intervening in several areas and on several occasions in order that the offer be adapted to the interests of the market⁴².

The OLL consists of PTC making the local loop (physical circuit, comprising twisted copper pairs in the local access network, linking the terminal equipment on the premises of the user to the network infrastructure of the operator) available to the OSPs, enabling them to provide their services of narrowband and / or broadband to the end user, whereby they can provide the variants of full access⁴³ and shared access⁴⁴.

Providing OLL-based broadband access has been the option most preferred by alternative operators, whereby it is principally these access that account for the increase in the number of broadband accesses. At the end of 2007, the number of OLL-based broadband accesses exceeded 280 thousand, which compares very favourably with the less than 8 thousand accesses in existence in late 2004 (see

⁴⁰ See determination of ICP-ANACOM on ADSL offers at <http://www.anacom.pt/render.jsp?categoryId=38015>.

⁴¹ See Regulation, which entered into force in January 2001, at <http://www.anacom.pt/render.jsp?contentId=93381>.

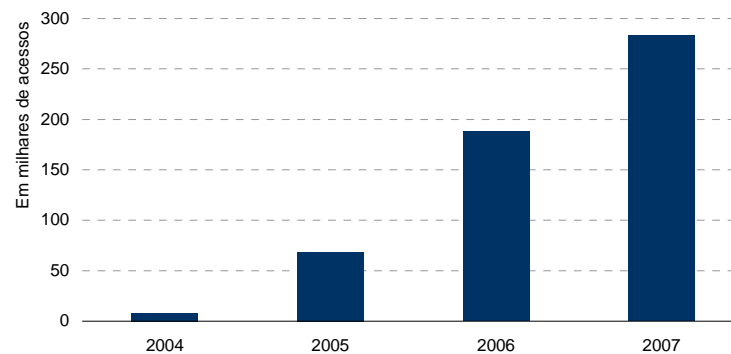
⁴² See determinations of ICP-ANACOM on the OLL at <http://www.anacom.pt/render.jsp?categoryId=574>.

⁴³ With full access, the OSP has full control over the local loop, whereby it can supply the final user with voice services and broadband services.

⁴⁴ With shared access, the voice service and the broadband service, while supplied over the same local loop, are provided respectively by PTC and by the OSP using different bands of the frequency spectrum. This model allows PTC to continue to offer the telephone service, at the same time allowing the OSP to provide high-speed data transmission services using their own xDSL equipment at a higher frequency band over the same local loop.

Graph 4).

Graph 4 - Evolution in the number of ADSL accesses based on the OLL



The number of OSPs that base their retail offers on this wholesale offer has increased since 2004 - at the end of 2007, there were five operators benefiting from this offer⁴⁵ (see Table 4).

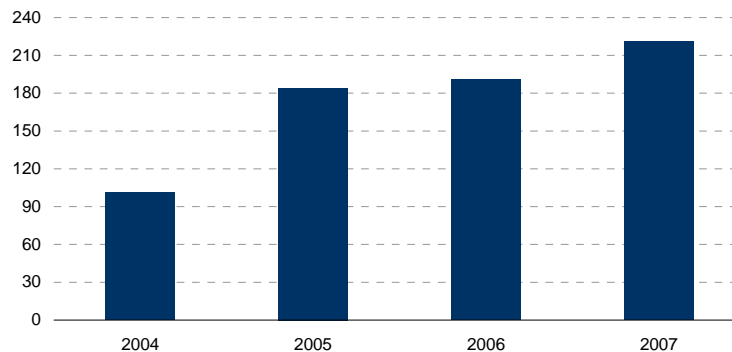
Table 3 –Evolution in the number of OSPs with OLL-based broadband offers

	2004	2005	2006	2007
OSPs with OLL-based broadband offers	2	3	5	5

As far as the geographical coverage of the OLL is concerned, it can be seen that at the end of 2004 there were operators co-installed in 101 PTC exchanges. This number has gradually increased to reach a total of 221 exchanges as at the end of 2007.

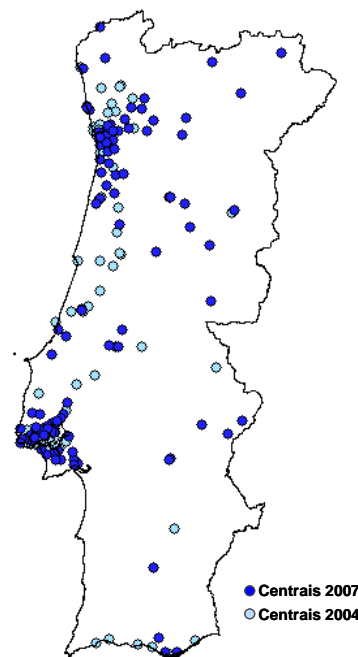
⁴⁵ Following the acquisition by Sonaecom of total control over the social capital of Tele2 and over a range of assets corresponding to the residential segment of the fixed network communications retail business of OniTelecom, the number of OLL beneficiaries should fall to three (in the event that OniTelecom contracts the remaining accesses to Sonaecom) or four ((in the event that OniTelecom contracts the remaining accesses to PTC).

Graph 1 – Evolution in the number of exchanges with co-installed operators



As a result of this increase in the number of exchanges with co-installed operators, the potential coverage of this offer has also increased, expanding to cover 60% of the population by the end of 2007.

Figure 1 - Location of exchanges where OSPs can make use of the OLL in Mainland Portugal (a) end of 2004 (b) end of 2007



As far as the prices of current retail offers based on this wholesale offer of PTC are concerned, it appears that, again, the changes seen since 2004 have resulted in very significant benefits for consumers: the prices of offers to the final customer have been significantly reduced, as new offers have been developed with lower monthly charges than those previously available (which, in many cases, provided much lower speeds).

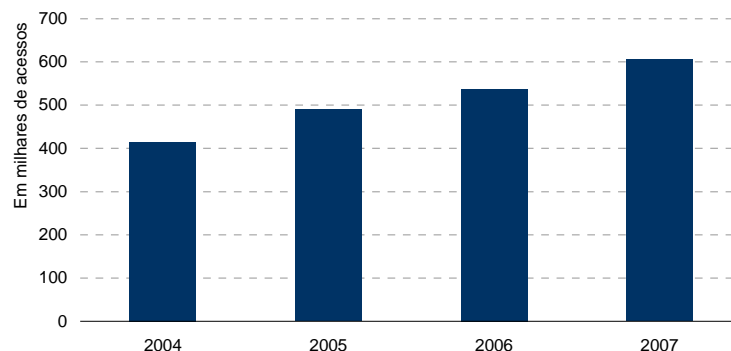
As an example one can take the evolution of the offers of Sonaecom, the main beneficiary of the OLL: in 2004 the "Opção Livre" offer had a downstream speed of 1024 Kbps for which the final customer incurred a monthly charge of €32.69⁴⁶; currently, the offer of Novis whose monthly charge comes closest to the 2004 offer is the "Clix 24Mb" offer, which allows a maximum downstream speed that is 24 times higher (24 Mbps) and for which the final customer incurs a monthly charge that is virtually the same at €32.98⁴⁷. Again in this case, the changes to the conditions of the offer include an increase in amount of traffic included each month.

In addition with respect to OLL-based broadband access offers, frequent promotional activity has been seen, including free activation and discounted monthly charges during the first months following the date of subscription.

2.2.1.3. Cable Modem

With respect to fixed network broadband access, broadband accesses via xDSL and through cable modem continue to be the most relevant technologies, with ADSL gaining importance since the end of 2004 (see **Error! Not a valid bookmark self-reference.**).

Graph 2 – Evolution of the number of subscribers to Internet by cable modem



The number of operators providing broadband services through cable modem has been unchanged since 2004 - four operators - although, upon the realisation of the concentration operations already notified to AdC, this number could be reduced to just two operators.

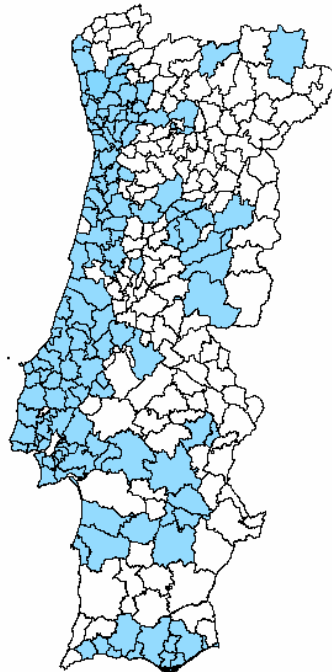
Since the majority of cable distribution networks are digital and two-way⁴⁸, characteristics which are necessary to support the Internet access service, the penetration of these networks provides a good reflection of the potential coverage of the Internet access service by cable modem (see Figure 2).

⁴⁶ Information compiled from the website of Clix in September 2004 (prices exclude VAT).

⁴⁷ Information compiled from the website of Clix in February 2008 (prices exclude VAT).

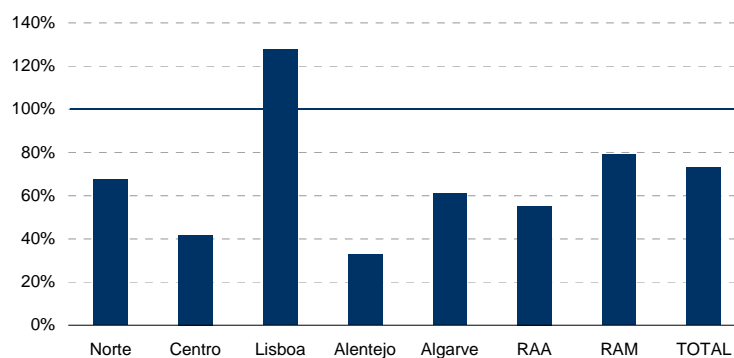
⁴⁸ For example, according to the Consolidated Report and Accounts of PT Multimédia with respect to the first quarter of 2007, the number of cabled houses capable of accessing broadband is 98%.

Figure 1 – Geographical distribution (municipalities) of cabled households (end of 2007)



At the end of 2007, the average percentage of cabled households (i.e., ready for subscriber connection), compared to the total number of classic family dwellings⁴⁹ in the country, was 73% for all regions, even while significant differences continue to be registered between the various regions (NUTS⁵⁰ II) - see **Error! Not a valid bookmark self-reference.**

Graph 3 – Coverage of cabled households (end of 2007)



⁴⁹ Classic family dwelling (definition of INE (Statistics Portugal)): “A room or suite of rooms and its accessories in a permanent building or structurally separated part thereof which, by the way it has been built, rebuilt or converted, is intended for habitation by one household (...) The classic family dwellings should have its own main entrance generally giving onto a street or the land surrounding the building, or common area of the building”.

⁵⁰^[30] NUTS – Nomenclature of Territorial Units for Statistics.

It is noteworthy that the percentage of cabled households compared to the totality of households in the Lisbon region is significantly in excess of 100%. This is due to the same household being cabled by several operators, which continues to occur in this region. That is, the information available to ICP-ANACOM records the sum of households cabled by each operator, and there may be households that are counted more than once.

It should be noted that in some less densely populated areas, the distribution of television is accomplished through satellite (DTH - direct to home) which, in its current solution, does not allow bi-directional signal and broadband Internet access; as such it is not considered in the analysis of the broadband market.

In terms of the prices of retail offers, major benefits for final consumers have again been noted, with maximum downstream speeds increasing significantly, while prices remained the same or decreased. See the offers of TV Cabo: in 2004 the "NetCabo 512" offer enabled a maximum downstream speed of 512 Kbps for a monthly fee of 29.41⁵¹; today the "NetCabo Plus" offer provides a maximum downstream speed of 12 Mbps for an identical monthly charge - €29.41⁵². In other words, the final customer now has access to an offer whose maximum downstream speed is about 20 times higher than the offer that existed in 2004, while paying exactly the same.

2.2.2. Other broadband access networks or technologies

2.2.2.1. Mobile systems

The system of third generation mobile services, UMTS (Universal Mobile Telecommunication Systems), for which Optimus, TMN and Vodafone have licensing, has begun to show some development since the three operators embarked on the commercial launch at the end of the second quarter of 2004.

At the end of 2007 there were 1,439 million users with mobile broadband Internet access in Portugal, a figure that increased significantly during 2007 - the number attained in December 2007 represents a cumulative growth rate, since January 2007 of around 88%. This number reflects the number of mobile operator customers who are able to access the Internet using mobile broadband and who have done so at least once since the launch of the service.

Table 4 - Evolution of mobile Internet access customer in 2007

	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Number of users with mobile broadband Internet access (thousands of users)	862	984	1,183	1,439

⁵¹Information compiled from the website of TV Cabo in September 2004 (prices exclude VAT).

⁵²Information compiled from the website of TV Cabo in January 2008 (prices exclude VAT).

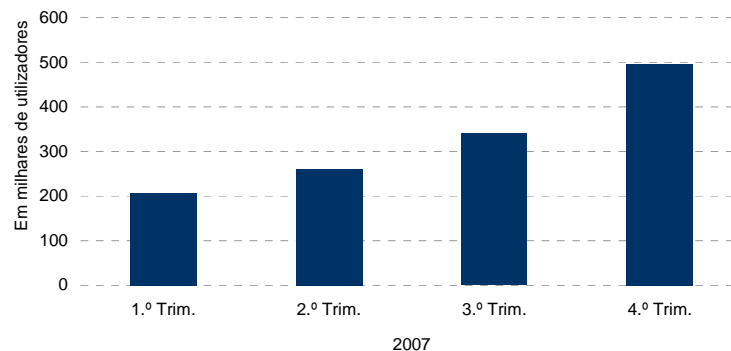
Taking into account the number customers of mobile operators who can access the Internet using mobile broadband and who have done so at least once in the quarter in question, the figures are still striking.

Table 5 – Evolution in the number of active mobile Internet access customers in 2007

	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Number of active users in the period being reported (thousands of users)	315	359	478	660

However, it is judged that for the purposes of comparison with fixed broadband offers, consideration should be made only of those mobile broadband accesses supported by transmission cards which allow similar functionality, particularly in terms of use of personal computers (PCMCIA cards, USB cards, USB modem, PC-Card, PC Card USB, etc.). According to information provided by the operators, the number of users stood at around 500 thousand at the end of 2007 (see Graph 8).

Graph 4 – Evolution of mobile broadband accesses (supported by data transmission cards)



The evolution of these mobile broadband accesses (supported by data transmission cards) has, in the great part, been driven by the “e-escola”, “e-professor” and “e-oportunidades” programmes (e-school, e-teacher and e-opportunities)⁵³, which the Government has been promoting and which involves the provision of computers with broadband Internet connections to important segments of the population on very favourable terms.

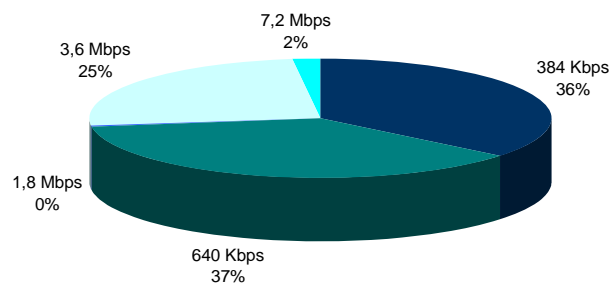
⁵³See <http://eescola.pt/indexA.aspx>.

For example, in January 2008 TMN reported that, within the scope of the “e-escolas” programme alone, a total of 80,000 computers had already been delivered to trainees, teachers and students” – see press release at:

http://www.tmn.pt/portal/site/tmn/menuitem_db67f528a6dbaa5ac8a71c10a51056a0/?vgnextoid=91d3f80f6e82a110VgnVCM1000005401650aRCRD&vgnextchannel=15b5fa2eb8b37110VgnVCM1000005401650aRCRD&vgnextfmt=default2.

When these accesses are broken down by transmission speed, it is seen that at the end of 2007 around 75% of the accesses were at speeds of up 640 Kbps⁵⁴, which is significantly below the maximum speeds of access for the most representative fixed broadband access offers.

Graph 5 - Mobile broadband accesses (supported by data transmission cards) distributed by transmission speed (end of 2007)



In terms of coverage, data provided by operators of the land mobile service shows that while less than half the national territory has coverage with speeds of 128 Kbps; this is more than three quarters of the population. With speeds of 3.6 Mbps, the area covered falls to less than 10% of the territory, encompassing approximately one third of the population.

Operators of the land mobile service are introducing new technologies in the access network, especially HSUPA and HSDPA technologies, which allow for broadband access at higher speeds than those currently available.

In terms of prices, it is seen that the offers provided by the various operators have prices that are substantially higher than those charged for ADSL or cable modem, given the speed of transmission achieved, as will be seen below.

2.2.2.2. Others

In addition to the technologies already mentioned, a range of alternative technologies supporting broadband accesses can be identified, with different states of implementation and maturity.

- Satellite communication systems continue to see very limited use, only very occasionally and at a corporate level.

⁵⁴The 640Kbps offer was recently replaced by an offer with downstream speed of 1 Mbps.

- As far as FWA (Fixed Wireless Access) is concerned, it is known that the only company actively exploring this access network solution, ARTelecom, is to expand its coverage in the cities of Lisbon and Porto.
- There remains interest from various market participants in the introduction of BWA applications in Portugal and ICP-ANACOM has instigated a series of steps to determine the manner by which usage rights for BWA reserved frequencies are to be allocated, whereby an auction for the allocation of frequency usage rights in the 3.4 - 3.8 GHz band has been planned for this year.
- The provision of services supported by fibre optics could show relevant progress in the context of evolution towards NGN, an area where there is some expectation and in respect of which there have been announcement of investments⁵⁵ or expectation of investment.

In view of the limited availability, coverage and penetration in the market, in terms of service and the functionalities on offer, it is considered that these technologies do not currently fulfil the conditions whereby they would be relevant for the purposes of the market definition. However, fibre optic may come to constitute an important source of competition, and therefore the impact of any potential investment on the currently regulated offers should be assessed - particularly investments to be made by PTC. Moreover, this is an issue that ICP-ANACOM is currently analysing in a separate process involving, in its first phase, the launch of a specific public consultation on the subject of next generation access networks (NRA).

2.2.3. Conclusion of the characterisation of the retail broadband market

From the analysis made and also compared to the analysis made in 2005, it is concluded that there is greater development of broadband services in the retail market, with significantly higher speeds available at the same level of pricing. This currently provides consumers with a greater range of choice of broadband services. This is due, in great part, to the obligations imposed by this Authority, which obligations have proved to be essential for the evolution of competition, to the benefit of end users.

In line with the previous analysis, a range of alternative technologies can be identified providing support to broadband access services, manifesting different states of implementation and maturity. Note is made, on the one hand, of the fact that ADSL and cable modem broadband access are already strongly entrenched and, on the other, of the expansion of mobile broadband access. At the same time there remains a range of technologies which continue to have little availability, coverage and market penetration.

⁵⁵For example by Sonaecom, which on 20.02.2008 announced a planned investment in next generation networks totalling 240 million euros over 3 years, covering a million houses.

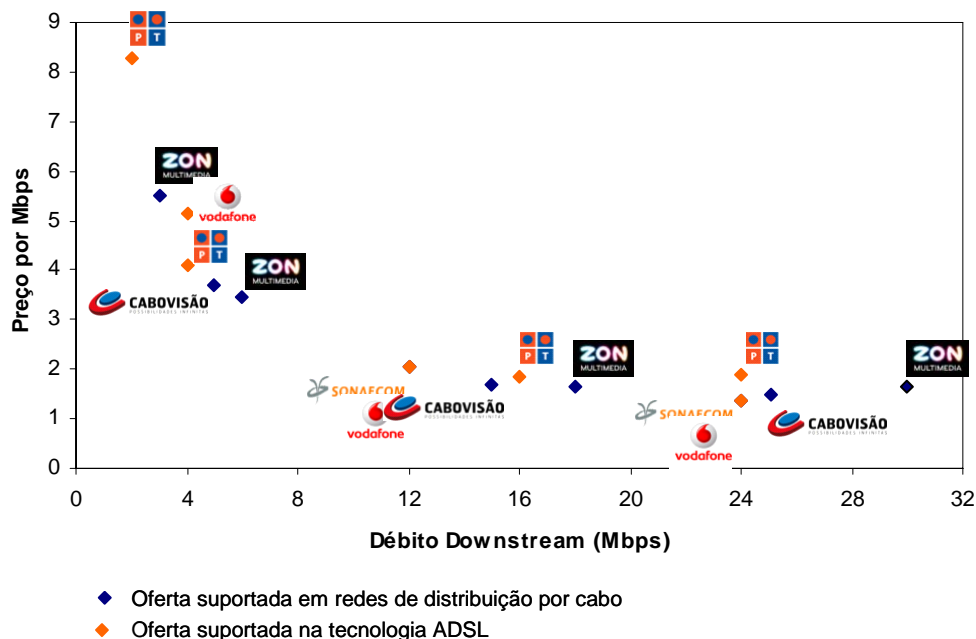
See

http://www.sonaecom.pt/filedownload.aspx?schema=a67f9277-d23c-4f99-8642-9acd3e463b93&channel=44E65941-12EC-4115-9D0F-898A110E2077&content_id=93AD601F-8267-4AE1-95E8-50A41A1C0D5A&field=file_src&lang=pt&ver=1

In general terms, it was also concluded in the previous analysis of the market for wholesale supply of broadband access, that cable modem and ADSL broadband Internet access services have very similar features from the point of view of the end user: permanent access (always on), equivalent speeds and equivalent perceived quality⁵⁶, whereby it can be considered that they are able to satisfy identical needs.

Given the similarity between the features and functionality and price levels of ADSL and cable modem broadband Internet access offers targeted at end-users and the similarity of trade activities conducted with respect to these offers (see Graph 10), it is reasonable to accept that a small but non transitory increase in the price of the cable modem Internet access service would lead to its substitution by ADSL Internet access services, to a sufficient extent that would make such an increase unprofitable, with the contrary being equally true, where the customer has already installed an ISDN or analogue line. Even the existence of potential costs incurred as a result of the switch (including changing modem), does not present a significant obstacle to substitutability, seeing that such costs of switching are estimated to be limited⁵⁷. In fact, it can be seen that in the context of promoting the broadband access services of the two technologies, most of the companies that offer broadband access make an offer of the "installation kits" and the activation of the service.

Graph 6 – Prices (relative) and access speeds of broadband offers supported by the cable modem and ADSL



⁵⁶See Survey of Broadband consumption, carried out by ICP-ANACOM and Metris GFK, in December 2006: <http://www.anacom.pt/render.jsp?categoryId=233143>. There is, however, a study recently carried out by ICP-ANACOM in which the index of measured relative speed (rather than perceived) for broadband offers supported over cable modem is relatively higher than those supported over ADSL.

(see http://www.anacom.pt/streaming/qos_outnov07.pdf?categoryId=267663&contentId=557182&field=ATTACHED_FILE)

⁵⁷ There are always costs involved when switching operator, including costs associated with the searching of information, the time taken to terminate one contract and enter into another, etc.

Source: Websites of the operators in March 2008. Prices excluding VAT.

It is noted that for similar intervals of available downstream speeds, the price per Mbps presents similar values, whether for offers supported by ADSL technology or for offers supported over cable distribution networks.

In the case of new customers, i.e. those who do not yet use broadband access services, where there is no cost of switching, the substitution between the two technologies is yet more evident.

The various Internet access service offers via ADSL and cable modem, with similar characteristics, have in general been launched simultaneously, which may suggest that the commercial conditions of one type of service might limit the other, and vice-versa.

Moreover, the coverage of the access service via ADSL and cable distribution networks with bi-directional capability are already very significant and cover, in general, common areas. Therefore, in practice, the possibilities of substitution may be enacted.

With the proliferation of "*triple-play*" offers, supported by ADSL technology and cable distribution networks, the substitutability between these two types of access becomes even more evident.

Accordingly, ICP-ANACOM believes that, from the point of view of users, the ADSL and cable modem access services are provided in the same retail market - the broadband access market.

On the other hand, one of the more significant alterations to occur in the national market since 2005 has been the expansion of mobile broadband, including, and for the purposes of the present analysis, mobile broadband supported by data transmission cards connected to personal computers (portable or desktop). Given that this may be relevant for the purposes of market definition, this change calls analysis to be made of the degree of substitutability which this option for broadband access has with respect to the other solutions. This issue will be addressed in the next section.

As far as the other existing and commercially available platforms are concerned, ICP-ANACOM, while recognising their potential and taking into account the degree of substitutability which they may have in the future, considers, in view of their limited availability, coverage and penetration in the market, as well as the level of service and functionalities offered, that such platforms will continue to be, in current conditions and over the period elapsing until the next market analysis, without relevance for the purposes of market definition. Accordingly these platforms will not be analysed in the context of the current broadband market.

However, ICP-ANACOM will closely monitor the evolution of the services supported by this infrastructure and these technologies, especially those carried over fibre optics, with a view to a possible revaluation of the above position.

2.3. Definition of the product market

As already expressed in the previous recommendation, the EC believes it is possible to identify three types of currently available Internet access: (i) per call services, (ii) broadband services using xDSL technology (or equivalent) or cable modems, and (iii) dedicated access⁵⁸.

ICP-ANACOM considers that, given the developments since the last market review and analyses made to date with respect to substitutability, the resulting conclusions remain valid with regard to the definition of the product market. In other words, the substitutability analyses remain valid and current between:

- The broadband access service and the narrowband Internet access service - the narrowband Internet access service has itself lost relevance, both by the current low number of accesses⁵⁹ and by the greater difference in available speeds;
- The broadband access and dedicated accesses services - dedicated access services are used primarily by large corporate customers with greater needs in terms of quality of service; and
- The broadband access service for residential and non-residential customers - it should be noted that this distinction between residential and non-residential customers, which may be relevant for other services, loses importance when considering the broadband access service through ADSL and cable modem, which are directed primarily to residential customers and some more demanding customers in terms of quality (containment⁶⁰), upstream bandwidth⁶¹) or traffic consumption (although there is a trend towards offers that allow unlimited consumption).

It is considered, therefore, that in Portugal, the retail market for broadband access comprises the broadband access services using ADSL and cable modem provided to residential and non-residential customers.

In view of the developments in the market, the possibility of including mobile broadband services and fixed broadband access markets in the same market or in separate markets is examined in the following section. For this purpose, use is made of the tools described under "2. Definition of the market", in particular, the possibilities for demand and supply-side substitution.

⁵⁸See Recommendation - Explanatory Note, Section 4.2.2.

⁵⁹At the end of the 4th quarter of 2004 there were approximately 400 thousand narrowband Internet access customers and about 840 thousand broadband access customers. By the 4th quarter of 2007, the number of narrowband Internet access customers had fallen by around 75% to around 100 thousand and the number broadband access customers has increased by around 81%, to about 1.5 million.

⁶⁰The representativeness of the classes of contention 1:10 and 1:20 in all the classes available in the "Rede ADSL PT" offer, in terms of number of access, is about 3%.

⁶¹The representativeness of the classes of upstream speed exceeding 512 kbps in all the classes available in the "Rede ADSL PT" offer in terms of number of accesses, is approximately 0.1%.

Considering that there is yet another source of competitive pressure⁶², besides demand and supply side substitution, analysis will also be made of potential competition, where appropriate.

2.3.1. Fixed broadband access service vs. Mobile broadband access service

An end user can access the Internet using data transmission cards connected to personal computers, with a user experience which can approach that of fixed network broadband access.

However, the demand side substitutability is limited given the differences that exist between these two types of accesses, both in terms of costs and in terms of access speeds. The price difference is currently quite substantial and is aggravated when the contract access speeds are taken into account. As an example, one can see the offers of one of the mobile operators in the following table (the offer structures of other operators with fixed and mobile activities are similar to the example given).

Table 6 – Broadband offers of Vodafone 63[6]

Offers		Speeds		Monthly charge (prices ex VAT)	Monthly charge per Mbps
		Download	Upload		
Mobile Broadband	Broadband 384 Kbps	Up to 384 Kbps	Up to 384 Kbps	€ 18.60	€ 48.4
	Broadband 640 Kbps	Up to 640 Kbps	Up to 384 Kbps	€ 24.71	€ 38.6
	Broadband 3.6 Mbps	Up to 3.6 Mbps	Up to 1.4 Mbps	€ 32.98	€ 9.2
	Broadband 7.2 Mbps	Up to 7.2 Mbps	Up to 1.4 Mbps	€ 37.11	€ 5.2
Duplex ADSL	Duplex ADSL 4 Mbps	Up to 4 Mbps	Up to 512 Kbps	€ 16.45	€ 4.1
	Duplex ADSL 12 Mbps	Up to 12 Mbps	Up to 512 Kbps	€ 24.71	€ 2.1
	Duplex ADSL 24 Mbps	Up to 24 Mbps	Up to 1024 Kbps	€ 32.98	€ 1.4

With respect to the relationship between price and available access speed, the offers supported with data cards compare unfavourably with the offers of fixed broadband (in the case of Vodafone they correspond to the “Duplex ADSL” offers) - although it could be argued that in regions without availability of fixed broadband offers supported over cable distribution networks or OLL, the difference between prices for similar deals is less pronounced.

In the case of offers supported by data cards, each transmission speed is associated with a distinct geographical area of coverage, with the areas covered by higher speeds becoming increasingly smaller⁶⁴.

For example, according to information on the website of Vodafone, “the entirety of the Vodafone 3G network, present in most of the territory, allows access speeds of up to 1.8 Mbps. In most urban areas, speeds of up to 3.6 Mbps are possible. In some areas of the cities of

⁶²See Guidelines §38

⁶³Information compiled from the website Vodafone in February 2008.

⁶⁴There may be very exceptional situations where the maximum speeds available on mobile networks may be higher than those available over the fixed network (due to limitations mainly related to the length or state or local loop).

Lisbon, Oeiras, Lisbon and Faro, the 3G network already offers speeds up to 7.2 Mbps.” This situation is similar for the other land mobile service operators.

In this respect it is also worth noting that the principle results of the evaluation of the quality of GSM/UMTS networks and mobile services in urban areas and along main roads in Mainland Portugal⁶⁵, reveal significant differences between the GSM and UMTS networks, with the first achieving good levels of coverage and performance for the voice service, both in urban areas and along the roads. According to this assessment, the UMTS networks has its shortcomings, not providing good WCDMA coverage and with certain areas continuing to suffer from poor or no coverage, especially along roads.

This “geographical restriction” can also be seen in terms of fixed broadband offers, especially with respect to Vodafone's “Duplex ADSL” offer, which is limited by the number of exchanges with co-installation and by the length of the loops (a relevant factor for offers with very high speeds e.g. 12 Mbps and 24 Mbps). However, the implementation of attendance points closer to the end user has contributed to a reduction in the maximum length of the local loop and, as a consequence, it is expected that the maximum access speeds available on these networks will increase in the near future⁶⁶.

Another differentiating characteristic which potentially limits the possibility of substitutability between the fixed broadband access service and the mobile broadband access service is the fact that the latter generally includes traffic limits that are significantly below the traffic limits of fixed broadband access offers. For example, in the case of the offers sold by Vodafone, the traffic limit of the high speed mobile broadband access offer (7.2 Mbps) is 6 GB, which is the same as the traffic limit of the lowest speed fixed broadband access offer (2 Mbps). The traffic limit of the fastest fixed broadband access offer sold by Vodafone includes 60 GB of traffic⁶⁷. (10 times higher than the highest speed mobile broadband access offer).

Moreover, the main advantage of the mobile broadband access service is essentially the mobility that allows the service to be used anywhere (universities, first and second homes, the workplace) making use of a single contract.

Without prejudice to the above arguments, it is acknowledged that, on the demand side, there may be some substitution between the fixed broadband access service and the mobile broadband access service. However, given the arguments identified, including:

- the difference in price, being lower for an equivalent speed in the fixed broadband access service;
- the maximum speed of offers being lower in mobile broadband access service;

⁶⁵See study at <http://www.anacom.pt/render.jsp?categoryId=272122&languageId=1>

⁶⁶It is also expected that technologies and standards could be developed allowing increases to the transmission speeds on mobile networks

⁶⁷Information compiled from the website of Vodafone in June 2008.

- the different traffic limits being lower, for an equivalent speed, in the mobile broadband access service;
- mobility being an intrinsic feature of the mobile broadband access service,

ICP-ANACOM considers that at present, the degree of substitutability between the fixed broadband access service and the mobile broadband access service is limited, whereby the mobile broadband access service is essentially targeted at a particular segment (besides users eligible for the “*e-escola*”, “*e-professor*” and “*e-oportunidades*” programmes), consisting of users:

- who do not require fixed access (for voice communication or television);
- who value mobility;
- who do not need higher quality broadband access services in terms of speed;
- who are not intensive users.

That is to say, this group of users is not yet of sufficient size to restrict a hypothetical monopolist of the fixed broadband access service from maintaining prices at a significantly higher level than that which could be practised in a competitive market.

The examination of supply-side substitutability on the part of mobile Internet access providers which are not currently broadband service providers on the fixed network is not relevant in this analysis. To enter the fixed network broadband access market, a mobile broadband access provider would have to acquire the relevant wholesale inputs or construct its own network. However, these solutions are not aligned with the concept of supply-side substitution, which requires that operators (in this case the mobile broadband operators) are able to enter the fixed broadband access market quickly and without high costs. Therefore, these providers cannot impose a constraint on fixed broadband providers during the period of time elapsing until the next market analysis.

In addition, all operators of the land mobile service are included in economic groups which also provide fixed network broadband access services. In the reverse situation (providers of fixed network broadband access services access entering the provision mobile broadband services) is even more difficult, given the need for spectrum, which is a scarce resource (this may, however, change with the allocation of frequency usage rights reserved for BWA).

Another aspect which could lead to the same conclusion (that on the supply side, the products are distinct) arises from the fact that there are specific offers of mobile broadband access provided by fixed network operators which belong to the same corporate group as the land mobile service operators targeted at customers who contract ADSL services. In this respect, one can see the example of Vodafone's “Casa Duplex ADSL” kits, which are sold, among others, in two configurations: one to be used inside the home and one to be used inside/outside the home, namely through a mobile broadband offer. This fact shows that, to a certain degree of the two Internet access services (fixed and mobile) complement rather than substitute each other.

Lack of substitutability on the demand side (for most users) and the view that supply-side substitution is not relevant to this market analysis indicates that the existence of mobile Internet access offers does restrict a hypothetical monopolist from setting a price that is above the level of competition in the provision of the fixed broadband access service.

Therefore, for the time period relevant to this market analysis, it is considered that fixed broadband accesses and mobile broadband accesses are not encompassed by same market. Notwithstanding, ICP-ANACOM will closely follow developments of this matter.

2.3.2. Definition of the product market: conclusion

Following the analysis made, it is considered that in Portugal, the retail product market for broadband access product consists of broadband access service using xDSL and cable modem, provided to residential and non-residential customers.

2.4. Definition of the geographic market

After the identification of the relevant product market, it is necessary to define its geographical size.

According to the Guidelines *“the relevant geographic market comprises an area in which the undertakings concerned are involved in the supply and demand of the relevant products or services, in which area the conditions of competition are similar or sufficiently homogeneous and which can be distinguished from neighbouring areas in which the prevailing conditions of competition are appreciably different”*⁶⁸.

In the electronic communications sector, the geographical scope of the relevant market has traditionally been defined according to two main criteria:

- The existence of legal and regulatory instruments, in particular, restrictions with respect to licensing / authorisation, tariff obligations and the provision of services.

In the Portuguese case, the (former) licences⁶⁹ of FTS providers and registration of Internet access service providers were allocated at a national level. In the case of cable distribution networks operators, the permits were granted for certain municipalities. However, in the case of the companies of ZON Multimédia operating cable television, these were consolidated into a single company - TV Cabo - which has national coverage⁷⁰.

⁶⁸ See Guidelines §56.

⁶⁹ The licensing system was replaced by the general authorisation regime.

⁷⁰ Except for Cabo TV Madeirense and Cabo TV Açoreana which, while belonging to ZON Multimédia, have not been merged into TV Cabo, continuing independently and operating, respectively in the autonomous regions of Madeira and the Azores.

Furthermore, Cabovisão has extended its area of operation, now having transmission infrastructure across a considerable part of the national territory.

PTC, which possesses the largest network supporting ADSL services, provides FTS under its obligations as universal service provider, and is so required to provide FTS throughout the national territory⁷¹.

PTC practices tariff uniformity, i.e. it applies common tariffs throughout the national territory.

- The area covered by a network

As mentioned above, since June 2006, the 1,853 public telephone network exchanges of PTC have been equipped with DSLAM, corresponding to the entire coverage of areas where the provision of ADSL is possible. Also in terms of the OLL there has been a substantial increase in coverage, with about 60% of the population covered as at the end of 2007.

As far as penetration of cable distribution networks is concerned, by the end of 2007, 73% of households in all regions were cabled⁷².

Historically, geographic market definition has followed, in general terms, the area covered by the network of the incumbent operator, tending, therefore, to be national in scope.

However, developments now occurring in the broadband access market point to the existence of different competitive conditions in different areas.

In the Portuguese case, the developments observed in the broadband market, with emphasis on the expansion of the OLL, in terms of exchanges with co-installed operators, the number of unbundled accesses and the entry of new operators, and the spin-off of ZON Multimédia, points to the existence of different competitive conditions at a geographical level which could justify that in this case the definition of the relevant geographic market no longer corresponds to the national territory.

2.4.1. The definition of appropriate geographical unit

When an assessment is sought of the geographic scope of markets for electronic communications, the application of substitutability tests can ultimately lead to the definition of very small geographic markets due to limited capacity for substitution. This is because it is unlikely an end user would move house to benefit from lower broadband prices and because supply-side substitution implies significant sunk costs.

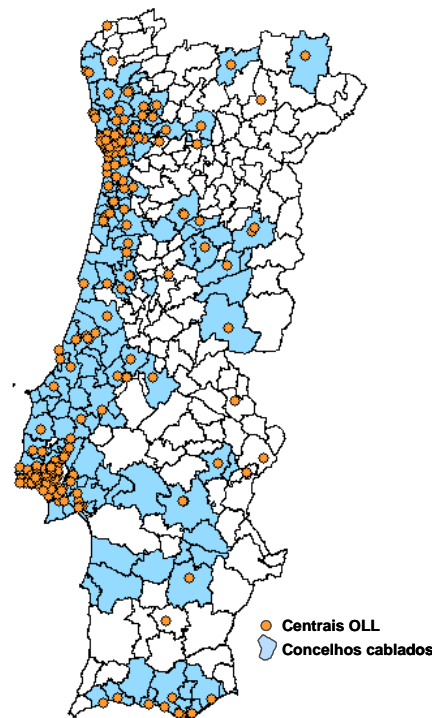
⁷¹ See Article 3 of the Decree-Law no 458/99 of 5 November.

⁷² Although, as mentioned above, there may be multiple cabling of the same household.

Therefore, instead of analyses of substitutability, it may be more useful to consider the existence of common price restrictions, in order to identify what might constitute the geographical limit of the market.

Historically, the providers of the broadband access service offer prices and services which do not vary according to geographical location, suggesting that there is a single geographic market. However, with the development of the OLL and the expansion of the area covered by the cable distribution networks, the respective retail products have been offered at prices which are significantly below the other broadband access offers, including those based on the “Rede ADSL PT” offer. Accordingly, with evidence of geographical variation in terms of offer availability, as previously described, these differences have also given rise to geographical pricing variations.

Figure 2 – Location of exchanges where the OSPs make use of the OLL in Mainland Portugal and municipalities with cabled households



Assuming that the potential coverage of broadband offers based on the “Rede ADSL PT” wholesale offer extends over the entirety of the national territory⁷³, and noting the location of the exchanges where the OSPs make use of the OLL in Mainland Portugal and the municipalities - the smallest unit for which statistical information concerning the distribution of cable networks is compiled - with cabled households (as shown in Figure 2), it can be seen that there are four types of geographical area:

⁷³ There are exceptional cases where it may not be possible to provide ADSL services over a determined loop due to its physical characteristics (including its length, section and state of repair).

- Areas where there are only broadband access retail offers based on the “Rede ADSL PT” wholesale offer;
- Areas where, in addition to broadband access retail offers based on the “Rede ADSL PT” wholesale offer, broadband access retail offers based on the OLL are also sold; and
- Areas where, in addition to broadband access retail offers based on the “Rede ADSL PT” wholesale offer, broadband access retail offers through cable modem are sold; and
- Areas where broadband access is provided based on the “Rede ADSL PT” wholesale offer, on the OLL and on the cable distribution network.

Table 7 – Number of municipalities covered by different OLL coverages, the “Rede ADSL PT” wholesale offer and the cable distribution networks

Areas	No of municipalities	Resident population	Classic family households
“Rede ADSL PT”	308	10,599,095	5,519,654
“Rede ADSL PT” and OLL	103	8,018,831	3,993,710
“Rede ADSL PT” and cable distribution networks	157	9,105,371	4,566,690
“Rede ADSL PT”, OLL and cable distribution networks	94	7,798,178	3,877,679

According to the table, it is concluded that:

- There are 94 municipalities where there are operators of cable distribution networks and operators co-installed under the OLL;
- There are 63 municipalities where there are operators of cable distribution networks and there are no operators co-installed under the OLL;
- Of said 63 municipalities, 29 are municipalities in the Autonomous Regions of the Azores and Madeira;
- There are more cabled municipalities (157) than municipalities with co-installed operators (103).

However, from the analysis made, it is concluded that:

- The municipalities with operators of cable distribution networks but no co-installed operators under the OLL represent only 12% of traditional family dwellings and 12% of the national population, although accounting for just 7% of cabled households;
- In municipalities where there are operators of cable distribution networks and operators co-installed for the purpose of OLL, the percentage of cabled households compared to the total number of dwellings is significantly higher than that found in municipalities

where there are operators of cable distribution networks and no co-installed operators (96% and 44% respectively);

- Figures for the largest cable distribution network operator show that just 1 percent of its cable distribution service customers are located in municipalities where it is present and where there are no co-installed operators,

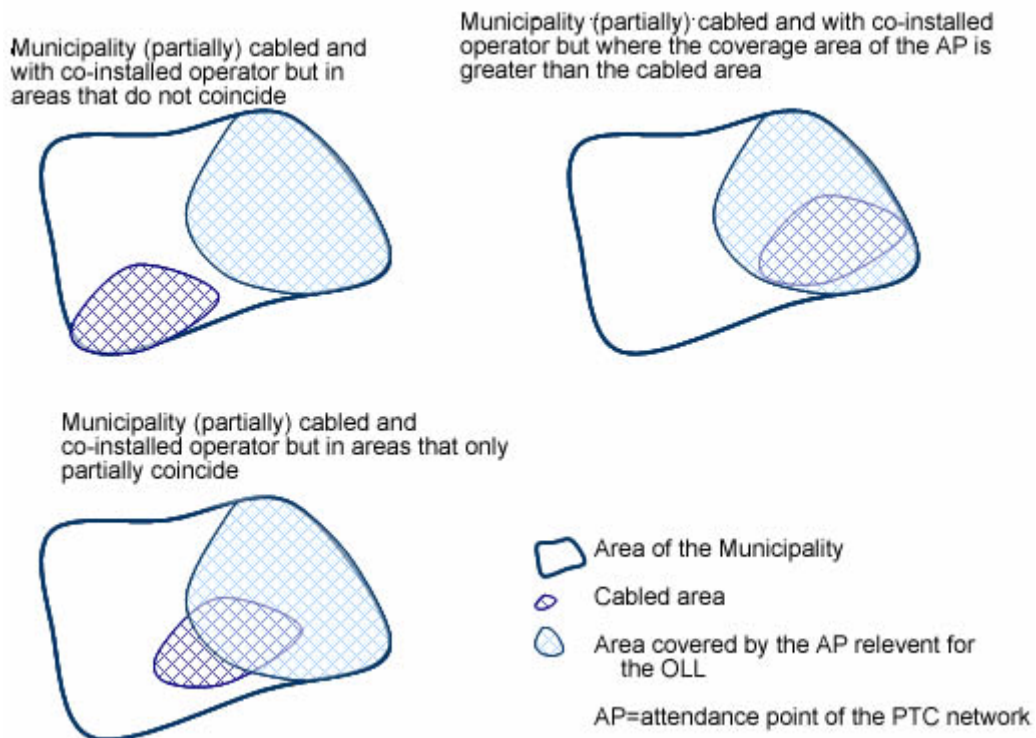
Thus, in terms of homogeneity of competitive conditions, in the first analysis, the four areas previously defined may be concentrated into two broad areas:

- Areas where there are only broadband access retail offers based on the "Rede ADSL PT" wholesale offer; and
- Areas where there are both broadband access retail offers based on the "Rede ADSL PT" wholesale offer and alternative retail offers.

That is, in most areas (municipalities) where there are retail broadband offers based on the OLL, there are also retail broadband offers supported on cable distribution networks, in addition to the retail broadband offers of Grupo PT, which cover the entire national territory; in fact of the 103 municipalities without OLL, only 9 (still) lack cable distribution network coverage. In other areas, there are nearly always only retail broadband access offers based on the "Rede ADSL PT".

But even in municipalities where there are operators of cable distribution networks and operators co-installed for the purpose of OLL, different situations may exist in terms of coverage, some examples of which are given in Figure 3.

Figure 3 – Diagram demonstrating an example of the coverage of the municipalities by cable distribution networks and operators co-installed for OLL purposes



This finding could justify, in a first analysis, the definition of the municipality as the geographical unit to be used for the purposes of geographical markets, and with this assumption, defining the two areas identified above.

However, in choosing the appropriate geographical unit, it is expected that a compromise will emerge between the granularity and the feasibility of a market analysis and the subsequent implementation, where necessary, of relevant obligations.

Thus, consideration must be made of the following:

- on the one hand, whether geographical demarcation should be based on administrative boundaries (e.g. municipalities) or whether it should be based on limits associated with the components of the network;
- secondly, what level of aggregation, with respect to the different geographical units, should be used in order to reflect the different levels of competition observed.

This could make it advisable, as an alternative, to consider the (aggregation of) coverage area of the attendance points of the PTC network with co-installed operators and the (aggregation

of) the coverage area of the attendance points of the PTC network without co-installed operators as being the relevant geographical unit⁷⁴.

The geographical units must still meet the following criteria:

- They should be mutually exclusive and smaller than the national territory;
- The network structure of all relevant operators and services sold in the market must be mapped in the geographical units;
- They should have well defined and stable boundaries;
- They must be sufficiently small so that the conditions of competition do not vary significantly within that unit, while being large enough so that the burden of operators and the NRA with respect to the compilation and analysis of information is reasonable.

In **Error! Not a valid bookmark self-reference.** a comparative analysis can be seen of the two options identified for the definition of the geographical unit.

Table 8 – Analysis of the options for defining the geographical unit

	Municipality	Attendance Point
Mutually exclusive	+	+
Mapping of information	+/_ ^(a)	_ ^(a)
Boundary stability	+	+
Uniformity of competitive conditions	_ ^(b)	+
Operationalisation of obligations	_ ^(c)	+

- (a) As noted above, information relating to cable distribution operators is available by municipality (with respect to cabled households or to customers of the cable television service). The information on ADSL accesses is broken down by attendance point. The mapping error results from (i) imputing the ADSL accesses of a given attendance point in the municipality to which it belongs (where there may be an error with respect to the attendance points that are located in municipalities adjacent to the municipality in question) or (ii) imputing the cable modem accesses of a given municipality in the attendance points belonging to that municipality; Since, in general, the coverage area of attendance points is less than the area of the municipality, the error associated with mapping data in respect of OLL-based accesses in the municipality where the attendance point is located, will, from the outset, be less than the error associated with the mapping of data in respect of the cable distribution networks - at a municipality level - at the attendance points;
- (b) Since, in general, the area of the municipalities is larger than the coverage area of the attendance points, the municipalities have competition levels that are less homogeneous than that of the attendance points;
- (c) The operationalisation of the obligations at the attendance point (network component) level is immediate and simpler than operationalisation at the municipality level (e.g. there may be two accesses belonging to the same attendance point and different municipalities, whereby it would be operationally complex and commercially unsuitable, for example, to differentiate the obligations at the same attendance point).

⁷⁴Using the areas associated with each individual attendance point may allow, on the one hand, a very intricate analysis but on the other hand, seems to be impractical with respect to obtaining reliable data and conducting an analysis at that level. Moreover, the geographical unit selected must be one that can reflect the competitive constraints that exist in the local market which means that the unit must not be too broad, encompassing, in an arbitrary way, areas with heterogeneous competitive conditions.

While the above analysis points to the adoption of the attendance point as the geographical unit for the demarcation of the market, another fact that gives weight to this option is the fact that the pricing level of OLL-based retail broadband access offers is, as a rule, less than that of offers supported by cable distribution networks. In other words, the principal driver of competition in this product market was, as at the end of 2007, the OLL - evident, for example, in the marginal market shares in areas with OLL, where the OSPs with OLL-based retail offers accounted for more than 50% of new broadband access registered between the end of 2006 and the end of 2007. However, more recent data has shown a reversal in this situation, given the competition that has been exerted by ZON Multimédia, after the completion of its spin-off from Grupo PT.

While the above analysis point to the adoption of the attendance point as the geographical unit for the demarcation of the market, another fact that gives weight to this option is the fact that the pricing level of OLL-based retail broadband access offers is, as a rule, less than that of offer supported by cable distribution networks. In other words, the principal driver of competition in this product market was, as at the end of 2007, the OLL - evident, for example, in the marginal market shares in areas with OLL, where the OSPs with OLL-based retail offers accounted for more than 50% of new broadband access registered between the end of 2006 and the end of 2007. This increased competitive pressure is mainly explained by the joint provision of various services (broadband internet, television) - which is what is at stake, especially in the case of the offers of the cable distribution networks and offers based on the local loop (of Clix) - (see **Error! Not a valid bookmark self-reference.**), since when analysis is made of the price of isolated broadband access service, it is not very different in offers based on the local loop and in the cable distribution networks (see

Graph 6).

Table 9 – Example of broadband offers based on the local loop and the cable distribution network⁷⁵

Services	Clix	ZON Multimédia
Broadband	12 Mbps downstream speed Unlimited traffic	4 Mbps downstream speed Unlimited Traffic
Television	25 channels	16 channels
FTS	Unlimited calls at night to the fixed network in Portugal	Calls to fixed network at €0.05 / min. and to the mobile network at €0.3 / min.
Price of all services	€ 24.71	€ 33.02

Source: Websites of the Internet operators in June 2008. Prices excluding VAT. The figures given do not include the value of the equipment rental or the coast of activation / installation. Promotional values that are limited to a certain period are also not considered.

⁷⁵ Information compiled from the Web sites of operators in June 2008 (these prices do not include VAT). The figures do not include the value of equipment rental or the value of activation / installation. Promotional values that are limited to a certain period are also not considered.

In **Error! Not a valid bookmark self-reference.** examples of the evolution of broadband offers are shown between 2004 and 2008. While it is noted that the prices of the offers have seen significant reductions and that the base offers in areas of OLL or cable distribution network coverage have higher speeds, it also appears that in non-OLL areas the price of Sonaecom's offer is higher than the price of the PTC offer.

Table 10 – Examples of the evolution broadband offers between 2004 and 2008⁷⁶[19]

Operator	Year	Price	Speed	Offer name
PTC	2004	€ 29.40	512 kbps	Sapo ADSL.PT Standard
	2008	€ 16.52	2 Mbps	Sapo ADSL
Sonaecom (OLL areas)	2004	€ 32.69	1 Mbps	Clix 1 Mb
	2008	€ 16.45	4 Mbps	Clix 4 Mb
Sonaecom (non-OLL areas)	2004	€ 32.00	512 kbps	Net ADSL Light
	2008	€ 20.65	1 Mbps	Clix ADSL 1 Mb
ZON Multimédia	2004	€ 29.41	512 kbps	Netcabo 512
	2008	€ 16.52	4 Mbps	Netcabo 4 Mb

2.4.2. The homogeneity of competitive conditions

The option of defining the geographic market in terms of the coverage area of attendance points seems to be an appropriate compromise between the levels of granularity and practicality previously referenced, ensuring coherence with respect to existing obligations (that is to say, it is relatively simple to distinguish obligations by attendance point).

Indeed, it is undeniable that the areas covered by the cable distribution networks and/or attendance points where there are co-installed operators are those encompassing the majority of the population and where the PTC faces greater competitive pressure. In the areas (of relatively small scope), where there is coverage of cable distribution networks and there are no co-installed operators⁷⁷, competition experienced by the PT Group is not, from the outset, as strong as that faced in other areas.

Besides the presence of co-installed operators with respect to the OLL and / or cable distribution network operators, other additional indicators which could result in more or less competitive pressure could be, for example, the number of operators involved, the date of the first co-installation or percentage of cabled households in the municipality where the attendance point is located.

Therefore, the attendance points could be formed into groups where the competitive conditions were similar or sufficiently uniform, taking into account the aspects addressed above.

⁷⁶ Information with reference to 2008 compiled from the website in February 2008. Information with reference to 2004 compiled from the websites of operators in September 2004. Prices do not include VAT and refer solely to the internet service.

⁷⁷ And vice versa (there are areas with co-installed operators but no cable distribution network coverage).

With respect to this issue, it should be noted that the EC, in comments made on the second round of OFCOM's analysis of market 5, stated that⁷⁸:

- it would prefer that the NRA had defined each one of the 5,587 exchange areas as a separate market;
- recognizing the practical difficulties in analyzing each one of these exchanges individually, it accepted that exchanges that have similar or sufficiently homogeneous competitive conditions could be grouped in order that the assessment of SMP might be made;
- the number of competitors present at a given attendance point, even in combination with their size, would not, by itself, be sufficient and the analysis of the distribution of market shares and of price differences charged in attendance points also constituted essential parameters⁷⁹.

Therefore, taking the comments of the EC on OFCOM's analysis of market 5 into account, analysis is made, in the first place of the market share, attendance point by attendance point⁸⁰, with the distribution of broadband accesses of cable distribution operators by attendance point according to the methodology set out in Annex 1.

The results of said analysis, attendance point by attendance point can be found in Annex 2.

After making such analysis, and so that MDF groupings which have similar or sufficiently homogeneous conditions of competition may be defined and identified, taking into account whether or not there are co-installed operators or cable distribution network operators in the municipality where each attendance point is located⁸¹, the following conditions have been defined:

- Group A: Lack of co-installed operators or cable distribution network operators;
- Group B: Existence of a single co-installed operator and lack of cable distribution network operators;
- Group C: Lack of co-installed operators and the presence of at least one cable distribution network operator;
- Group D: Existence of more than one co-installed operator and lack of cable distribution network operators;

⁷⁸ See

http://circa.europa.eu/Public/irc/info/ecctf/library?l=/uk/registeredsnotifications/uk20070733/uk-2007-0733_actepdf/EN_1.0_&a=d.

⁷⁹ According to the EC, OFCOM presented information on market shares and their evolution over time, for each individual attendance point.

⁸⁰ The main attendance points or MDFs were used, since statistical information is compiled at this level.

⁸¹ This approach takes the price differences between different groups and the differences in competitive pressure recorded between them into account.

- Group E: Existence of a single co-installed operator and the presence of at least one cable distribution network operator;
- Group F: Existence of more than one co-installed operator and the presence of at least one cable distribution network operator.

In **Error! Not a valid bookmark self-reference** and Table 12 and in Graph 7 the results obtained in terms of characterization of attendance points in each group can be seen, focusing on the distribution of market shares of Grupo PT.

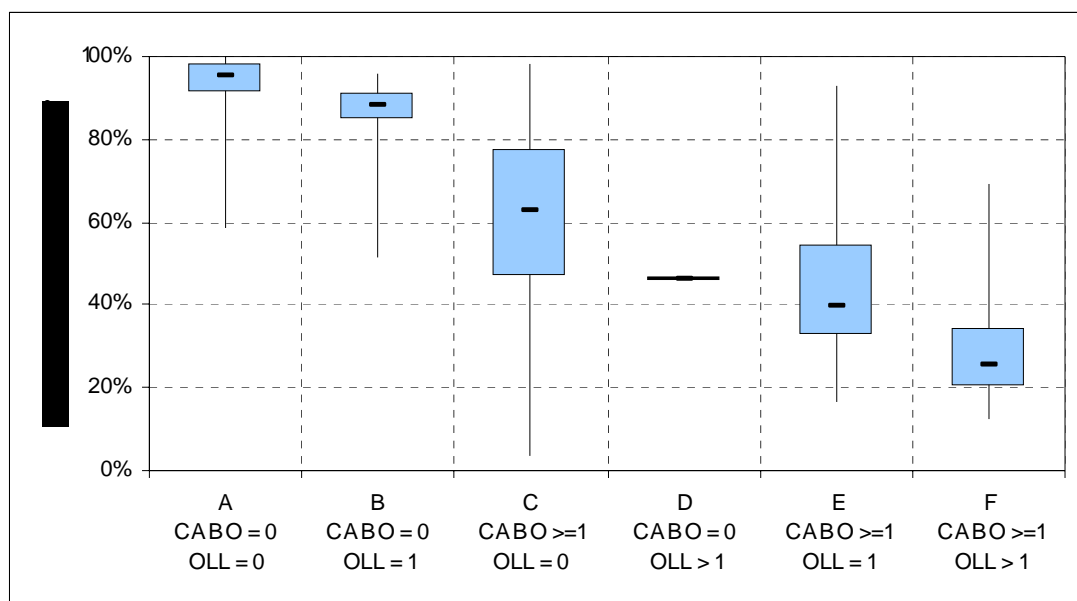
Table 11 – Characterisation of attendance points

	A	B	C	D	E	F
No of co-installed operators	0	1	0	>1	1	>1
No of cable distribution network operators	0	0	≥1	0	≥1	≥1
No of attendance points	651	8	982	1	67	144
Average size (FTS accesses) of the attendance point	611	2.760	997	2.602	3.987	8.617
Proportion of broadband accesses	6%	1%	29%	0%	11%	54%

Table 12 – Distribution of retail market shares of Grupo PT by grouping of attendance points

	A	B	C	D	E	F
Minimum	58%	52%	3%	46%	17%	12%
1st Quartile	91%	84%	47%	46%	32%	20%
Median	95%	88%	63%	46%	39%	26%
3rd Quartile	98%	91%	77%	46%	55%	34%
Maximum	100%	96%	98%	46%	93%	69%

Graph 7 – Distribution of retail market shares of Grupo PT by attendance points grouping



market share of Grupo PT

The conclusions in terms of market share are in line with the expected trend: generally where there is a greater number of operators within the coverage area of the attendance point in question, the market share of Grupo PT is reduced.

From this first analysis it is concluded that:

- The attendance points in groups A and B can be grouped into one, since they are homogeneous (there is in fact no attendance point where the market share of the PT Group is less than 50%);
- Group D is of no statistical relevance because it includes only one attendance point.
- This is some heterogeneity in groups C, E and F - however (i) in most attendance points of Group C, the market share of Grupo PT is over 50% and (ii) in most attendance points of Group F, the market share of Grupo PT is below 40%.

Accordingly, it is considered necessary to extend the analysis of groups E, F and C.

Groups E and F

The attendance points of groups E and F are again regrouped and a significant (negative) correlation is seen in the context of this group - which represents the attendance points with at least one co-installed operator and belonging to municipalities where there is at least one cable distribution network - between the market share of Grupo PT and the percentage of cabled households.

In practice, as would be expected, this correlation means that the greater the coverage of the municipality by operators of cable distribution networks, the greater the competitive pressure on Grupo PT.

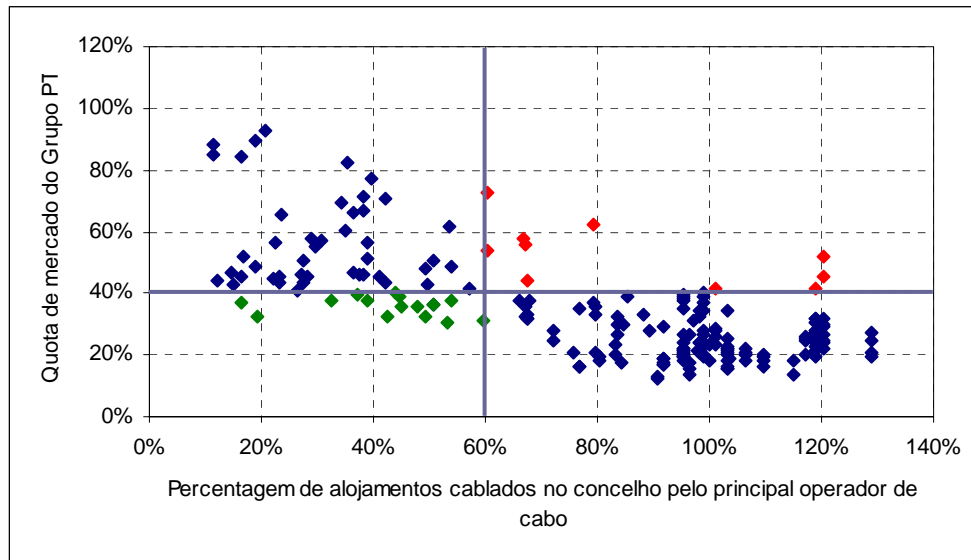
To this effect, taking the possibility of multiple cabling of a single household into account (where the sum of cabled households by all operators may result in duplicate calculations), the percentage of cabled households of the main operator player for each municipality is used.

It is further concluded that with a percentage of cabled households of 60%, maximum homogeneity in the distribution of market share of attendance points is achieved with two distinct groups (one group where the market share of Grupo PT at each attendance point is mostly above 40% and another where the share is mostly below 40%)⁸² - see

Graph 8.

⁸²The 40% reference is used for the market shares since according to the Guidelines, in past decisions of the EC, concerns over situations of individual dominance have normally arisen in cases where undertakings have market shares of over 40%; there may, nevertheless, be cases of dominance with lower market shares or cases of undertakings with higher market shares which are not considered to be dominant undertakings.

Graph 8 – The relationship between the market shares of Grupo PT at each attendance point and the percentage of cabled households of the dominant player in the municipality where the attendance point is located⁸³



market share of Grupo PT

The results of this analysis are presented in **Error! Not a valid bookmark self-reference.** and Table 14 and in Graph 9.

Table 13 – Characterisation of attendance points

	E'	F'
No of co-installed operators	≥ 1	≥ 1
No of cable distribution network operators	≥ 1	≥ 1
Percentage of cabled households	$\leq 60\%$	$> 60\%$
No of attendance points	61	150
Average size (FTS accesses) of the attendance point	5.030	8.007

⁸³ Nevertheless, even where the percentage of cabled households of the dominant player in each municipality is used as an indicator, in some cases values of over 100% are recorded. This is due to the following factors:

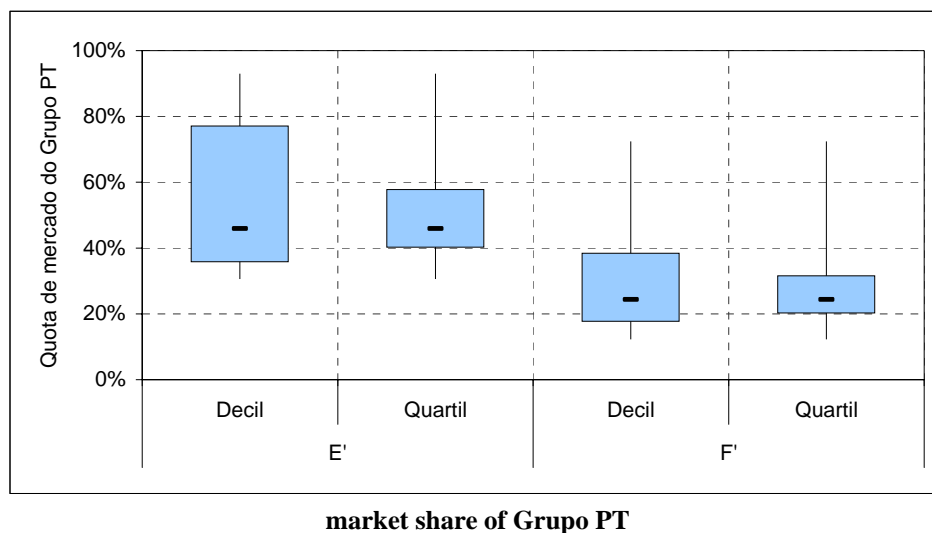
- The penetration rates for cabled households are calculated according to the cabled households ratio (information provided by operators) / classic family dwellings (information provided by INE (Statistics Portugal));
- Commercial establishments (cafes, shops, medical clinics, etc..), counted by operators as cabled households but not considered by INE as classic family dwellings;
- New buildings/constructions are not classified as classic family dwellings by INE but are included by the operators.

Proportion of broadband accesses	10%	55%
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Table 14 – Distribution of retail market shares of Grupo PT by group of attendance points

	E'	F'
Minimum	31%	12%
1st Decile	36%	18%
1st Quartile	40%	20%
Median	46%	24%
3rd Quartile	58%	32%
9th Decile	77%	38%
Maximum	93%	72%

Graph 9 – Distribution of retail market shares of Grupo PT by attendance points grouping



That is, to have two groups that are more homogeneous than the previous groups E and F:

- One, comprising 150 attendance points, in 90% of which the market share of Grupo PT is less than 40% - represented by F'
- Another, comprising 61 attendance points, in 90% of which the market share of Grupo PT is greater than 40% - represented by E'

While not having great relevance, it appears that the “error” with respect to the formulated groups (regarding the reference to 40% market share) corresponds to:

- Group F' 6 attendance points where Grupo PT has a market share of over 50%, representing 1.5% of the broadband accesses - points shown in red in

Graph 8;

- Group E' 15 attendance points where Grupo PT has a market share of less than (but very close to) 40%, representing 3.5% of the broadband accesses - points shown in green in

Graph 8.

Group C

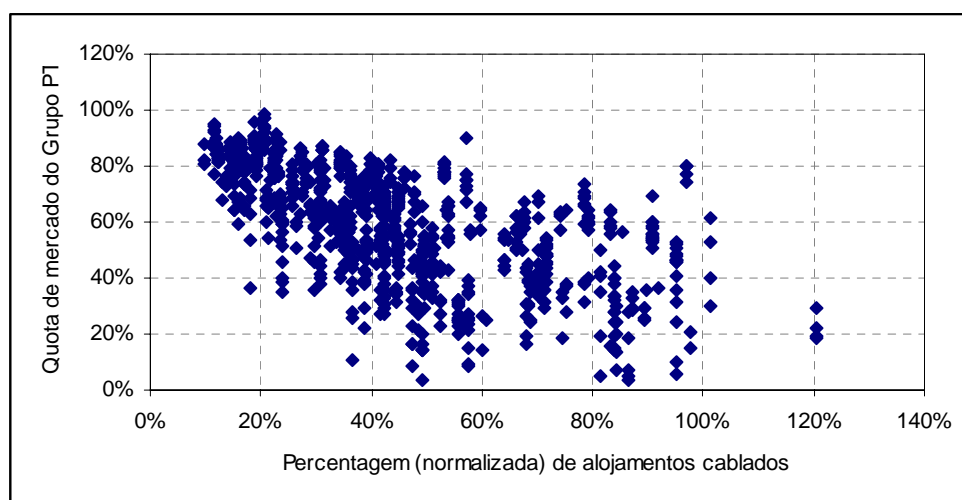
In this group there are 170 attendance points where the market share of Grupo PT is less than 40%. These 170 attendance points have, on average, 823 FTS accesses and represent around 5.6% of the broadband market.

Approximately 22% of the FTS lines of these 170 attendance points are situated in the Autonomous Region of Madeira, in areas where, in addition to Grupo PT, only ZON Multimédia, through its subsidiary Cable TV Madeirense, has any presence.

It is noted that the entry or expansion of operators in this Autonomous Region is hampered by the insularity that characterizes this Autonomous Region and its respective associated conditions, particularly by the need to have sufficient capacity for a connection to the territory of Mainland Portugal, which capacity is controlled by PT Group and has revealed certain limitations.

Within this set of 170 attendance points no sufficiently strong relationship can be identified between the various indicators that would enable these attendance points to be grouped in any other way that would be more homogeneous.

Graph 10 – The relationship between the market shares of Grupo PT at each attendance point and the percentage of cabled households of the dominant player in the municipality where the attendance point is located (Group C)



Market share of Grupo PT / Percentage (normalised) of cabled households

Accordingly, while showing some heterogeneity, it is judged that, given the relatively low importance of the attendance points in question (with more pronounced exception of those

located in the Autonomous Region of Madeira), there is no evidence that points to a need for this group to be subdivided.

2.4.3. Conclusion on the homogeneity of competitive conditions

Taking into account the information presented above, it is considered that in this case there are two relevant geographic markets:

- areas covered by attendance points where there is at least one co-installed operator and where there is at least one operator of cable distribution networks and where the percentage of cabled households of the dominant player in the municipality is more than 60% - hereinafter “areas C”;
- the remaining areas - hereinafter “areas NC”.

The “areas C” are constituted by the coverage areas of 150 attendance points identified in Annex 3, and account for 55% of broadband accesses or 41% of FTS accesses.

According to available information, a more complex definition of these geographic markets would not be relevant for the assessment of SMP, taking into account the prevailing conditions of competition.

It is noted that this methodology for defining the geographic markets takes current market conditions into account, whereby a different methodology may be applied in any future market analysis.

The attendance points where there is at least one co-installed operator and where there is at least one operator of cable distribution networks and where the percentage of cabled households of the dominant player in the municipality is more than 60% are identified in Annex 3 and shall be maintained until the next review of the broadband access markets.

It is noted that, although the area of certain municipalities is relatively large, the population is concentrated in a relatively small area, an area that is economically appealing from a business point of view, both for cable distribution network operators and for operators co-installed for purposes of the OLL. Therefore, for all purposes, it is expected that the area of coverage of the MDFs identified in Annex 3 is mostly covered by the area encompassed by the cable distribution networks, in excess of 60% coverage of the municipality. Therefore, it is considered there is effective possibility of substitution between ADSL supported broadband access services and services supported by cable modem. Indeed, significantly, more than 85% of the 150 MDFs identified in Annex 3 are situated in municipalities where the network coverage of the main cable distribution operator exceeds 80%.

2.5. Conclusion: Retail broadband access markets

Following this analysis it is considered that, in Portugal, the retail market of broadband access consists of broadband access services using ADSL and cable modems provided to residential and non-residential and customers and that it is divided into two geographic markets:

- (a) areas covered by attendance points where there is at least one co-installed operator and where there is at least one cable distribution network operator and where the percentage of cabled households of the dominant operator in the municipality exceeds 60%;
- (b) the remaining areas of the national territory.

It is the view of ICP-ANACOM that the factors considered in this analysis will probably not change over the short/medium term, before the next market definition and analysis of SMP is carried out⁸⁴.

⁸⁴ The next definition of the market will be carried out as soon as: (1) there is an occurrence which significantly changes the competition conditions of the market or (2) once the Recommendation is reviewed with respect to these markets or (3) within the space of 18 months.

3. ASSESSMENT OF SMP IN THE RETAIL BROADBAND ACCESS MARKET

In accordance with article 60, Paragraph 1 of Law No 14/2004 (14 of the Framework Directive), *"It is considered that an undertaking has significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, or a position of economic strength which enables it to act, largely independently of competitors, customers and consumers."*

SMP may be held by just one undertaking in the market (individual dominance) or by more than one undertaking (joint dominance). Additionally, in cases where an undertaking has SMP in a specific market, it may also be considered as having SMP in a closely related market, where the links between the two markets are such that possession of market power in one market can serve as a lever for another market, thereby strengthening the market power of the company (leverage of SMP).

In the assessment of SMP it is important to conduct an analysis taking as a hypothesis that there is no current or potential regulation of SMP in the relevant market. This should be the procedure where the result of an SMP analysis implies the testing of the necessity or otherwise of any regulatory intervention. Therefore, to evaluate SMP in this market, analysis must be made of a hypothetical market where the regulation of SMP (or the "threat" of regulation of SMP) does not exist.

In this case, and for analysis of the retail market, a scenario is assumed where there is no regulation in the upstream markets (i.e. in wholesale markets). Otherwise, the retail analysis would be skewed by a set of obligations that are currently in force but that may change following the analysis of the market.

Accordingly, in the absence of wholesale market regulation, PTC would have no incentive to provide others with access to its network, at least according to the terms which have been defined by ICP-ANACOM; such terms as have led to the development of the "Rede ADSL PT" offer and the OLL and have resulted in increased access by alternative operators with basis in these offers. In this context, and for the purposes of assessing market share and other criteria used for the assessment of SMP in the retail broadband access market in the absence of regulation in the associated wholesale markets, it is necessary to define the most reasonable hypothesis for gauging the number of OSP retail accesses based on the OLL and "Rede ADSL PT" wholesale offers.

Even assuming that certain broadband access customers would not acquire this service if OLL-based retail offers didn't exist, it is considered that a large proportion of the retail customers of OLL-based offers were previous customers of retail offers based on "Rede ADSL PT" or that they would have opted for any available situation in the absence of other offers. As such, it is not reasonable to disregard the OSP retails accesses based on the "Rede ADSL PT" and OLL offers, i.e. it is not reasonable to say that in the absence of regulation that these access would not exist.

In this context, and given that, until the date on which the "spin-off" was completed, the retail offers of PTC were very similar to the retail offers based on cable modem (particularly to those the main operator of cable distribution network - ZON Multimédia). This was impacted by the fact that the retail accesses of the OSPs, based on the wholesale offers of PTC, belonged to the FTS customers of PTC, who, therefore, already had a copper line installed. The hypothesis may therefore be assumed that these OSP retail accesses based on "Rede ADSL PT" and OLL wholesale offers, belong in their entirety to Grupo PT. That is, they would not change from PTC (FTS provider) to cable distribution network operators, to acquire a broadband access service for the same price and with the same features offered by PTC.

Table 15 – Principal retail broadband Internet access offers of Grupo PT (which included ZON Multimédia) identified in earlier analysis of market

Provider	Offer	Price		Included traffic		Additional consumption (per 100MB)
		Month charge	Activ.	National	Interntl.	
Speeds (Kbps): 512 / 128						
Telepac	Sapo ADSL.PT Standard	€ 29,40	€ 42,02	20 GB	Telepac	Sapo ADSL.PT Standard
TV Cabo	NetCabo 512	€ 29,41	€ 21,01	20 GB	TV Cabo	NetCabo 512
Telepac	Sapo ADSL.PT Pro	€ 37,81	€ 42,02	Unlimited	Telepac	Sapo ADSL.PT Pro
PT Prime	Telepac ADSL monoposto	€ 38,00	€ 21,05	40 GB	PT Prime	Telepac ADSL monoposto
Speeds (Kbps): 256 / 128						
TV Cabo	Speed Light	€ 18,91	€ 21,01	Unlimited		TV Cabo
Telepac	Sapo ADSL.PT Light	€ 18,91	€ 42,02	Unlimited		Telepac

Source: Operators websites (information gathered in September 2004).

Note: Prices do not include VAT.

NA = Not available

However, customers who are users of the FTS and cable TV and who want to sign up a broadband access service have two technology options: ADSL or cable modem. According to the "Survey of Consumer Electronic Communications" carried out by GfK Metris at the request of ICP-ANACOM⁸⁵, 54.5% of respondents said that they had the FTS and cable television at home, a percentage which is considered significant.

In this context, for the purposes of assessing market share and other criteria for assessment of SMP in the broadband retail market access in the absence of regulation of associated wholesale markets, the most reasonable assumptions for the number of OSP retail accesses based on the "Rede ADSL PT" and OLL wholesale offers, are:

- About half (54.5%) of OSP retail accesses based on the "Rede ADSL PT" and OLL wholesale offers are distributed by Grupo PT and the operators which provide broadband services through modem - this distribution is performed taking account of the proportion of "own accesses", i.e. accesses with "in reality" belong to each one of the operators;

⁸⁵ This project included a survey on consumption and the perceived quality of electronic communications services, for the universe of individuals over 15 years of age, resident in Portugal (Mainland and Autonomous Regions), conducted using a sample of 3,504 interviews between 01.11.2007 and 17.12.2007.

- The other OSP retail accesses based on the "Rede ADSL PT" and OLL wholesale offers belong to Grupo PT.

It should be noted that, for purposes of accounting, the value that results from the GfK Metris survey may be higher than those that should be used for the purposes of this analysis, given that a significant percentage (more specifically, about 25%⁸⁶) of accesses to cable television use DTH - which does not support the bi-directional signals needed for the broadband Internet access service - and some FTS customers may have this service supported by the operators of cable distribution networks (as is the case of some Cabovisão customers), whereby the number of accesses so assigned to Grupo PT may not be accurate.

In **Annex 1** a summary is provided of the options and assumptions used in the assessment of market shares in the various defined markets.

3.1. Criteria for the assessment of SMP

As in previous market analysis, ICP-ANACOM has taken the Guidelines into utmost consideration in the assessment of SMP.

According to the Guidelines, "NRAs will assess whether competition is effective. The conclusion that there is effective competition in a relevant market is equivalent to a conclusion that no operator has, individually or jointly, a dominant position in that market."⁸⁷

In the same document the EC indicates that "NRAs will conduct a forward looking, structural evaluation of the relevant market, based on existing market conditions. NRAs should determine whether the market is prospectively competitive, and thus whether any lack of effective competition is durable, by taking into account expected or foreseeable market developments over the course of a reasonable period. The actual period used should reflect the specific characteristics of the market and the expected timing for the next review of the relevant market by the NRA. NRAs should take past data into account in their analysis when such data are relevant to the developments in that market in the foreseeable future."⁸⁸

In the Guidelines, the EC presents market shares as an indicator of market power, considering that it is unlikely that undertakings with a market share of less than 25% will have a dominant position in the market concerned.

In past EC decisions, concerns over situations of individual dominance have normally arisen in cases where undertakings have a market share exceeding 40%, although there may be cases of dominant position where market share is lower or cases where undertakings have higher market shares but are not considered to be dominant undertakings⁸⁹.

⁸⁶ At the end of 2007.

⁸⁷ §19.

⁸⁸ §20.

⁸⁹ See Guidelines § 75.

As the EC states in the Guidelines⁹⁰, the existence (or absence) of a dominant position cannot be determined solely by the existence of high (or low) market shares, and therefore the NRA must use other criteria. Such criteria include the following:

- The overall size of the company
- Control of difficult to duplicate infrastructure
- Technological advantage or superiority
- Absence of or low countervailing buying power
- Easy or privileged access to capital markets/financial resources
- Product/services diversification
- Economies of scale
- Economies of scope
- Vertical integration
- Highly developed distribution and sales network
- Absence of potential competition
- Barriers to expansion

It is further stated in the EC Guidelines that a dominant position can derive from a combination of the above criteria, which taken separately may not necessarily be determinative.

On the question of the criteria for assessing SMP, the European Regulators Group (ERG) published a working paper on the Guidelines ("*ERG SMP Position*")⁹¹ that builds upon the criteria for assessing SMP:

- Excessive pricing
- Ease of market entry
- Cost and barriers to switching
- Evidence of previous anti-competitive behaviour
- Active competition on other parameters
- Existence of standards/conventions
- Customers' ability to access and use information
- Price trends and pricing behaviour
- International Benchmarking

⁹⁰ §78.

⁹¹ "Revised ERG Working paper on the SMP concept for the new regulatory framework", October 2004 (http://www.erg.eu.int/doc/publications/public_hearing_concept_smp/erg0309rev1_smp_working_doc.pdf)

3.1.1. Criteria used for the assessment of SMP in the broadband retail markets

According to ICP-ANACOM, the most important criteria in the analysis of the retail broadband access markets are as follows:

- Market shares and market growth
 - Potential future market shares
 - Barriers to entry and expansion
 - Economies of scale and scope
 - Highly developed distribution and sales network
 - Vertical integration
 - Price trends and pricing behaviour
 - International Benchmarking
 - Evidence of previous anti-competitive behaviour
 - Countervailing negotiating power
-
- Other criteria for the assessment of SMP

With respect to the other criteria, an explanation follows as to why these are not considered relevant or considered less relevant in this assessment of SMP⁹².

Non-relevant criteria in the assessment of SMP in broadband retail markets

- Existence of standards / conventions - while technical standards for equipment used in the provision of broadband access may exist, it is considered that they have limited impact on competition insofar as the various operators generally use the same technologies and standards.

Less relevant criteria in the assessment of SMP of retail broadband markets

- Excessive Prices - while this could support the conclusion that SMP exists, this criterion is not, however, a pre-requisite for the existence of SMP. There is no evidence of excessive prices in the relevant markets in question, given also the comparisons of international prices, as detailed in section 3.3.1.6;
- The overall size of the company - this criterion is taken into account in the context of economies of scale and scope whereby it is not considered independently;
- Advantages or technological superiority - this criterion is taken into account in the context of barriers to entry so it is not considered separately;

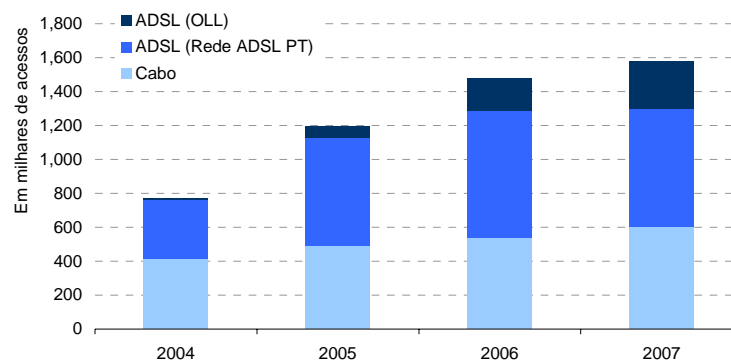
⁹²For this purpose, account is taken of the position presented in "ERG SMP Position".

- Diversification of products / services - this criterion is considered in the context of economies of scope;
- Active competition on other parameters - this criterion is considered in the context of economies of scope;
- Customers' ability to access and use information - it is considered that in general the end consumers have the ability to access and use information on the offers available;
- Easy or privileged access to capital markets/financial resources - this criterion is taken into account in the context of economies of scope and so it is not considered independently.

3.2. The size of the retail broadband access market⁹³

The rate of increase in the number of broadband accesses in Portugal has remained relatively high since 2004. At the end of 2004 there were almost 800 thousand broadband accesses, over 50% of which were supported by the cable distribution network. At the end of 2007, the number of broadband accesses reached nearly 1.6 million, with more than 60% of them being ADSL access.

Graph 11 – Evolution of broadband accesses



At the end of 2007, the distribution of broadband accesses between the two geographic markets identified in the previous section was as follows:

- Around 900 thousand accesses in the retail broadband access market - "Areas C" (55% of the total)
- Around 700 thousand accesses in the retail broadband access market - "Areas NC" (45% of the total)

⁹³ The definition of broadband as identified in the definition of the retail product market of broadband access is used (see section 2.3).

3.3. Retail broadband access market - "Areas C"

3.3.1. Individual Dominance

As the procedure in the previous market analysis, assessment of effective competition will begin with the calculation of market share, thereby identifying, in a first step, candidates with SMP.

It is important to note that the existence of a dominant position cannot be determined based solely on market share. Consequently, the NRA should conduct a thorough and comprehensive analysis of the economic characteristics of the relevant market before reaching a conclusion on the existence of SMP.

In order to make this economic analysis of the market, ICP-ANACOM will successively examine the degree of competition between the undertakings present and the degree to which there is potential competition.

From the outset it can be revealed that, historically, Grupo PT has had a predominant position in the copper network that provides broadband access to end-users, whereby it has strategic control over investments and the services available to intermediate and end users.

However, as already mentioned, in areas covered by OLL the OSPs who have opted to use this wholesale offer have gained importance following the development of more competitive retail offers, in addition to the competition from cable distribution network operators.

3.3.1.1. Market shares

Estimating the market shares given the current wholesale regulation, market shares in the retail broadband access market - "areas C" would be as follows:

Table 16 - Evolution of market share considering the current wholesale regulation

	2005	2006	2007
Grupo PT	36%	31%	24%
ZON Multimédia	41%	35%	35%
Sonaecom (with Oni and Tele2)	12%	22%	27%
Cabovisão	8%	9%	9%
Vodafone	0%	0%	1%
Others	3%	3%	4%

It is noted that for ease of comparing the evolution of market share, the market shares of the Group PT and ZON Multimédia in 2005 and 2006 are shown as if these companies were separate in those years.

To estimate the market shares for the years 2005 and 2006, account should be taken of the attendance points set out in Annex 3 (static perspective), rather than considering an approach in which, in each year, the attendance points would be identified applying the hypotheses assumed

in the definition of the geographic market⁹⁴. In other words, to estimate the market shares in 2005 and 2006, the 150 attendance points in "areas C" shall be used as identified in Annex 3.

However, as mentioned at the beginning of this chapter, analysis of the retail market should be made in the absence of wholesale regulation. In this case assuming as a hypothesis (hypothesis A) that:

- 54.5% of OSP retail accesses based on the "Rede ADSL PT" and OLL wholesale offers are shared by Grupo PT and by the operators providing broadband services through cable modem - this allocation is made taking into account the weight of "own" accesses" i.e. accesses that "really" belong to each of the operators;
- the remaining OSP retail accesses based on the "Rede ADSL PT" and OLL wholesale offers belong to Grupo PT,

the market shares are:

Table 17 – Evolution of market shares in the absence of wholesale regulation (hypothesis A)

	2005	2006	2007
Grupo PT	45%	46%	43%
ZON Multimédia	44%	41%	42%
Cabovisão	9%	10%	11%
Others	2%	3%	4%

Considering, as stated earlier in this chapter, that the value of 54.5% may be overestimated, the market share obtained for Grupo PT will be less.

Assuming as an alternative hypothesis (hypothesis B) that OSP retail accesses based on the "Rede ADSL PT" and OLL wholesale offers pertain, in their totality, to Grupo PT, the estimated market shares would be as follows:

Table 18 – Evolution of market shares in the absence of wholesale regulation (hypothesis B)

	2005	2006	2007
Grupo PT	49%	53%	53%
ZON Multimédia	41%	35%	35%
Cabovisão	8%	9%	9%
Others	2%	2%	3%

In this case, the market share obtained for Grupo PT is a higher value than the market share of this company in this market.

⁹⁴ Respectively:

- (a) areas covered by attendance points where there is at least one co-installed operator and where there is at least one cable distribution network operator and where the percentage of cabled households of the dominant operator in the municipality exceeds 60%;
- (b) the remaining areas of the national territory.

It is therefore concluded that, in the absence of regulation, the overall share of Grupo PT in these areas, as at the end of 2007, would be between 43% and 53%, and that Grupo PT would therefore be the undertaking with the largest market share⁹⁵ in the retail broadband access market in "areas C", while in a hypothetical scenario in which, as of 2005, ZON Multimédia is considered separately from Grupo PT since 2005, an upward trend or at least a degree of stability is evident in the market share of Grupo PT.

ZON Multimédia is the operator with the second highest share, with values falling since 2005 (taking the company as being separate Grupo PT since 2005).

Since 2005, the other OSPs have seen their market share stabilise.

From the tables above, and considering only the market share, there are strong indications that wholesale regulation is essential in order to ensure competition in the retail market since without regulation, the market share of Grupo PT would exceed 40% (and, if ZON Multimédia and Grupo PT are taken as having been separate undertakings in the past, the market share of Grupo PT has increased).

It is noted that the 40% limit has been used in past decisions of the EC, with values in excess of this limit leading to concerns about the existence of a dominant position.

3.3.1.2. Barriers to entry and expansion

With respect to the analysis of barriers to entry and expansion, examination should be made of the existence of sunk costs and significant economies of scale and / or economies of scope. However, once present in a given market with sunk costs having been already incurred, these become irrelevant in the analysis of entry barriers and may even be considered as a barrier to market exit.

Sunk costs

Most of the operators which provide broadband retail access services in this market, including ZON Multimédia, have already made investments in capacity in order to provide such services supporting, for this purpose, sunk costs that have already been incurred. Thus, in general these operators are able to expand their activities to other customers without incurring further significant sunk costs.

⁹⁵ Shares are calculated with basis on the number of accesses, since "[In] the case of products in large quantity priority is given to volume, while in the case of differentiated products (i.e. branded products) the value of sales and market share are considered the best indicators of the relative position and strength of each supplier" (See the Guidelines § 76).

Economies of scale and scope

The costs associated with the development and expansion of broadband services are subject to significant economies of scale.

The area covered by this market coincides, roughly, with the major urban centres and the coast, areas of high concentration of population and economic activity.

On average, each exchange in this market is linked to about 8 thousand operational loops which compares with the other exchange serving, on average, fewer than 1 thousand operational loops. It is therefore possible to achieve lower unit costs in this market.

As far as economies of scope are concerned, it appears that the majority of operators in this market provide a variety of services: telephone service, television over IP, "Video on demand" and other added value services.

Given its characteristics, it may be appealing for operators to enter this market, investing in their own infrastructure, particularly if there is easy access to infrastructure (including conduits), which will also reduce the unit cost of investment, since it is in this area that PTC's conduit network is the most extensive.

Additionally, the main operators in this market seem to have equal access to financial resources / capital markets, whereby no situation has been found where one operator has an advantage over the others.

3.3.1.3. Sales and distribution network

The existence of a well developed sales and distribution network which is not easily replicated might constitute an advantage over the competition.

However, the majority of operators in this market have built up with own network of own shops and / or agents throughout the national territory.

With respect to this criterion, and besides Grupo PT and ZON Multimédia, note should be taken of the particular situation of Sonaecom, which is a sub-holding of Grupo Sonae. This group is dedicated to various activities and this enables, among other things, commercial synergies between its various companies, particularly with respect to distribution, which could be a major vehicle for accessing end users.

3.3.1.4. Vertical integration

The existence of vertically integrated companies may place non-integrated competitors at a competitive disadvantage. In fact, in this situation market power could be leveraged from one market to another, especially where the integrated competitor provides the non-integrated

competitor with a means of essential and intermediate production or consumption. In such circumstances, it becomes more difficult for a non-integrated company to respond to the increase in demand resulting from a competitor increasing prices.

Of the operators present in this market, note should be made of the case of Grupo PT which consists of vertically integrated undertakings, present in both the wholesale and retail markets. Therefore, if one of these companies has SMP in an upstream market, it has the opportunity to transfer market power to the downstream markets, thereby affecting competition. In particular, if there is difficulty in securing inputs from the wholesale market or in obtaining these inputs at a competitive price, this may further increase the barriers to entry at the retail level.

With respect to the retail broadband access market note should be made of the strong presence of ZON Multimédia in the area of multimedia content. In this case, however, ZON Multimédia loses out to the other main economic groups active in the market because it does not have a mobile operation, which fact could reduce its competitiveness in relative terms.

3.3.1.5. Price trends and pricing behaviour

The degree of competition in a relevant market and its dynamics can also be assessed by looking, on the one hand, at the retail pricing policy and, on the other, at the evolution of prices over time.

As already mentioned in sections "2.2.1.2. OLL-based retail offers and evolution" and "2.2.1.3. Cable modem", the retail broadband access offers, whether based on the OLL or provided through cable modem, have seen very significant reductions in prices or, in some cases, substantial improvement in the characteristics of offers without changes to pricing, particularly in terms of available speeds.

Comparing the various offers on the market and their respective prices (see **Error! Not a valid bookmark self-reference.**), a variety of offers can be seen with reasonably similar prices.

Table 19 – Existing offers on the market 96[12]

Operator	Offer	Monthly Charge	Maximum speeds	
			Downstream	Upstream
Grupo PT	Sapo 2 Mb	16.52 €	2 Mbps	128 Kbps
ZON Multimédia	Netcabo Light	16.52 €	3 Mbps	128 Kbps
Vodafone	Duplex ADSL 4 Mbps	16.45 €	4 Mbps	512 Kbps
Grupo PT	Sapo 4 Mb	20.58 €	4 Mbps	256 Kbps
Cabovisão	BL 5 Mb	18.43 €	5 Mbps	–
ZON Multimédia	Netcabo Mega	20.65 €	6 Mbps	256 Kbps
Sonaecom	Clix 12 Mb	24.71 €	12 Mbps	512 Kbps
Vodafone	Duplex ADSL 12 Mbps	24.71 €	12 Mbps	512 Kbps
Cabovisão	BL 15 Mb	25.04 €	15 Mbps	–
Grupo PT	Sapo 16 Mb	29.40 €	16 Mbps	1024 Kbps
ZON Multimédia	Netcabo Plus	29.41 €	18 Mbps	512 Kbps
Sonaecom	Clix 24 Mb	32.98 €	24 Mbps	1024 Kbps
Vodafone	Duplex ADSL 24 Mbps	32.98 €	24 Mbps	1024 Kbps
Grupo PT	Sapo 24 Mb	45.04 €	24 Mbps	1024 Kbps
Cabovisão	BL 25 Mb	37.18 €	25 Mbps	–
ZON Multimédia	Netcabo Max	49.58 €	30 Mbps	1 Mbps

3.3.1.6. International Benchmarking

Comparing the prices charged in Portugal with those charged in other Member States, it appears that the prices charged nationally are, in general, significantly below the European average.

In the international comparison of broadband prices, performed by ICP-ANACOM in November 2007⁹⁷, carried out at national level and not in terms of the geographic market analysed herein, it was concluded that:

- in November 2007, the minimum price for broadband in Portugal was 32.6 percent below the average of the countries included in the study and was similar to prices in Austria, Sweden and Denmark, countries with higher (fixed) broadband penetration;
- even considering the simple average of minimum prices charged by the various operators for the various transmission speeds, it is evident that Portugal continues to be one of the countries with the lowest prices for the majority of downstream speeds;

⁹⁶ Information compiled from the website in February 2008 (these prices do not include VAT).

⁹⁷ Report available at <http://www.anacom.pt/render.jsp?categoryId=259242&languageId=1>.

- the price of the most common offers (4 Mbps), is about 46 percent below the average of countries studied and is the fourth lowest (rising two positions in the ranking compared to July 2007);
- between June 2005 and November 2007, the price of 4 Mbps offers in Portugal fell by about 36 percent.

The results of the comparisons of prices of offers of incumbents are corroborated by the results of Teligen's T-Connect application, referring to October 2007, which provides for comparison of the prices of ADSL offers of the incumbent operators using a basket approach.

According to the methodology and the data collected by Teligen it is shown that, in general, the prices of the incumbent operator's ADSL offers in Portugal are below the average. In terms of rankings, Portugal lags behind countries of eastern Europe but ranks among the first countries in the EU15, except in the case of basket 6 (100 Gbps /month of use).

If reference is made to the base information used by Teligen and only the monthly charges of the various offers of the incumbent operator in Portugal in October 2007 are compared⁹⁸, it is concluded that the monthly charges of the incumbent operator's residential offers in Portugal are always below the average prices charged by its counterparts from the other EU15 countries, except in the case of 24 Mbps as reference previously.

DECO also carried out an international comparison of prices for broadband Internet access, covering a limited number of countries, in which it too concluded that Portugal is above average only for users with an intensive usage profile⁹⁹.

3.3.1.7. Evidence of previous anti competitive behaviour

In the analysis made in 2005, ICP-ANACOM concluded that the companies of Grupo PT, which at the time included ZON Multimédia, strategically controlled the conditions governing the supply of retail services.

The obligations imposed at the wholesale level and the interventions enacted were designed to reduce the incentives for anti-competitive behaviour.

It is further noted that, AdC has had occasion to sanction anti-competitive conduct, albeit in other markets, particularly with regard to access to conduits.

⁹⁸ All the other variables affecting the price of broadband are excluded, besides the speed of *download*.

⁹⁹ See <http://www.deco.proteste.pt/map/src/524801.htm>.

3.3.1.8. Countervailing negotiating power

In the absence of wholesale regulation, retail customers have limited countervailing negotiating power, given that in practice there are only one or two alternative operators with any size providing broadband Internet access services (ZON Multimédia and Cabovisão).

With wholesale regulation and, in particular, with OLL-based retail offers available in these areas, the countervailing negotiating power of retail customers increases significantly with the greater range of choice.

3.3.1.9. Potential competition

With respect to potential competition, note should be made that the possibility of access to the conduits of PTC provided through the respective reference offer makes it easier for the alternative operators to develop their own networks, particularly fibre optic networks. Further note should be made of the announcement by Sonaecom, on 20.02.2008, of plans to invest 240 million euros in NGN.

Due to the fact that these are substantial investments involving economies of scale, it is expected that they will be focused, especially initially, on the area covered by the market under review, roughly coinciding with the major urban centres and coastline, areas of high population concentration and economic activity.

As such, it is expected that offers will be developed in the future which will drive increased competition in this market.

Furthermore the spin-off of ZON of Multimédia is a factor which, given the recent market situation whereby Grupo PT controlled the largest cable distribution network as well as the concession network, will also drive a dynamic of increased competition.

3.3.2. Individual dominance: Conclusion

From the analysis of the previously presented criteria, ICP-ANACOM concludes that these are not likely to change the presumption of SMP derived from market shares and therefore that Grupo PT has individual dominance in the retail broadband access market in "areas C", considered, as noted, in the absence of wholesale regulation.

3.3.3. Joint dominance

It is further concluded that there is no evidence of joint dominance in this market, considering that the criteria set out in the Guidelines for assessing joint dominance are not met to any extensive extent.

In particular, this market remains a market in development where growth has yet not stalled and technological is developing, and cannot therefore be characterised as a fully mature market. Furthermore, in accordance with the position of ICP-ANACOM on the spin-off of ZON Multimédia, there does not appear to be evidence of links between the operators in the market.

Therefore, ICP-ANACOM concludes that there is no joint dominance.

3.3.4. Forward-looking analysis

ICP-ANACOM considers that all the factors which warrant the designation of SMP in the retail broadband access market in "areas C" will persist over the short / medium term, until the next assessment of SMP¹⁰⁰.

3.3.5. Assessment of SMP: Conclusion

It is considered that the companies Grupo PT which operate in the retail broadband access market in "areas C" have SMP in this market.

3.4. Retail broadband access market - "areas NC"

3.4.1. Individual Dominance

In line with the analysis of SMP in the retail broadband access market in "areas C" the analysis of effective competition begins with the calculation of market share, whereby, in a first phase, operators eligible for notification of SMP may be identified.

The following is an analysis of the economic characteristics of the relevant market in respect of which assessment is made of the degree of competition between the companies established as well as the degree of potential competition.

3.4.1.1. Market shares

Estimating the market shares taking account of the current wholesale regulation, market shares in the retail broadband access market covered by "areas NC" are as follows:

¹⁰⁰ The next definition of the market will be carried out as soon as: (1) there is an occurrence which significantly changes the competition conditions of the market or (2) once the Recommendation is reviewed with respect to these markets or (3) within the space of 18 months.

Table 20 – Evolution of market share considering the current wholesale regulation

	2005	2006	2007
Grupo PT	66%	65%	61%
ZON Multimédia	14%	11%	13%
Sonaecom (with Oni and Tele2)	5%	9%	10%
Cabovisão	13%	11%	12%
Vodafone	0%	0%	1%
Others	2%	3%	3%

However, as already stated, the retail market should be considered in the absence of wholesale regulation. In this case and assuming as a hypothesis (Hypothesis A) that:

- 54.5% of OSP retail accesses based on the "Rede ADSL PT" and OLL wholesale offers are shared by Grupo PT and by the operators providing broadband services through the cable modem - this allocation is made taking into account the weight of "own" accesses" i.e. accesses that are "really" belong to each of the operators;
- the remaining OSP retail accesses based on the "Rede ADSL PT" wholesale offer belong to Grupo PT,

the market shares are:

Table 21 – Evolution of market shares in the absence of wholesale regulation (hypothesis A)

	2005	2006	2007
Grupo PT	71%	74%	71%
ZON Multimédia	14%	12%	14%
Cabovisão	13%	12%	13%
Others	1%	2%	2%

Taking into account that, as referenced at the beginning of this chapter, the value of 5.4% may be over-estimated, whereby the market share obtained for Grupo PT will be reduced.

Taking as an alternative hypothesis (hypothesis B) that the retail accesses of the OSPs supported through the "Rede ADSL PT" offer are, in their entirety, linked to Grupo PT, the market shares are as follows:

Table 22 – Evolution of market shares in the absence of wholesale regulation (hypothesis A)

	2005	2006	2007
Grupo PT	72%	76%	73%
ZON Multimédia	14%	11%	13%
Cabovisão	13%	11%	12%
Others	1%	2%	2%

It can be seen that taking this hypothesis, the market shares do not change - this is because the number of broadband accesses which "transits" to Grupo PT has little impact.

It is therefore concluded that Grupo PT, which has the largest share of the market, has a market share significantly in excess of 40% - the threshold that has been used in past decisions of the EC as the value above which it may be considered that concerns about the situations of dominance arise.

3.4.1.2. Barriers to entry and expansion

In respect of analysis of barriers to entry and expansion, examination should be made of the existence of significant sunk costs and economies of scale and / or economies of scope.

Due to the fact that there are operators already established in the market who have already incurred some sunk costs, these costs could become irrelevant in the analysis of entry barriers and may even be considered as a barrier to market exit.

However, insofar as this market mostly encompasses exchanges not covered by the OLL, an operator which wants to co-install in these exchanges will have to support a significant initial cost.

Moreover, due to economies of scale and scope, and given the scale and configuration of the fixed network of PTC, such an operator would benefit, all else remaining constant, from unit costs which are below those of its competitors.

In particular, the scale and configuration of the fixed network of PTC allows the promotion of developments in the access network in order to provide broadband access services, with relatively moderate additional investments. If they intend to provide similar retail services, new operators either develop their own access network or base their offers on the wholesale deals provided by PTC (including the "Rede ADSL PT" wholesale offer, since in practice, the OLL is not an effective option in most of this market).

Therefore, a new operator intending to expand its activity will be required - all else being constant - to gain a significant share of the market in order to be able compete with the incumbent operator at an infrastructure level. However, the geographical area covered by this market is mostly characterised by low population density, making scale difficult to achieve.

This situation was also corroborated by PTC in respect of the "Rede ADSL PT" offer. In fact, while the offer began in late 2000, initially with coverage limited to some areas of central Lisbon and Porto, full coverage of the national territory was only achieved 6 years later, demonstrating that expansion in these geographical areas is not immediate.

Accordingly, this criterion does not contradict the presumption of dominance that results from the calculation of market share.

3.4.1.3. Sales and distribution network

As mentioned in the section "3.3.1.3. With respect to the analysis of barriers to entry and expansion, examination should be made of the existence of sunk costs and significant economies of scale and / or economies of scope. However, once present in a given market with sunk costs having been already incurred, these become irrelevant in the analysis of entry barriers and may even be considered as a barrier to market exit.

Sunk costs

Most of the operators which provide broadband retail access services in this market, including ZON Multimédia, have already made investments in capacity in order to provide such services supporting, for this purpose, sunk costs that have already been incurred. Thus, in general these operators are able to expand their activities to other customers without incurring further significant sunk costs.

Economies of scale and scope

The costs associated with the development and expansion of broadband services are subject to significant economies of scale.

The area covered by this market coincides, roughly, with the major urban centres and the coast, areas of high concentration of population and economic activity.

On average, each exchange in this market is linked to about 8 thousand operational loops which compares with the other exchange serving, on average, fewer than 1 thousand operational loops. It is therefore possible to achieve lower unit costs in this market.

As far as economies of scope are concerned, it appears that the majority of operators in this market provide a variety of services: telephone service, television over IP, "Video on demand" and other added value services.

Given its characteristics, it may be appealing for operators to enter this market, investing in their own infrastructure, particularly if there is easy access to infrastructure (including conduits), which will also reduce the unit cost of investment, since it is in this area that PTC's conduit network is the most extensive.

Additionally, the main operators in this market seem to have equal access to financial resources / capital markets, whereby no situation has been found where one operator has an advantage over the others.

" the existence of a well developed sales and distribution network can represent a barrier to entry or a competitive advantage, noting that the majority of operators have developed their own network of shops and / or agents throughout the national territory.

With respect to this criterion, it is recalled that Sonaecom may enjoy some advantages of access to end users from its inclusion in Grupo Sonae, which, among other activities, is engaged in the large-scale distribution business.

However, it is the view of ICP-ANACOM that this criterion does not contradict the presumption of dominance that results from the calculation of market share.

3.4.1.4. Vertical integration

As already mentioned in section "The existence of a well developed sales and distribution network which is not easily replicated might constitute an advantage over the competition.

However, the majority of operators in this market have built up with own network of own shops and / or agents throughout the national territory.

With respect to this criterion, and besides Grupo PT and ZON Multimédia, note should be taken of the particular situation of Sonaecom, which is a sub-holding of Grupo Sonae. This group is dedicated to various activities and this enables, among other things, commercial synergies between its various companies, particularly with respect to distribution, which could be a major vehicle for accessing end users.

. The existence of a well developed sales and distribution network which is not easily replicated might constitute an advantage over the competition.

However, the majority of operators in this market have built up with own network of own shops and / or agents throughout the national territory.

With respect to this criterion, and besides Grupo PT and ZON Multimédia, note should be taken of the particular situation of Sonaecom, which is a sub-holding of Grupo Sonae. This group is dedicated to various activities and this enables, among other things, commercial synergies between its various companies, particularly with respect to distribution, which could be a major vehicle for accessing end users.

" the existence of vertically integrated companies may place non-integrated competitors at a competitive disadvantage, in view of the fact that market power could be leveraged from one market to another, especially where the integrated competitor provides the non-integrated competitor with a means of essential and intermediate production or consumption. In such

circumstances, it becomes more difficult for a non-integrated company to respond to the increase in demand resulting from a competitor increasing prices.

With respect to this market, it is noted that Grupo PT consists of vertically integrated undertakings, present in both the wholesale and retail markets. Therefore, if one of these companies has SMP in an upstream market, it has the opportunity to transfer market power to the downstream markets, thereby affecting competition. In particular, if there is difficulty in securing inputs from the wholesale market or in obtaining these inputs at a competitive price, this may further increase the barriers to entry at retail level.

Accordingly, this criterion does not contradict the presumption of dominance that results from the calculation of market share.

3.4.1.5. Price trends and pricing behaviour

The retail pricing policy and its evolution over time can be a good indicator of the degree of competition in the market.

As already mentioned in section "Retail offers based on the "Rede ADSL PT" wholesale offer and the evolution of this offer" prices of retail broadband offers based on the "Rede ADSL PT" offer have fallen significantly since 2004, whereby there are currently offers with much higher downstream speed whose monthly charge is equal to or even lower than the offers in existence at the time which were provided at lower speeds.

Since PTC has followed a practice of tariff uniformity, the price reductions that have occurred in the retail broadband access offers of PT in "areas C" have also extended to "areas NC".

Comparing the various offers that are available in the market under analysis and their prices (see **Error! Not a valid bookmark self-reference.**), a wide range of offers can be seen - as already mentioned the "Rede ADSL PT" wholesale offer now has 30 classes of service available. Furthermore, great similarity is seen between the offers of alternative operators and the offers of Grupo PT - the configuration of "Rede ADSL PT" offer, at an IP level, which has been the type of aggregation most commonly used by the OSPs, has not allowed the differentiation of services, in practice turning the alternative providers into resellers of the broadband Internet service of Grupo PT, not adding significant value to these offers, either in terms of quality and innovation, or in terms of the actual retail prices, as presented in **Error! Not a valid bookmark self-reference.**

Table 23 – ADSL offers based on the "Rede ADSL PT" offer in the market ¹⁰¹

Operator	Offer	Monthly Charge	Maximum speeds	
			Downstream	Upstream
Nortenet	Simplesnet 256 K	13.97 €	256 Kbps	–
ARTelecom	ADSL 512 Kb	22.00 €	512 Kbps	128 Kbps
Sonaecom	Clix ADSL 1 Mb	20.65 €	1 Mbps	128 Kbps
Nortenet	Simplesnet 2 Mb	16.45 €	2 Mbps	–
Grupo PT	Sapo 2 Mb	16.52 €	2 Mbps	128 Kbps
ARTelecom	ADSL 2 Mb	25.00 €	2 Mbps	128 Kbps
ZON Multimédia	Netcabo Light	16.52 €	3 Mbps	128 Kbps
Grupo PT	Sapo 4 Mb	20.58 €	4 Mbps	256 Kbps
Nortenet	Simplesnet 4 Mb	20.58 €	4 Mbps	–
ARTelecom	ADSL 4 Mb	28.00 €	4 Mbps	256 Kbps
Cabovisão	BL 5 Mb	18.43 €	5 Mbps	–
ZON Multimédia	Netcabo Mega	20.65 €	6 Mbps	256 Kbps
Nortenet	Simplesnet 8 Mb	24.71 €	8 Mbps	–
Sonaecom	Clix ADSL 8 Mb	29.67 €	8 Mbps	512 Kbps
ARTelecom	ADSL 8 Mb	34.00 €	8 Mbps	512 Kbps
Cabovisão	BL 15 Mb	25.04 €	15 Mbps	–
Nortenet	Simplesnet 16 Mb	28.84 €	16 Mbps	–
Grupo PT	Sapo 16 Mb	29.40 €	16 Mbps	1024 Kbps
ZON Multimédia	Netcabo Plus	29.41 €	18 Mbps	512 Kbps
Nortenet	Simplesnet 24 Mb	37.11 €	24 Mbps	–
Grupo PT	Sapo 24 Mb	45.04 €	24 Mbps	1024 Kbps
Sonaecom	Clix ADSL 24 Mb	45.04 €	24 Mbps	1024 Kbps
Cabovisão	BL 25 Mb	37.18 €	25 Mbps	–
ZON Multimédia	Netcabo Max	49.58 €	30 Mbps	1 Mbps

3.4.1.6. International Benchmarking

See the analysis in section 3.3.1.6.

In this case, the offers provided by the incumbent operator, are of more relevance, since in these areas ("areas NC") the most relevant offers are those provided with basis in the "Rede ADSL PT" offer and, in particular, the offers of the incumbent operator.

In this case, as discussed above, according to the international comparison of broadband prices carried out by ICP-ANACOM in November 2007, the results of the comparisons of prices of offers of incumbent operators are corroborated by the results of Telenor's T-Connect application, referring to October 2007, which provides for comparison of the prices of ADSL offers of the incumbent operators using a basket approach.

¹⁰¹ Information compiled from the website in March 2008 (these prices do not include VAT).

According to the methodology and the data collected by Teligen it is shown that, in general, the prices of the incumbent operator's ADSL offers in Portugal are below the average. In terms of rankings, Portugal lags behind countries of eastern Europe but ranks among the first countries in the EU 15, except in the case of basket 6 (100 Gbps /month of use).

If reference is made to the base information used by Teligen and only the monthly charges of the various offers of the incumbent operator in Portugal in October 2007 are compared¹⁰², it is concluded that the monthly charges of incumbent operator's residential offers in Portugal are always below the average prices charged by its counterparts from other EU 15 countries, except in the case of 24 Mbps as reference previously.

3.4.1.7. Evidence of previous anti competitive behaviour

According to the previous market analysis, made in 2005, ICP-ANACOM concluded that the companies of Grupo PT had strategic control over the conditions governing the supply of retail services.

The obligations imposed at the wholesale level and the interventions enacted were designed to reduce the incentives for anti-competitive behaviour.

It is further noted that AdC has had occasion to sanction anti-competitive conduct, albeit in other markets.

3.4.1.8. Countervailing negotiating power

In this market, retail customers have no countervailing negotiating power, since no other offer is available.

3.4.1.9. Potential competition

The existence of entry barriers will enable a hypothetical monopolist to raise prices without attracting new competitors as a result. Records of market entries and exits will allow the size of these barriers to be gauged.

The barriers to expansion referred to in paragraph "3.4.1.2. Barriers to entry and expansion" are likewise barriers to the entry of new companies in this market.

Sunk costs may represent another important structural barrier to entry. Such costs have particular relevance in the telecommunications market. In fact a large investment is required to set up an efficient telecommunications network, especially in areas of lower population density and with more complex geographic features and a new operator can expect to recover only a small portion of this investment if it decides to abandon the market.

¹⁰²All the other variables affecting the price of broadband are excluded, besides the speed of download.

In this context, a potential entrant will only accept such investment costs if it is expected that these will be covered, along with production costs, by revenues gained. The incumbent operator could therefore exploit this asymmetry, in the event that a potential entrant decides to start operating in that market, signalling that retail prices will be too low to cover all costs, including sunk costs, thereby discouraging the new entrant.

In another context, PTC has, to date, been the universal service provider. As such it is required to provide access to the public switched telephone network (PSTN) to any user who requests it. Since the "Rede ADSL PT" offer is supported over the PSTN, it is easier for PTC, through this provision (with all the associated benefits and costs), to develop its ADSL network in geographical areas that are from the outset less profitable.

Also in this chapter on potential competition in this market, note should be made of the development of offers such as "Naked DSL" that could be an important promoter of the broadband access service in these areas.

Therefore, the maintenance of the "Rede ADSL PT" is important in order to enable the entry of new operators in this market without the incurrance of the substantial costs involved in the construction of an access network.

3.4.2. Dominance individual: Conclusion

The market share of PT Group, the degree of market concentration, the existence of barriers to expansion, the lack of evidence proving the existence of effective competition among companies (prices and other variables) and the lack of potential competition, leads to the conclusion that the companies of Grupo PT operating in this market have PMS (individual dominance).

3.4.3. Joint dominance

Given that it is concluded that individual dominance exists, there is no joint dominance in this market.

3.4.4. Forward-looking analysis

ICP-ANACOM considers that all the factors which warrant the designation of the companies of Grupo PTC operating in the retail broadband access market in "areas NC" as undertakings with SMP will persist over the short / medium term, until the next assessment of SMP¹⁰³.

¹⁰³ The next definition of the market will be carried out as soon as: (1) there is an occurrence which significantly changes the competition conditions of the market or (2) once the Recommendation is reviewed with respect to these markets or (3) within the space of 18 months.

3.4.5. Assessment of SMP: Conclusion

It is considered that the companies of Grupo PT operating in the retail broadband access market covered by "areas NC" have SMP in this market.

3.5. Relevant wholesale markets

According to the EC, "*the starting point for the identification of markets in this Recommendation is the definition of retail markets*" and "*Having defined retail markets, it is then appropriate to identify relevant wholesale markets*"¹⁰⁴.

Again according to the EC, "*regulatory controls on retail services should only be imposed where national regulatory authorities consider that relevant wholesale measures or measures regarding carrier selection or pre-selection would fail to achieve the objective of ensuring effective competition and the fulfilment of public interest objectives*"¹⁰⁵.

Accordingly, the wholesale markets that are relevant in the context of retail broadband access markets are identified below and a competitive analysis is made in order to identify undertakings as potentially having SMP and assess whether potential corrective measures are sufficient to ensure effective competition in the broadband access markets.

¹⁰⁴ See EC's recommendation, considering (4).

¹⁰⁵ See EC Recommendation, considering (15).

4. DEFINITION OF ASSOCIATED WHOLESALE MARKETS

Following definition and characterisation of the retail broadband access markets, of the competitive pressures to which they are subject (both on the demand and supply side), with the conclusion that there is a lack of effective competition in the absence of *ex-ante regulation*, the present section will define and identify the associated wholesale markets, in line with the methodology adopted in the Recommendation¹⁰⁶.

As already mentioned in section "1.3. The revision of the European Commission Recommendation on relevant markets", on 17.12.2007 the EC adopted the Recommendation in which 8 relevant electronic communications markets were identified as having characteristics that warrant the imposition of ex-ante regulatory obligations. In this respect, the EC identified two wholesale markets associated with the services of broadband data access and related services at a fixed location:

- Market 4: Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location.
- Market 5: Wholesale broadband access.

This market comprises non-physical or virtual network access, including "bit-stream", at a fixed location. This market is located downstream from the provision of physical access covered by market 4 above, because the supply of wholesale broadband access can be realised using this resource in combination with other elements.

It is noted that the service included in market 4 allows both the supply of broadband services and the supply of voice service. It should be noted that with respect to OLL-based retail offers, OSPs have continued to promote the development of offers combining broadband and voice services, and sometimes also including television services.

4.1. Wholesale provision of unbundled access vs. wholesale provision of broadband access

In the previous version of the Recommendation, the EC clearly accepted that the unbundled local loops access market and the wholesale broadband access market constituted distinct markets, even while considering that these two services would be mutually complementary. However, since the previous version of the Recommendation the EC has put forward the position that the existence of innovations and technological developments could give grounds for different conclusions.

¹⁰⁶ See Recommendation - Explanatory Note, Section 2.1.

In the current version of the Recommendation, the EC maintains the position that the unbundled local loop access market and the wholesale broadband access market are distinct markets, highlighting the importance of maintaining coordination and consistency between the regulation of these two markets.

Furthermore, in the current version of the recommendation, the EC recommends that these markets be analysed together. As such, the EC explained that the grounds for identifying the market for the provision wholesale broadband access are based on the conclusion that even while there is regulation in the unbundled access to the local loop, in most Member States such regulation is not sufficient in order to achieve a situation of effective competition in the retail market. Due to the connection between these two markets, the NRAs have grounds to conduct a comprehensive analysis of the broadband market whereby evaluation is made, sequentially and in possible cases of SMP, of the expected impact of regulation on local loop access and on the wholesale supply of broadband access.

Currently, several companies which offer broadband networks and access services use the "Rede ADSL PT" wholesale offer because it allows them to provide broadband coverage to users virtually anywhere in the national territory. However, as these companies develop their network, they tend to adopt OLL-based solutions, since this allows them greater flexibility and differentiation in the provision of broadband and makes more efficient use of the network, providing greater return on investment. Moreover, several OSPs continue to use the "Rede ADSL PT" offer in a complementary manner, probably where the number of customers does not currently justify an investment at the level of the respective exchange.

It is, therefore, the position of ICP-ANACOM that the market of wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location and the market for the provision of wholesale broadband access are distinct product markets.

In this context, analysis must be made of whether a potential wholesale broadband access market supported over the cable distribution networks is incorporated within the wholesale broadband access market.

4.2. Definition of the product market for the supply of wholesale broadband access

As concluded in section 2.3.2. Definition of the product market: conclusion", the retail broadband product market is largely comprised of the broadband access services using ADSL and cable modem provided to residential and non-residential customers.

In the next section, analysis is made of the possibility of whether:

- wholesale broadband access services supported over the public switched telephone network; and
- wholesale broadband access services supported over the cable distribution network

are incorporated in the same wholesale broadband access market or comprise separate markets.

4.2.1. Wholesale broadband access services supported over the public switched telephone network vs. wholesale broadband access services supported over the cable distribution network

In the previous analysis of the market for the supply of wholesale broadband access, ICP-ANACOM concluded that the relevant market for the supply of wholesale broadband access included broadband access services supported over the PSTN and cable distribution networks.

This conclusion was based, on the one hand, on the relationship of substitutability which exists at the retail level between the ADSL broadband access service and the broadband access service provided through the cable modem and, on the other, on the fact of a hypothetical wholesale broadband access offer supported over the cable distribution network¹⁰⁷ with objective characteristics and of intended use that is similar to the wholesale broadband access offer supported over the PSTN.

In this context, and for purposes of analysing supply-side substitutability, account was taken of the internal supply:

- over the cable distribution network, in view of the fact that the broadband access services supplied using cable modem is provided according to a vertical integration model, since the same entities - the network operators - operate in the wholesale and retail markets;
- over the PSTN, in view of the fact that the dominant player - Grupo PT - operates a vertical integration model, participating, in both the wholesale and retail markets.

Moreover, with respect to said market analysis it was concluded that, irrespective of whether the broadband access services supported over the cable distribution networks is incorporated in the market of the supply of wholesale broadband access or defined as two separate markets, the conclusions of SMP are maintained¹⁰⁸.

¹⁰⁷In a market analysis conducted in 2005, ICP-ANACOM concluded that, while it was technically possible, in practice, the hypothetical offer of wholesale broadband access services by a cable distribution network operator may not be economically viable, in view of the strongly regulated wholesale offers of broadband access supported on the PSTN (including OLL) and the consequent demand for these services.

Furthermore the OSPs argued that the imposition of a wholesale access on the cable distribution network for the purposes of broadband access which allows a diversification of services (i.e. which does not constitute a mere resale), would have more regulatory costs than benefits to the market.

In this respect, Grupo PT argued that any cable broadband access wholesale offer should not be configured as an offer of continuous data flow, which provides for the allocation of specific capacity between the final customer and the alternative operator to provide broadband offers as called for by the Commission recommendation and described the limitations which, it claims, makes the cable distribution network separate from PSTN and disadvantageous in view of this, in terms of wholesale provision for broadband access services.

¹⁰⁸Especially because Grupo PT then had market shares far in excess of 50% in any of the cases.

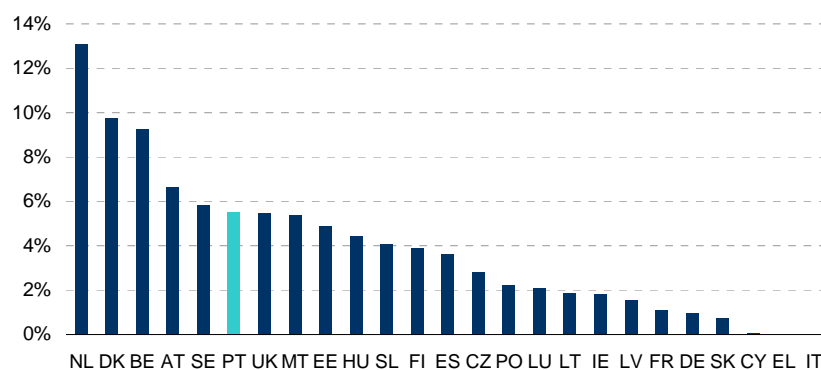
In the Recommendation, the EC clearly accepts that, at retail level, there are several possibilities for achieving broadband access at a fixed location, including through the use of xDSL and cable distribution networks, while xDSL technology continues to be the main access technology at a European level.

When analysing the wholesale inputs for broadband access, the EC sets out that, even while there is evidence of significant improvements to cable systems, these system still provide very limited coverage, arguing that the unbundling of cable networks does not appear to be technologically possible or economically viable. As such it considers that a solution equivalent to the OLL cannot be provided with respect to cable distribution networks.

With reference to the previous market analysis, the EC concludes in the Recommendation that, in cases where there is a cable distribution network providing cable broadband access, network coverage is often limited and wholesale access to such networks is not a direct substitute for wholesale access offers supported by xDSL (on the demand or supply side). Accordingly, the Commission considers that there are no grounds for including this product in the market for the supply of wholesale broadband access.

According to available information, the level of development or deployment of cable distribution networks in Portugal continues to be one of most significant among Member States, as evidenced by the data already submitted in this analysis, particularly data with respect to the coverage of cabled households - encompassing $\frac{3}{4}$ of housing - and to the bi-directional capability of the network. This had led to a considerable number of subscribers to the broadband access service using this technology, even while falling short of the number of ADSL Internet broadband accesses. **Error! Not a valid bookmark self-reference.** shows the penetration rates of broadband access services supported over the cable distribution networks in several EU member states.

Graph 12 – Penetration of broadband access services (in terms of population) supported over cable distribution networks in the EU (September 2007)

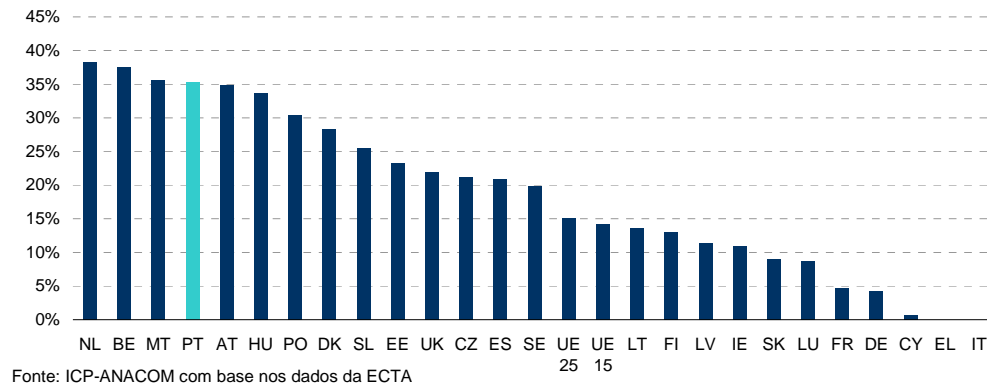


Fonte: ICP-ANACOM com base nos dados da ECTA

Source: ICP-ANACOM based on data from ECTA

Compared with the other Member States, it appears that Portugal remains one of the countries with a stronger imprint of access to broadband through cable modem with respect to total broadband accesses, clearly exceeding the European average (see **Error! Not a valid bookmark self-reference.**).

Graph 13 – Proportion of broadband accesses supported over cable distribution networks with respect to the total number of broadband accesses in the EU (September 2007)



Source: ICP-ANACOM based on data from ECTA

As previously concluded, access to broadband through ADSL and access to broadband through cable modem services are substitutes at retail level, having similar features from the end user's point of view (permanent access, equivalent speeds and clear superiority over narrowband access services).

Even while there is no offer of broadband access supported over the cable distribution network at wholesale level, taking into account the relationship of substitutability at retail level between broadband access through ADSL and broadband access through cable modem, consideration should be made of the impact that these services have on each other at wholesale level.

To date PTC has been required to provide a wholesale broadband access product supported by ADSL.

Additionally, PTC and the cable operators, as well as the beneficiary operators of the OLL themselves, theoretically provide a wholesale service to their vertically integrated retail departments which is used as an input to their retail broadband products.

In the absence of regulation the incentive to make a wholesale products available to third parties is very low. But even while there is no true wholesale offer for third parties with respect to the cable distribution networks (only internal supply), there may be sufficient indirect constraints at the retail level that could lead to the conclusion that ADSL access and cable access are included in the same broadband access wholesale market.

Bearing in mind that the definition of the market is a means to an end - the purpose of assessing whether final consumers are sufficiently protected through the existence of effective competition and whether or not ex-ante regulation is required - it is necessary to identify all the relevant products that might constitute sufficient constraint.

In the definition of wholesale markets situations may arise where the degree of substitutability between two products at the retail level may be such that leads to indirect constraints in terms of the wholesale prices of products. If these constraints are ignored, the wrong conclusion might be reached through an overestimation of market power and markets may be regulated unnecessarily (or vice versa).

Constraints of indirect prices

An indirect pricing constraint results in a situation where, despite the reduced relationship of direct substitutability between products at the wholesale level, the increase in wholesale input prices which results in an increase in the price of related retail services, leads to a high rate of retail product substitution, whereby this wholesale price increase becomes unprofitable. This substitution follows, therefore, in an indirect way, from factors seen in the associated retail market.

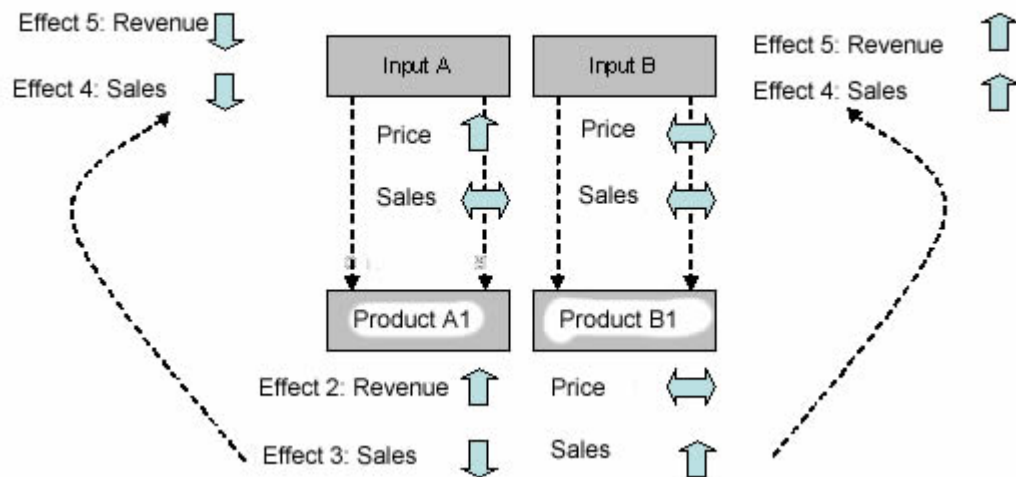
As a starting point, a situation is taken where there is an increase in the price of a determined product or wholesale input (input A in **Error! Not a valid bookmark self-reference.**). As there is no significant relationship of direct substitution between the products / alternative wholesale inputs, there is no direct transfer of customers from the product whose price has increased to another which substitutes it and maintains its price. Therefore, the operators who purchases this input will ultimately continue to use it despite the price increase, by increasing the costs of the final product sold at retail.

As such, assuming that the retail market is competitive, increased costs must be transferred to the retail price of the final product (effect 2 in **Error! Not a valid bookmark self-reference.**). With the increase in retail prices and if there are other retail products which use other wholesale inputs and which have not therefore increased in price, a substitution may take place of the former product by others (effect 3 in the **Error! Not a valid bookmark self-reference.**).

The decrease in sales of the retail product and consequent increase in retail sales of the substitute retail products leads to possible effects in the wholesale market. Lower volume in the retail sales of the product that uses the wholesale input which increased in price leads to a reduction in sales of that same wholesale input (effect 4 in **Error! Not a valid bookmark self-reference.**). Likewise, the increase in the retail sales of products using other wholesale inputs leads to an increase in their consumptions. That is to say, as indicated earlier, despite the lack of direct substitution between products / wholesale inputs there may be a high level of cross demand-price elasticity between these inputs.

The possible substitution of existing consumption at the retail level may result in a reduction in total revenue for the wholesale operator (effect 5 in **Error! Not a valid bookmark self-reference.**) following an increase in the price of the inputs which it controls. This makes such a decision unlikely, leading to the existence of indirect price constraint.

Figure 4 – Existence of indirect price constraint



As is evidenced in the figure above, the existence of a reduction in the revenue of the operator who decides to increase the price of inputs, as a result of an indirect price constraint is dependent on more conditions and effects than in a situation of direct constraint.

Once it is concluded that there are indirect constraints, their intensity must be assessed, according to existing secondary demand in the retail market.

First of all account must be taken of the way in which the cost of the wholesale input affects the retail price. As such, it is important to consider what proportion of the retail price results from the price of the wholesale input and how an alteration in the price of the latter influences the retail price. The greater the weight of the costs associated with the wholesale input which increases in price, the greater the alteration of the retail price which uses this input¹⁰⁹.

Currently, with respect to broadband offers in the market, it appears that:

- the weight of the "Rede ADSL PT" component in the retail price, ranges between 60% and 70%;
- the weight of OLL in the retail price of broadband access offers is more complex to gauge, given the different services provided over the same loop. However, for lower speed offers, this figure approaches 50%¹¹⁰

¹⁰⁹ Cave, Stumpf and Valetti (2006) mention that effect of indirect constraints becomes sufficiently high, only when the proportion of wholesale costs is equivalent to at least 50% of the retail price.

¹¹⁰ The example is taken of the weight of the monthly fee for full access to the local loop (8.99 euros) in the price of the monthly charge of Vodafone's 4 Mbps offer (of 19.9 euros). It is noted that other wholesale prices must be added to the

A key point to note relates to the demand price elasticity of the retail product whose wholesale input increases in price. That is, how the retail consumption of the product decreases as the price increases.

In this regard, it has already been concluded, through the SSNIP test that a 10% increase in the price by a hypothetical monopolist of a retail broadband access offer would cause users to substitute this offer with broadband access offers based on cable distribution networks, making such an increase in price unprofitable. In other words, it was concluded that, as a result of this test, the broadband offers supported by ADSL and cable modem were the same relevant market. This position is obviously maintained in the event of wholesale price increases of 10% which result in increases to the retail prices of 6% to 7%. In the case of the OLL, given the relatively lower weight of the wholesale price in the price of the retail offer, the indirect constraints are not as strong, whereby there are grounds for defining and analysing the wholesale market (OLL) with and without the consideration of indirect constraint.

This position is, moreover, in line with the findings of the study carried out by three specialists in this area which addressed the review of markets included in the previous recommendation on relevant markets¹¹¹.

Internal supply and captive sales

With respect to the analysis of potential internal constraints, issues may arise related to internal supply and situations of captive sales.

The issue of the internal supply is linked to the existence of vertically integrated operators, i.e. operators in the wholesale market which simultaneously have operations in an associated retail market. The choice of vertical business integration is usually associated with benefits derived from transaction costs (e.g. total control over the quality of inputs provided) or the existence of economies of scale and scope.

An operator may be completely vertically integrated without any distinction between the entity operating at wholesale level and those operating at retail level or there may be formal separation between them. In these situations of vertical integration the operator might not act directly in the wholesale market (i.e. not provide offers to third parties based on wholesale inputs which it produces) or, alternatively, it might provide wholesale services to third parties and, simultaneously, have an operation, directly or indirectly, in the retail market.

monthly fee of the local loop, such as those with respect to co-installation (including, internal connection cables, space and power) and those related to signal transport. Considering only the costs of (i) the local loop in the form of full access (installation and monthly fee), (ii) the co-installation in open space regime (installation and monthly fee), (iii) the internal link and (iii) the signal transport, it is estimated that the average wholesale cost, per user, incurred by the operator with the largest number of unbundled access (co-installed in about 200 MDFs with about 200 thousand unbundled accesses) is about 11 euros. Therefore, taking into account the price of the broadband access offers of this operator (in June 2008, € 16.45, € 24.71 and 32.98, excluding VAT, respectively for offers of 4 Mbps, 12 Mbps and 24 Mbps), the weight of the wholesale component in the retail price is estimated at 67%, 44% and 33% respectively.

¹¹¹See study "A review of certain markets included in the Commission's Recommendation on Relevant Markets subject to ex ante Regulation" carried out by Martin Cave, Ulrich Stumpf and Tommaso Valletti.

The concepts of internal supply and captive sales, although not coinciding¹¹², are related. In fact, captive sales constitute supplies occurring in a market which, during the period of time relevant to the definition of a market, are not dependent on conditions in that market. That is, if a wholesale supplier and a retail operator agree the conditions of sale for a determined quantity of inputs during the time period relevant to the analysis of the market. This quantity of input should be considered as captive sales since trading conditions existing in the wholesale market during that period will have no effect on this transaction¹¹³.

It is noted that this also applies in the case of a vertically integrated operator which, during the period relevant to the analysis, lacks the capacity to increase production and cannot sell a part of the quantity produced to third parties. However, if the production capacity of a vertically integrated operator (even where only the internal supply is being used) could be "diverted"¹¹⁴ to the wholesale market, during a period of time that is relevant to this analysis and directly influencing the market, this capacity should be considered as non-captive.

It is noted that captive sales correspond to situations that cannot directly influence the market in which they occur. However, as explained above, the possibility exists where captive sales, for example, of a vertically integrated operator that will not sell the wholesale inputs to third parties, indirectly affect the wholesale market (through the retail market).

Regarding the importance of indirect price constraints, the EC believes that this factor can and should be taken into account during an analysis of markets, albeit that it should be considered in terms of SMP assessment.

With respect to the analysis of market already performed following the publication of the EC Recommendation, note should be made of the analysis of the market for the supply of wholesale broadband access performed by OFCOM in which the NRA considers the existence of indirect constraints to include cable access in the market for the supply of wholesale broadband access, and subsequently takes internal supply into account.

In its comments to the notification of this analysis of the market the EC set out the position that by considering the constraints in the market definition phase, and if these constraints were weak, there was a risk of the restrictions, a priori, in the assessment of SMP and of the true extension of market power being under-evaluated at a wholesale level with the inclusion of the internal supply of all the vertically integrated operators, irrespective of whether or not the behaviour of the incumbent operator was restricted.

The EC further considered that an increase in prices at wholesale level would be diluted when passed to retail level, whereby very small scale substitution may occur in response to a small increase in the retail price – this would depend on the degree of customer reaction at the retail

¹¹²There are captive sales in situations where there is no internal supply and the existence of internal supply does not necessarily give rise to captive sales.

¹¹³An example would be a situation where there is a long / medium term contract under which the parties agree the terms of sale over a fixed period.

¹¹⁴For example, due to an increase in the price of the wholesale service, encouraging increased production so that it can be made available on the market or even the diversion of internal supply for delivery to third parties.

level. Accordingly the EC cautioned against the interpretation of market share based on indirect constraints.

In addition, when assessing the effect of indirect substitution, the EC sees the need to demonstrate that:

- (a) ISPs are required to pass a hypothetical increase in the wholesale price to their retail customers based on a relationship between the wholesale price and retail price;
- (b) there is sufficient demand-side substitution at the retail level on the basis of indirect constraints to render the wholesale price increase impossible;
- (c) customers of ISPs will not switch, in any significant way, to the hypothetical integrated monopolist operating at retail level, particularly if the latter does not increase their own retail prices¹¹⁵.

In addition, the EC concludes that, as OFCOM only takes indirect constraints into account in the market definition for the areas where OFCOM concludes their existence may exert sufficient constraints on competition, the findings would be in line with those that would be derived from the assessment of these constraints at the level of SMP assessment.

If the choice is made to include only the direct constraints in the definition of the market and to only consider the existence of constraints in the assessment of SMP, it is ensured that only products which are clearly substitutive are included in the definition of the market. However from an economic perspective, it would make sense to identify and include all relevant competitive constraints in the definition market phase, which would not be satisfactorily achieved with this option. It would also be an alternative that is inconsistent with the SSNIP test. It is further noted that the indirect constraints are reflected in the elasticity of demand for wholesale inputs by companies operating at the retail level, influencing the wholesale market in the hypothesis put forward in respect of an SSNIP test.

Therefore, with this approach, there is a risk of formulating market definitions or even market share estimates which are out of step with the competitive reality of the market in question. It is noted however that in this situation, if it is recognised that the objective of the definition of the market is solely to isolate the set of products / wholesale inputs which are directly substitutable and not necessarily to define all the competitive constraints in the market, and subsequently, in the stage of SMP evaluation, all "external" constraints (including indirect) of the defined market are considered, it may also be possible to arrive at appropriate conclusions with respect to the competitive reality of the market.

¹¹⁵According to the Commission, the hypothetical monopolist could increase wholesale prices and keep prices of retail below the level of ISPs who acquire the wholesale inputs without incurring any margin squeeze and may thereby gain customers from the ISP, while not losing customers to alternative platforms. As such the increase in the wholesale price is profitable. It should be noted, however, that if the retail prices are aligned with the actual costs incurred in the provision of services (as happens, for example, in a competitive market), an increase in wholesale prices would be expected to lead to a margin squeeze. Therefore an increase in wholesale prices necessarily leads to an increase in retail prices.

With respect to the option of including direct and indirect constraint in the definition of the market, account will be taken, not only of the products / wholesale inputs which are directly substitutable, but also of those which, due to the indirect constraints exerted from a retail level, might ultimately be considered as belonging to the same wholesale market¹¹⁶.

In this situation, it is considered that identification and representation of all constraints (direct and indirect) within the same market that are faced by a company that produces a determined input is more successfully achieved, insofar as it is possible to formulate a competitive characterisation during the market definition phase that is more in line with reality. Likewise, the estimated market shares will be more representative of the competitive situation existing in the market.

In the final analysis, the option of whether or not to include the indirect constraints in market definition should not alter the final conclusions with respect to evaluation of SMP. That is to say, if the choice is made to consider the indirect constraints in market definition - resulting in a broader market, with reduced market shares - and if it is concluded that there is no operator with SMP in this market, then opting to use only direct constraints in the definition of the market - defining a narrower market and estimating larger market shares - the weighting of constraints that are outside the defined market should be sufficient to conclude that the market is competitive.

It should be noted, however, that there is no single way to assess the existence of SMP and considering that sometimes not all the information is available that is required and warranted in order to make a decision, the procedural steps and order of such steps may be determinant.

In this respect, it will be important to take into account that, where the definition of the market will be used to arrive at an estimation of market shares that is representative of competitive conditions in that market or, in the event that a rule or procedure is established based on the estimated market shares, it is appropriate to pay due consideration to all the direct and indirect constraints with respect to the definition of the market. Otherwise, conclusions might be drawn or procedures adopted that are not suitable for the actual conditions prevailing in the market.

In this respect it should be emphasised that the importance of indirect constraint is not, under any circumstances, any the less as a result of being a factor that is derived "externally" to the market. It is noted that in some situations, the existence of indirect price constraints may prove to be much more effective in ensuring competitive prices at the wholesale level than direct constraints on their own. The fact that an indirect constraint is connected to various levels of a product's value chain does not mean it is any less effective. To the contrary, especially when competition at the wholesale level is less intense than competition at the retail level, the effectiveness of the constraints is driven precisely by their influence not being related directly to the wholesale market.

¹¹⁶ This may be done through a horizontal expansion of the wholesale market to include the services /inputs which ultimately influence the market indirectly or through a vertical expansion of the market, defining a single functional market encompassing the wholesale market and retail market.

In this context, and given that the retail broadband market in Portugal - where broadband products supported over the cable distribution network compete with the products that use ADSL technology as inputs - it is considered that the wholesale broadband market includes products supported by ADSL and products supported over the cable distribution network, even in the absence of a wholesale offer based on the cable distribution network.

It is noted that the cable distribution networks currently cover about three quarters of all households, with one operator (ZON Multimédia) clearly distinguishable in terms of size and control of accesses. It is considered that failure to include the broadband access service supported over the cable distribution network in the wholesale broadband market would result in too narrow a market definition.

A trend has also been seen towards increased competition in the retail market, especially in areas with higher population density, due to investments made by alternative operators in the OLL and increased coverage by cable distribution networks. Consideration should also be given to the competitive effects of the implementation of the spin-off of ZON Multimédia.

On the question of the weight that wholesale prices may have in setting the price for the final customer, it is noted, as already indicated, that, considering the estimation of wholesales costs made by ICP-ANACOM in the assessment of the existence of margin squeeze in the broadband offers of PT, the proportion of these costs in the total retail price also corresponds to about 60-70%.

Finally, if internal supply were not considered, the size of the market concerned would not representative reality. In this respect, it was concluded from the - In "areas C" only 2% of accesses are made available to third parties;

- In "areas NC" only 6% of accesses are made available to third parties;

Table 24 that, with regard to the market for the supply of wholesale broadband access:

- In "areas C" only 2% of accesses are made available to third parties;
- In "areas NC" only 6% of accesses are made available to third parties;

Table 24 – Weight of internal supply in the market for the supply of wholesale broadband access

	Areas C		Areas CN	
Grupo PT	229,309	26%	483,597	67%
- Internal Supply	211,163	24%	441,796	61%
- Supply to third parties	18,146	2%	41,801	6%
Beneficiaries of ORALL (internal supply)	238,824	27%	44,408	6%
Cable distribution operators	411,677	47%	194,210	27%
TOTAL	879,810	100%	722,215	100%

The situation is similar in the market for the supply of wholesale (physical) network infrastructure access at a fixed location (provision of infrastructure to third parties - OLL - represents only 7% of the market).

4.2.1.1. Conclusion

In view of the above, it is concluded that the relevant market for the supply of wholesale broadband access includes broadband access services supported over the PSTN and the cable distribution networks.

The exclusion of broadband access services supported over cable distribution networks in this market should not result in a separate analysis of SMP, as this hypothesis would only strengthen the market shares of Grupo PT¹¹⁷. However, it is judged that the non-inclusion of the broadband access services supported over the cable distribution network in the wholesale broadband market would result in a market definition that is too narrow, in view of the reality of the market.

In light of this situation, and since broadband access services through cable modem are provided according to a model of vertical integration, since the network operators in the wholesale and retail markets are the same entities, it is considered that in order to take these constraints into account in the calculation of market share, the concept of the internal supply should be used.

The same applies to beneficiary operators of the OLL which, in theory, provide their own vertically integrated retail department with a wholesale service, which thereby acts as an input to their retail broadband products.

Obviously, the internal supply of broadband access of Grupo PT to itself is also considered.

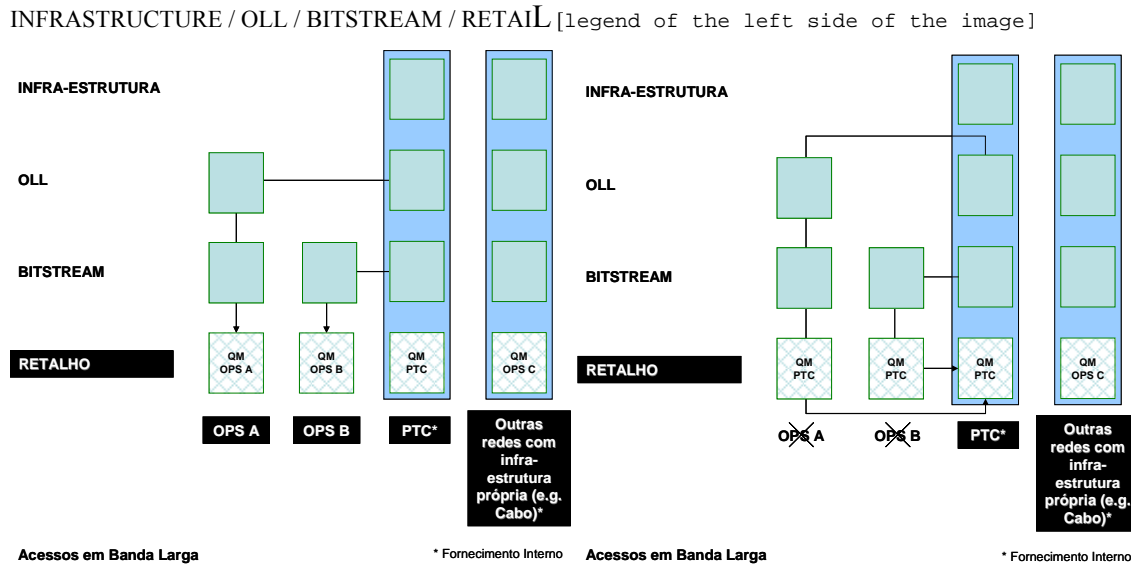
With respect to the market for the wholesale provision of unbundled access, it may also be considered that the indirect constraints are strong enough to include alternative infrastructure in the definition of markets, including the cable distribution networks. However, this option is more questionable since, as explained in section 4.2.1, the indirect constraints are weaker in this case¹¹⁸. Therefore the option is taken, in addition to the option of including internal supply, to also assess the market considering solely the wholesale provision of unbundled access to third parties.

In following figures, the definition of the markets concerned and the way in which market shares are estimated are schematically presented.

¹¹⁷ Since the broadband accesses of cable distribution networks are not included for the purpose of estimating market shares.

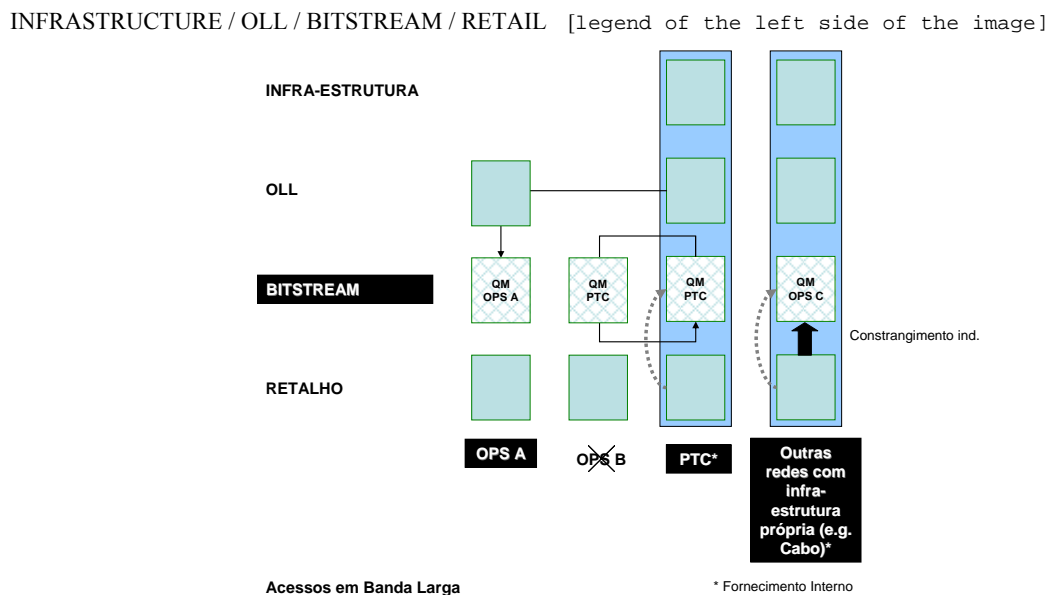
¹¹⁸ Due in particular to the smaller weight of the wholesale input (OLL) in the retail price.

Figure 5 – Schematic representation of the definition of retail markets and the estimation of market shares with (left graph) and without (right graph) wholesale regulation



Other networks with “own” infrastructure (e.g. cable) / Broadband accesses / *Internal supply [legend of the below of the image]

Figure 6 – Schematic representation of the definition of the market for the wholesale supply of broadband access

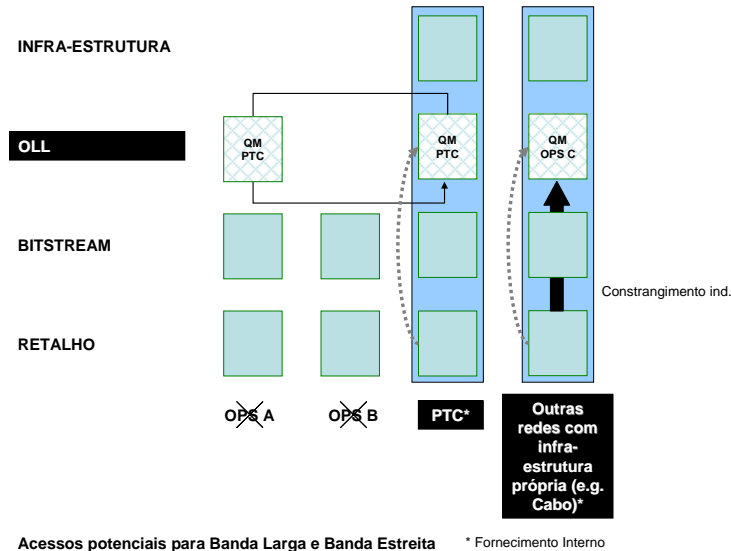


Ind. Constraint [legend of the right side of the image]

Other networks with “own” infrastructure (e.g. cable) / Broadband accesses / *Internal supply [legend of the below of the image]

Figure 7 – Schematic representation of the definition of the market for wholesale supply of access (physical) to the network infrastructure at a fixed location

INFRASTRUCTURE / OLL / BITSTREAM / RETAIL [legend of the left side of the image]



Ind. Constraint [legend of the right side of the image]

Other networks with “own” infrastructure (e.g. cable) / Broadband accesses / *Internal supply [legend of the below of the image]

4.3. Definition of geographic markets

Taking into account the geographic market definition of retail broadband access markets -(a) areas covered by attendance points where there is at least one co-installed operator and where there is at least one operator of cable distribution networks and where the percentage of households cabled by the county's principal operator is over 60% - "Areas C"; and (b) remaining areas - "Areas NC", it would be expected that, from the outset, the geographic definition of the market at the level of associated wholesale markets would be identical, insofar as there would be different competitive pressures existing in the two geographic (retail) markets.

In this context, the following markets would be defined:

- 4-C) Market for the supply of wholesale network infrastructure access (physical) at a fixed location which encompasses the area covering the attendance points where there is at least one co-installed operator and where there is at least one operator of cable distribution networks and where the percentage of households cabled by the county's principal operator is over 60%

- 4-NC) Market for the supply of wholesale network infrastructure access (physical) at a fixed location which encompasses the areas covering the remaining attendance points of the national territory
- 5-C) Market for the supply of wholesale broadband access which encompasses the area covering attendance points where there is at least one co-installed operator and where there is at least one operator of cable distribution networks and where the percentage of households cabled by the county's principal operator is over 60%¹¹⁹
- 5-NC) Market for the supply of wholesale broadband access which encompasses the areas covering the remaining attendance points of the national territory¹²⁰

However, even without other considerations, in the case of the market for the supply of wholesale network infrastructure access (physical) at a fixed location, the definition of the geographic market is questionable, since in this market, in the absence of regulation, the unbundled loops belong to Grupo PT. Therefore, in the absence of regulation, there would be no co-installed operators. At most the geographic market for this wholesale product market could be defined according to the presence or absence of alternative infrastructure supporting broadband services (currently essentially the infrastructure of cable distribution network operators).

However, even if two geographic markets are defined for the market for the supply of wholesale network infrastructure access (physical) at a fixed location, according to whether there alternative infrastructure exists, market shares would be as follows (to estimate these market shares and for purposes of simplification, only cable distribution infrastructure and the FTS network infrastructure of PTC has been taken into account^{121 122}, since remaining direct access infrastructure is negligible for this purpose and would have no impact on the conclusion):

Table 25 – Market shares in the market for the supply of wholesale network infrastructure access (physical) at a fixed location in the hypothetical definition of two geographic markets according to the existence or absence of alternative infrastructure

	Areas with cable distribution networks	Areas without cable distribution networks
Grupo PT	65%	100%
ZON Multimédia	26%	0%
Cabovisão	7%	0%
Others	2%	0%

¹¹⁹ Hereinafter referred to as "market for the supply of wholesale broadband access in areas C".

¹²⁰ Hereinafter referred to as "market for the supply of wholesale broadband access in areas NC".

¹²¹ With distribution of cable distribution network subscribers in each municipality by MDF in accordance with the number of FTS subscribers connected to the MDFs situated in said municipality.

¹²² In terms of FTS subscribers.

That is, in terms of market share, competitive conditions in the two markets are similar (i.e., market share of Grupo PT significantly above 40%), and combining them into a single market does not alter the final result of their assessment¹²³.

4.4. Markets susceptible to ex-ante regulation

The Commission considers that the markets identified for the purpose of *ex-ante regulation* should obey three cumulative criteria¹²⁴:

- Barriers to entry and to the development of competition: persistence of high entry barriers, whether structural, legal or regulatory in nature.
- Dynamic aspects: to determine whether or not the characteristics of the market will lead to effective competition over a relevant time horizon, without the need for ex-ante regulatory intervention. Applying this test requires an examination of the state of competition behind the barriers to entry.
- Relative effectiveness of the competition law and additional ex-ante regulation: degree to which competition law, on its own, is sufficient for overcoming persistent shortcomings in the market.

Since the product markets defined with respect to the broadband access markets are identical to the markets recommended by the EC and since, according to the Commission, the markets listed in the recommendation were identified based on the three cumulative criteria set out above¹²⁵, it is considered that the markets defined in this assessment are relevant for the purposes of ex-ante regulation and that, therefore, assessment should be made as to the existence of SMP in these markets.

As already mentioned in section "1.5. The process of markets analysis", the assessment of SMP with respect to these markets will be performed sequentially, with analysis made in the first place of the wholesale market for the supply of unbundled access (including analysis of any obligations to be imposed) followed by analysis of the market for wholesale supply of broadband.

The analysis of competitive conditions in the market(s) associated with the supply of wholesale broadband access and of any obligations that should be imposed in such market(s) should take account of the expected effect of the obligations already set out in the market situated higher up in the vertical value chain.

¹²³ In certain situations, the terms "supply of wholesale unbundled access to the local loop" or "supply of wholesale network infrastructure access (physical) at a fixed location" may be used indiscriminately while describing the same situation, although the second market obviously has broader scope.

¹²⁴ See Recommendation (5).

¹²⁵ See Recommendation (17).

5. ASSESSMENT OF SMP IN THE MARKET FOR THE SUPPLY OF WHOLESALE NETWORK INFRASTRUCTURE ACCESS (PHYSICAL) AT A FIXED LOCATION

As mentioned in section 3, in accordance with article 60, paragraph 1 of Law no 5 / 2004 (14 of the Framework Directive), *"it is considered that an undertaking has significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, or a position of economic strength which enables it to act, largely independently of competitors, customers and consumers."*

SMP may be held by just one undertaking in the market (individual dominance) or by more than one undertaking (joint dominance). Additionally, in cases where an undertaking has SMP in a specific market, it may also be considered as having SMP in a closely related market, where the links between the two markets are such that possession of market power in one market can serve as a lever for another market, thereby strengthening the market power of the company (leverage of SMP).

With respect to the criteria for the evaluation of SMP, those mentioned in the section "3.1. Criteria for the assessment of SMP" are equally applicable to the assessment of SMP in wholesale markets.

With respect to the particular criteria used in the assessment of SMP in the wholesale markets, ICP-ANACOM considers that most important criteria are as follows:

- Market shares and market growth
- Potential future market shares
- Barriers to entry and expansion
- Economies of scale and scope
- Vertical integration
- Price trends and pricing behaviour
- International Benchmarking
- Evidence of previous anti-competitive behaviour
- Countervailing negotiating power

• Other criteria for the assessment of SMP

With respect to the other criteria, an explanation follows as to why they are not considered relevant or considered less relevant in this assessment of SMP¹²⁶.

Criteria not relevant to the assessment of SMP in broadband wholesale markets

¹²⁶ For this purpose, account is taken of the position presented in the "ERG SMP Position".

- Existence of standards / conventions - while there may be technical standards for equipment used in the provision of broadband access, it is judged that their impact on competition is limited, because, in general, the operators use the same technologies and standards;
- Diversification of products / services - this criterion is not considered relevant because, with respect to the market under analysis, access is largely supported through the internal supply of either Grupo PT itself or the operators of cable distribution networks;
- Highly developed sales and distribution network - the service being reviewed is only acquired at wholesale level, therefore no complex or specialist sales and distribution network is required;

Less relevant criteria in the assessment of SMP in broadband wholesale markets

- Excessive prices - while this criterion could support the conclusion of the existence of SMP, it is not, however, a prerequisite for the existence of SMP. There is no evidence of excessive prices in the relevant markets in question, due to the fact they have been governed by ICP-ANACOM¹²⁷;
- The overall size of the company - this criterion is taken into account in the context of economies of scale and scope whereby it is not considered independently;
- Advantages or technological superiority - this criterion is taken into account in the context of barriers to entry whereby it is not considered separately;
- Active competition with respect to other parameters - this criterion is considered in the context of economies of scope and is therefore not examined individually;
- Customers' ability to access and use information - it is considered that in general wholesale customers are well informed about the offers available;
- Easy or privileged access to capital markets/financial resources - this criterion is taken into account in the context of economies of scope and so it is not considered independently.

5.1. Individual Dominance

5.1.1. Market shares

The market shares in the market for the supply of wholesale network infrastructure access (physical) at a fixed location are as follows:

¹²⁷Moreover, the international comparisons of prices shows that Portugal is well positioned with regard to the installation price and the monthly fee of the local loop, in terms of full access and shared access.

Table 26 – Evolution of market shares

	2005	2006	2007
Grupo PT	70%	67%	64%
ZON Multimédia	23%	24%	26%
Sonaecom (with Oni and Tele2)	0%	0%	0%
Cabovisão	6%	6%	7%
Vodafone	0%	0%	0%
Others	1%	2%	2%

In this case, and according to **Annex 1**, account must be taken of all alternative infrastructures to the PSTN capable of providing FTS and broadband, with consideration of the domestic supply.

Furthermore, if the market were defined as being only the actual supply of wholesale unbundled access to the local loop (i.e., without regard to internal supply), PTC would have 100% market share, whatever geographic market definition is used, since it is the only company, albeit through regulatory imposition, providing access to third parties.

In any case, Grupo PT, which has the largest market share, has a market share exceeding 40% - the threshold that has been used in past decisions of the EC as the value above which it could be considered that there are concerns with respect to situations of dominance.

5.1.2. Barriers to entry and expansion

With respect to the analysis of barriers to entry and expansion examination should be made of the existence of sunk costs and significant economies of scale and / or economies of scope. However, once present in a given market with sunk costs having already been incurred, these become irrelevant in the analysis of entry barriers and may even be considered as a barrier to market exit.

Sunk costs

Most operators which provide retail broadband and narrowband access services, including ZON Multimédia in part of this market, have already invested in capacity for the provision of these services, already incurring, for this purpose, sunk costs. Therefore, in general these operators are able to expand their activities to other customers without incurring additional significant sunk costs.

Economies of scale and scope

The costs associated with the development and expansion of narrowband and broadband services are subject to significant economies of scale.

As far as economies of scope are concerned, it appears that the majority of operators in this market provide a variety of services: telephone service, television over IP, "Video on demand" and other added value services.

Given the characteristics of this market there may be some appeal for the entry of operators investing in their own infrastructure, particularly if there is easy access to infrastructure (including conduits).

Additionally, the main operators in this market seem to have equal access to financial resources / capital markets, whereby no situation has been found where one operator has an advantage over the others.

5.1.3. Vertical integration

As already mentioned, the existence of vertically integrated companies may place non-integrated competitors at a competitive disadvantage, since market power may be leveraged from one market to another, especially when the integrated competitor provides the non-integrated competitor with a component of production or essential intermediate consumption. In these circumstances, it becomes more difficult for a non-integrated company to respond to increased demand occurring as a result of an increase in the prices a competitor.

With respect to this market, it is noted that Grupo PT consists of vertically integrated undertakings, present in both the wholesale and retail markets. Therefore, if one of these companies has SMP in an upstream market, it has the opportunity to transfer market power to the downstream markets, thereby affecting competition. In particular, if there is difficulty in securing inputs from the wholesale market or in obtaining these inputs at a competitive price, this may further increase the barriers to entry at retail level.

Accordingly, this criterion does not contradict the presumption of dominance that results from the calculation of market share.

5.1.4. Price trends and pricing behaviour

The retail pricing policy and its evolution over time can be a good indicator of the degree of competition in the market.

With respect to wholesale prices, it is shown that the only existing wholesale deals which are relevant in practice (the offer of access to conduits and the OLL) have seen their prices cut only as a result of regulatory intervention.

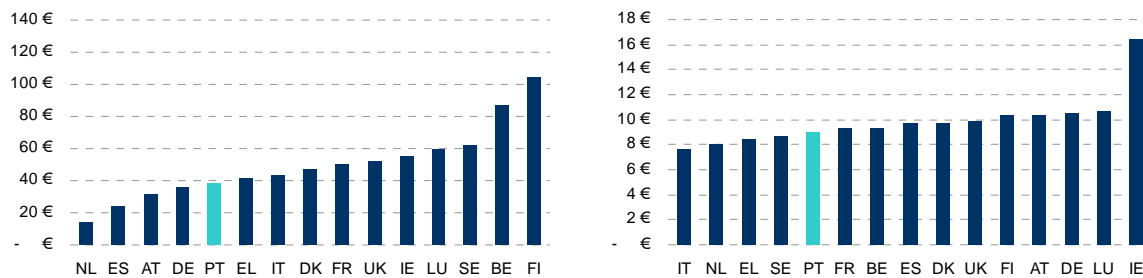
This is not indicative of a competitive market.

5.1.5. International Benchmarking

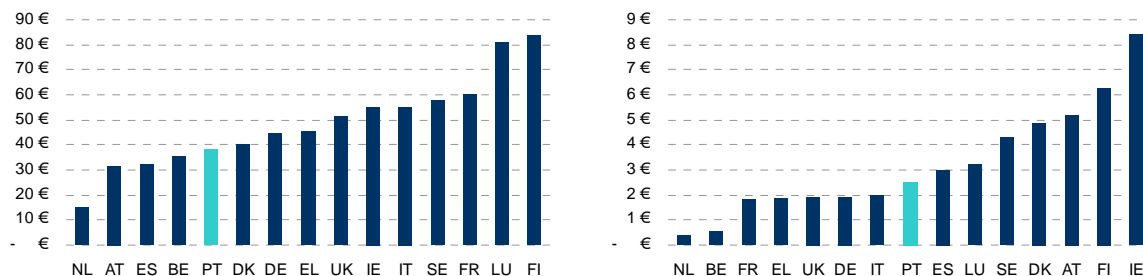
With respect to the OLL, as mentioned above, prices have been reduced on the initiative of ICP-ANACOM.

As a result of this initiative, installation prices and the monthly fees for the local loop are below the EU average.

Graph 14 – Comparison of installation prices (left graph) and monthly fees (right graph) for full access with respect to the EU 15



Graph 15 – Comparison of installation prices (left graph) and monthly fees (right graph) for shared access with respect to the EU 15



Because these prices are imposed through regulatory intervention, this criterion is not relevant to the assessment of SMP.

5.1.6. Evidence of previous anti competitive behaviour

As stated above, in the analysis made in 2005, ICP-ANACOM concluded that the companies of Grupo PT had strategic control over the conditions governing the supply of retail services.

The obligations imposed at the wholesale level and the interventions enacted were designed to reduce the incentives for anti-competitive behaviour.

There is also record of the existence of anti-competitive behaviour, sanctioned by the AdC, particularly with regard to access to conduits.

5.1.7. Countervailing negotiating power

In this market, as noted, the interventions aimed at improving the wholesale deals have been at the initiative of ICP-ANACOM, which demonstrates that customers of these offers have limited negotiating power.

5.1.8. Potential competition

It is only in areas of high population density and business activity that there might be some potential competition, particularly with the investment by OSPs that is envisaged in respect of NGN and with the possibility of NGNs becoming open networks.

5.2. Dominance individual: Conclusion

The market share of PT Group, the existence of barriers to expansion, the lack of evidence proving the existence of effective competition among the undertakings (prices and other variables) and the lack of potential competition, leads to the conclusion that companies of Grupo PT operating in this market have SMP (individual dominance).

5.3. Joint dominance

Given that it is concluded that individual dominance exists, there is no joint dominance in this market.

5.4. Forward-looking analysis

ICP-ANACOM considers that all factors that give grounds for the designation of the companies of Grupo PT operating in the market for the supply of wholesale network infrastructure access (physical) at a fixed location as companies with SMP will persist over the short / medium term, until the next assessment of SMP¹²⁸.

5.5. Assessment of SMP: Conclusion

It is considered that the companies of Grupo PT operating in the market for the supply of wholesale network infrastructure access (physical) at a fixed location hold SMP in this market.

¹²⁸ The next definition of the market will be carried out as soon as: (1) there is an occurrence which significantly changes the competition conditions of the market or (2) once the Recommendation is reviewed with respect to these markets or (3) within the space of 18 months.

6. IMPOSITION OF OBLIGATIONS

In the previous sections the retail broadband access market and the market for the supply of wholesale network infrastructure access (physical) at a fixed location were identified and it was concluded that Grupo PT held SMP in these markets.

Once it is concluded that an undertaking holds SMP in a market, it is incumbent upon ICP-ANACOM to impose one or more regulatory obligations or to maintain or modify such obligations where they already exist¹²⁹.

According to the Guidelines¹³⁰, where it is determined that a relevant market is subject to effective competition, no obligations may be imposed with respect to that market. Note that the same document states that *"if an NRA finds that a relevant market is subject to effective competition, it is not allowed to impose obligations on any operator on that relevant market under Article 16. If the NRA has previously imposed regulatory obligations on undertaking(s) in that market, the NRA must withdraw such obligations and may not impose any new obligation on that undertaking(s). As stipulated in Article 16 of the framework Directive, where the NRA proposes to remove existing regulatory obligations, it must give parties affected a reasonable period of notice."*

It is the position of this Authority that, in the event of removal of existing obligations, it will be very important to consider how the existing obligations might be removed in an appropriate manner that does not affect end-users and stakeholders.

With respect to the imposition, amendment and removal of obligations, ICP-ANACOM takes into account certain principles set out in the documents of the EC, of the ERG and in Law no 5/2004, as well as the regulatory principles and objectives established for this Authority.

It is considered appropriate that these principles are made known to the market and taken into consideration before the imposition (removal) of any obligation in the market.

6.1. Principles taken into account in the imposition, amendment and removal of obligations

In order to reduce or eliminate competition problems, ICP-ANACOM is charged with selecting the obligations which, directly or indirectly, affect the strategic variables of dominant companies, ensuring that these obligations meet certain requirements, including:

- (a) that they are appropriate to the identified problem, and are proportional and justified in the light of the basic objectives set forth in article 5 of Law no 5/2004 (article 55, paragraph 3, point a), of Law no 5/2004);

¹²⁹ See the Guidelines Section 21 and Section 114.

¹³⁰ See the Guidelines § 113.

- (b) that they are objectively justified in respect of the networks, services or infrastructure to which they refer (article 55, paragraph 3, point b) of Law no 5/2004);
- (c) that they do not result in undue discrimination in respect of any other entity (article 55, paragraph 3, point c) of Law no 5/2004);
- (d) that they are transparent in regard to their purposes (article 55, paragraph 3, point d) of Law no 5/2004).

Additionally, ICP-ANACOM shall, in strict compliance with the national regulatory framework and the community Directives, favour proportional intervention by imposing only the minimum obligations needed to overcome the identified problems of competition and to contribute effectively to the development of a competitive situation.

The ultimate goal of ICP-ANACOM with respect to regulation is to promote competition in the provision of electronic communications networks and services, resources and related services, contribute to the development of the EU internal market and promote the interests of citizens¹³¹. In particular, ICP-ANACOM is charged with ensuring that users derive maximum benefit in terms of choice, price and quality, ensuring no distortion or barriers to competition in the electronic communications sector, and with encouraging efficient investment in infrastructure and promoting innovation.

As noted above, in the absence of effective competition in retail markets, the existing regulatory framework favours the imposition of obligations in terms of the related wholesale markets and the imposition of regulatory measures in retail markets only as a last resort¹³².

The primacy of imposing obligations at wholesale level over the imposition of obligations in retail markets has the advantage of addressing existing problems through measures imposed directly where problems are identified. Additionally, the effects of these measures have influence not only in wholesale markets where they are imposed but also in related retail markets, promoting competition and the existence of benefits to end-users. Finally, it must also be noted that the principle of the primacy of imposing obligations on wholesale markets should be aligned with the aim of promoting efficient investment in infrastructure and the promotion of innovation.

According to articles 67 to 72, and 74 to 76 of Law no 5/2004 the obligations that may be imposed on undertakings with SMP in respect of the identified markets are:

- (a) transparency in the publication of information, including reference offers;
- (b) non-discrimination in the provision of access and interconnection and in their provision of information;

¹³¹See article 5 of Law no 5/2004

¹³²See Recommendation - Explanatory Note, Section 4.

- (c) the separation of accounts for specific activities related to access and / or interconnection;
- (d) responding to reasonable requests for access;
- (e) price controls and cost accounting.

In the analysis and definition of the obligations imposed, as mentioned above, the principles established in the joint position of the ERG on the subject are also taken into account, as presented in the document "*Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework*"¹³³ of May 2006, as well as common positions on best practices in the imposition of obligations in markets 4 and 5¹³⁴.

In the Recommendation¹³⁵ of the CE it is recognised that certain identified markets are related and that there is therefore a logical sequence in their analysis.

In this respect it is stated that, in the first place, analysis should be made of the markets they are situated higher up in the vertical value chain:

"In general, the market to be analysed first is the one that is most upstream in the vertical supply chain. Taking into account the ex-ante regulation imposed on that market (if any), an assessment should be made as to whether there is still SMP on a forward-looking basis on the related downstream market(s). This methodology has become known as the "modified greenfield approach". Thus the NRA should work its way along the vertical supply chain until it reaches the stage of the retail market(s). A downstream market should only be subject to direct regulation if competition on that market still exhibits SMP in the presence of wholesale regulation on the related upstream market(s)."

The EC suggests¹³⁶, in particular that, with regard to the supply of wholesale broadband access, it is preferable that the NRA start by examining the regulation that should be imposed in respect of the market for unbundled access to the local loop:

"For example, with regard to wholesale broadband access, it is recommended that NRAs first analyse the market for local loop unbundling. Taking into account regulation imposed on that market, the market for wholesale broadband access should then be analysed. If that market continues to exhibit SMP on a forward looking basis despite the presence of LLU regulation (unless the NRA finds that the market no longer fulfils the three-criteria test and excludes it from regulation on that basis), appropriate regulation on the wholesale broadband access market should be imposed."

Also according to the Commission, "*particularly in the early stages of implementation of the new framework, the Commission would not expect NRAs to withdraw existing regulatory*

¹³³ Available at http://www.erg.eu.int/doc/meeting/erg_06_33_remedies_common_position_june_06.pdf.

¹³⁴ Available at http://erg.eu.int/doc/publications/erg_06_70_rev1_wla_cp_6_june_07.pdf and at http://erg.eu.int/doc/publications/erg_06_69rev1_wba_cp.pdf.

¹³⁵ See Recommendation - Explanatory Note, Section 2.5.

¹³⁶ See Recommendation - Explanatory Note, Section 2.5

*obligations on SMP operators which have been designed to address legitimate regulatory needs which remain relevant, without presenting clear evidence that those obligations have achieved their purpose and are therefore no longer required since competition is deemed to be effective on the relevant market*¹³⁷. While not obviously directly linked with the initial phase of implementing the new framework, ICP-ANACOM will consider this recommendation when removing existing obligations, providing due grounds as to why they are no longer necessary, and taking into account the measures needed to ensure that their removal is performed in a way that is appropriate for the markets and their stakeholders, especially the end user.

With respect to the alteration or removal of regulatory obligations, the ERG¹³⁸ argues in particular that: *"When an NRA removes an obligation or replaces one obligation with another, it should give an appropriate period of notice before the change takes effect, in order to avoid undue disruption to the market players."*

According to the Guidelines of the EC *"If an NRA finds that a relevant market is subject to effective competition, it is not allowed to impose obligations on any operator on that relevant market under Article 16. If the NRA has previously imposed regulatory obligations on undertaking(s) in that market, the NRA must withdraw such obligations and may not impose any new obligation on that undertaking(s). As stipulated in Article 16 of the framework Directive, where the NRA proposes to remove existing regulatory obligations, it must give parties affected a reasonable period of notice."*¹³⁹.

This is also reflected in paragraph 3 of article 59 of law no 5/2004.

6.2. Imposition of obligations in the market for the supply of wholesale network infrastructure access (physical) at a fixed location

6.2.1. Obligations currently in force

As noted above, on 30 March 2005 ICP-ANACOM approved the final decision on the analysis of the market concerned and taking utmost account of the Guidelines, the Authority concluded that Grupo PT had SMP in the market, whereby it was appropriate, proportionate and justified to impose the obligations contained in **Error! Not a valid bookmark self-reference.** (all obligations have grounds in article 66 of Law no 5/2004, due to a lack of effective competition in the market).

¹³⁷ See the Guidelines, § 119.

¹³⁸ See "Revised ERG Common Position on the approach to appropriate remedies in the ECNS regulatory framework"; Section 5.6.2.

¹³⁹ § 113.

Table 27 – In force obligations imposed on the companies of Grupo PT operating in the relevant market

Obligations	Market for the wholesale provision of unbundled access (including shared access) to metallic loops and sub-loops to provide broadband and voice services
Access to and use of specific resources networks	<ul style="list-style-type: none"> • Access to local loops and sub-loops and related facilities • Negotiate in good faith with companies requesting access • Not withdraw access already granted to determined resources
Transparency in the publication of information, including reference offers	<ul style="list-style-type: none"> • Publication of ORALL • Prior notice of 30 days of changes in supply
Non-discrimination in the provision of access and interconnection and in the provision of the respective information	<ul style="list-style-type: none"> • No undue discrimination in the provision of access to local loops and sub-loops and associated facilities
Separation of accounts for specific activities related to access and / or interconnection	<ul style="list-style-type: none"> • Cost accounting system and accounting separation
Price control and cost accounting	<ul style="list-style-type: none"> • Setting cost oriented prices • Maintaining the adopted methodology for the estimation of costs • Possibility of moving towards forward-looking long-term incremental cost models
Financial Reporting	<ul style="list-style-type: none"> • Provision of accounting records (AAS) including data on revenue from third parties

In the following sections of the document, with basis in the obligations outlined above and taking into account the principles relevant to the imposition of obligations in the relevant markets and the grounds for the existence of SMP in this market, this Authority will consider whether it is appropriate to maintain or amend those obligations currently in force, testing them against the principles and requirements of Law no 5/2004 and in the light of current market conditions.

It is noted that the current competitive problems will be taken into consideration and along with those that might arise in respect of the market under analysis and over the period which will elapse until the next analysis of the market¹⁴⁰. It is noted that ICP-ANACOM is independently examining the issues related to the evolution to NGN and may shortly set out a position with respect to this matter. Naturally, obligations arising out of this market analysis and specific analysis regarding evolution to NGN could be defined in this context. Therefore, the imposition of general obligations in the present analysis (e.g. obligation to grant access to and use of specific network resources) is without prejudice to the specification and implementation of these obligations in separate documents. In respect of NGN, the EC is of the position that¹⁴¹:

¹⁴⁰ The next analysis of the market will be carried out as soon as: (1) there is an occurrence which significantly changes the competition conditions of the market or (2) once the Recommendation is reviewed with respect to these markets or (3) within the space of 18 months.

¹⁴¹ Recommendation - Explanatory Memorandum, Section 3.3.

“Deployment of NG access networks modifies the competitive environment in a number of markets, in particular LLU and wholesale broadband access. However, as long as competitive conditions have not changed, the move to NGNs does not provide an opportunity to roll back regulation on existing services. For some time, competitors will have an ongoing need for access to copper at the MDF level or to bitstream type services at different levels in the network.”

and that:

“In applying remedies, regulators need to find ways to promote the deployment of new and more efficient network architectures while at the same time recognising the investments made by new entrants on the basis of current architectures. National authorities will need to carefully follow and evaluate developments in order to ensure that appropriate Access remedies are maintained for the forward-looking periods for which competition is judged to be ineffective, and to avoid undermining or discouraging efficient entry. Remedies such as duct sharing, access to dark fibre, mandated backhaul from the street cabinet, and new forms of bitstream access, could be considered where these are appropriate, bearing in mind that, in line with Article 8 of the Framework Directive, remedies should aim, inter alia, at stimulating economically efficient investment in infrastructure. This may call for some transitional arrangements to be considered, to allow time for adaptation of existing business models.”

6.2.2. Access to and use of specific resources networks

6.2.2.1. Consequences arising as a result of any removal of the obligation

From the assessment of SMP in the retail broadband access market it is evident that one of the factors which, recently, has led to the reduction of the market share and power of Grupo PT is the provision of local loop unbundling, with all the associated obligations and interventions by ICP-ANACOM. As shown in the assessment of SMP in the retail broadband access market in "areas C", in the absence of the obligation of local loop unbundling (and in the absence of supply of wholesale broadband access), the market share PT Group would be 50%. Accordingly, it is essential to maintain the obligation of local loop unbundling, which is one of the means of access that contributes most to the promotion of innovation and efficient investment in infrastructure and also contributes to the long-term commitment of the beneficiary operators.

This form of access could, in certain situations, to be called into question, particularly due to investments by the dominant operator in NGN and also to the roll out of attendance points and the relocation of the main attendance point accesses points to secondary accesses points. In this context, the need for detailed and timely information on developments in the access network is essential so that the OSPs can assess their impact and evaluate different investment options. These aspects will receive the best attention of this Authority in respect of the above analysis of NGN.

ICP-ANACOM considers that the removal of the obligation of granting access to and use of specific network resources is not appropriate and may have adverse implications for the market. ICP-ANACOM further considers that, in the event the obligation concerned was removed

Grupo PT would have an incentive not to guarantee such access or, at least, not grant access according to appropriate conditions.

It is noted that a company with SMP in a given market, especially in the particular case of wholesale provision of unbundled access, in order to leverage its market power, has significant incentive to deny access to its network and to refuse to negotiate, according to reasonable conditions, with companies which operate (or are planning to offer services) in adjacent retail markets and which compete with it in those markets. This problem covers both situations of outright refusal to negotiate and the provision of goods or services according to conditions which are unreasonable.

Faced with a possible situation of lack of access to and use of specific network resources used in the unbundling of the local loop, there would also be significant changes in competitive terms in all the associated wholesale markets. These changes would have a real impact on all current unbundled accesses and would also have significant future repercussions. That is, the markets would be impacted not only according to the number of accesses which are already unbundled but also by accesses which, as a consequence would not be unbundled. It is noted that the number of accesses which are unbundled each quarter remains high. Given the available information and considering the analysis of market conditions, large fluctuations are not expected to occur in the number of loops unbundled in the future.

Among the wholesale markets situated at a lower level in the value chain which would be most affected, would be the wholesale market for the provision of broadband access and the voice markets related to the market of access to the public telephone network at a fixed location. With respect to the wholesale market for the provision of broadband access, it must be considered that, taking the concept of internal supply and the existence of indirect price constraints into account, calculated market shares include Internet broadband access provided by the co-installed operators in the context of the OLL. It is noted that, if the calculation of market shares (simulating a hypothetical unavailability of the supply of unbundled access) failed to take account of these accesses, around 27% of the accesses in "areas C" or 5% of the accesses in "areas NC", would be in question, corresponding to a clear deterioration of actual and prospective competitive conditions.

Besides the obvious deterioration of competitive conditions, consideration must be made of the fact that all the investment made by alternative operators based on the continued expansion of the OLL cannot be put at risk. In particular, consideration is given to the trend in the number of local exchanges where there are co-installed operators as set out in

As far as the geographical coverage of the OLL is concerned, it can be seen that at the end of 2004 there were operators co-installed in 101 PTC exchanges. This number has gradually increased to reach a total of 221 exchanges as at the end of 2007.

Graph 1. Furthermore, in this respect there is potentially a real impact on the investment that has been made, as well as negative consequences for the future investment of alternative operators. This contradicts the principles of promoting investment and innovation, given the existence of an "investment ladder" with the OLL constituting a key "rung" of this ladder.

Moreover, in this analysis it has been identified that the provision of OLL-based retail offers has given rise to significant competition in the retail market, and the alternative operators who

use these offers have succeeded in achieving significant increases in their share of the retail market, presenting a range of very competitive offers. The removal of the obligation to provide access to and use of specific network resources would allow the operator with SMP to deny (or to provide but with unreasonable terms) access to basic resources for the provision of said retailers offers, leading to a significant reduction of competition in the market retailing, thereby allowing significant gains to be made through such a denial.

It should be noted that the unavailability of OLL-based retail offers would also imply significant disadvantage for end users who would no longer have the same range of options, in terms of price, quality and included bundled services, with respect to subscription to offers. In this respect it should be mentioned that the unavailability of OLL-based offers would not only affect the retail broadband Internet access market but also offers of other markets whose bundled offers are based on the OLL, ultimately impacting the subscription television market and the markets for access to the public telephone network at a fixed location.

6.2.2.2. Other arguments for maintaining the obligation

In considering the possibility of whether or not to impose an obligation of access and the proportionality of that decision, ICP-ANACOM must take into account article 72, paragraph 4 of Law no 5/2004, according to which the assessment of the proportionality of this obligation involves in particular, the analysis of the *"the technical and economic viability of using or installing competing facilities, in the light of the rate of market development, taking into account the nature and type of interconnection and access involved; the feasibility of providing the access proposed, in relation to the capacity available; initial investment by the facility owner, bearing in mind the risks involved in making the investment; the need to safeguard competition in the long term"*.

In this respect, considering that the obligation of access has already been imposed and implemented in the past, account should be taken of the fact that the technical and economic feasibility of imposing this requirement has already been demonstrated by the developments in this market and associated markets. Similarly there are no longer any questions regarding any risks to the investment made in order to provide the offers of access concerned. On the contrary, as already indicated, all investments made by the operator with SMP and the operators who have invested in this offer must be taken into consideration, safeguarding the maintenance of such investment and the protection of competition over the long term.

It has also been shown that it is expected that a vertically integrated company with SMP in the wholesale market might try to restrict access to their wholesale products and services whereby new entries in the retail market lose market power at the retail level. By denying access, the dominant firm could conceivably increase its market power (and may charge excessive prices in the retail market). Accordingly, this company can leverage its market power in the wholesale market into the (potentially competitive) retail market. The effects on social well-being arising from this type of behaviour are clearly negative.

In the decision of 30 March 2005, ICP-ANACOM considered the possibility of the development of competition at the level of the wholesale market, given that the realisation of that development could solve the identified problems. At that time it was concluded that, *"even*

knowing that it is possible for competing companies to invest in their own networks, the replication of the local access network supported by metallic pairs may not be desirable and is not practicable". In this regard it is noted that Regulation (EC) no 2887/2000 states that "it would not be economically viable for new entrants to duplicate the incumbent's metallic local access infrastructure in its entirety within a reasonable time"¹⁴². Available information and analysis performed by ICP-ANACOM suggests that this economic rationale remains sound. This is without prejudice to the announcement of investments in "own" infrastructure¹⁴³, particularly in NGN, by one of the main beneficiaries of the OLL - Sonaecom. These investment plans are, however, limited to certain geographical areas and do not cover the entire national territory (it covers 25% of the Portuguese population) and span a period of three years (greater than the period that is expected to elapse until the next market analysis which could examine the impact of such investments).

6.2.2.3. Conclusions

In the absence of any obligation to grant access to the local loop, ICP-ANACOM concluded that it would not be expected that the SMP company would voluntarily maintain access to its local loops¹⁴⁴, - the necessity of Regulation (EC) no 2887/2000 as the starting point of regulation as the issues which merit the intervention of ICP-ANACOM in this respect are evidence of this situation - while it is expected that, in the absence of any obligation of providing access to the local loop, the SMP company would refuse to negotiate according to reasonable conditions and, as a result, concede access to its local loops and sub-loops and associated resources (including co-installation in attendance points). Therefore, ICP-ANACOM considers that the maintenance of the obligation to grant access to local loops and sub-loops and associated resources (including the service of co-installation at sites housing the distributors of copper pairs or the signal delivery service) based on the nature of the identified problem, is justified and proportionate.

As mentioned above, ICP-ANACOM is currently examining the issues related to the evolution to NGN and will consider in this context, the possibility of imposing, in addition to the obligation of access to conduits (pursuant to Law 5/2007 and which remains fundamental for the development of competition in this market), access to dark fibre, particularly in situations where access to conduits is not possible for reasons of capacity or other reasons, and the possibility of unbundling the fibre optic loops. The specific conditions of co-installation at the level of street cabinets, as set out in the current offer, will also be examined in this respect. Analysis of these issues, while constituting a very specific analysis, should be seen as the discrimination and detailed characterisation of the obligations outlined in this document, to be developed according to the framework of a market consultation process.

¹⁴² See Regulation (EC) no 2887/2000, considering (6).

¹⁴³ Available at

http://www.sonaecom.pt/filedownload.aspx?schema=a67f9277-d23c-4f99-8642-9acd3e463b93&channel=44E65941-12EC-4115-9D0F-898A110E2077&content_id=93AD601F-8267-4AE1-95E8-50A41A1C0D5A&field=file_src&lang=pt&ver=1.

¹⁴⁴ Record is made, for example, of the position taken by Portugal Telecom in response to the Public Consultation on competition in local access through OLL, which consultation was launched by ICP-ANACOM on 10.07.2000 (available at <http://www.anacom.pt/render.jsp?categoryId=35914&languageId=1>).

Given the above factors as set out in article 72, paragraph 4, of Law no 5/2004, ICP-ANACOM concludes that, based on accumulated experience in monitoring the OLL and in the development of these products and also based on the analysis performed in the present document, it is fully established that it is feasible for Grupo PT to grant access to local loops and associated resources.

Concerning the need to safeguard competition over the long term, it is concluded that, in view of the fact that PTC possesses a significant part of the accesses to the final customer, access to the local loop constitutes an essential service for enabling companies to compete with PTC and includes, but is not limited to, offers of broadband services. Setting an appropriate access price allows competitors to evolve in terms of investment in their own infrastructure while allowing the supply of competitive retail services, with clear benefits for the end user. This fact has been demonstrated by developments in the wholesale market in question and also in markets situated lower down in the vertical value chain, particularly in the retail broadband Internet access market with a substantial increase in competition in areas where there are OLL-based offers, which is also the basis of the proposed geographic division of the respective wholesale market.

The aforementioned article 72 of Law no 5/2004 provides for various types of obligations of access which may be imposed. Additionally, and in light of said article 72, paragraph 2 of Law no 5/2004, it is the position of ICP-ANACOM that Grupo PT shall continue to be subject to obligations to negotiate in good faith with companies requesting access and not withdraw access where already granted to determined resources.

The obligations of access to local loops and sub-loops and associated facilities are currently met by the conditions currently offered by Grupo PT through the OLL and it is the position of this Authority that these obligations should continue to be maintained, subject to conditions as may be specified and detailed in separate documents, including, in particular, in respect of NGN.

Therefore, in light of the above, it is the position of this Authority that all obligations with respect to granting of the access to and use of specific network resources, imposed by the decision of 30 March 2005 remain reasonable, appropriate, proportionate and justified. Consequently, all such obligations shall be maintained.

It is noted that the obligation of access will not be in itself sufficient. It is the position of ICP-ANACOM that it will be necessary to maintain additional obligations, pursuant to Law no 5/2004 in order to overcome the potential problems of competition, such as excessive pricing or discriminatory practices, ensuring the availability of access on reasonable terms which are appropriate to the conditions prevailing in the markets relevant to this analysis. These issues are addressed in the following sections.

However and since there are already retail offers supported in said offer and since experience has already been amassed, there exist certain aspects of the OLL which merit review or updating, with special attention to: (a) improvements in information to be made available with respect to the access network and changes in the network; (b) forecast plans; (c) entry of cable to exchanges through the conduits of PTC; (d) re-scheduling of local loop unbundling; (e) periods of access to exchanges; (f) levels of quality of service, including for Premium services;

(g) compensation for non-compliance with levels of quality of service; (h) undue closure of faults; and (i) possibility of OSPs installing higher speed xDSL technologies.

6.2.3. Non-discrimination

6.2.3.1. Consequences arising as a result of any removal of the obligation

Where an obligation to provide access is imposed on a company, there is a strong incentive for the company to set out the conditions according to which wholesale services are provided or the conditions under which access is granted to other companies that have operations in the retail market (especially if that company is vertically integrated or owns operations at retail level).

The existence of conditions of supply to these companies with lower quality or higher prices will adversely affect the quality of services provided by alternative operators at retail level or significantly increase the costs of these operators compared to the costs of the retail divisions of the operator with SMP. As such, the competitiveness of alternative operators in retail is substantially reduced, resulting in a form of leverage of market power from the wholesale level into the retail market.

A situation could be considered, as an example, where an operator with SMP in the market for the wholesale provision of unbundled access discriminates negatively against alternative operators relative to their division with operations in other markets located lower down on the vertical value. Account should be taken, particularly, of the possible effects on the market for the wholesale provision of unbundled access and, sequentially, on the retail broadband access market. A lesser quality of service than that provided to the retail business divisions of the operator with SMP might result in the alternative operators being unable to provide a new access in an equivalent period of time or being unable to guarantee a time-frame for repairing faults that is equivalent to that provided by the operator with SMP in the market for the wholesale provision of unbundled access (even if only considering internal supply) and, consequently in the retail broadband access market. As already stated, this kind of discriminatory behaviour also enables the operator with SMP or its subsidiaries to assume a position of advantage in other markets, with OLL based offers ultimately and particularly influence the market for subscription television and markets for access to the public telephone network at a fixed location.

Considering the incentive to adopt discriminatory behaviour in terms of provision of access to and use of specific network resources and the impact of such discrimination on the markets, there are grounds for the maintenance of the obligation of non-discrimination and for such obligation being appropriate and proportionate in the view of the (reduced) existing costs.

6.2.3.2. Other arguments for maintaining the obligation

According to articles 66 and 70 of Law no 5/2004¹⁴⁵, ICP-ANACOM may impose, where appropriate, obligations of non-discrimination in the provision of access.

There are issues that have been raised by alternative operators that are related to differences in terms of supply times of the services of local loop unbundling and supply times of similar or related services in the retail markets. These issues have arisen mainly when superior quality services are impacted in terms of providing installation and, above all, fault repair. These issues are now being analysed by ICP-ANACOM. In this regard it is clarified that the existence of non-discrimination is not only ensured through equal treatment with respect to more common cases through equal treatment when more specific supplies or supplies related to market segments that have other needs and uses of services are at stake.

It has also been affirmed by the ERG¹⁴⁶ that there are several ways of putting competitors at a disadvantage though discrimination in terms of quality of services provided by a wholesale operator with SMP. To prevent this occurring, the ERG supports the existence of an obligation of non-discrimination which guarantees that, according to equivalent conditions, services and information provided by the operator with SMP to competing operators have the same quality as that guaranteed to the SMP operator's own departments and businesses subsidiaries.

Moreover, in a scenario of evolution to NGN this obligation is of fundamental importance, in terms of information that Grupo PT has regarding plans for the development of its own network, and that it makes such information available to third parties, including the beneficiaries of the OLL. This issue is addressed in more detail in section 6.2.4.

6.2.3.3. Conclusions

As already mentioned in the decision of 30 March 2005, the obligation of non-discrimination was aimed, above all, at preventing Grupo PT - a vertically integrated company - from discriminating in favour of its own retail activities and at ensuring that competing companies, who purchase wholesale products from Grupo PT, are able to compete on equal terms in the retail market. A further objective of this Authority in the imposition of the obligation of non-discrimination was to prevent differential treatment, in equal circumstances, between the various competitors of Grupo PT.

It continues to be the position of ICP-ANACOM that this obligation is objectively justified, due to the fact that it ensures that competitors of Grupo PT, and therefore consumers, are not placed at a disadvantage compared to the services of Grupo PT or other competitors who are in similar circumstances.

¹⁴⁵ Article 66 sets out the remit of the NRA with respect to the imposition, maintenance, alteration or removal of obligations. Article 70 describes, in particular, the obligation of non-discrimination.

¹⁴⁶Revised ERG Common Position on the approach to appropriate remedies in the ECNS regulatory framework ("Remedies" document).

6.2.4. Transparency

6.2.4.1. Consequences arising as a result of any removal of the obligation

Transparency is a natural complement to non-discrimination, since the ability to identify behaviour with possible adverse effects, through the use of discriminatory practices, depends on the ability to detect such behaviour. Thus, if the obligation of transparency is removed, the ability to detect and prove discriminatory behaviour would be significantly impacted. In other words, abolishing the obligation of transparency would undermine the effectiveness of non-discrimination, leading to the consequences that have been identified as resulting from any removal of that obligation (see section 6.2.3) and negatively affect markets.

Taking this into account, it is evidently important to maintain an appropriate and easily accessible reference offer, containing all the information necessary so that alternative operators which use or plan to use the wholesale services concerned can do so in with visibility and in an efficient manner.

To ensure the visibility and ease of consultation of the offer (especially when the offer is amended) it is considered that it remains necessary to properly identify the changes made to the offer. To ensure fulfilment of these objectives, it is considered that amendments made to the reference offer at the initiative of PTC have to be notified one month in advance of the time they are due to come into force. Only in this way is it possible to continue to ensure that operators have time to make decisions and carry out operational activities or actions related with strategic changes resulting from alterations that may be made to the offer, when these changes are instigated at the initiative of PTC.

6.2.4.2. Other arguments for maintaining the obligation

Regulation (EC) no 2887/2000 sets out that the company with SMP within said regulatory framework publish a reference offer for unbundled local loop access. As already mentioned, PTC published this offer which was the subject of interventions and determinations of ICP-ANACOM. Law no 5/2004 maintains said obligation, setting out in article 69 thereof that "*where an operator is subject to the obligation to offer unbundled access to the local loop, it shall publish the respective reference offer for access to the local loop (ORALL)*" and specifying the items that shall be included in the offer.

The ERG also argues¹⁴⁷ that, whereas it is particularly complex for an NRA to control the quality of services provided, when it imposes an obligation of non-discrimination it makes sense to support this obligation through an obligation of transparency. In this respect, the ERG indicates that the obligation of transparency could consist of the obligation to provide minimum levels of quality of wholesale service, and periodically report the levels of the performance of such quality to the NRA and, where appropriate, to other operators. The ERG likewise considers that the reported levels of performance should include services to alternative

¹⁴⁷ Revised ERG Common Position on the approach to appropriate remedies in the ECNS regulatory framework ("Remedies" document).

operators and the services provided by the operator with SMP to its own companies in order to monitor compliance with the obligation of non-discrimination.

The ERG further argues that it is preferable to publish the levels of performance since this increases the confidence of market players in the effectiveness of non-discrimination.

In documents drawn up by ERG¹⁴⁸ mention is made, in particular, that the most critical issues to be considered by the NRA with respect to the quality of services provided at wholesale level are related to:

- (a) the identification of all the quality of service indicators;
- (b) the minimum level defined for each of the quality of service indicators;
- (c) compensation for non-compliance with quality of service, and
- (d) the form by which these indicators are to be made available.

The ERG indicates that in the case of the OLL, the minimum comparative criteria to be considered between services provided under the offers and services provided downstream are the levels of service associated with the provision wholesale and retail broadband access.

Furthermore, as stated above, with the roll out of attendance points of care and the relocation of accesses from primary attendance points to secondary attendance points, the provision of detailed and timely information on developments in the access network takes on a central importance and is essential so that OSPs are able to assess its impact and evaluate different investment options. Therefore, it is considered that PTC should provide OSPs with detailed and timely information on developments in the access network prior to the implementation of alterations which impact existing conditions with respect to the investment decisions of the OSPs. In this case, it is important, also taking into account non-discrimination, that Grupo PT inform the beneficiaries of the OLL, with reasonable advance notice, as to (i) the date on which it plans to install a new attendance point so that the needs of co-installation (firm requests) of the beneficiaries of OLL be taken into account, as far as possible, in the sizing of the attendance point, (ii) whether or not there is space in the conduit between the primary and secondary attendance points, and (iii) the loops to be relocated.

This will be set out in further detail in a separate document.

6.2.4.3. Conclusions

Considering the analysis made, it is concluded that the obligation of transparency must be maintained. It is especially concluded that its removal would jeopardize the effectiveness of non-discrimination, which may in turn lead to significant losses for the wholesale markets for the supply of services related to the unbundling of the local loop and other associated markets.

In this regard, it is seen that the maintenance of a reference offer which contains all the necessary information and in a model that is appropriate for the efficient procurement of the

¹⁴⁸ For example, ERG Best Practices on Regulatory Regimes in wholesale unbundled access and bitstream Access.

wholesale services concerned is essential for the proper functioning of the OLL. It is likewise seen that the ease of accessibility to the offer, and prior knowledge and identification of changes to the offer are important conditions for the proper enforcement of the transparency obligation. As such it is concluded that the offer should remain available on the web site of Grupo PT, should duly identify the changes and should give the market notice of such changes a month in advance of the date on which they are due for implementation¹⁴⁹. It is obvious that all the obligations with respect to information to be included in the reference offer and made available to the market, as set out in Regulation (EC) no 2887/2000 of the European Parliament and Council of 18 December 2000 on the OLL, are to be likewise retained.

It is likewise concluded that quality of service is an essential component of any wholesale reference offer, and that it is determinant that account be taken of how the various aspects related to this characteristic of the offer are enacted, in order to ensure the existence of competitive and appropriate conditions and to ensure the provision of retail services that meet the needs of end users. To this purpose, the reference offer must be clear in respect of quality of service indicators, set the minimum level for each of these indicators and specify the compensation to be incurred in the event of non-compliance.

In this respect, it is considered that the way in which performance with regard the quality of service of wholesale offers is presented to the NRA, the operators and end users is very important to the effectiveness of the obligation of transparency. ICP-ANACOM has been carrying out a detailed examination of this issue and will be in a position to specify, in a separate document, the form in which such information is to be disclosed.

6.2.5. Price control and cost accounting

6.2.5.1. Consequences arising as a result of any removal of the obligation

To date, prices of the OLL and associated resources have been regulated according to the principle of cost orientation of prices. The use of this type of pricing rationale has already been explained in the determination of 30 March 2005. It should also be noted that in applying this principle, ICP-ANACOM has based its estimates of costs on:

- (a) the analytical accounting system of PTC, audited annually;
- (b) the budgeted costs and the current costs of resources consumed and activities needed for the provision of services;

and also with reference to practices in the European Union. In assessing prices consideration is also given to the criteria of economic efficiency.

Therefore, if the obligation of costs accounting were removed, an important tool for setting prices in respect of the reference offer in question would be lost. Without this important instrument, markets would be left in a situation of greater uncertainty as to the setting of

¹⁴⁹ Where these changes to the offer are at the initiative of PTC.

wholesale prices. It is noted that this greater uncertainty goes against the principle of achieving visibility and efficiency in the conditions of the wholesale offer.

In this regard it is noted that, to date, all reductions in OLL prices have been imposed by ICP-ANACOM, and have not come as a result of initiatives of PTC.

It is also noted that, as indicated in the analysis of 30 March 2005, the access network of twisted metallic pairs is characterised by a lack of competition and, as demonstrated in the analysis made in this document, there is no expectation for the competitive conditions prevailing in this market to improve significantly¹⁵⁰, leading to reduced incentives for the SMP company to operate efficiently and reduce costs. In the absence of an obligation of price control and cost accounting, there would be no possibility of, simultaneously, promoting competition in the market and incentivising efficiency by the SMP operator.

In respect of this obligation, ICP-ANACOM will continue to monitor the evolution of the market and methods used for setting prices, as well as the evolution in terms of current European practice, not ruling out the future possibility of an evaluation of prices with consideration (possibly in conjunction with the results of the analytical accounting model already established) to the results of forward looking - long run incremental cost models (FL-LRIC). ICP-ANACOM will also continue its stringent scrutiny of costs, in the light of efficiency criteria and with reference to prices practised in other comparable Member States.

6.2.5.2. Conclusions

In light of the above, ICP-ANACOM considers that is objectively justified and proportionate to the degree of competition in the market analysed to maintain the obligation of cost orientation of wholesale prices and accounting of these costs.

It is concluded that maintaining the obligation of cost orientation of prices promotes and decisively contributes to the existence of efficient and sustainable competition in the market for wholesale provision of unbundled access, incentivising competition and efficiency along the length of the vertical value chain and associated markets. As such significant benefits to end-users are ensured in terms of the diversity, quality and price of the offers provided by operators.

6.2.6. Separation of accounts

6.2.6.1. Consequences arising as a result of any removal of the obligation

As with the transparency obligation, the obligation of accounting separation is essential to ensure compliance with and the effectiveness of the obligations of non-discrimination and price control and cost accounting. If the obligation of separation of accounts were suppressed, the negative impacts on relevant markets would be the same as those identified as resulting from removal of the obligations referred to above.

¹⁵⁰ During a period of time relevant to the present analysis.

It should be noted, for example, that with the absence of the obligation of separation of accounts, it would be difficult for ICP-ANACOM to properly monitor compliance with the obligations associated with the prices and costs of the company with SMP, making it also very difficult to identify situations of cross-subsidisation.

6.2.6.2. Other arguments for maintaining the obligation

As indicated in the analysis of 30 March 2005, the accounting format and the methodology adopted must obey the requirements conveyed to PTC by ICP-ANACOM, with this Authority periodically reviewing these requirements in order to improve the costing system and the information provided, without prejudice to the rules which may be defined in future.

The position is maintained that this is a measure which is objectively justified given the need to ensure non-discrimination (allowing the analysis of wholesale prices and internal transfer prices) and to prevent cross-subsidisation.

This is a proportional provision in that it only requires the provision of information with a level of detail which enables the accomplishment of the objective of verifying the other obligations.

6.2.6.3. Conclusions

It is concluded that the obligation of separation of accounts should be maintained to ensure effective supervision of non-discrimination. As such, the position is maintained that this is a proportionate, appropriate and justified obligation.

6.2.7. Financial Reporting

6.2.7.1. Consequences arising as a result of any removal of the obligation

In order to verify compliance with the obligations set out above, namely the obligations of transparency, non-discrimination, separation of accounts and costs accounting, and in accordance with paragraph 3 of article 71 of Law no 5/2004, the company with SMP shall make their accounting records, including data on revenue from third parties, available to ICP-ANACOM.

Accordingly, if there was no obligation of financial reporting, the effectiveness of the above obligations would be undermined, leading to significant negative impacts on the wholesale market for the supply of unbundled access and related markets.

In line with the analysis made in 2005, the position is taken that the accounting records which are needed for appropriate compliance with the obligation of financial reporting comprise the analytical accounting system which should be submitted according to terms defined specifically in this respect.

6.2.7.2. Conclusions

It is concluded that maintaining the obligation of financial reporting is necessary, appropriate and proportionate.

6.3. Conclusion

For the purposes of *ex-ante* regulation and in accordance with the principles of competition law, the following wholesale market which covers the entire national territory, have been identified:

(a) supply of wholesale network infrastructure access (physical) at a fixed location.

Having analysed the market above and taking maximum account of the Guidelines, ICP-ANACOM concludes that Grupo PT has SMP in the identified relevant market and therefore that obligations should be imposed as set out in Table 28 (all obligations have basis in articles of the Law no 5/2004, given that there is no effective competition in this market).

Table 28 – Obligations to be imposed on companies identified as having SMP in the relevant market

Obligations	The market for wholesale supply of access (physical) to the network infrastructure at a fixed location
Access to and use of specific resources networks	<ul style="list-style-type: none"> ● Access to local loops and sub-loops and associated resources (including co-installation at the level of MDFs and street cabinets, signal transport and access to conduits) ● Possibility of imposing access to dark fibre where access to conduits is not possible ● Negotiate in good faith with companies requesting access ● Not withdraw access already granted to determined resources ● Possibility of imposing obligations on access to fibre optic, following the evolution to next generation access networks, by way of specific decision.
Transparency in the publication of information, including reference offers	<ul style="list-style-type: none"> ● Publication of the ORALL and ORAC ● Clear identification of the amendments made to the offer ● Prior notice of 30 days of changes in supply ● Provision and publication of indicators and performance levels in respect of quality of service in wholesaler offers ● Provision to OSPs of detailed and timely information on developments in the access network
Non-discrimination in the provision of access and interconnection and in the provision of the respective information	<ul style="list-style-type: none"> ● No undue discrimination in the provision of access to local loops and sub-loops and associated facilities
Separation of accounts for specific activities related to access and / or interconnection	<ul style="list-style-type: none"> ● Cost accounting system and accounting separation
Price control and cost accounting	<ul style="list-style-type: none"> ● Setting cost oriented prices ● Maintaining the adopted methodology for the estimation of costs ● Possibility of moving towards forward-looking long-term incremental cost models

Financial Reporting	<ul style="list-style-type: none"> • Provision of accounting records (AAS) including data on revenue from third parties
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As noted above, ICP-ANACOM considers that the established obligations may require further detail, specification or clarification with regard to their implementation, which will be enacted in separate documents, subject to the consultation process.

Error! Not a valid bookmark self-reference. sets out a comparison between the obligations imposed in the analysis conducted in 2005 and the present analysis.

Table 29 – Comparison of obligations imposed in 2005 with the obligations set out in the present analysis of the market - Market for the supply of wholesale network infrastructure access (physical) at a fixed location

(a) Through specific decision to be drawn up in the framework of a market consultation process.

Market for the supply of wholesale network infrastructure access (physical) at a fixed location	Decision of 30 March 2005	Market analysis (Draft Decision of June 2008)
Scope of defined geographic market	National	National
Obligations		
Access to and use of specific network resources	✓	✓
<ul style="list-style-type: none"> • Access to local loops and sub loops and associated resources (including co-installation at the level of MDFs and street cabinets, signal transport) 	✓	✓
<ul style="list-style-type: none"> • Access to conduits 		✓
<ul style="list-style-type: none"> • Possibility of imposing access to dark fibre where access to conduits is not possible 		(a)
<ul style="list-style-type: none"> • Negotiate in good faith with companies requesting access 	✓	✓
<ul style="list-style-type: none"> • Not withdraw access already granted to determined resources 	✓	✓
<ul style="list-style-type: none"> • Possibility of imposing obligations on access to fibre optic, following the evolution to next generation access networks, by way of specific decision. 		(a)
Transparency in the publication of information, including reference offers	✓	✓
<ul style="list-style-type: none"> • Publication of reference offers on the website of Grupo PT 	✓	✓
<ul style="list-style-type: none"> • Clear identification of the amendments made to the offer 	✓	✓
<ul style="list-style-type: none"> • Prior notice of 30 days of changes in supply 	✓	✓
<ul style="list-style-type: none"> • Provision to OSPs of detailed and timely information on developments in the access network 		✓
<ul style="list-style-type: none"> • Provision and publication of indicators and performance levels in respect of quality of service in wholesaler offers 	✓	✓
Non-discrimination in the provision of access and interconnection and in the provision of respective information	✓	✓
<ul style="list-style-type: none"> • No undue discrimination in the provision of access to local loops and sub-loops and associated facilities 	✓	✓
Separation of accounts for specific activities related to access and / or interconnection	✓	✓
<ul style="list-style-type: none"> • Cost accounting system and accounting separation 	✓	✓
Price control and cost accounting	✓	✓
<ul style="list-style-type: none"> • Setting cost oriented prices 	✓	✓

• Maintaining the adopted methodology for the estimation of costs	✓	✓
• Possibility of moving towards forward-looking long-term incremental cost models	✓	✓
Financial reporting	✓	✓
• Provision of accounting records (AAS) including data on revenue from third parties	✓	✓
✓ - Appropriate Obligation		

7. ASSESSMENT OF PMS IN THE MARKETS FOR THE WHOLESALE SUPPLY OF BROADBAND ACCESS

As mentioned in section 3, in accordance with article 60, paragraph 1 of Law No. 5 / 2004 (14 of the Framework Directive), *"it is considered that an undertaking has significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, or a position of economic strength which enables it to act, largely independently of competitors, customers and consumers."*

SMP may be held by just one undertaking in the market (individual dominance) or by more than one undertaking (joint dominance). Additionally, in cases where an undertaking has SMP in a specific market, it may also be considered as having SMP in a closely related market, where the links between the two markets are such that possession of market power in one market can serve as a lever for another market, thereby strengthening the market power of the company (leverage of SMP).

With respect to the criteria for assessing SMP in the markets for the supply of wholesale broadband access, the points made in the introduction to section "5. Assessment of SMP in the market for the supply of wholesale network infrastructure access (physical) at a fixed location" are also applicable in this case.

Thus, it is considered that the most relevant criteria used in the assessment of SMP in the market for the supply of wholesale broadband access are as follows:

- Market shares and market growth
- Potential future market shares
- Barriers to entry and expansion
- Economies of scale and scope
- Vertical integration
- Price trends and pricing behaviour
- International Benchmarking
- Evidence of previous anti-competitive behaviour
- Countervailing negotiating power

It should be noted that the assessment of SMP in these markets takes into account the conclusions reached during the assessment of SMP made with respect to the market for the

supply of wholesale network infrastructure access (physical) at a fixed location and the obligations imposed with respect to this market. In this context and in particular, consideration is given to the existence of a regulated wholesale offer of access to the local loop through which certain operators provide their retail offers, as well as the regulated offer of access to conduits.

7.1. Market for the supply of wholesale broadband access in "areas C"

7.1.1. Individual Dominance

As the procedure in the retail market, the analysis of effective competition will begin with the calculation of market share. This is the first step in identifying candidates with SMP.

The following is an analysis of the economic characteristics of the relevant market in respect of which assessment is made of the degree of competition between the companies established in the market as well as the degree of potential competition.

7.1.1.1. Market shares

Following the request for information made by ICP-ANACOM to OSPs on the provision of wholesale offers, two operators reported that they provided wholesale offers - COLT has a wholesale broadband offer supported through the OLL and OniTelecom provides a wholesale offer supported through the "Rede ADSL PT" offer. However, these offers have a very residual character since, according to COLT, no service has yet been acquired by any other provider, and OniTelecom's case their offer is designed to meet very particular needs¹⁵¹. On this issue, it should be noted that Sonaecom has announced plans to provide a wholesale offer, depending on the future evolution of supportable offers.

Accordingly, at this time, PTC is the sole supplier of wholesale broadband access services supported over the PSTN.

As explained above, it is considered that existing competition in the retail market between the broadband offers supported over the copper network and broadband offers supported over the cable distribution network leads to the existence of indirect constraints at wholesale level, even while there is no wholesale offer based on the cable distribution networks.

With these constraints and because broadband access services through cable modem are provided according to a model of vertical integration, since the entities - the network operators - operating in the wholesale and retail markets are the same, it is considered that in order to take account of these constraints in the calculation of market share, use should be made of the concept of internal supply.

¹⁵¹ "Of resellers of Indirect Voice of the Wholesale Business Unit of Oni".

The same applies to beneficiary operators of the OLL which, in theory, provide their own vertically integrated retail department with a wholesale service, which thereby acts as an input to their retail broadband access products. Moreover, these operators, while not providing a wholesale broadband access offer in practice, are able to do so (in fact, as already happens with COLT) and are, therefore, in a position to be able to compete with PTC in this market.

In this context, it is estimated that the market shares with respect to the supply of wholesale broadband access covered by "areas C", according to the assumptions above, among them the inclusion of internal supply, are as follows:

Table 30 – Evolution of market shares

	2005	2006	2007
Grupo PT	40%	33%	26%
ZON Multimédia	41%	35%	35%
Sonaecom (with Oni and Tele2)	9%	20%	26%
Cabovisão	8%	9%	9%
Vodafone	0%	0%	1%
Others	2%	2%	3%

From the analysis of market shares, it is seen that in this market the operators with the largest market shares (Grupo PT and ZON Multimédia) have seen a reduction in their shares. It therefore appears that since 2005 the majority of operators have seen their market shares fall or stabilise, with the exception of Sonaecom which has increased its market share, mainly due to use of the OLL.

ZON Multimédia, which has the largest market share, has a market share of less than 40% - the threshold that has been used in past decisions of the EC as the value above which there could be considered to be concerns about situations of dominant position. Even where account is taken of the acquisitions notified by ZON Multimédia to AdC, the market share of the company remains below this threshold, although rising close to it.

However, the reduction seen in the market share of this operator is apparent, but with a stabilising trend in 2007, given that the beneficiary operators of the OLL have increased their presence in the market and it is expected that this trend will continue over the period that is relevant to this market analysis.

7.1.1.2. Barriers to entry and expansion

With respect to the analysis of barriers to entry and expansion, it is important to gauge the existence of significant sunk costs and economies of scale and / or economies of scope. However, once already present in a given market and with sunk costs having already been incurred, these lose their relevance in the analysis of barriers to entry and may in fact come to constitute a barrier to market exit.

Sunk costs

Most of the operators which provide broadband retail access services in this market, including ZON Multimédia, have already made investments in capacity in order to provide such services supporting, for this purpose, sunk costs that have already been incurred. Thus, in general these operators are able to expand their activities to other customers without incurring further significant sunk costs.

In this respect the conclusions of the analysis of the market for the supply of wholesale network infrastructure access (physical) at a fixed location have relevance, with the alternative operators having used the reference offer for access to conduits and the reference offer for access to the local loop, particularly in the areas of highest population density.

Economies of scale and scope

The costs associated with the development and expansion of broadband services are subject to significant economies of scale.

The area covered by this market coincides, roughly, with the major urban centres and the coast, areas of high concentration of population and economic activity.

On average, each exchange in this market is linked to about 8 thousand operational loops, in contrast to the other exchange which, on average, serve fewer than 1 thousand operational loops. It is therefore possible to achieve lower unit costs in this market.

As far as economies of scope are concerned, it appears that the majority of operators in this market provide a variety of services: telephone service, television over IP, "Video on demand" and other added value services.

Given the characteristics of this market, and as mentioned, there is some appeal to the entry of operators, either investing in their own infrastructure, or renting from PTC.

Additionally, the main operators in this market seem to have equal access to financial resources / capital markets, whereby no situation has been found where one operator has an advantage over the others.

7.1.1.3. Vertical integration

The existence of vertically integrated companies may place non-integrated competitors at a competitive disadvantage. In fact, in this situation market power could be leveraged from one market to another, especially where the integrated competitor provides the non-integrated competitor with a means of essential and intermediate production or consumption. In such circumstances, it becomes more difficult for a non-integrated company to respond to the increase in demand resulting from a competitor increasing prices.

Of the operators present in this market, note should be made of the case of Grupo PT which is composed of vertically integrated companies, with presence both in the wholesale market and the retail market. There is evidence, in this regard, of the possibility (indeed, the reality

observed in the market) of the operators using upstream wholesale deals, including the reference offer for access to conduits and the ORALL, mainly in the areas of higher population density.

In addition, the remaining cable distribution network operators are also vertically integrated operators and the OSP beneficiaries of the OLL are, in this market and ultimately, vertically integrated operators supplying themselves with wholesale broadband access.

7.1.1.4. Price trends and pricing behaviour

It appears that, as a result of competition faced by PTC at retail level and given the "retail-minus" rule imposed with the aim of preventing margin squeeze, the company has, on its own initiative, significantly reduced the prices of the "Rede ADSL PT" wholesale offer, giving viability to retail offers at more competitive levels.

7.1.1.5. International Benchmarking

There is no comparable data, at a wholesale level that enables prices to be compared, given the wide range of offers and their different options with respect to the supply of wholesale broadband access at EU level.

7.1.1.6. Evidence of previous anti competitive behaviour

In the analysis made in 2005, ICP-ANACOM concluded that the companies of Grupo PT strategically controlled the conditions governing the supply of retail services.

The obligations imposed at the wholesale level and the interventions enacted were designed to reduce the incentives for anti-competitive behaviour.

Note is made of the existence of anti-competitive behaviour linked to Grupo PT, which at that time included ZON Multimédia, and sanctioned by the AdC, albeit in other markets.

7.1.1.7. Countervailing negotiating power

Given the possibility of other operators, besides Grupo PT, emerging with wholesale offers of broadband access, the countervailing negotiating power of Grupo PT and ZON Multimédia is relatively diminished in this market.

7.1.1.8. Potential competition

In terms of potential competition, it is noteworthy that the possibility of accessing the conduits of PTC facilitates the development by alternative operators of their own networks, particularly

the fibre optic network. Note should also be made of Sonaecom's announcement of 20.02.2008 of its plans to invest 240 million euros in NGN.

Due to the fact that these are substantial investments involving economies of scale, it is expected that they will be focused, especially initially, on the area covered by the market under review, roughly coinciding with the major urban centres and coastline, areas of high population concentration and economic activity.

As such, it is expected that offers will be developed in the future which will drive increased competition in this market.

7.1.2. Dominance individual: Conclusion

According to the analysis of the criteria previously presented, ICP-ANACOM concludes that these are not likely to alter the conclusions giving basis to the market shares. Therefore, no operator is deemed to have individual dominance in the market for the supply of wholesale broadband access in "areas C"

7.1.3. Joint dominance

Article 60 of Law no 5/2004 sets out in paragraphs 3 and 4 provisions in respect of collective dominance, derived from the transposition of article 14 and Annex II of the Framework Directive.

Article 14 of the Framework Directive provides a guide for the assessment of joint dominance, which must be carried out "*... in accordance with Community law and taking into the utmost account the guidelines on market analysis and the assessment of significant market power.*"

Annex II of the Framework Directive states:

"...two or more undertakings can be found to be in a joint dominant position within the meaning of Article 14 if, even in the absence of structural or other links between them, they operate in a market the structure of which is considered to be conducive to coordinated effects. Without prejudice to the case law of the Court of Justice on joint dominance, this is likely to be the case where the market satisfies a number of appropriate characteristics, in particular in terms of market concentration, transparency and other characteristics mentioned below:

- *Mature market*
- *Stagnant or moderate growth on the demand side*
- *Low elasticity of demand*
- *Homogeneous product*
- *Similar cost structures*
- *Similar market shares*

- *Lack of technical innovation, mature technology*
- *Absence of excess capacity*
- *High barriers to entry*
- *Lack of countervailing buying power*
- *Lack of potential competition*
- *Various kinds of informal or other links between the undertakings concerned*
- *Retaliatory mechanisms*
- *Lack or reduced scope for price competition"*

Accordingly, Annex II provides an analysis of the possibility of joint dominance focusing on the structural features of the market and how they encourage parallel or aligned anti-competitive behaviour¹⁵².

In the analysis made by ICP-ANACOM consideration was given to the fact that there are structural features in the market which may favour some type of coordination between Grupo PT and ZON Multimédia. Particular account was taken, without prejudice to the completion of the *spin-off*, of certain informal links which persist between the two companies. Additionally, as indicated in the position of ICP-ANACOM on the *spin-off*, the two companies have common shareholders.

Even in this respect, it was found that there are relations of interdependence between these two companies in terms of contracts which have been established and which remain in force after the completion of the *spin-off*, whereby there is potential for retaliation on the part of these two entities.

Notwithstanding, several structural elements of the market have been identified which show that at present, a position of joint dominance does not exist. In particular, this Authority notes that this particular market is still in development and cannot therefore be characterised as a fully mature market where demand is stagnant.

It is also evident that in these areas co-installed operators under the OLL have a strong presence and that these operators provide for a significant increase in potential competition due to the fact that they can more easily initiate provision of a wholesale broadband access offer. This situation leads to an increase in the bargaining power of operators wishing to provide broadband access retail services based on an offer of this type and significant scope for the development of competition in the market.

In this regard, it was also considered that the geographical areas associated with this market are those with more appealing investment conditions, particularly due to a greater level of income

¹⁵² See Considering 26 of Framework Directive, "Two or more undertakings can be found to enjoy a joint dominant position not only where there exist structural or other links between them but also where the structure of the relevant market is conducive to coordinated effects, that is, it encourages parallel or aligned anti-competitive behaviour on the market."

among end users and higher population density, with emphasis on the existence of relevant potential competition, not only from co-installed operators under the OLL, but also from operators who will develop offers using BWA.

Consideration was also given to the fact that this is not a homogeneous product, which is evidenced by the existence of various types of local accesses, various models of bundling traffic generated through these accesses and a plethora of related services such as VoIP and IP TV, among others. It should be noted, moreover, that the wholesale "ADSL PT Network" has evolved in order to consider the supply of various types of products. Some of the developments seen at the level of the "Rede ADSL PT" wholesale offer are also related to the development of different technical solutions for the provision of broadband Internet access services, showing that this is a service with a high potential for technological evolution.

It was concluded that, despite the existence of some factors that may favour coordination between the two companies, all other structural features of the market already listed, suggest that, at present and in the light of available information, there is no reason to believe that there is joint dominance between Grupo PT and ZON Multimédia.

Therefore, ICP-ANACOM concludes that there is no joint dominance.

7.1.4. Forward-looking analysis

ICP-ANACOM considers that all the factors which give grounds for not identifying SMP in the market for the supply of wholesale broadband access in "areas C" will persist over the short/medium term, until the next assessment of SMP¹⁵³.

7.1.5. Assessment of SMP: Conclusion

It is considered that the market for the supply of wholesale broadband access in "areas C" is competitive.

7.2. Market for the supply of wholesale broadband access in "areas NC"

7.2.1. Individual Dominance

The analysis of effective competition will begin with the calculation of market share. This is the first step in identifying candidates with SMP.

¹⁵³ The next definition of the market will be carried out as soon as: (1) there is an occurrence which significantly changes the competition conditions of the market or (2) once the Recommendation is reviewed with respect to these markets or (3) within the space of 18 months.

The following is an analysis of the economic characteristics of the relevant market in respect of which assessment is made of the degree of competition between the companies established as well as the degree of potential competition.

7.2.1.1. Market shares

Grupo PT has more than $\frac{2}{3}$ of the accesses in this market, resulting in a market share of around 70%, which is considerably higher than 40% - the threshold that has been used in past decisions of the EC as the value above which it may be considered that concerns about situations of dominance arise.

Table 31 – Evolution of market shares

	2005	2006	2007
Grupo PT	71%	71%	67%
ZON Multimédia	14%	11%	13%
Sonaecom (with Oni and Tele2)	1%	4%	6%
Cabovisão	13%	11%	12%
Vodafone	0%	0%	0%
Others	1%	2%	2%

7.2.1.2. Barriers to entry and expansion

PTC, as the universal service provider of electronic communications, has expanded its telephone network to less densely populated areas, even including some areas where costs could be greater than the benefits derived from providing services.

Supported over this network, the incremental cost of providing "Rede ADSL PT" wholesale offer is significantly lower than those that would be incurred by an operator which built a dedicated root network for this purpose.

That is, due to economies of scale and scope and to the scale and configuration of PTC's fixed network, with all else being equal, this operator benefits from unit costs which are below those of its competitors.

Thus, even with the possibility of accessing wholesale offers, such as the reference offer for access to conduits or the ORALL, in most of these areas there are substantial barriers to entry and expansion.

In conclusion, a new operator wishing to expand its activity would be required to gain a significant share of the market to be able to compete with the incumbent at an infrastructure level. However, the geographical area covered by this market is broadly characterised by being a zone with low population density, making scale difficult to obtain.

This situation was also corroborated by PTC in respect of the "Rede ADSL PT" offer. In fact, while the offer began in late 2000, initially with coverage limited to some areas of central

Lisbon and Porto, full coverage of the national territory was only achieved 6 years later, demonstrating that expansion into these geographical areas is not immediate.

Therefore, this criterion does not contradict (rather it strengthens) the presumption of dominance that results from the calculation of market share.

7.2.1.3. Vertical integration

As already mentioned in other sections, the existence of a vertically integrated companies may place its non-integrated competitors at a competitive disadvantage, since market power may be leveraged from one market to another, especially when the integrated competitor provides the non-integrated competitor with a component of production or essential intermediate consumption. In these circumstances, it becomes more difficult for a non-integrated company to respond to increased demand occurring as a result of an increase in the prices a competitor.

It is noted that within this market only Grupo PT is composed of vertically integrated companies present in both the wholesale and retail market. Therefore, if one of these companies has SMP in an upstream market, it has the opportunity to transfer market power to the downstream markets, thereby affecting competition. In particular, if there is difficulty in securing inputs from the wholesale market or in obtaining these inputs at a competitive price, this may further increase the barriers to entry at the retail level.

Accordingly, this criterion does not contradict the presumption of dominance that results from the calculation of market share.

7.2.1.4. Price trends and pricing behaviour

It is evident that as a result of competition faced by PTC at the retail level in "areas C", and given the rule of "retail minus" imposed with the aim of preventing margin squeeze and the practice of setting uniform prices throughout national territory, PTC has, on its own initiative, significantly reduced the pricing of the "Rede ADSL PT" wholesale offer.

7.2.1.5. International Benchmarking

There are no comparable data, at the wholesale level that enables the comparisons of prices, given the diversity of offerings and options at EU level.

7.2.1.6. Evidence of previous anti competitive behaviour

In the analysis made in 2005, ICP-ANACOM concluded that the companies of Grupo PT strategically controlled the conditions governing the supply of retail services.

The obligations imposed at the wholesale level and the interventions enacted were designed to reduce the incentives for anti-competitive behaviour.

There is also record of the existence of anti-competitive behaviour, sanctioned by AdC, particularly in markets situated higher up the value chain: access to conduits.

7.2.1.7. Countervailing negotiating power

In this market, operators have no countervailing negotiating power since, in addition to the conduit access and local loop access offers - which in these areas, require large investments, involving economies of scale and an investment over an extended period of time -, there is no available offer other than the "Rede ADSL PT" offer.

7.2.1.8. Potential competition

In terms of potential competition, it is noteworthy that the possibility of accessing the conduits of PTC facilitates the development by alternative operators of their own networks.

Due to the fact that these are substantial investments involving economies of scale, it is expected that they will be focused, especially initially, in "areas C", roughly coinciding with the major urban centres and coastline, areas of high population concentration and economic activity.

Therefore, it is not expected that there will be extensive development of offers which would provide for an increase in competition in the geographic area covered by the market under analysis in the near future.

7.2.2. Dominance individual: Conclusion

The market share of PT Group, the degree of market concentration, the existence of barriers to expansion, the lack of evidence proving the existence of effective competition among companies (prices and other variables) and the lack of potential competition leads to the conclusion that the companies of Grupo PT operating in this market have SMP (individual dominance).

7.2.3. Joint dominance

Given that it is concluded that individual dominance exists, there is no joint dominance in this market.

7.2.4. Forward-looking analysis

ICP-ANACOM considers that all factors that give grounds for the designation of the companies of Grupo PT operating in the market for the supply of wholesale broadband access in "areas

NC" as companies with SMP will persist over the short / medium term, until the next assessment of SMP¹⁵⁴.

7.2.5. Assessment of SMP: Conclusion

It is considered that the companies of Grupo PT operating in the market for supply of wholesale broadband access in "areas NC" have SMP in this market.

¹⁵⁴[4]The next definition of the market will be carried out as soon as: (1) there is an occurrence which significantly changes the competition conditions of the market or (2) once the Recommendation is reviewed with respect to these markets or (3) within the space of 18 months.

8. IMPOSITION OF OBLIGATIONS IN THE MARKETS FOR THE SUPPLY OF WHOLESALE BROADBAND ACCESS

With respect to the supply of wholesale broadband access it was considered that, due to the existence of different competitive conditions, there were grounds for defining two geographic markets:

5-C) Market for the supply of wholesale broadband access which encompasses the area covering attendance points where there is at least one co-installed operator and where there is at least one operator of cable distribution networks and where the percentage of households cabled by the county's principal operator is over 60%¹⁵⁵

5-NC) Market for the supply of wholesale broadband access which encompasses the areas covering the remaining attendance points of the national territory¹⁵⁶

In the market for the supply of wholesale broadband access in "areas NC", it is further considered that the companies of Grupo PT have SMP, whereby there are able to act independently of the parties which "participate" in the market concerned. With respect to the market for the supply of wholesale broadband access in "areas C" it was concluded that no company has SMP.

Once it is concluded that an undertaking holds SMP in a market, it is incumbent upon ICP-ANACOM to impose one or more regulatory obligations or to maintain or modify such obligations where they already exist¹⁵⁷.

According to the Guidelines¹⁵⁸ when it is concluded that a relevant market is subject to effective competition obligations may not be imposed in that market. It is noted that the same document states that *"if an NRA finds that a relevant market is subject to effective competition, it is not allowed to impose obligations on any operator on that relevant market under Article 16. If the NRA has previously imposed regulatory obligations on undertaking(s) in that market, the NRA must withdraw such obligations and may not impose any new obligation on that undertaking(s). As stipulated in Article 16 of the framework Directive, where the NRA proposes to remove existing regulatory obligations, it must give parties affected a reasonable period of notice."*

This is precisely the case of the market for the supply of wholesale broadband access in "areas C", and it is very important to consider how existing obligations might be removed in an appropriate manner which does not adversely affect end-users and stakeholders.

Taking into account that:

¹⁵⁵ Hereinafter referred to as "market for the supply of wholesale broadband access in areas C".

¹⁵⁶ Hereinafter referred to as "market for the supply of wholesale broadband access in areas NC".

¹⁵⁷ See the Guidelines Section 21 and Section 114.

¹⁵⁸ See the Guidelines § 113.

- (a) the two identified geographic markets associated with the supply of wholesale broadband access result from a single market identified in the analysis of 2005;
- (b) the existing obligations are applied in a uniform manner in both the markets identified herein;
- (c) as stated above, the analysis indicates that SMP persists in one of the markets, whereby obligations should continue to be applied, while in the other, there is no longer SMP, whereby no obligations should be applied;

it is considered that any analysis related to the imposition / removal of obligations in wholesale markets for the supply of broadband access must begin with the consideration of the effective possibility of implementing a regulatory framework, with respect to existing obligations in these two markets.

In this regard it is noted that the geographic definition of markets in question is, among other factors, dependent on the existence of operators co-installed in the attendance points of the PTC network. There is a clear relationship between the development of the OLL and dynamics of the identified geographic markets related to the supply of wholesale broadband access. It is noted that this dynamic is appropriate given the analysis set out in this document for the identified wholesale and retail markets. There is also alignment with the positions of the EC regarding the consideration of regulation imposed at higher levels of the vertical value chain associated with a determined service.

Considering that regulation imposed in terms of supply of wholesale broadband access can, to a certain extent, be divided into the different exchange areas of PTC and also considering that, as is identified, the geographical separation of these markets is to some extent, dependent on the development of OLL in the same exchange areas, it is concluded that there is a practical possibility of applying different regulation to the geographic markets defined, given that the geographical exchange/attendance point areas with respect to the OLL and with respect to the "Rede ADSL PT" wholesale offer coincide.

ICP-ANACOM has analysed whether the possible application of regulation by different geographical areas at an attendance point level would result in some kind of barrier or restriction on the implementation of the operators' commercial policies. This is because, in a first analysis, it might be concluded that the level of granularity of the geographical area would be too low, resulting in a lack of continuity in the geographical implementation of regulation. Analysis of this issue has led to the conclusion that the current flexibility in terms of the commercial policies of operators is maintained.

It is noted that if an operator only intends to provide OLL-based offers, as was the case of Tele2 in 2007, it can continue to select the attendance points in which it plans to develop this type of offer. The solution, by which final consumers are informed as to whether or not they are covered by the offers provided, may continue to be implemented as it is today. An end user can make a provisional check using their address or fixed telephone number (where applicable), and with subsequent confirmation provided by the operator which provides the service if the initial information is confirmed.

It must be seen, however, if there is the possibility of increasing the quality or the level of detail of the information which the operators use so that they are able to provide a more reliable and detailed provisional check. This issue is being examined by ICP-ANACOM.

If the operators intend to make a set of offers available to end users, based on the OLL and the "Rede ADSL PT" wholesale offer, this provision could continue to follow current commercial policy (the provision of offers with different characteristics by geographical areas, according to whether or not the operator has invested in the OLL). It is noted that these different geographical areas correspond exactly to the coverage area of attendance points and is also in line with the definition of markets established in this document. In this situation, as now, the end user can easily identify what type of offer applies to his/her particular situation by carrying out the provisional check already mentioned, subject to later confirmation from the operator providing the service.

In the imposition, amendment and removal of obligations in these markets, ICP-ANACOM takes into consideration the same principles as already presented in "Section **Error! Reference source not found. Error! Reference source not found.**". As mentioned, these principles result from documents of the EC, the ERG, and Law no 5/2004 and also from the regulatory principles and objectives established with respect to this Authority

Finally, ICP-ANACOM notes with satisfaction that there is a market (or a part of a previously defined market) where it is appropriate to remove the obligations which were imposed on Grupo PT. This result from an increase in competition that has brought benefits to end users, due to the development of various wholesale offers consequent, at least in part, to the obligations which were imposed on the companies of Grupo PT in terms of wholesale services with respect to conduit access, the OLL and the "Rede ADSL PT" offer. The development of effective competition is, indeed, one of the ultimate objectives of imposing obligations in markets.

Accordingly, in light of the above and calling attention to the fact that it has been identified that there are markets where regulation should continue, it is to be made clear that ICP-ANACOM will make the imposition and enforcement of these obligations in a detailed and rigorous manner a priority. It is ICP-ANACOM's view that the successful accomplishment of this objective will be an important step towards the development of further competition in the markets where regulation is maintained, ensuring advantages and benefits for end-users and for operators, resulting in net gains in social well-being.

8.1. Obligations currently in force

As already indicated, on 24 June 2005 ICP-ANACOM approved the final decision on the analysis of the market concerned and taking the Guidelines into the utmost account, this Authority concluded that Grupo PT had SMP in the market and that it was appropriate, proportionate and justified to impose the obligations set out in **Error! Not a valid bookmark self-reference.** (all the obligations had basis in article 66 of Law no 5/2004, given that there is a lack of effective competition in the market).

Table 32 – Obligations to be imposed on companies identified as having SMP in the relevant market

Obligations	Market for the supply of wholesale broadband access which includes broadband access services supported over the public switched telephone network and the cable distribution networks
Access to and use of specific resources networks	<ul style="list-style-type: none"> ▪ Access to the PSTN at different points ▪ Negotiate in good faith with companies requesting access ▪ Not withdraw access already granted to determined resources
Transparency in the publication of information, including reference offers	<ul style="list-style-type: none"> ▪ Publication of the broadband access reference offer ("Rede ADSL PT"), with clear identification of amendments enacted between versions, with inclusion of SLAs and compensation for non-compliance
Non-discrimination in the provision of access and interconnection and in the provision of the respective information	<ul style="list-style-type: none"> ▪ Do not unduly discriminate in providing access to network ▪ 30 days notice of alterations to wholesale offers -extended to a period of 2 months in the event of significant alterations to wholesale offers ▪ Launch of retail offers bound by the existence equivalent wholesale offers in "Rede ADSL PT" ▪ Submit information with respect to deadlines maximum, average and minimum periods for the delivery and repair of faults and the degree of availability (broken down by type of installation and operator)
Separation of accounts for specific activities related to access and / or interconnection	<ul style="list-style-type: none"> ▪ Cost accounting system and accounting separation
Price control and cost accounting	<ul style="list-style-type: none"> ▪ Set cost-oriented prices (services of broadband access supported on the public switched telephone network) ▪ Control of prices ("retail-minus")
Financial Reporting	<ul style="list-style-type: none"> ▪ Provision of accounting records (AAS) including data on revenue from third parties

These obligations were imposed at a national level, covering both of the markets identified and analysed in the present analysis. As mentioned above, in the following sections, analysis will be made as to whether existing obligations in the market where Grupo PT still holds SMP merit alteration, and the most appropriate way in which the obligations imposed in the 2005 market analysis may be removed in the geographic market where SMP no longer exists.

It is noted that the obligations of non-discrimination and price control achieved through a "retail minus" rule were imposed with reference to the retail offers of Grupo PT, which at the time included ZON Multimédia. That is, in practical terms, the launch of retail offers by ZON Multimédia was conditional on the existence of equivalent wholesale offers in the "Rede ADSL PT" offer. The "retail minus" rule also used the retail broadband access offers of ZON Multimédia as a reference. With the completion of the spin-off of ZON Multimédia and given that, following the analysis of this market, ZON Multimédia is not deemed to have SMP, the above position of ICP-ANACOM with regard to the spin-off of ZON Multimédia and the impact on market analysis, in accordance with determination of 3 April 2008, is confirmed¹⁵⁹. That is, the above obligations that previously applied to ZON Multimédia cease to apply, not only due to the fact that it is no longer part of Grupo PT, but also because, at this time, it does not have SMP in any of the markets considered ("areas C" and "areas NC").

¹⁵⁹ Available at <http://www.anacom.pt/template31.jsp?categoryId=272931&languageId=1>.

8.2. Imposition of obligations on the market for the supply of broadband access in "areas NC"

8.2.1. Access to and use of specific resources networks

8.2.1.1. Considering possible amendment of the obligation

To begin, it should be reaffirmed that, according to the analysis performed with respect to the definition of the market and assessment of SMP, it is not expected that the use, installation and widespread extension of resources will be technically and economically feasible in the geographical areas concerned prior to the next analysis of market, where such resources would compete with the PSTN infrastructure of the companies of Grupo PT. As such the development of competition in the market through the development of alternative infrastructure is not possible.

Therefore, as mentioned in the case of the market for the supply of wholesale broadband access, considering existing incentives, it is expected that a vertically integrated company with SMP in the wholesale market might try to restrict access to their products and wholesale services so that new entrants in the retail market lose market power at retail level. Given the size of Grupo PT's network and the consequent economies of scale that companies in this group have in providing services, refusal to supply wholesale broadband access services, or its provision under unreasonable conditions, severely restricts competition in the downstream markets.

In this respect consideration is given to the comments of the ERG¹⁶⁰ regarding the suitability of there being an obligation to grant access to the network resources of the SMP operator according to reasonable and appropriate conditions: *"The availability of the bitstream product on reasonable terms gives entrants access to the incumbent's economies of scale in the local access network, which is the root cause of their market power. Together with appropriate access remedies it allows entrants to build a customer base for their services which in turn may give the critical mass that allows those competitors the chance to invest in their own infrastructure so that competition would become self sustaining"*.

In this situation it must be considered that the obligation to grant access has already been imposed and implemented whereby its technical and economic feasibility has been demonstrated. In this sense, relevant questions do not arise with respect to possible risks to investments made to provide access to the network resources in question. As in the situation of the wholesale supply of local loop access, consideration must be given to the investments made by the SMP operator and other operators who have invested in this offer, safeguarding their maintenance as appropriate and promoting the protection of competition over the long term. In this regard it is noted, as mentioned earlier, that when considering the possibility of maintaining or imposing an obligation to provide access and the proportionality of that decision, ICP-ANACOM must

¹⁶⁰ See the Revised ERG Common Position on the approach to appropriate remedies in the ECNS regulatory framework ("Remedies" document), Section 4.2.3.

take into account the provisions of paragraph 4, article 72 of Law no 5/2004, according to which the assessment of the proportionality of this obligation shall be made subject to the analysis of "*the technical and economic viability of using or installing competing facilities, in the light of the rate of market development and taking into account the nature and type of interconnection and access involved; the feasibility of providing the proposed access, in relation to the available capacity; the initial investment by the facility owner, taking into account the risks involved in making such investment; the need to safeguard competition over the long term*".

In light of the above, this Authority continues to be of the position that maintaining the obligation of providing access at different points of the network, enabling control over the main features of the offer by the OSPs will help promote greater certainty and visibility, as well as greater competition in the provision of broadband over the long term. This leads to ultimate benefit for end users and gives the parties involved the opportunity to optimise the network infrastructure in their possession in addition to the existing downstream offers.

That is to say, any removal of the obligation to grant access to and use of specific network resources would lead to a significant reduction of competition in the retail broadband access market, particularly in areas where there are no OLL-based offers, to the detriment of end users and alternative operators.

It should be noted that, although PTC launched the "Rede ADSL PT" wholesale offer on its own initiative at the end of 2000, before the companies of Grupo PT commenced the provision of retail ADSL services, respecting the obligation of non-discrimination to which it was subject at the time, this Authority has been forced to intervene with respect to conditions of the offer on several occasions to ensure reasonable and appropriate conditions of access.

These interventions have not only related to the specific conditions under which access is granted but also to the components of the network to which access is to be granted.

In this case the interventions of this Authority have led to the extension of access points in the "Rede ADSL PT" wholesale offer to the ATM network¹⁶¹ and to the provision of access to the naked digital subscriber line wholesale offer ("Naked DSL")¹⁶². In fact, given the characteristics of this market where, in practice, PTC is the only operator with infrastructure, it is essential that users residing in less populated areas and less advantaged populations are able to benefit from greater competition and see the total cost of broadband internet access reduced. Therefore it was concluded that the provision of a "Naked DSL" offer could be important to enable that the population located in such areas have access to a greater range of retail offers (also at a lower price).

It is considered that the maintenance of access at different points of the network constitutes an important and additional step towards the promotion of investment in "own" infrastructure, particularly through use of the OLL. This position is in line with the principle that the SMP

¹⁶¹ See determination of <http://www.anacom.pt/template31.jsp?categoryId=209542&languageId=1>.

¹⁶² See documents related to the public consultation carried out with respect to this issue at:

<http://www.anacom.pt/template15.jsp?categoryId=239262&languageId=1>.

company should present a sufficiently disaggregated offer so as to ensure that products / services that are not necessary for the service requested do not have to be purchased.

In line with this approach, and considering all the arguments presented in the public consultation on the wholesale provision of the naked digital subscriber line¹⁶³, it was concluded that the provision of a "Naked DSL" wholesale offer on reasonable terms should be included, as enacted with respect to the granting of access to the ATM network, as a specific obligation related to the wholesale market under consideration.

In this respect note is made of the position of ERG presented in the document concerning the imposition of remedies in the relevant markets¹⁶⁴ in which it is stated that *“as bitstream access can be granted at various points of the network hierarchy (points of handover of traffic), the points in the network at which the wholesale broadband access will need to be supplied will depend on national circumstances such as the network topology and the state of broadband competition, but the following characteristics should be kept in mind: bitstream access is an access product that allows new entrants to differentiate (directly or indirectly) their services by altering (directly or indirectly) technical characteristics and/or the use of their own network, which is definitely more than resale, where the incumbent is in control of the technical parameters and manages the service, whereas the new entrant can only market a commercially similar service”*. In the same paragraph, it is stated that *“when defining the appropriate point of access, NRAs should take the perspective of market parties. The NRA has thus to assess the reasonableness of the requested points of handover asked for by the new entrants and weigh them in relation to the possibilities of the network hierarchy. Furthermore, the state of competition, i.e., the number of market players, the existence of alternative networks and infrastructure and the long run benefit for the consumer of having more choice have to be taken into account”*.

It is also important that the “Rede ADSL PT” offer evolves to include more efficient transport and access technologies, particularly when these are used by PTC to provide equivalent retail services - such as, for example, in the case of broadband access offers based on Ethernet technologies. This is a possibility that has been recently introduced into the offer and which should be provided on a non-discriminatory basis.

Indeed, in line with the above, the ERG¹⁶⁵ argued that *“to the extent that it is reasonable and relevant, access should be available at the regional delivery handover point when possible for all efficient technology options: for example, IP, ATM, and Ethernet.”*

This aspect may come to assume greater importance in the context of evolution towards NGN, which will be examined in a separate document and with respect to which the possibility of imposing, under certain circumstances, a wholesale offer for access to optic loops may be assessed.

¹⁶³See Consultation and Report on the public consultation on naked digital subscriber lines ("Naked DSL") at <http://www.anacom.pt/template31.jsp?categoryId=248782&languageId=1>.

¹⁶⁴Revised ERG Common Position on the approach to appropriate remedies in the ECNS regulatory framework.

¹⁶⁵See ERG Common position on Wholesale broadband access.

8.2.1.2. Conclusions

Taking into account the above factors as set out in paragraph 4 of article 72 of Law no 5/2004, ICP-ANACOM concludes that, based on accumulated experience in supervising the OLL, the development of these products and analysis made throughout this document, it is fully established that it is feasible for Grupo PT to grant access to network resources constituting the wholesale provision of broadband Internet access.

The aforementioned article 72 of Law no 5/2004 provides for various types of obligations which may be imposed. Furthermore, and in light of said article 72, paragraph 2 of Law no 5 2004, it is the position of ICP-ANACOM that Grupo PT shall remain subject to the obligations of negotiating in good faith with companies requesting access and not withdrawing access to the resources in question where such has already been granted.

In line with the above, this Authority considers that all obligations with respect to granting access to and use of specific network resources imposed pursuant to the decision of 24 June 2005, remain reasonable, appropriate, proportionate and justified. Consequently all such obligations shall be maintained. Furthermore, considering the analysis conducted herein and the considerations and arguments put forward in the public consultation on the naked digital subscriber line wholesale offer¹⁶⁶ it is considered that the provision of access to a "Naked DSL" wholesale offer on reasonable terms should be set out as a specific obligation in respect of the wholesale market concerned.

In this regard, ICP-ANACOM may intervene in the implementation of this obligation and as a result of the inclusion by PTC of conditions on the provision of "Naked DSL" functionality in the "Rede ADSL PT" offer, in order to enact amendments to some of the conditions set out therein, so as to better adapt them to the interests of the market. This will be enacted in a separate document. In this respect there are relevant aspects such as the possibility of:

- Direct installation of a "Naked DSL" access on active loops without ADSL;
- The declaration of termination of FTS to be presented by the final customer to PTC to provide for the maintenance of ADSL service; or
- Implementation of synchronization between the provision of "Naked DSL" functionality and portability.

Consideration will also be given to the references of the ERG regarding the appropriateness of the imposition of intermediate levels of access to the network of the SMP operator, supported over various technology platforms, which is governed by the principles considered with regard to the imposition of obligations in the relevant markets, in particular, the promotion of efficient investment in infrastructure by alternative operators: *"Due to the time scales involved, which will differ according to market conditions within each Member State, other remedies may need to be imposed to provide a sufficient number of intermediate steps for new entrants. For*

¹⁶⁶ See Consultation and Report on the public consultation on naked digital subscriber lines ("Naked DSL") at <http://www.anacom.pt/template31.jsp?categoryId=248782&languageId=1>.

example, certain backhaul services (ATM backhaul, ATM broadband conveyance, other backbone transport) may be required, according to national circumstances. Over time, access products may change. More generally, when implementing the ladder NRAs need to adjust ("customise") it in terms of timing, pricing and product design to national circumstances and take into account structural/exogenous factors such as disparity of population density or the existence/non-existence of alternative network infrastructures as well as the development of the market"¹⁶⁷.

It is noted that, as with the market for the supply of wholesale network infrastructure access (physical) at a fixed location, the imposition of an obligation of access will not in itself be sufficient. It is considered that in particular it may be necessary to maintain additional obligations pursuant to Law no 5/2004 in order that potential competition problems such as excessive pricing or discriminatory practices may be avoided, ensuring the existence of access under reasonable conditions in line with those existing in the markets relevant to this analysis.

There may also be a need to adapt the "Rede ADSL PT" offer in order to accommodate higher-speed services, for example, VDSL services, and other services that may emerge with the development of NGN.

These issues are addressed in the following sections.

8.2.2. Non-discrimination

8.2.2.1. Consequences of any modification of the obligation

As mentioned in the analysis made in 2005 of the market for the supply of wholesale broadband access and also in the analysis, contained in this document, of the market for the supply of wholesale network infrastructure access (physical) at a fixed location, when an obligation of access is imposed, there is a tendency for there to be an incentive for the SMP company to discriminate between the offers made available to their own departments or to their subsidiaries or affiliated companies and those made available to other companies. This competition problem includes the discriminatory use or retention of information, discrimination through quality, tactics of delay and undue demands, besides the possibility of discrimination in terms of pricing.

As a result of such actions the retail activities of alternative operators would be harmed, which may lead to a reduction in the quality of services provided by the alternative operators at the retail level or an increase in the costs of these operators compared to the costs of the retail division of the SMP operator. Consequently the competitiveness of alternative operators at a retail level is reduced substantially, providing a way in which the power of the SMP operator in the wholesale market might be leveraged into the retail market.

¹⁶⁷ See Revised ERG Common Position on the approach to appropriate remedies in the ECNS regulatory framework, Section 4.2.3.

As an example, a situation could be envisaged where an operator with SMP in the market for the supply of wholesale broadband access discriminates against alternative operators in favour of their own division operating in the retail market for broadband internet access. A lower quality of service than that provided to the retail division of the SMP operator means that the alternative operators is not able to set up a new access or guarantee the repair of faulty equivalent within periods of time equivalent to those provided by the retail division of the operator with SMP in the retail market. This would lead to a reduction of effective competition in the retail market which is clearly to the detriment of the alternative operators and end users.

Accordingly, as provided for in articles 66 and 70 of Law no 5/2004¹⁶⁸, ICP-ANACOM is of the position that it is objectively justifiable to maintain the obligation of non-discrimination to which PTC is subject with respect to the "Rede ADSL PT" offer, in order that Grupo PT may not, in similar circumstances, discriminate in favour of its own services or its subsidiaries or affiliated companies. As demonstrated, given the existing incentives, the size of Grupo PT in this market and its vertical integration, the condition of non-discrimination is particularly important, since it prevents the leveraging of market power into adjacent markets.

Likewise, it is the position of ICP-ANACOM that the specifications of the non-discrimination obligation as defined by this Authority continue to be suitable, reasonable and proportionate. Accordingly, the view is maintained that it is essential for the SMP company to provide interested companies which provide broadband access networks and services and ICP-ANACOM with prior notice of at least 30 days in the event of any alteration made at its own initiative to the conditions of the wholesale offer, thereby allowing these companies to adapt or appropriately publicise their respective retail offers. Furthermore, in exceptional situations, where the company with SMP makes changes to the wholesale offer which impact the offers of OSPs, including the introduction of new classes of access, changes to the speeds of existing access classes, changes to the prices of offers, changes to the contention rate or to other technical characteristics and changes involving the migration of customers or discontinuity of offers, the obligation is maintained whereby notice of 2 months shall be given prior to the execution of such alterations. In line with this position, it remains appropriate and necessary to maintain the obligation that timely notification is provided to the alternative operators, by PTC, in the event of the performance of pilot tests, so that the alternative operators are given the opportunity to participate in such tests.

In this market, where there is no alternative infrastructure and while OSPs lack the opportunity, through wholesale offers, to control the characteristics of their offers, particularly in terms of speed, in the event that the companies of Grupo PT launch a retail broadband offer over any of the technologies/distribution networks encompassed by the wholesale broadband access market, it remains necessary, justified and proportionate to ensure that, prior to such launch, wholesale offers are published that allow the replication of such offers by the OSPs. In line with the above, a minimum defined period of 30 days is maintained, which period shall elapse following the publication of the respective wholesale offers before the commercial launch of the retail offers, except in the case of alterations made to wholesale offers which impact the

¹⁶⁸ Article 66 sets out the remit of the NRA with respect to the imposition, maintenance, alteration or removal of obligations. Article 70 describes, in particular, the obligation of non-discrimination.

alternative operators, in respect of which said minimum period is extended to 2 months, as stated above.

Obviously, the existence of the obligation of non-discrimination implies that the company with SMP is required to provide the remaining companies that offer broadband access networks and services with the same conditions as those offered internally, for similar services. This means, more specifically, that there can be no difference between the levels of performance with respect to the quality of service, such as the times taken to set up the service and repair faults, provided to competitors and to the similar activities of the dominant company, with basis in practice, not only in the wholesale market in question but also in the associated retail market.

It should be noted that the obligation of non-discrimination and the existing specifications with respect to compliance therewith, has the implication of reducing costs and is proportional. Being therefore appropriate in order to ensure conditions of equality and competition, it should be maintained.

It has been previously explained that to ensure that compliance with an obligation of non-discrimination, it is important that it be accompanied by the imposition of obligations of transparency and separation of accounts.

8.2.2.2. Other arguments for maintaining the obligation

In this document it has already been mentioned, with respect to the imposition of obligations in the market for the wholesale provision of unbundled access, that the ERG argues¹⁶⁹ that there are several ways in which competitors may be placed at a disadvantage by discrimination with respect to the quality of services provided by a wholesale operator with SMP, arguing therefore for the imposition of an obligation of non-discrimination.

8.2.2.3. Conclusions

Considering the incentives to engage in discriminatory behaviour in terms of provision of access to and use of specific network resources and the consequences of such discrimination in the markets, it is considered that the maintenance of this obligation is justified, appropriate and proportionate in the light of existing (reduced) costs.

8.2.3. Transparency

8.2.3.1. Consequences arising as a result of any removal of the obligation

It has already been stated that the obligation of transparency is a natural complement to the obligation of non-discrimination, enabling the detection of any existing discriminatory

¹⁶⁹ Revised ERG Common Position on the approach to appropriate remedies in the ECNS regulatory framework ("Remedies" document).

behaviour. For this reason, it has been affirmed that if the obligation of transparency were removed, such removal would significantly affect the ability to detect and prove discriminatory behaviour, which could compromise the effectiveness of the obligation of non-discrimination and, consequently, allow a resurgence of the factors that originate from situations of dominance. Subsequently it is expected that the problems associated with such dominance would arise, negatively impacting the markets.

Accordingly, it is the position of ICP-ANACOM that the obligation of transparency be maintained. Furthermore, it is considered that in this market, this obligation must be associated with (the maintenance of) the existence of an appropriate and easily accessible reference offer, containing all the information necessary so that alternative operators which use or plan to use the wholesale services concerned are able to do so with visibility and in an efficient manner.

It is the position of ICP-ANACOM that the information encompassed by the current "Rede ADSL PT" wholesale offer generally remains relevant and appropriate, whereby it should continue to be submitted to this Authority. However, there are some simplifications that can be enacted, resulting in a significant reduction in the amount of information submitted without detracting from the ability of ICP-ANACOM to perform the analyses which it considers necessary in order to carry out appropriate supervision of the market.

As such, it is considered that the inclusion is no longer required of information on minimum time periods associated with the installation and all the time periods associated with the termination of broadband access.

Additionally, it is evident that, contrary to the stipulations of the obligations imposed by this Authority, PTC is currently not submitting information with respect to the accesses disaggregated according to the type of traffic aggregation generated in local access (IP or ATM aggregation). This situation should be rectified by PTC.

Considering the recent introduction of "Naked DSL" functionality and taking into account that such access has characteristics which differ from those of normal accesses and that is important to supervise, in a detailed manner, the development of such functionality, it is also considered that data on the number of accesses provided by PTC must include disaggregated information on "Naked DSL" accesses. With respect to "Naked DSL" functionality, in addition to information on the number of accesses provided by PTC, disaggregated information should also be provided on installation times for this type of access and the time taken to change local access with FTS POTS into "Naked DSL" accesses (given that the periods established in the wholesale offer are different from the periods established for other types of accesses).

The remaining information on quality of service, including information about times for fault repair, should continue to be delivered on an aggregated basis for all accesses. Notwithstanding, if the number of complaints about the quality of the provided service for any of the types of accesses reaches a significant number, or if such action is deemed appropriate to prevent discrimination in the provision of wholesale services over the various types of existing accesses, this Authority may still come to define the scope/provision of information in disaggregated form.

Finally, considering the importance of taking into account the provision of relevant retail services, as stated above, in order to monitor the possible existence of discrimination, it is the position of ICP-ANACOM that the companies of Grupo PT which use the "Rede ADSL PT" wholesale offer should provide information with respect to installation¹⁷⁰ and repair times¹⁷¹ regarding the broadband accesses and retail services which it provides (in disaggregated form).

This position will be detailed and implemented through a separate determination, within the scope of the publication of the SLAs (*Service Level Agreement*).

8.2.3.2. Other arguments for maintaining the obligation

According to article 67 of Law no 5/2004, the NRA may require the publication, in an appropriate manner, of information relating to the provision of access and interconnection of the operator, in particular, accounting information, technical specifications, network characteristics and terms and conditions of supply and use, including prices.

Also in accordance with article 68 of said Law, the NRA may determine, particularly to those companies that are also subject to obligations of non-discrimination, the publication of reference offers of access, including the manner of their disclosure.

It is noted that the requirement to publish a reference offer has two main objectives: (i) to contribute to transparency in the monitoring of potential anti-competitive behaviour and (ii) to publicise the terms and conditions under which other companies may acquire wholesale access services. The publication of a reference offer will further allow agreements to be negotiated more quickly, assuming an important role in the prevention of possible conflicts and increasing the confidence of purchasers of wholesale services, insofar as it helps ensure that such purchasers are fully aware of all the key conditions associated with the provision of services and contributes to the assurance that such services are provided on a non-discriminatory basis.

Accordingly Grupo PT shall continue to publish the reference offer for broadband access (currently the "Rede ADSL PT" offer) on their website and keep this offer up to date, thereby contributing to increased visibility with respect to the conditions of supply. Grupo PT shall further clearly indicate changes effected between the different versions of the offer. In order to ensure non-discrimination and transparency, the reference offer shall also include SLAs and details of compensation due in the event of non-compliance with the levels agreed.

Once again reference is made to the position of the ERG as to the importance of supporting the obligation of non-discrimination through an obligation of transparency.

The ERG states in particular that minimum levels quality be defined for wholesale services, ensuring enforcement of such levels through the periodic provision/ disclosure to the NRA, and

¹⁷⁰ Average and maximum time for the installation of broadband accesses, for 100% and 95% of occurrences.

¹⁷¹ Average and maximum time to restore the broadband service, respectively for 100% and 95% of occurrences (in linear time and in working time).

where appropriate, to other operators and end users, as to the levels of performance achieved with respect to the quality of the services encompassed by the wholesale offers.

It is also noted that the ERG highlights that it is important that the reported levels of performance allow for services provided to the alternative operators to be distinguished from services provided by the operator with SMP to its own companies, in order to monitor compliance with the obligation of non-discrimination.

In this respect and according to the ERG, in the case of the supply of wholesale broadband access, the minimum comparative criteria to be considered between services provided with respect to the offers and those services provided downstream, are the levels of service associated with the service provided at retail level.

8.2.3.3. Conclusions

Following the imposition of obligations to grant access and non-discrimination, ICP-ANACOM concludes that the imposition of the obligation of transparency is a necessary and proportionate measure in order to enforce the principle of non-discrimination, which is justified and has reduced costs of implementation insofar as only the publication of information needed to ensure the absence of adverse conditions to competition is required. In promoting the application of such obligation, it is ensured that:

- (a) relevant information is provided to interested parties in a timely manner, promoting greater visibility, security and certainty associated with the environment in which the companies seeking access develop their activities and facilitating market entry, which ultimately benefits competition and the end user;
- (b) there is a reduction of information asymmetry between the regulator and the regulated company and better enforcement of the obligation of transparency.

Considering this analysis, it is concluded that the obligation of transparency should be maintained. In particular, it is concluded that, as in the case of the market for the wholesale provision of unbundled access, its removal would jeopardize the effectiveness of the obligation of non-discrimination, to the possible detriment of the relevant markets involved.

In this regard, it is seen that the maintenance of a reference offer which contains all the necessary information and in models that are appropriate for the efficient procurement of the wholesale services concerned is essential for the proper functioning of the wholesale market for the supply of broadband Internet access. It is likewise concluded, also in light of the comments and conclusions given in the section on the imposition of the obligation non-discrimination, that the ease of accessibility to the offer, prior knowledge and identification of changes to the offer are important conditions for the proper enforcement of the transparency obligation. As such it is concluded that the offer should remain available on the web site of Grupo PT, should duly identify changes effected and give the market notice of such changes one month in advance of the date on which they are due to be implemented.

It is also concluded that the way in which the levels of performance in respect of the quality of service of wholesale offers are reported to the NRA, to the operators and end users is very important, in order that there is effective enforcement of the obligation of transparency. ICP-ANACOM has examined this issue in detail, taking into account the common positions of the ERG.

In this respect, it was found that the information compiled in respect of the current "Rede ADSL PT" wholesale offer generally continues to be relevant and appropriate, while there are some simplifications that may be introduced, which will be the subject of a separate analysis and determination.

8.2.4. Price control and cost accounting

8.2.4.1. Consequences arising as a result of any removal of the obligation

Facing a market where: (i) there is no effective competition, (ii) there are relevant barriers to entry, (iii) the development of competition is not expected and (iv) in which the operator with SMP can act independently from other agents of the market, it is expected that this operator has every incentive to set prices for wholesale offers at a level significantly higher than the costs incurred through the provision of the services.

In this sense, the removal of the obligation of price control and cost accounting would result in higher (excessive) prices for this essential input for the competition which could prevent the development of sustainable competition and simultaneously incentivise both the SMP operator and the operators who are granted access to the network to make inappropriate and inefficient infrastructure investments.

In the absence of the obligation of price control and cost accounting, the NRA will have significant difficulty in verifying whether wholesale prices are set in line with the costs incurred by the SMP operator. The difficulty will arise with respect to the appropriateness of the pricing level defined as well with respect to the structure and composition of wholesale pricing.

This absence could also give rise to a lack of consistency in wholesale prices (between service classes or between the different models of the "ADSL PT Network" wholesale offer) which may result in some operators being put at a disadvantage in comparison to others, depending on the type services which they offer, with no real grounds for such a situation.

Without effective control of these issues it can also be expected that the SMP operator has no real incentive to achieve increases in efficiency and cost savings.

Furthermore, the existence of inconsistency and inefficiency in pricing at wholesale level prevents the operators providing retail services from developing truly competitive services, to the ultimately detriment of the interests of end users.

If it was decided to amend the obligation under analysis in a way that removed or significantly limited it, another major problem could arise: regardless of the level at which wholesale prices are set, there is always the possibility that the operator with SMP might engage in practices that result in the margins of alternative operators being squeezed, if no ex-ante control of these practices is performed by the NRA.

The existence of margin squeeze leads, ultimately, to the alternative operators eventually being forced out of the retail market, giving impetus to the transfer of the situation of SMP from the wholesale market to the retail market. Finally, over the long term, such a situation will harm the interests of end-users.

To sum up, any removal of the obligation of price control and cost accounting could lead to significantly damage to the markets for the supply of wholesale broadband access - in "areas NC" - and the associated retail markets, particularly in the retail market for broadband Internet access. Such damage would have a significant and widespread impact, affecting the alternative wholesale operators and end users and leading to incentives for inefficient and inappropriate investment.

8.2.4.2. Other arguments for maintaining the obligation

Article 74 of Law no 5/2004 allows the NRA to impose obligations of cost amortisation and price control¹⁷², where a potential lack of effective competition leads to the prices being maintained at an excessively high level or the application of margin squeeze to the detriment of end users.

It is noted that, as mentioned in the analysis conducted throughout this document, the access networks used for the provision of broadband services are characterised, with respect to the market under review, by a lack of effective competition, while the existence of high entry barriers indicate that there is little likelihood of future competition. In the absence of effective competition, the SMP company has little incentive to reduce costs and operate efficiently, since through excessive prices these high costs can be passed on to the wholesale customers and ultimately to consumers who have no alternative choice.

In light of Law no 5/2004, ICP-ANACOM is charged with ensuring that the mechanisms of cost amortisation or the methodologies used for setting prices promote efficiency and sustainable competition, maximising benefits for the consumer. At the same, in this respect, the prices available in comparable competitive markets may also be taken into account.

In this regard it is noted that, given the lack of current and prospective competition, the objective of price regulation should be to provide competing companies with network access for the provision of retail broadband at prices that would be charged were the market in fact competitive, while allowing the company with SMP to obtain a reasonable rate of return on investments.

¹⁷²Including the obligation of cost orientation of prices and the obligation to adopt cost accounting systems, for the purposes of providing specific types of access or interconnection.

ICP-ANACOM has regulated the price of the "Rede ADSL PT" offer with reference to a rule of "retail-minus" whose methodology has been updated and clarified by determination of 3 October 2007¹⁷³. The adoption of this measure has led to a reduction in the prices of individual offers (retail and wholesale), with obvious advantages in terms of competition and end-users.

Obviously, these reductions in prices have occurred because of pressure exerted on the companies of Grupo PT, initially, by the retail offers of broadband access based on the OLL - and, to a lesser extent (geographical) by retail offers of broadband access from the cable distribution network operators - and, later following the conclusion of the spin-off of ZON Multimédia, also due to pressure exerted by the offers of broadband launched by ZON Multimédia in the meantime.

These offers, of course, are mainly available in "areas C". The question that arises in the implementation of a "retail-minus" rule in "areas NC" is whether it will have the same degree of effectiveness in terms of reducing wholesale and retail prices, given the fact that PTC faces only limited competition from operators based on the OLL and cable distribution network operators. In fact, the companies of Grupo PT apply uniform pricing throughout the national territory. Therefore, provided that this practice is maintained and in the light of the competition faced by the companies of Grupo PT in "areas C", in the event that these companies decide to reduce the price, the reduction will be to an equal amount in "areas C" and in remaining areas. This means that end-users residing in "areas NC" can also benefit from the existence of competition in "areas C".

In terms of the "Rede ADSL PT" offer and without prejudice to the conclusions of the market analysis and the obligations with respect to "areas C", in "areas NC" the price of this wholesale offer has also fallen, in view of the defined margin.

However, PTC may on its own initiative and taking into account the business strategy most suitable to its circumstances, set retail price lower in areas where it faces greater competition ("areas C") while keeping prices higher in those areas where competition is lower ("areas NC"). That is, in "areas NC" PTC could raise retail prices and increase the price of the "Rede ADSL PT" offer, while remaining in compliance with the "retail-minus" rule. The threat of new operators entering the market, by investing in OLL, may not be credible in parts of these areas, since the population density and household income cannot justify the investment either by cable distribution network operators or by beneficiary operators of the OLL. This situation would raise issues of social cohesion that could be addressed through the establishment of a rule that prohibits increases in the price of the "Rede ADSL PT" offer, with reference, in particular, to the prices of the offer in previous years or through intervention along other lines.

Notwithstanding, it is evident that, if appropriate and necessary, it remains possible to intervene in the setting of prices of the "Rede ADSL PT" wholesale offer in the event that the premises explained are not realised and end users in these geographic areas do not obtain the maximum benefit in terms of choice, price and quality.

¹⁷³See <http://www.anacom.pt/template31.jsp?categoryId=254403&languageId=1>.

It is noted that in case of the "Naked DSL", in view of the importance that this offer can have in the development of offers that are appealing to end users who are located in more remote and less developed areas or prospectively where there is less likelihood that competition supported by higher levels of the value chain will develop, the setting of wholesale prices will be based on the principle cost orientation of prices.

The complexity of operating the "retail-minus" rule could increase, especially following the provision of bundled services¹⁷⁴, whereby ICP-ANACOM will monitor this issue and may update the defined "retail-minus" rule at a future date.

Regarding the verification of the possibility of alternative operators suffering margin squeeze, it should be stated, as referred to above, that the grounds for this specific aspect of the obligation of price control and cost accounting and the detail thereof has already been duly explained in various determinations of ICP-ANACOM¹⁷⁵.

Finally, ICP-ANACOM is of the position that the access price of the "Rede ADSL PT" offer shall remain consistent with the price of shared access, with respect to non-discrimination and cost orientation. It is also important to maintain the existence of internal coherence in the "Rede ADSL PT" wholesale offer, while retaining reasonable margin between the costs incurred by operators with respect to the various options of that offer (i.e., the offer with ATM aggregation, the offer with IP aggregation and the provision of "Naked DSL") and a justified price difference between the various classes of local access (especially in the case of IP aggregation¹⁷⁶).

This possibility is, moreover, also advocated by the ERG, which asserts that *"as a consequence of economies of scope and scale, cost-based bitstream pricing may give rise to an eviction price in respect of the upstream (unbundled loop and shared access) services. Consequently, NRAs may need to impose additional controls to ensure the maintenance of a margin sufficient to avoid this. In principle, such controls could be imposed as a remedy to SMP in either market"*¹⁷⁷.

Accordingly, ICP-ANACOM will also closely monitor the issue of the margin between the prices of the "Rede ADSL PT" service and prices of the OLL and may still intervene where there are grounds.

8.2.4.3. Conclusions

It is considered that the obligation of price control and cost accounting is objectively justified in that it allows prices to set based on costs, avoiding situations of excessive pricing and margin squeeze, and allowing the development of competition, while promoting, *ceteris paribus*, the

¹⁷⁴ Or even aggregated with other products / services not related to electronic communications market.

¹⁷⁵ See determinations of ICP-ANACOM of 3.10.2007, 31.10.2007, 7.02.2008 on this subject at:

<http://www.anacom.pt/template31.jsp?categoryId=268122&languageId=1>.

¹⁷⁶ This position was expressed and substantiated in the determination of ICP-ANACOM of 13.10.2005 on amendments to the "Rede ADSL PT" offer introduced by PT Comunicações on 23 August 2005.

¹⁷⁷ See ERG Best Practices on Regulatory regimes in bitstream access.

application of prices available in comparable competitive markets, thereby helping to protect the consumer interest.

This obligation is a proportional response to the dimension of competition in the relevant market, as it allows the competitors of Grupo PT to purchase broadband access services at prices which allow them to develop competitive retail services to the benefit of consumers. Additionally, this condition allows Grupo PT to derive a rate of return approaching that available in a competitively efficient market.

It should also be noted that since the geographic scope of the market in question is limited compared to the scope of the market for supply of wholesale broadband access defined in 2005, the impact of the obligation of price control and cost accounting is also limited.

8.2.5. Separation of accounts

8.2.5.1. Consequences arising as a result of any removal of the obligation

As in the position set out with respect to the imposition of obligations on the wholesale market for the supply of unbundled access, the removal of the obligation of separation of accounts could mean that the negative impacts identified with respect to the analysis of the effects of the removal of the obligations of non-discrimination and price control and cost accounting, would affect the relevant markets. This will occur primarily because, as in the case of the obligation of transparency, the obligation of accounting separation is essential to ensure compliance with and the effectiveness of the obligation of price control and cost accounting.

In particular, it is identified that the absence of the obligation of accounting separation would make it difficult for this Authority to properly monitor compliance with the obligations associated with the prices and costs of the SMP Company and thereby significantly hinder the identification of situations of cross-subsidisation.

8.2.5.2. Other arguments for maintaining the obligation

As indicated in the analysis of 24 June 2005, it is the position of ICP-ANACOM that this is a measure objectively justified, given the need to ensure non-discrimination (allowing the analysis of wholesale prices and internal transfer cross-subsidisation) and prevent the cross-subsidisation.

This is a proportionate measure insofar as only information with a level of detail which enables accomplishment of the objective of enforcing the other obligations is required.

It is noted that the format and accounting methodology adopted shall meet the requirements that were conveyed to PTC by ICP-ANACOM in this respect, whereby this Authority will perform periodic reviews of these requirements in order to improve the costing and information system provided.

8.2.5.3. Conclusions

It is concluded that the obligation of accounting separation should be maintained to ensure that there is effective supervision of the obligation of non-discrimination. In this sense, the position is maintained that this obligation is proportionate, appropriate and justified.

8.2.6. Financial Reporting

8.2.6.1. Consequences of the possible removal of the obligation and conclusions

In order to verify compliance with the obligations set out above, namely the obligations of transparency, non-discrimination, separation of accounts and costs accounting, and in accordance with paragraph 3 of article 71 of Law no 5/2004, the company with SMP shall make their accounting records, including data on revenue from third parties, available to ICP-ANACOM.

Accordingly, in the absence of an obligation of financial reporting, the effectiveness of the above obligations would be undermined, leading to significant negative implications for the market for the supply of wholesale broadband access and related markets.

In line with the analysis made in 2005, the position is taken that the accounting records necessary for appropriate compliance with the obligation of financial reporting comprise the analytical accounting system which should be submitted pursuant to terms established in this respect.

8.2.6.2. Conclusions

It is concluded that maintaining the obligation of financial reporting is necessary, appropriate and proportionate.

8.3. Conclusion

For the purposes of ex-ante regulation and in accordance with the principles of competition law, the following wholesale market has been identified:

5-NC) Market for the supply of wholesale broadband access in "areas NC"

Having analysed this market and taking the utmost account of the Guidelines, ICP-ANACOM concludes that Grupo PT has SMP in the identified relevant market and consequently that the obligations set out in **Error! Not a valid bookmark self-reference.** should be imposed (all the obligations have basis in article 66 of Law no 5/2004, in view of the fact that there is no effective competition in this market).

Table 33 – Obligations to be imposed on companies identified as having SMP in the relevant market

Obligations	Market for the wholesale supply of broadband access in “areas NC”
Access to and use of specific resources networks	<ul style="list-style-type: none"> ▪ Access to the PSTN at different points ▪ Negotiate in good faith with companies requesting access ▪ Not withdraw access already granted to determined resources ▪ Provide access to the naked digital subscriber line wholesale offer ("Naked DSL").
Transparency in the publication of information, including reference offers	<ul style="list-style-type: none"> ▪ Publication of the broadband access reference offer ("Rede ADSL PT"), with clear identification of amendments enacted between versions, with inclusion of SLAs and compensation for non-compliance ▪ Submit information in respect of the maximum and average delivery time, time taken to repair faults and degree of availability (disaggregated by installation type and operator) ▪ Disaggregate the information submitted according to the different modalities of the "Rede ADSL PT" offer - IP, ATM, and “Naked DSL”.
Non-discrimination in the provision of access and interconnection and in the provision of the respective information	<ul style="list-style-type: none"> ▪ Do not unduly discriminate in providing access to network ▪ 30 days notice of alterations to wholesale offers -extended to a period of 2 months in the event of significant alterations to wholesale offers ▪ Launch of retail offers retailers on the condition of the existence of equivalent wholesale offers in "Rede ADSL PT".
Separation of accounts for specific activities related to access and / or interconnection	<ul style="list-style-type: none"> ▪ System costing and accounting separation.
Price control and cost accounting	<ul style="list-style-type: none"> ▪ Control of prices ("retail-minus"); ▪ Where necessary and appropriate to ensure price consistency which encourage competition and efficient investment; ▪ Control of the pricing of the "Naked DSL" wholesale offer, based on the principle of costs orientation of prices.
Financial Reporting	<ul style="list-style-type: none"> ▪ Provision of accounting records (AAS) including data on revenue from third parties

ICP-ANACOM considers that the established obligations may require further detail, specification or clarification in respect of their implementation, which will be provided in separate documents.

Error! Not a valid bookmark self-reference. sets out a comparison between the obligations imposed in the analysis conducted in 2005 and the present analysis.

Table 34 – Comparison of obligations imposed in 2005 with the obligations set out in the present analysis of the market - Market for the supply of wholesale broadband access in "areas NC"

Market for the supply of wholesale broadband access in "areas NC"	Decision of 30 March 2005	Market analysis (Draft Decision of June 2008)
Scope of defined geographic market	National	Sub-national
Obligations		
Access to and use of specific network resources	✓	✓
▪ Access to the PSTN at different points	✓	✓
▪ Negotiate in good faith with companies requesting access	✓	✓
▪ Not withdraw access already granted to determined resources	✓	✓
▪ Provide access to the naked digital subscriber line wholesale offer ("Naked DSL").	(a)	✓
Transparency in the publication of information, including reference offers	✓	✓
▪ Publication of the broadband access reference offer ("Rede ADSL PT"), with clear identification of amendments enacted between versions, with inclusion of SLAs and compensation for non-compliance	✓	✓
▪ Submit information in respect of the maximum and average delivery time, time taken to repair faults and degree of availability (disaggregated by installation type and operator)	✓	✓
▪ Disaggregate the information submitted according to the different modalities of the "Rede ADSL PT" offer - IP, ATM, and "Naked DSL".		✓
▪ Provision and publication of indicators and performance levels in respect of quality of service in wholesaler offers		✓
Non-discrimination in the provision of access and interconnection and in the provision of respective information	✓	✓
▪ Do not unduly discriminate in providing access to network	✓	✓
▪ 30 days notice of alterations to wholesale offers -extended to a period of 2 months in the event of significant alterations to wholesale offers	✓	✓
▪ Launch of retail offers bound by the existence equivalent wholesale offers in "Rede ADSL PT"	✓	✓
Separation of accounts for specific activities related to access and / or interconnection	✓	✓
▪ Cost accounting system and accounting separation	✓	✓
Price control and cost accounting	✓	✓
▪ Setting prices oriented to cost (broadband access services supported over the PSTN)	✓	
▪ Control of prices ("retail-minus")	✓	✓
▪ If necessary and appropriate to ensure the existence of coherent prices which encourage competition and efficient investment	✓	✓
▪ Control of the pricing of the "Naked DSL" wholesale offer, based on the principle of costs orientation of prices.		✓
Financial reporting	✓	✓
▪ Provision of accounting records (AAS) including data on revenue from	✓	✓

third parties		
✓ - Appropriate Obligation		

- (a) The PTC currently provides an NDSL offer following a recommendation from ICP-ANACOM.

8.4. Removal of obligations in the market for the supply of wholesale broadband access in "areas C"

It has been already stated that where it is concluded that a market is subject to effective competition, obligations may not be imposed on companies operating in that market. It is noted however that if there are obligations already imposed on a company, the removal of these obligations must be reported to the parties affected with a reasonable period of notice. It is likewise considered that a gradual transition should be ensured, in accordance with the key principles of, on the one hand, ensuring that in a competitive market companies can compete freely and, on the other hand, ensuring that end-users and other market stakeholders are protected.

Without prejudice to the above, including the removal of all obligations existing in the market, the analysis made below seeks to demonstrate that the removal of obligations is appropriate and does not have significant negative implications for the market concerned or related markets. A further objective of the analysis is to identify the most appropriate way of effecting the removal of the existing obligations, including assessing whether or not there should be a transition period, during which some obligations should continue to remain in force. The grounds for the existence of a transition period is provided by the fact that this will be necessary to protect end-users and operators who have invested in the market and by the fact that they may require a period of time to adjust their offers, objectives and strategies to the new reality.

8.4.1. Access to and use of specific resources networks

As a result of the analysis made with respect to the definition of the market and assessment of SMP, it emerged that, in the geographical areas associated with this market, the market had developed insofar as widespread use, installation and roll out of resources in competition with the PSTN infrastructure belonging to the companies of Grupo PT is expected before the next analysis of the market. It is envisaged that the development of this alternative infrastructure will be supported, above all, through investment in the OLL or own infrastructure, particularly in the context of NGN, but also in the context of cable distribution networks

As has been seen, given the existence of internal constraints of prices and internal supply, it can be argued that the accesses based on the OLL and cable distribution networks must be considered at the level of the market for the supply of wholesale broadband access, leading to the conclusion that, in the geographical areas in question, effective competition either already exists or will develop.

Therefore, it is concluded that:

- (a) Even removing the current obligation to grant access to and use of specific network currently, as a result of the existence of operators with infrastructure at a higher level of the value chain and in view of the investment already made by PTC in opening up its network in support of ADSL services, incentives remain for PTC to continue to provide wholesale broadband access services.

It is noted that where there are operators with the possibility of providing the same type of service (including, operators who have invested in OLL) to alternative operators who may waive the "Rede ADSL PT", Grupo PT would lose revenue at a wholesale level and remain in the same situation at retail level. In this situation, the decision to terminate the supply of wholesale broadband Internet access would be unprofitable, since in the light the existence of competition at wholesale level, such a decision would not lead to an increase in revenue in the retail market.

- (b) Even if the PTC and other wholesale operators with investments in OLL do not provide any wholesale broadband Internet access, it will be possible for operators who currently use the "Rede ADSL PT" wholesale offer to compete effectively in the retail market for broadband Internet access using their own infrastructure derived from investment in the OLL. In this situation, it may be concluded that the decision to remove the obligation to grant access is in line with the principle of encouraging investment in the network itself where possible and appropriate.

It is also envisaged that investments made by the alternative operators who use the "Rede ADSL PT" wholesale offer will not be lost, since they can be used with respect to the same or another wholesale offer of equal scope, or even be used by these operators to scale the "investment ladder", by investing in OLL. Notwithstanding, and where this occurs, it must be ensured that the alternative operators are informed of the possible termination by PTC of the provision of the service for access with an appropriate period of notice.

Furthermore, the investments made by PTC will be recovered, even if the company chooses not to provide wholesale broadband access to third parties in these areas, since it will continue to provide access to its own companies and to use some of the investments made within the scope of wholesale provision, which remains mandatory in "areas NC".

In this consideration is important to take account of the fact that economies of scale resulting from the dimension of the network of Grupo PT, in any of the situations mentioned, will continue to be transferred to the alternative operators who resort to investment in their own infrastructure or to other OLL-based wholesale offers which may emerge. This is because investment in OLL enables the operators to also benefit from the economies and efficiencies of Grupo PT's network.

In this analysis ICP-ANACOM took into consideration that the obligation of access implies that the conditions of access be appropriate and reasonable. Considering the analysis made above with respect to the existence of incentives for Grupo PT to maintain a wholesale operation, the view is taken that these incentives are also aligned with the existence of reasonable and competitive conditions. It is noted that, otherwise, the alternative operators who are currently supported through the "Rede ADSL PT" wholesale offer will seek new ways to

access the end user contacting operators already co-installed in these areas or investing themselves in the OLL.

Without prejudice to the above, it is important to take into account what the removal of the obligation of access would mean to the market, with the premise that Grupo PT would not continue to provide the service of supplying broadband access and another operator with infrastructure at a higher level of the value chain does move to provide such services.

Table 35 - Distribution of broadband access in "areas C" at the end of 2007

Access Type	2007	
	Number	%
OLL Accesses	238,824	27%
Cable Accesses	411,677	47%
"Rede ADSL PT" accesses (Grupo PT)	211,163	24%
"Rede ADSL PT" accesses (OLL operators)	12,837	1%
"Rede ADSL PT" accesses (other operators)	5,309	1%
TOTAL	879,810	100%

It can be seen that in the geographic market in question, only 2% of OSP broadband accesses are supported through the "Rede ADSL PT" offer, representing only around 18 thousand accesses. Of this number, it is considered that almost 13 thousand could be easily transferred to the OLL, since they belong to operators with investments already made in terms of this offer. There are also around 500 accesses belonging to an operator with investments made in cable distribution networks.

It can therefore be concluded that, given the small number of accesses that can actually be affected, the impact (if any) of the removal of the obligation in question will always be minimal (although it may be relevant for each of the affected accesses) and not significant for the market.

As already mentioned, where the obligation to grant access is removed, in order to ensure that investments made by alternative operators with respect to the "Rede ADSL PT" are employed, there must be a guarantee that they are informed of any cessation by Grupo PT of the broadband access wholesale offer with an appropriate period of notice.

It is considered appropriate to establish a transition period of one year, beginning on the date of the publication of the final decision on the analysis in this document, during which period PTC shall continue to provide access to the services in question and may not enact changes in supply which constitute a tightening or deterioration of conditions of access currently provided to beneficiaries of the "Rede ADSL PT" wholesale offer¹⁷⁸.

In a way that is consistent with existing obligations and which will be maintained in the remaining geographical areas associated with the supply of wholesale broadband access, the position is taken, even following the period of one year, that PTC can only withdraw access to the service in question or enact more restrictive conditions of access in a given geographical

¹⁷⁸ Note that, for example, an increase in the price of services is a deterioration of conditions of access.

area after providing notice of 2 months prior to the date on which it intends such a decision to take effect.

Following this period the conditions of access and provision of services (if any) will be established by means of commercial negotiation between interested operators.

The periods established allow alternative operators to negotiate the provision of the same service from other companies that have infrastructure at a higher level of the vertical value chain, to negotiate with PTC in order to maintain the service on mutually favourable terms, given the degree of (alternative) negotiating power that they possess or even opt to carry out investments in the OLL.

A similar approach was also followed by OFCOM which decided that the notification of termination of the provision of the supply of wholesale broadband access had to be given 12 months in advance, during which period the access conditions with respect to access already provided should be maintained.

It is likewise considered that this would be an appropriate period so that any migration of customers to other wholesale offers or even other operators may occur without negative impact on end users. In this regard, ICP-ANACOM will carry out detailed supervision of how such possible migration may occur and intervene without delay, in the event that it identifies any risk of loss or inconvenience to users or risk to the development of healthy competition.

ICP-ANACOM considered the possibility of the transition period of one year applying only to accesses that are currently provided as part of the "Rede ADSL PT" wholesale offer, but decided that this transition shall also apply to new accesses that will be provided in the meantime, during the specified period. This signifies that during this one year period, beneficiaries of the "Rede ADSL PT" wholesale offer can gain customers with the knowledge, however, that when this period expires (commencing from the publication date of the final decision), access may cease. For this purpose, as mentioned previously, there are alternative investments by operators which, where possible, should be preserved and safeguarded by ICP-ANACOM. These investments are also related to the prospects for providing new access. It was considered that the period of one year would be sufficient, considering the specifics of this situation, for operators to incorporate the new regulatory framework into their commercial policy and business development strategy, which should also take the future into account and may include a continuation in the supply of new retail accesses.

8.4.1.1. Conclusions

Taking into account the analysis carried out throughout the document and the arguments presented in this section, this Authority concludes that there are no relevant negative implications for the defined market resulting from the removal of the obligation to grant access to and use of specific network resources, given, in particular, the number of accesses involved and existing alternatives.

It was identified in particular that PTC has some incentive to maintain the supply of these services according to reasonable and competitive conditions. This incentive stems from the

possibility of other OLL-based operators having the option of developing competing wholesale offers, leading to a reduction in the wholesale revenue of Grupo PT. Moreover, some of the beneficiaries of the OLL have informed ICP-ANACOM that they have wholesale offers albeit still incomplete or even without any customers, but that, depending on developments in the market, they are likely to consider the development of alternative wholesale offers. Therefore, the alternative operators supported through the "Rede ADSL PT" wholesale offer may also negotiate the supply of wholesale broadband access with these operators. In addition, it was found that the possibility remains that alternative operators will make investments in the OLL, opting to scale the "investment ladder".

Another relevant issue duly considered by ICP-ANACOM is the fact that it was concluded that, given the number of accesses that can actually be affected, the impact (if any) of the removal of the obligation in question will be limited and not significant for the market.

With respect to the manner in which the operators who currently use the "Rede ADSL PT" wholesale offer in these areas should be notified and the amount of prior notice required, it was considered sufficient and appropriate to establish a transition period of one year, during which the services currently provided shall continue to be provided under conditions that are not less favourable. It is also set out that, even after the transition period of one year has elapsed, in the event that PTC intends to withdraw access to the service in question or enact less favourable conditions of access, it is required to give notice of 2 months prior to the date on which such decision is to be effected.

8.4.2. Non-discrimination

The fact of the removal of the obligation to grant access leads, *a priori*, to the existence of an obligation of non-discrimination losing significant importance. Assuming that there are operators who are able to provide a wholesale broadband access offer through the OLL (with the economies of scale and efficiency of the Grupo PT network) or that there is the possibility of operators investing directly in the OLL, it would not be profitable for PTC to engage in discrimination with respect to the provision of services. As already mentioned, this is due to the fact that existing competition and the competition that is expected to develop at wholesale level will prevent it from obtaining a position of advantage in the retail market due to the actions in markets located higher up in the vertical value chain.

That is to say, in this situation, the discriminatory use of or retention of information, discrimination in terms of quality, delaying tactics and undue demands, besides any discrimination in terms of pricing, does not directly lead to an advantageous situation in the retail market for company that engages in such actions. This is due to the fact that it is considered that the operators are able to serve the end user through other means, whereby their activity is not undermined. It should be noted, however, that the occurrence of certain possible discriminatory actions could give grounds for *ex-post* intervention by ICP-ANACOM and / or AdC.

However, there needs to be, as with the obligation of access, a transition period during which the obligation of non-discrimination shall continue to apply. It is considered that this transition

period should be the same for all obligations. Therefore, a transition period of 12 months following the final decision of ICP-ANACOM shall also apply in this case, only after which time the obligation of non-discrimination shall cease to apply. This signifies that during said period, the company with SMP is required to offer the remaining companies that offer broadband access networks and services the same conditions as those offered internally for similar services. It also signifies, more specifically, that the prices and levels of performance with respect to quality of service, such as periods for service commencement and repair of faults, available to the competing companies must be identical to those available with respect to the similar activities of the dominant company, with basis on practices not only in the wholesale market in question, but also in the associated retail market.

Likewise, during this transition period, the company with SMP will continue to give prior notice of no less than 30 days to interested companies which offer broadband networks and access services and to ICP-ANACOM in the event that said SMP company enacts alterations, on its initiative, to the conditions of the wholesale offer, thereby allowing these companies to adapt their retail offers or publicise them in an appropriate manner. This period of advance notice is extended to 2 months if the amendment has an impact on offers of OSPs, including through the introduction of new access classes, changes to the speeds of existing access classes, changes to the pricing of offers, changes to the contention rate or other technical characteristics and changes involving the migration of customers or discontinuity of offers¹⁷⁹.

It is noted however that in the transition period established for this market, there is no control of the competitive conditions of the retail offers launched by Grupo PT in this market. Therefore, from the publication date of the final decision, the companies of Grupo PT operating in the retail market of broadband Internet access in "areas C" are free to define the conditions of their retail offers in "areas C" without any being subject to ex-ante control of the existing competitive conditions.

It is considered that there should be no longer ex-ante control of the competitive conditions of the companies of Grupo PT because:

- (a) Firstly, as noted above, since it has been concluded that the market is competitive, from the outset, no obligations should be imposed in this context that prevent companies from competing efficiently and freely, except those which result from the need to ensure provision to alternative operators over a transitional period, so that such operators can find reasonable alternatives;
- (b) as was seen in the analysis of the retail market associated with these areas, there is significant competition, mainly from offers of alternative operators based on the OLL (e.g. Sonaecom) and cable distribution networks (e.g. ZON Multimédia), whereby it is important, even insofar as to increase existing competition in the market and provide a wider range of appealing offers to end users, that the offers of Grupo PT are now given room to compete with complete flexibility in these areas;

¹⁷⁹ It is noted that, as mentioned, these alterations to the wholesale offer may never lead to a regression or worsening of the conditions of access currently defined in the "Rede ADSL PT" wholesale offer.

- (c) In the event that, for some period of time, there are retail offers from Grupo PT in the market which do not respect the minimum competitive conditions currently taken into consideration by this Authority, this is deemed a very specific situation and for a period of time that will not have structural implications for the market over the long term, since the alternative operators are able to use other alternatives to reach the end user and there will be no incentive for Grupo PT on its own to maintain this position over a relevant time period.

8.4.2.1. Conclusions

Taking into account the analysis carried out throughout the document and the arguments presented in this section, this Authority concludes that the removal of the obligation of non-discrimination is appropriate.

It is concluded in particular that, in this situation, the discriminatory use of or retention of information, discrimination in terms of quality, delaying tactics and undue demands, besides possible discrimination in terms of pricing, does not directly lead to an advantageous situation in the retail market for company that engages in such actions. It is considered that the operators are able to serve the end user through other means, whereby their activity is not undermined over the long term and that such actions would lead to a loss of revenue for the operator which engages in them.

It is likewise concluded that, as in the situation of the obligation of access, there should be a transition period of 12 months during which the obligation of non-discrimination shall continue to apply. Accordingly, during said period, PTC shall continue to guarantee the same real conditions of access to the services as it provides to itself (or its affiliates) for similar services. During this transition period the minimum periods required between notification of changes in the wholesale offer and the date on which these changes take effect (1 month or 2 months, depending on the situation) shall continue to apply.

It is further concluded that from the publication date of the final decision on this analysis, the retail offers of broadband access of the companies of Grupo PT cease to be subject, in "areas C", to any type of ex-ante control with respect to their competitive conditions.

8.4.3. Transparency

ICP-ANACOM has already stated in this document that transparency is a natural complement to non-discrimination, enabling the detection of any discriminatory behaviour. From the moment that it has been shown that it is appropriate to remove the obligation of non-discrimination it is somewhat clear that the obligation of transparency should also be removed.

The removal of the requirement of transparency implies that PTC is no longer obliged to release and publish a reference offer. Likewise, the provision of information that is currently provided, imposed under the previous analysis of the market for the supply of wholesale broadband access with respect to the number of accesses and the information provided on

indicators of the quality of services provided also ceases to be an obligation (except with regard to the need for statistical information for the purposes of monitoring of the market).

It should be noted, however, that given the transition period during which the obligations for access and non-discrimination remain in force, it is also entirely appropriate that this period should apply in the case of the obligation of transparency. Therefore, for 12 months following the publication of the final decision, PTC shall continue to publish and make available, according to the same conditions, a reference offer in addition to the information which is already provided to ICP-ANACOM and the market.

8.4.3.1. Conclusions

It is likewise concluded that the removal of the obligation of transparency is a correct and appropriate measure for the market. The transition period of 12 months established for the obligations of granting access to and use of specific network resources shall also be applied to the obligation of transparency.

8.4.4. Price control and cost accounting

ICP-ANACOM concludes that in the market covered by "areas C" there is effective competition in the provision of wholesale services, whereby no operator is able to act independently from other agents of the market. It is therefore expected that there is no incentive for any operator to set prices for wholesale deals at a level significantly higher than the costs incurred in providing the services. In such an event, as has been explained, the alternative operators would seek alternative ways to serve the end user, whereby the operator's decision would be rendered unprofitable. It is therefore appropriate to remove the obligation of price control and cost accounting, which removal constitutes a correct measure in view of the reality of the market.

In this regard, it is also noted that it has been concluded that, as of the approval date of the final decision, there shall not be any ex-ante control of the competitive conditions of the retail offers launched by Grupo PT in this market. Ex-ante assessment will then cease with respect to the possible squeeze of the margins of the alternative operators, taking into account the access conditions at wholesale level and the conditions of retail offers. It is noted that in the decision of 2005 ICP-ANACOM argued "*when the OOLs can access points closer to the end user, developing and maximizing the use of their network, with distinct productive factors, the practical application of a "retail-minus" rule may no longer be necessary*". Accordingly, the decision now taken is in line with the arguments put forward on that occasion. As already indicated in this analysis, the obligation of ex-ante control of the competitive conditions of the retail offers launched by PT Group is removed without transition period, namely from the publication date of the final decision on this analysis of markets.

The same may not occur with respect to the remaining specifications of the obligation of price control and cost accounting, including the need to ensure coherence of pricing between different classes of local access, between different options of the "Rede ADSL PT" wholesale

offer or even between the access price of the "Rede ADSL PT" offer and the price of shared access. In these situations, the indicated transition period of 12 months shall apply. At the end of this period PTC shall no longer be bound to comply with the specifications of the obligation of price control and cost accounting since such will not be necessary to ensure that there is no discrimination once the transition period associated with this last requirement terminates.

8.4.4.1. Conclusions

ICP-ANACOM concludes that the removal of the specifications relating to the obligation of price control and cost accounting is appropriate and does not have negative implications for the market. This Authority sets out that the transition period of 12 months should also be applied with respect to this obligation.

Regarding the existence of a transition period during which compliance with these specifications shall be ensured, two situations are identified:

- (a) As already mentioned, it is concluded that in "areas C" the obligation of ex-ante control of the competitive conditions of the retail offers of broadband access launched by PT Group shall be removed without the application of any transition period;
- (b) The remaining specifications of the obligation, in particular, the coherence of prices between the various classes of local access, between different options of the "Rede ADSL PT" wholesale offer or even between the access price of the "Rede ADSL PT" offer and the price of shared access shall remain in force during the transition period of 12 months.

8.4.5. Separation of accounts

The obligation of accounting separation was also related to the need to ensure the enforcement of the obligation of non-discrimination and the obligation of price control and cost accounting, including controlling the existence of situations of cross-subsidisation. With the removal of these obligations having already been judged appropriate, it is thereby evident that the removal of the obligation of accounting separation, in view of the conditions prevailing in the market, is appropriate.

The existence of a transition period of 12 months, during which some of the current obligations in the market shall remain in force, including the obligations of non-discrimination and transparency, signifies that, during said transition period, the obligation of accounting separation should continue to apply.

It is noted the obligation of accounting separation is removed only with respect to the market under analysis. Other obligations, imposed by ICP-ANACOM in other areas, notably with respect to cost auditing, are clearly not covered by the present decision.

8.4.5.1. Conclusions

The Authority concludes that the removal of the obligation of accounting separation is appropriate for the market under consideration. However, given the transition period, during which some of the current obligations in the market shall remain in force, said period shall continue to apply to the obligation in question.

8.4.6. Financial Reporting

Considering the removal of the obligations of transparency, non-discrimination, accounting separation and cost accounting and the lack of any company with SMP¹⁸⁰ in the market, it is also clear that it is appropriate to remove the obligation of financial reporting.

The transition period of 12 months during which the obligations continue to apply shall be considered for the obligation of financial reporting.

It is noted that, also in this situation, the obligation of financial reporting is removed only with respect to obligations associated with the market under analysis. Other obligations of this type, imposed by ICP-ANACOM in other respects, are obviously not covered by the present decision.

8.4.6.1. Conclusions

It is concluded that it is appropriate to remove the obligation of financial reporting; however the transition period of 12 months shall apply to this obligation.

8.5. Conclusion

For the purposes of ex-ante regulation and in accordance with the principles of competition law, the following wholesale market has been identified:

5-C) market for the supply of wholesale broadband access in "areas C"

Having analysed this market and taking the utmost account of the Guidelines, ICP-ANACOM concludes that no company has SMP in the relevant market and, therefore, that all obligations imposed on Grupo PT shall be removed pursuant to the terms and conditions detailed in the sections above.

Error! Not a valid bookmark self-reference. sets out a comparison between the obligations imposed in the analysis conducted in 2005 and obligations that are now removed.

¹⁸⁰ In accordance with paragraph 3 of article 71 of law no 5 / 2004, the company with SMP shall provide ICP-ANACOM with their accounting records including data on revenue from third parties.

Table 36 – Comparison of obligations imposed in 2005 with the obligations to be removed according to the present analysis of the market - supply of wholesale broadband access "areas C"

Market for the supply of wholesale broadband access in "areas C"	Decision of 30 March 2005	Market analysis (Draft Decision of June 2008)	
Scope of the defined geographic market	National	Sub-national	
Obligations	-	Areas C	Areas NC
Access to and use of specific network resources	✓	×	✓
▪ Access to the PSTN at different points	✓	×	✓
▪ Negotiate in good faith with companies requesting access	✓	×	✓
▪ Not withdraw access already granted to determined resources	✓	×	✓
Transparency in the publication of information, including reference offers	✓	×	✓
▪ Publication of the broadband access reference offer ("Rede ADSL PT"), with clear identification of amendments enacted between versions, with inclusion of SLAs and compensation for non-compliance	✓	×	✓
Non-discrimination in the provision of access and interconnection and in the provision of respective information	✓	×	✓
▪ Do not unduly discriminate in providing access to network	✓	×	✓
▪ 30 days notice of alterations to wholesale offers -extended to a period of 2 months in the event of significant alterations to wholesale offers	✓	×	✓
▪ Launch of retail offers bound by the existence equivalent wholesale offers in "Rede ADSL PT"	✓	×	✓
▪ Submit information with respect to deadlines maximum, average and minimum periods for the delivery and repair of faults and the degree of availability (broken down by type of installation and operator)	✓	×	✓
▪ Ex-ante control of competitive conditions	✓ (1)	× (a)	× (a)
Separation of accounts for specific activities related to access and / or interconnection	✓	×	✓
▪ Cost accounting system and accounting separation	✓	×	✓
Price control and cost accounting	✓	×	✓
▪ Setting coherent prices, especially those of the OLL	✓	×	✓
▪ Control of prices ("retail-minus")	✓	× (a)	✓
Financial reporting	✓	×	✓
▪ Provision of accounting records (AAS) including data on revenue from third parties	✓	×	✓
<p>✓ Present obligation.</p> <p>× Obligation absent following the 1 year transition period during which the PT Group may not apply less favourable conditions of supply and may only withdraw access or worsen conditions of supply with 2 months prior notice.</p> <p>× (a) Obligation absent with immediate effect</p> <p>(1) Implemented by the determination of 03.10.2007.</p>			

9. ASSESSMENT OF THE NEED TO REGULATE RETAIL MARKETS IN VIEW OF THE OBLIGATIONS IMPOSED ON WHOLESALE MARKETS

In the retail broadband access market in the "areas C" it was demonstrated that with the existing obligations, there is no dominance. Therefore, since the obligations relating to the market for the supply of wholesale network infrastructure access (physical) at a fixed location remain in force in these areas, with particular relevance to the obligations of access to conduits and local loop unbundling, it is the position of ICP-ANACOM that this wholesale regulation will be sufficient to ensure competition in the retail markets.

In the retail broadband access market in areas "NC", all obligations in respect of the "Rede ADSL PT" shall be maintained, while the possibility remains that OSPs may invest in the OLL. However, as shown in the present analysis, with respect to the "Rede ADSL PT" offer PTC has maintained a market share in excess of 90%. That is to say, even with its obligations in the wholesale market, it is essential to maintain the *ex-ante* assessment of any margin squeeze, particularly through the imposition of the "retail-minus" rule.

FINAL NOTE:

ICP-ANACOM considers that the obligations set out in the present document may require more detail, specification or clarification with respect to their implementation, which shall be provided in separate documents.

ANNEX 1 – NOTE ON METHODOLOGY

The present annex summarises the premises used in the estimation of market shares the explanation and justification of which are included in the analysis.

1. Available information

ICP-ANACOM had access to the following relevant information for the purposes of estimating market share:

- Information on ADSL broadband accesses, with the following level of disaggregation:
 - o Quarterly wholesale, disaggregated by operator, by MDF and by class of service (with respect to the “Rede ADSL PT” wholesale offer);
 - o Quarterly wholesale, disaggregated by operator and by MDF (with respect to the ORALL);
 - o Six months retail, disaggregated by operator, by class of speed and by NUTS II;
 - o Quarterly retail on the number of IP TV customers of PTC (presentation of results).
- Information on cable modem broadband accesses (retail) disaggregated by operator.

2. Need for compatibility with respect to the various available data

The detail of the analysis in geographic terms requires that determined presumptions are made for the purposes of estimating market share, particularly in order to ensure compatibility between the various available data.

Therefore, and taking into account that it was decided to define the MDF/AP as the relevant geographic unit, in the estimation of market share the options and premises detailed below were used.

3. Assumed options and premises

Base data

In the estimation of market shares, in the context of both the wholesale and retail markets:

- The wholesale data was used with reference to ADSL accesses, with the distribution of broadband accesses with respect to the MEO service of PTC¹⁸¹ by MDF, it is amused that these accesses, in 2007, were associated with only one exchange with co-installed operators (principal MDFs with ADSL2+ technology) and taking into account the proportion of broadband accesses in these MDFs;
- The data referring to broadband access supported through cable modem is distributed in the first place, by municipality, depending on the number of customers of the cable television service (supported over cable distribution networks) of each operator, and secondly, according to the MDFs existing in the municipality depending on the number of FTS accesses of each MDF¹⁸².

It is assumed that the coverage area of the attendance points and the area covered by municipality exactly coincide.

Retail information

Besides the base scenario referred to in the previous sector, valid in a scenario where wholesale regulation is maintained, assessment is made of the retail market shares taking into account the absence of regulation, assuming that:

- **Scenario 1:** The accesses supported through the “Rede ADSL PT” and OLL wholesale offers are counted as broadband accesses of Grupo PT;
- **Scenario 2:** The accesses supported through the “Rede ADSL PT” and OLL wholesale offers will be attributed to Grupo PT, in the first place, depending on the number of customers who only have FTS¹⁸³, while the remaining accesses¹⁸⁴ are distributed among Grupo PT and the cable distribution network operators depending on the weight of the “own” accesses of each operator.

¹⁸¹ It is noted that these broadband accesses are not included in the information with respect to the wholesale offers.

¹⁸² To this purpose it is noted that in cabled municipalities, the percentage of cabled households is around 90%, in other words, the cabled area is not concentrated in a reduced area, whereby it is reasonable to choose to distribute the broadband accesses supported through cable modem over all the MDFs included in the municipality. Another option would be distribute these accesses over only the principal MDF(s) of the municipality, which would result in an additional premise that is complicated to quantify.

¹⁸³ That is to say, it assumed that the customers who do not have cable television and have contracted the FTS will support broadband services over the local loops of copper pairs.

¹⁸⁴ Of customers who have FTS and cable television.

Wholesale information

Market for the wholesale supply of broadband access

In estimating the market shares in the market for the wholesale supply of broadband access and taking into account the base data referred to in section 3.1, the concept of internal supply was used, whereby it was considered that:

- The “Rede ADSL PT” and MEO accesses contracted by the companies of PTC are counted as wholesale accesses of Grupo PT;
- The broadband accesses supported over the networks of each cable distribution network operator are counted as wholesale accesses of these operators;
- The “Rede ADSL PT” accesses provided by PTC to third parties are counted as wholesale accesses of Grupo PT;
- The OLL accesses provided by PTC to third parties are counted as wholesale accesses of each one of these (third) operators.

Market for the wholesale (physical) network infrastructure access at a fixed location

In estimating the market shares in the market for the market for the wholesale (physical) network infrastructure access at a fixed location, use was also made of the concept of internal supply, with consideration given, for the purposes of estimating market share, to all active accesses at a fixed location, irrespective of the support infrastructure, allowing the use of broadband accesses. Accordingly account was taken of the following:

- All active accesses of the cable distribution networks, irrespective of the type of service contracted¹⁸⁵, are counted as wholesale accesses belonging to each one of the cable distribution network operators¹⁸⁶;
- All accesses in use with reference to the PTC network are counted as the wholesale accesses of Grupo PT (including accesses unbundled to third parties)¹⁸⁷;
- Any other active accesses, supported over other infrastructure, such as for example, FWA, are counted as wholesale accesses of the operators possessing such accesses.

Each basic or primary ISDN access was counted as a single access.

¹⁸⁵ Except for DTH accesses which do not support broadband access services.

¹⁸⁶ Quarterly information, disaggregated by operator and municipality.

¹⁸⁷ Quarterly information, disaggregated by MDF.

ANNEX 2 – DETAILED INFORMATION BY PRINCIPAL ATTENDANCE POINT – MDF

The following table presents detailed information per MDF for the end of 2007, with reference to:

- The number of co-installed operators (for all purposes, only alternative operators are considered while Oni, Tele2 and Sonaecom are considered as a single operator);
- The number of cable distribution network operators in the municipality encompassing the MDF; and
- The market share of Grupo PT, in each one of the MDFs, taking into account the definition of the retail broadband access product market.

The identification of each MDF is considered confidential, whereby they are given in descending order according to the number of co-installed operators and the number of cable distribution network operators in the municipality encompassing the MDF.

GR	MDF	MUNICIPALITIES	# CO-INSTALLED OPERATORS	# CABLE OPERATORS	CABLE CONVERGENCE	MARKET SHARE GRUPO PT
01	MDF1	LISBOA	3	2	119%	27%
01	MDF2	LISBOA	3	2	119%	27%
01	MDF3	LISBOA	3	2	119%	28%
01	MDF4	LISBOA	3	2	119%	27%
01	MDF5	LISBOA	3	2	119%	28%
01	MDF6	OEIRAS	3	2	103%	20%
01	MDF7	LISBOA	3	2	119%	30%
01	MDF8	LISBOA	3	2	119%	42%
01	MDF9	LISBOA	3	2	119%	32%
02	MDF10	PORTO	3	2	99%	28%
02	MDF11	MAIA	3	2	100%	23%
01	MDF12	LOURES	2	3	95%	21%
01	MDF13	LOURES	2	3	95%	20%
01	MDF14	LOURES	2	3	95%	24%
01	MDF15	LOURES	2	3	95%	19%
01	MDF16	LOURES	2	3	95%	21%
01	MDF17	LOURES	2	3	95%	22%
02	MDF18	VILA NOVA DE GAIA	2	3	92%	19%
02	MDF19	VILA NOVA DE GAIA	2	3	92%	18%
02	MDF20	VILA NOVA DE GAIA	2	3	92%	17%
39	MDF21	COIMBRA	2	3	67%	32%
39	MDF22	COIMBRA	2	3	67%	32%
39	MDF23	COIMBRA	2	3	67%	33%
01	MDF24	ALCOCHETE	2	2	84%	30%
01	MDF25	OEIRAS	2	2	103%	22%
01	MDF26	ALMADA	2	2	103%	16%



01	MDF27	MOITA	2	2	115%	14%
01	MDF28	BARREIRO	2	2	91%	13%
01	MDF29	LISBOA	2	2	119%	24%
01	MDF30	LISBOA	2	2	119%	24%
01	MDF31	ALMADA	2	2	103%	15%
01	MDF32	OEIRAS	2	2	103%	21%
01	MDF33	LISBOA	2	2	119%	27%
01	MDF34	ALMADA	2	2	103%	23%
01	MDF35	LISBOA	2	2	119%	20%
01	MDF36	SEIXAL	2	2	96%	16%
01	MDF37	SEIXAL	2	2	96%	17%
01	MDF38	LISBOA	2	2	119%	27%
01	MDF39	ALMADA	2	2	103%	16%
01	MDF40	SEIXAL	2	2	96%	27%
01	MDF41	LISBOA	2	2	119%	21%
01	MDF42	LISBOA	2	2	119%	25%
01	MDF43	OEIRAS	2	2	103%	22%
01	MDF44	MOITA	2	2	115%	18%
01	MDF45	MONTIJO	2	2	76%	21%
01	MDF46	OEIRAS	2	2	103%	22%
01	MDF47	LISBOA	2	2	119%	22%
01	MDF48	PALMELA	2	2	80%	19%
01	MDF49	LISBOA	2	2	119%	32%
01	MDF50	PALMELA	2	2	80%	18%
01	MDF51	LISBOA	2	2	119%	31%
01	MDF52	LISBOA	2	2	119%	27%
01	MDF53	OEIRAS	2	2	103%	25%
01	MDF54	ALMADA	2	2	103%	18%
01	MDF55	OEIRAS	2	2	103%	35%
01	MDF56	SEIXAL	2	2	96%	14%
01	MDF57	BARREIRO	2	2	91%	12%
02	MDF58	PORTO	2	2	99%	34%
02	MDF59	PORTO	2	2	99%	20%
02	MDF60	PORTO	2	2	99%	20%
02	MDF61	MAIA	2	2	100%	18%
02	MDF62	ESPINHO	2	2	104%	19%
02	MDF63	PORTO	2	2	99%	24%
02	MDF64	PORTO	2	2	99%	39%
02	MDF65	PORTO	2	2	99%	22%
02	MDF66	MATOSINHOS	2	2	110%	20%
02	MDF67	MATOSINHOS	2	2	110%	20%
02	MDF68	PORTO	2	2	99%	27%
02	MDF69	GONDOMAR	2	2	77%	16%
02	MDF70	MATOSINHOS	2	2	110%	18%
02	MDF71	MATOSINHOS	2	2	110%	16%
32	MDF72	VISEU	2	2	51%	37%
34	MDF73	AVEIRO	2	2	84%	26%
41	MDF74	ABRANTES	2	2	27%	46%



43	MDF75	SANTARÉM	2	2	38%	46%
44	MDF76	LEIRIA	2	2	38%	46%
52	MDF77	VILA NOVA DE FAMALICÃO	2	2	37%	40%
53	MDF78	BRAGA	2	2	72%	25%
56	MDF79	OVAR	2	2	83%	23%
56	MDF80	OLIVEIRA DE AZEMÉIS	2	2	66%	38%
61	MDF81	TORRES VEDRAS	2	2	19%	49%
62	MDF82	CALDAS DA RAINHA	2	2	67%	32%
65	MDF83	SETÚBAL	2	2	98%	21%
65	MDF84	SETÚBAL	2	2	98%	24%
66	MDF85	ÉVORA	2	2	54%	38%
82	MDF86	LAGOS	2	2	57%	42%
82	MDF87	PORTIMÃO	2	2	88%	33%
01	MDF88	CASCAIS	2	1	120%	32%
01	MDF89	SINTRA	2	1	95%	20%
01	MDF90	SINTRA	2	1	95%	27%
01	MDF91	CASCAIS	2	1	120%	30%
01	MDF92	AMADORA	2	1	106%	22%
01	MDF93	VILA FRANCA DE XIRA	2	1	101%	28%
01	MDF94	VILA FRANCA DE XIRA	2	1	101%	26%
01	MDF95	AMADORA	2	1	106%	20%
01	MDF96	SINTRA	2	1	95%	20%
01	MDF97	ODIVELAS	2	1	129%	24%
01	MDF98	CASCAIS	2	1	120%	24%
01	MDF99	CASCAIS	2	1	120%	27%
01	MDF100	AMADORA	2	1	106%	18%
01	MDF101	CASCAIS	2	1	120%	29%
01	MDF102	SINTRA	2	1	95%	21%
01	MDF103	SINTRA	2	1	95%	20%
01	MDF104	ODIVELAS	2	1	129%	20%
01	MDF105	CASCAIS	2	1	120%	22%
01	MDF106	ODIVELAS	2	1	129%	27%
01	MDF107	VILA FRANCA DE XIRA	2	1	101%	24%
01	MDF108	ODIVELAS	2	1	129%	20%
01	MDF109	SINTRA	2	1	95%	18%
01	MDF110	SESIMBRA	2	1	84%	18%
01	MDF111	AMADORA	2	1	106%	20%
01	MDF112	SINTRA	2	1	95%	20%
01	MDF113	SINTRA	2	1	95%	22%
01	MDF114	SINTRA	2	1	95%	35%
01	MDF115	AMADORA	2	1	106%	21%
01	MDF116	VILA FRANCA DE XIRA	2	1	101%	42%
02	MDF117	VALONGO	2	1	117%	25%
31	MDF118	MEALHADA	2	1	15%	43%
33	MDF119	FIGUEIRA DA FOZ	2	1	53%	31%
34	MDF120	ÁGUEDA	2	1	32%	38%
36	MDF121	POMBAL	2	1	15%	47%
39	MDF122	CONDEIXA-A-NOVA	2	1	23%	44%



45	MDF123	PORTALEGRE	2	1	45%	39%
49	MDF124	ENTRONCAMENTO	2	1	97%	31%
49	MDF125	TORRES NOVAS	2	1	36%	47%
52	MDF126	PÓVOA DE VARZIM	2	1	67%	55%
52	MDF127	VILA DO CONDE	2	1	54%	61%
53	MDF128	GUIMARÃES	2	1	43%	32%
55	MDF129	PENAFIEL	2	1	12%	44%
58	MDF130	VIANA DO CASTELO	2	1	42%	43%
59	MDF131	VILA REAL	2	1	39%	56%
62	MDF132	ALCOBAÇA	2	1	44%	40%
63	MDF133	ALENQUER	2	1	41%	46%
63	MDF134	VILA FRANCA DE XIRA	2	1	101%	29%
68	MDF135	ELVAS	2	1	36%	66%
68	MDF136	ESTREMOZ	2	1	49%	48%
71	MDF137	GUARDA	2	1	39%	38%
72	MDF138	CASTELO BRANCO	2	1	49%	32%
75	MDF139	COVILHÃ	2	1	50%	43%
81	MDF140	TAVIRA	2	1	22%	56%
84	MDF141	BEJA	2	1	51%	37%
89	MDF142	ALBUFEIRA	2	1	34%	69%
89	MDF143	FARO	2	1	79%	37%
89	MDF144	OLHÃO	2	1	67%	58%
51	MDF145	VALENÇA	2	0	0%	46%
01	MDF146	LOURES	1	3	95%	38%
02	MDF147	VILA NOVA DE GAIA	1	3	92%	19%
02	MDF148	VILA NOVA DE GAIA	1	3	92%	17%
02	MDF149	VILA NOVA DE GAIA	1	3	92%	29%
39	MDF150	COIMBRA	1	3	67%	44%
02	MDF151	PORTO	1	2	99%	40%
02	MDF152	PORTO	1	2	99%	37%
02	MDF153	GONDOMAR	1	2	77%	17%
02	MDF154	SANTA MARIA DA FEIRA	1	2	80%	21%
02	MDF155	GONDOMAR	1	2	77%	35%
02	MDF156	SANTA MARIA DA FEIRA	1	2	80%	36%
32	MDF157	UISEU	1	2	51%	50%
34	MDF158	AVEIRO	1	2	84%	32%
34	MDF159	ÍLHAVO	1	2	60%	31%
34	MDF160	AVEIRO	1	2	84%	30%
44	MDF161	LEIRIA	1	2	38%	72%
44	MDF162	LEIRIA	1	2	38%	67%
53	MDF163	BRAGA	1	2	72%	28%
56	MDF164	OVAR	1	2	83%	20%
56	MDF165	SÃO JOÃO DA MADEIRA	1	2	121%	24%
56	MDF166	SANTA MARIA DA FEIRA	1	2	80%	33%
65	MDF167	SETÚBAL	1	2	98%	32%
65	MDF168	SETÚBAL	1	2	98%	24%
65	MDF169	SETÚBAL	1	2	98%	34%
66	MDF170	ÉVORA	1	2	54%	48%



01	MDF171	CASCAIS	1	1	120%	45%
01	MDF172	SINTRA	1	1	95%	38%
01	MDF173	MAFRA	1	1	11%	85%
01	MDF174	CASCAIS	1	1	120%	52%
01	MDF175	SINTRA	1	1	95%	39%
01	MDF176	SINTRA	1	1	95%	39%
02	MDF177	VALONGO	1	1	117%	20%
02	MDF178	VALONGO	1	1	117%	25%
02	MDF179	TROFA	1	1	17%	84%
02	MDF180	PAREDES	1	1	28%	51%
02	MDF181	VALONGO	1	1	117%	26%
31	MDF182	ANADIA	1	1	29%	58%
32	MDF183	MANGUALDE	1	1	27%	41%
34	MDF184	ALBERGARIA-A-VELHA	1	1	24%	65%
34	MDF185	ESTARREJA	1	1	48%	36%
38	MDF186	SEIA	1	1	30%	55%
43	MDF187	CARTAXO	1	1	40%	77%
44	MDF188	MARINHA GRANDE	1	1	68%	38%
49	MDF189	TOMAR	1	1	28%	45%
52	MDF190	PÓVOA DE VARZIM	1	1	67%	36%
52	MDF191	SANTO TIRSO	1	1	45%	36%
52	MDF192	TROFA	1	1	17%	37%
53	MDF193	BARCELOS	1	1	19%	32%
53	MDF194	VIZELA	1	1	35%	82%
53	MDF195	FAFE	1	1	23%	45%
54	MDF196	PESO DA RÉGUA	1	1	22%	44%
55	MDF197	AMARANTE	1	1	16%	45%
55	MDF198	FELGUEIRAS	1	1	17%	52%
55	MDF199	PAÇOS DE FERREIRA	1	1	31%	57%
55	MDF200	PAREDES	1	1	28%	43%
58	MDF201	VIANA DO CASTELO	1	1	42%	71%
61	MDF202	MAFRA	1	1	11%	88%
62	MDF203	NAZARÉ	1	1	98%	22%
65	MDF204	VENDAS NOVAS	1	1	86%	39%
69	MDF205	GRÂNDOLA	1	1	35%	61%
71	MDF206	GUARDA	1	1	39%	51%
73	MDF207	BRAGANÇA	1	1	19%	90%
76	MDF208	CHAVES	1	1	21%	93%
89	MDF209	LOULÉ	1	1	60%	72%
89	MDF210	FARO	1	1	79%	62%
89	MDF211	LOULÉ	1	1	60%	54%
91	MDF212	FUNCHAL	1	1	89%	28%
35	MDF213	ARGANIL	1	0	0%	79%
39	MDF214	SOURE	1	0	0%	86%
54	MDF215	LAMEGO	1	0	0%	91%
55	MDF216	MARCO DE CANAVESES	1	0	0%	52%
58	MDF217	PONTE DE LIMA	1	0	0%	88%
65	MDF218	ALCÁCER DO SAL	1	0	0%	96%



78	MDF219	MIRANDELA	1	0	0%	91%
86	MDF220	CASTRO VERDE	1	0	0%	89%
01	MDF221	LOURES	0	3	95%	31%
01	MDF222	LOURES	0	3	95%	32%
01	MDF223	LOURES	0	3	95%	44%
01	MDF224	LOURES	0	3	95%	42%
01	MDF225	LOURES	0	3	95%	27%
01	MDF226	LOURES	0	3	95%	43%
01	MDF227	LOURES	0	3	95%	44%
01	MDF228	LOURES	0	3	95%	44%
01	MDF229	LOURES	0	3	95%	23%
02	MDF230	VILA NOVA DE GAIA	0	3	92%	29%
02	MDF231	VILA NOVA DE GAIA	0	3	92%	35%
02	MDF232	VILA NOVA DE GAIA	0	3	92%	36%
02	MDF233	VILA NOVA DE GAIA	0	3	92%	23%
02	MDF234	VILA NOVA DE GAIA	0	3	92%	9%
02	MDF235	VILA NOVA DE GAIA	0	3	92%	17%
02	MDF236	VILA NOVA DE GAIA	0	3	92%	16%
02	MDF237	VILA NOVA DE GAIA	0	3	92%	43%
02	MDF238	VILA NOVA DE GAIA	0	3	92%	32%
39	MDF239	COIMBRA	0	3	67%	52%
39	MDF240	COIMBRA	0	3	67%	57%
39	MDF241	COIMBRA	0	3	67%	60%
39	MDF242	COIMBRA	0	3	67%	61%
39	MDF243	COIMBRA	0	3	67%	59%
39	MDF244	COIMBRA	0	3	67%	53%
39	MDF245	COIMBRA	0	3	67%	56%
39	MDF246	COIMBRA	0	3	67%	49%
39	MDF247	COIMBRA	0	3	67%	57%
39	MDF248	COIMBRA	0	3	67%	57%
39	MDF249	COIMBRA	0	3	67%	57%
01	MDF250	SETÚBAL	0	2	98%	15%
01	MDF251	SETÚBAL	0	2	98%	14%
01	MDF252	MONTIJO	0	2	76%	16%
01	MDF253	ALMADA	0	2	103%	36%
01	MDF254	MONTIJO	0	2	76%	19%
01	MDF255	SETÚBAL	0	2	98%	38%
01	MDF256	PALMELA	0	2	80%	8%
01	MDF257	PALMELA	0	2	80%	27%
01	MDF258	PALMELA	0	2	80%	15%
01	MDF259	BARREIRO	0	2	91%	18%
01	MDF260	BARREIRO	0	2	91%	3%
01	MDF261	MONTIJO	0	2	76%	31%
01	MDF262	BARREIRO	0	2	91%	5%
01	MDF263	OEIRAS	0	2	103%	27%
01	MDF264	OEIRAS	0	2	103%	14%
01	MDF265	LISBOA	0	2	119%	25%
01	MDF266	PALMELA	0	2	80%	26%



ANACOM

AUTORIDADE NACIONAL DE COMUNICAÇÕES

01	MDF267	ALCOCHETE	0	2	84%	20%
01	MDF268	BARREIRO	0	2	91%	28%
01	MDF269	PALMELA	0	2	80%	10%
01	MDF270	PALMELA	0	2	80%	24%
01	MDF271	PALMELA	0	2	80%	21%
01	MDF272	ALCOCHETE	0	2	84%	5%
01	MDF273	BARREIRO	0	2	91%	7%
01	MDF274	SETÚBAL	0	2	98%	40%
01	MDF275	SETÚBAL	0	2	98%	19%
01	MDF276	MONTIJO	0	2	76%	27%
01	MDF277	SEIXAL	0	2	96%	36%
02	MDF278	GONDOMAR	0	2	77%	35%
02	MDF279	PORTO	0	2	99%	39%
02	MDF280	SANTA MARIA DA FEIRA	0	2	80%	32%
02	MDF281	MAIA	0	2	100%	42%
02	MDF282	GONDOMAR	0	2	77%	24%
02	MDF283	SANTA MARIA DA FEIRA	0	2	80%	25%
02	MDF284	MAIA	0	2	100%	36%
02	MDF285	SANTA MARIA DA FEIRA	0	2	80%	20%
02	MDF286	GONDOMAR	0	2	77%	40%
02	MDF287	GONDOMAR	0	2	77%	37%
02	MDF288	MAIA	0	2	100%	39%
02	MDF289	MATOSINHOS	0	2	110%	38%
02	MDF290	SANTA MARIA DA FEIRA	0	2	80%	25%
02	MDF291	MATOSINHOS	0	2	110%	37%
02	MDF292	MAIA	0	2	100%	33%
02	MDF293	GONDOMAR	0	2	77%	25%
02	MDF294	MATOSINHOS	0	2	110%	28%
32	MDF295	VEISEU	0	2	51%	49%
32	MDF296	VEISEU	0	2	51%	53%
32	MDF297	VEISEU	0	2	51%	53%
32	MDF298	VEISEU	0	2	51%	49%
32	MDF299	VEISEU	0	2	51%	51%
32	MDF300	VEISEU	0	2	51%	47%
32	MDF301	VEISEU	0	2	51%	51%
32	MDF302	VEISEU	0	2	51%	42%
32	MDF303	VEISEU	0	2	51%	49%
32	MDF304	VEISEU	0	2	51%	51%
32	MDF305	VEISEU	0	2	51%	55%
32	MDF306	VEISEU	0	2	51%	44%
34	MDF307	AVEIRO	0	2	84%	29%
34	MDF308	ÍLHAVO	0	2	60%	35%
34	MDF309	AVEIRO	0	2	84%	32%
34	MDF310	AVEIRO	0	2	84%	36%
34	MDF311	AVEIRO	0	2	84%	36%
34	MDF312	ÍLHAVO	0	2	60%	32%
34	MDF313	ÍLHAVO	0	2	60%	27%
34	MDF314	AVEIRO	0	2	84%	32%



34	MDF315	AVEIRO	0	2	84%	40%
41	MDF316	ABRANTES	0	2	27%	81%
41	MDF317	ABRANTES	0	2	27%	81%
41	MDF318	ABRANTES	0	2	27%	78%
41	MDF319	ABRANTES	0	2	27%	64%
41	MDF320	ABRANTES	0	2	27%	83%
41	MDF321	ABRANTES	0	2	27%	73%
41	MDF322	ABRANTES	0	2	27%	77%
41	MDF323	ABRANTES	0	2	27%	76%
41	MDF324	ABRANTES	0	2	27%	81%
41	MDF325	ABRANTES	0	2	27%	84%
41	MDF326	ABRANTES	0	2	27%	83%
41	MDF327	SANTARÉM	0	2	38%	50%
41	MDF328	ABRANTES	0	2	27%	69%
41	MDF329	ABRANTES	0	2	27%	81%
41	MDF330	ABRANTES	0	2	27%	64%
41	MDF331	ABRANTES	0	2	27%	82%
43	MDF332	SANTARÉM	0	2	38%	67%
43	MDF333	SANTARÉM	0	2	38%	73%
43	MDF334	ALMEIRIM	0	2	60%	67%
43	MDF335	SANTARÉM	0	2	38%	70%
43	MDF336	SANTARÉM	0	2	38%	67%
43	MDF337	SANTARÉM	0	2	38%	70%
43	MDF338	ALMEIRIM	0	2	60%	70%
43	MDF339	ALMEIRIM	0	2	60%	71%
43	MDF340	SANTARÉM	0	2	38%	68%
43	MDF341	ALMEIRIM	0	2	60%	64%
43	MDF342	SANTARÉM	0	2	38%	70%
43	MDF343	SANTARÉM	0	2	38%	67%
43	MDF344	SANTARÉM	0	2	38%	72%
43	MDF345	ALMEIRIM	0	2	60%	76%
43	MDF346	SANTARÉM	0	2	38%	73%
43	MDF347	ABRANTES	0	2	27%	80%
43	MDF348	SANTARÉM	0	2	38%	74%
43	MDF349	SANTARÉM	0	2	38%	68%
43	MDF350	SANTARÉM	0	2	38%	72%
43	MDF351	SANTARÉM	0	2	38%	72%
43	MDF352	SANTARÉM	0	2	38%	73%
44	MDF353	LEIRIA	0	2	38%	72%
44	MDF354	LEIRIA	0	2	38%	68%
44	MDF355	LEIRIA	0	2	38%	75%
44	MDF356	LEIRIA	0	2	38%	73%
44	MDF357	LEIRIA	0	2	38%	70%
44	MDF358	LEIRIA	0	2	38%	71%
44	MDF359	LEIRIA	0	2	38%	71%
44	MDF360	LEIRIA	0	2	38%	74%
44	MDF361	LEIRIA	0	2	38%	72%
44	MDF362	LEIRIA	0	2	38%	72%



44	MDF363	LEIRIA	0	2	38%	63%
44	MDF364	LEIRIA	0	2	38%	69%
44	MDF365	LEIRIA	0	2	38%	69%
44	MDF366	LEIRIA	0	2	38%	70%
44	MDF367	LEIRIA	0	2	38%	71%
44	MDF368	LEIRIA	0	2	38%	72%
44	MDF369	LEIRIA	0	2	38%	69%
44	MDF370	LEIRIA	0	2	38%	72%
44	MDF371	LEIRIA	0	2	38%	70%
44	MDF372	LEIRIA	0	2	38%	71%
44	MDF373	LEIRIA	0	2	38%	67%
49	MDF374	SANTARÉM	0	2	38%	72%
52	MDF375	VILA NOVA DE FAMALICÃO	0	2	37%	79%
52	MDF376	VILA NOVA DE FAMALICÃO	0	2	37%	77%
52	MDF377	VILA NOVA DE FAMALICÃO	0	2	37%	82%
52	MDF378	VILA NOVA DE FAMALICÃO	0	2	37%	78%
52	MDF379	VILA NOVA DE FAMALICÃO	0	2	37%	76%
52	MDF380	VILA NOVA DE FAMALICÃO	0	2	37%	78%
52	MDF381	VILA NOVA DE FAMALICÃO	0	2	37%	77%
52	MDF382	VILA NOVA DE FAMALICÃO	0	2	37%	79%
52	MDF383	VILA NOVA DE FAMALICÃO	0	2	37%	80%
52	MDF384	VILA NOVA DE FAMALICÃO	0	2	37%	80%
52	MDF385	VILA NOVA DE FAMALICÃO	0	2	37%	78%
52	MDF386	VILA NOVA DE FAMALICÃO	0	2	37%	76%
52	MDF387	VILA NOVA DE FAMALICÃO	0	2	37%	76%
53	MDF388	BRAGA	0	2	72%	49%
53	MDF389	AMARES	0	2	23%	79%
53	MDF390	AMARES	0	2	23%	75%
53	MDF391	AMARES	0	2	23%	80%
53	MDF392	BRAGA	0	2	72%	48%
53	MDF393	BRAGA	0	2	72%	51%
53	MDF394	BRAGA	0	2	72%	48%
53	MDF395	BRAGA	0	2	72%	51%
53	MDF396	BRAGA	0	2	72%	52%
53	MDF397	BRAGA	0	2	72%	44%
53	MDF398	BRAGA	0	2	72%	48%
53	MDF399	BRAGA	0	2	72%	45%
53	MDF400	BRAGA	0	2	72%	42%
53	MDF401	BRAGA	0	2	72%	54%
53	MDF402	BRAGA	0	2	72%	46%
53	MDF403	BRAGA	0	2	72%	48%
53	MDF404	BRAGA	0	2	72%	54%
56	MDF405	SANTA MARIA DA FEIRA	0	2	80%	30%
56	MDF406	OLIVEIRA DE AZEMÉIS	0	2	66%	34%
56	MDF407	OLIVEIRA DE AZEMÉIS	0	2	66%	31%
56	MDF408	OLIVEIRA DE AZEMÉIS	0	2	66%	33%
56	MDF409	SANTA MARIA DA FEIRA	0	2	80%	23%
56	MDF410	SANTA MARIA DA FEIRA	0	2	80%	32%



56	MDF411	OLIVEIRA DE AZEMÉIS	0	2	66%	27%
56	MDF412	OVAR	0	2	83%	30%
56	MDF413	SANTA MARIA DA FEIRA	0	2	80%	32%
56	MDF414	OLIVEIRA DE AZEMÉIS	0	2	66%	45%
56	MDF415	OVAR	0	2	83%	22%
56	MDF416	SANTA MARIA DA FEIRA	0	2	80%	25%
56	MDF417	OLIVEIRA DE AZEMÉIS	0	2	66%	30%
56	MDF418	OLIVEIRA DE AZEMÉIS	0	2	66%	40%
56	MDF419	OLIVEIRA DE AZEMÉIS	0	2	66%	36%
56	MDF420	OLIVEIRA DE AZEMÉIS	0	2	66%	41%
56	MDF421	SANTA MARIA DA FEIRA	0	2	80%	27%
56	MDF422	OLIVEIRA DE AZEMÉIS	0	2	66%	31%
56	MDF423	SANTA MARIA DA FEIRA	0	2	80%	25%
56	MDF424	SANTA MARIA DA FEIRA	0	2	80%	32%
56	MDF425	SANTA MARIA DA FEIRA	0	2	80%	31%
56	MDF426	OVAR	0	2	83%	27%
61	MDF427	TORRES VEDRAS	0	2	19%	81%
61	MDF428	TORRES VEDRAS	0	2	19%	81%
61	MDF429	TORRES VEDRAS	0	2	19%	74%
61	MDF430	TORRES VEDRAS	0	2	19%	64%
61	MDF431	TORRES VEDRAS	0	2	19%	78%
61	MDF432	TORRES VEDRAS	0	2	19%	80%
61	MDF433	LOURINHÃ	0	2	16%	82%
61	MDF434	TORRES VEDRAS	0	2	19%	80%
61	MDF435	TORRES VEDRAS	0	2	19%	73%
61	MDF436	TORRES VEDRAS	0	2	19%	81%
61	MDF437	LOURINHÃ	0	2	16%	81%
61	MDF438	TORRES VEDRAS	0	2	19%	74%
61	MDF439	TORRES VEDRAS	0	2	19%	81%
61	MDF440	TORRES VEDRAS	0	2	19%	80%
61	MDF441	TORRES VEDRAS	0	2	19%	78%
61	MDF442	LOURINHÃ	0	2	16%	87%
61	MDF443	LOURINHÃ	0	2	16%	82%
61	MDF444	LOURINHÃ	0	2	16%	85%
61	MDF445	TORRES VEDRAS	0	2	19%	78%
61	MDF446	TORRES VEDRAS	0	2	19%	81%
61	MDF447	LOURINHÃ	0	2	16%	86%
61	MDF448	TORRES VEDRAS	0	2	19%	79%
61	MDF449	LOURINHÃ	0	2	16%	85%
61	MDF450	TORRES VEDRAS	0	2	19%	79%
61	MDF451	TORRES VEDRAS	0	2	19%	78%
62	MDF452	CALDAS DA RAINHA	0	2	67%	45%
62	MDF453	CALDAS DA RAINHA	0	2	67%	50%
62	MDF454	CALDAS DA RAINHA	0	2	67%	47%
62	MDF455	CALDAS DA RAINHA	0	2	67%	46%
62	MDF456	CALDAS DA RAINHA	0	2	67%	38%
62	MDF457	CALDAS DA RAINHA	0	2	67%	48%
62	MDF458	CALDAS DA RAINHA	0	2	67%	48%



62	MDF459	CALDAS DA RAINHA	0	2	67%	46%
65	MDF460	PALMELA	0	2	80%	25%
65	MDF461	SETÚBAL	0	2	98%	28%
65	MDF462	SETÚBAL	0	2	98%	28%
65	MDF463	PALMELA	0	2	80%	40%
65	MDF464	MONTIJO	0	2	76%	42%
65	MDF465	SETÚBAL	0	2	98%	32%
65	MDF466	PALMELA	0	2	80%	35%
65	MDF467	SETÚBAL	0	2	98%	24%
65	MDF468	SETÚBAL	0	2	98%	40%
65	MDF469	PALMELA	0	2	80%	35%
65	MDF470	SETÚBAL	0	2	98%	34%
65	MDF471	SETÚBAL	0	2	98%	34%
65	MDF472	MONTIJO	0	2	76%	44%
65	MDF473	PALMELA	0	2	80%	37%
65	MDF474	SETÚBAL	0	2	98%	45%
66	MDF475	ÉVORA	0	2	54%	41%
66	MDF476	ÉVORA	0	2	54%	51%
66	MDF477	ÉVORA	0	2	54%	53%
66	MDF478	ÉVORA	0	2	54%	49%
66	MDF479	ÉVORA	0	2	54%	50%
66	MDF480	ÉVORA	0	2	54%	57%
66	MDF481	ÉVORA	0	2	54%	54%
66	MDF482	ÉVORA	0	2	54%	50%
66	MDF483	ÉVORA	0	2	54%	51%
66	MDF484	ÉVORA	0	2	54%	49%
66	MDF485	ÉVORA	0	2	54%	46%
66	MDF486	ÉVORA	0	2	54%	53%
66	MDF487	ÉVORA	0	2	54%	50%
66	MDF488	ÉVORA	0	2	54%	51%
82	MDF489	PORTIMÃO	0	2	88%	46%
82	MDF490	LAGOS	0	2	57%	60%
82	MDF491	LAGOS	0	2	57%	63%
82	MDF492	PORTIMÃO	0	2	88%	54%
82	MDF493	LAGOS	0	2	57%	62%
82	MDF494	LAGOS	0	2	57%	62%
82	MDF495	LAGOA	0	2	49%	54%
82	MDF496	PORTIMÃO	0	2	88%	47%
82	MDF497	LAGOA	0	2	49%	53%
82	MDF498	LAGOA	0	2	49%	57%
82	MDF499	LAGOA	0	2	49%	55%
82	MDF500	PORTIMÃO	0	2	88%	44%
82	MDF501	LAGOS	0	2	57%	53%
82	MDF502	PORTIMÃO	0	2	88%	43%
82	MDF503	PORTIMÃO	0	2	88%	56%
82	MDF504	LAGOS	0	2	57%	57%
82	MDF505	LAGOA	0	2	49%	58%
82	MDF506	LAGOS	0	2	57%	61%



82	MDF507	LAGOA	0	2	49%	53%
82	MDF508	PORTIMÃO	0	2	88%	54%
01	MDF509	ARRUDA DOS VINHOS	0	1	43%	76%
01	MDF510	MAFRA	0	1	11%	89%
01	MDF511	SESIMBRA	0	1	84%	30%
01	MDF512	SINTRA	0	1	95%	46%
01	MDF513	SINTRA	0	1	95%	46%
01	MDF514	SINTRA	0	1	95%	50%
01	MDF515	VILA FRANCA DE XIRA	0	1	101%	30%
01	MDF516	ARRUDA DOS VINHOS	0	1	43%	74%
01	MDF517	SINTRA	0	1	95%	24%
01	MDF518	SINTRA	0	1	95%	48%
01	MDF519	SESIMBRA	0	1	84%	7%
01	MDF520	MAFRA	0	1	11%	77%
01	MDF521	MAFRA	0	1	11%	92%
01	MDF522	CASCAIS	0	1	120%	18%
01	MDF523	SINTRA	0	1	95%	10%
01	MDF524	VILA FRANCA DE XIRA	0	1	101%	53%
01	MDF525	SESIMBRA	0	1	84%	25%
01	MDF526	MAFRA	0	1	11%	93%
01	MDF527	SESIMBRA	0	1	84%	20%
01	MDF528	SINTRA	0	1	95%	41%
01	MDF529	SINTRA	0	1	95%	52%
01	MDF530	SINTRA	0	1	95%	31%
01	MDF531	SINTRA	0	1	95%	36%
01	MDF532	BENAVENTE	0	1	83%	16%
01	MDF533	SINTRA	0	1	95%	46%
01	MDF534	MAFRA	0	1	11%	89%
01	MDF535	MAFRA	0	1	11%	87%
01	MDF536	SINTRA	0	1	95%	6%
01	MDF537	SINTRA	0	1	95%	53%
01	MDF538	CASCAIS	0	1	120%	22%
01	MDF539	SESIMBRA	0	1	84%	24%
01	MDF540	ARRUDA DOS VINHOS	0	1	43%	82%
01	MDF541	SINTRA	0	1	95%	49%
01	MDF542	SESIMBRA	0	1	84%	13%
01	MDF543	CASCAIS	0	1	120%	29%
01	MDF544	SINTRA	0	1	95%	46%
01	MDF545	MAFRA	0	1	11%	94%
01	MDF546	CASCAIS	0	1	120%	19%
01	MDF547	SINTRA	0	1	95%	46%
02	MDF548	SANTO TIRSO	0	1	45%	68%
02	MDF549	PAREDES	0	1	28%	69%
02	MDF550	TROFA	0	1	17%	87%
02	MDF551	PAREDES	0	1	28%	79%
02	MDF552	VILA DO CONDE	0	1	54%	62%
02	MDF553	VILA DO CONDE	0	1	54%	55%
02	MDF554	PAREDES	0	1	28%	71%



02	MDF555	VILA DO CONDE	0	1	54%	43%
02	MDF556	PAREDES	0	1	28%	79%
02	MDF557	PAREDES	0	1	28%	85%
02	MDF558	VILA DO CONDE	0	1	54%	63%
31	MDF559	ANADIA	0	1	29%	67%
31	MDF560	MEALHADA	0	1	15%	88%
31	MDF561	ANADIA	0	1	29%	74%
31	MDF562	CANTANHEDE	0	1	23%	84%
31	MDF563	CANTANHEDE	0	1	23%	79%
31	MDF564	CANTANHEDE	0	1	23%	84%
31	MDF565	CANTANHEDE	0	1	23%	82%
31	MDF566	CANTANHEDE	0	1	23%	83%
31	MDF567	MIRA	0	1	16%	81%
31	MDF568	MEALHADA	0	1	15%	85%
31	MDF569	MIRA	0	1	16%	83%
31	MDF570	MEALHADA	0	1	15%	85%
31	MDF571	MIRA	0	1	16%	86%
31	MDF572	ANADIA	0	1	29%	63%
31	MDF573	MIRA	0	1	16%	88%
31	MDF574	CANTANHEDE	0	1	23%	92%
31	MDF575	ANADIA	0	1	29%	66%
31	MDF576	CANTANHEDE	0	1	23%	84%
31	MDF577	ANADIA	0	1	29%	47%
32	MDF578	MANGUALDE	0	1	27%	59%
32	MDF579	TONDELA	0	1	17%	81%
32	MDF580	TONDELA	0	1	17%	81%
32	MDF581	NELAS	0	1	30%	61%
32	MDF582	TONDELA	0	1	17%	81%
32	MDF583	TONDELA	0	1	17%	81%
32	MDF584	TONDELA	0	1	17%	81%
32	MDF585	MANGUALDE	0	1	27%	51%
32	MDF586	MANGUALDE	0	1	27%	60%
32	MDF587	NELAS	0	1	30%	61%
32	MDF588	TONDELA	0	1	17%	83%
32	MDF589	TONDELA	0	1	17%	79%
32	MDF590	NELAS	0	1	30%	55%
32	MDF591	TONDELA	0	1	17%	66%
32	MDF592	TONDELA	0	1	17%	82%
33	MDF593	FIGUEIRA DA FOZ	0	1	53%	79%
33	MDF594	FIGUEIRA DA FOZ	0	1	53%	76%
33	MDF595	FIGUEIRA DA FOZ	0	1	53%	81%
33	MDF596	FIGUEIRA DA FOZ	0	1	53%	78%
33	MDF597	FIGUEIRA DA FOZ	0	1	53%	78%
33	MDF598	FIGUEIRA DA FOZ	0	1	53%	77%
33	MDF599	FIGUEIRA DA FOZ	0	1	53%	81%
33	MDF600	FIGUEIRA DA FOZ	0	1	53%	77%
33	MDF601	FIGUEIRA DA FOZ	0	1	53%	78%
33	MDF602	FIGUEIRA DA FOZ	0	1	53%	81%



34	MDF603	ÁGUEDA	0	1	32%	64%
34	MDF604	ALBERGARIA-A-VELHA	0	1	24%	66%
34	MDF605	ÁGUEDA	0	1	32%	65%
34	MDF606	ESTARREJA	0	1	48%	45%
34	MDF607	ÁGUEDA	0	1	32%	57%
34	MDF608	ALBERGARIA-A-VELHA	0	1	24%	63%
34	MDF609	OLIVEIRA DO BAIRRO	0	1	47%	57%
34	MDF610	VAGOS	0	1	14%	73%
34	MDF611	ÁGUEDA	0	1	32%	51%
34	MDF612	VAGOS	0	1	14%	77%
34	MDF613	ÁGUEDA	0	1	32%	63%
34	MDF614	ÁGUEDA	0	1	32%	64%
34	MDF615	MURTOSA	0	1	13%	68%
34	MDF616	OLIVEIRA DO BAIRRO	0	1	47%	59%
34	MDF617	OLIVEIRA DO BAIRRO	0	1	47%	56%
34	MDF618	OLIVEIRA DO BAIRRO	0	1	47%	52%
34	MDF619	ESTARREJA	0	1	48%	46%
34	MDF620	ÁGUEDA	0	1	32%	62%
34	MDF621	ANADIA	0	1	29%	65%
34	MDF622	MURTOSA	0	1	13%	74%
34	MDF623	ÁGUEDA	0	1	32%	66%
34	MDF624	VAGOS	0	1	14%	75%
36	MDF625	POMBAL	0	1	15%	85%
36	MDF626	POMBAL	0	1	15%	86%
36	MDF627	POMBAL	0	1	15%	79%
36	MDF628	POMBAL	0	1	15%	87%
36	MDF629	POMBAL	0	1	15%	84%
36	MDF630	POMBAL	0	1	15%	86%
36	MDF631	POMBAL	0	1	15%	84%
36	MDF632	POMBAL	0	1	15%	83%
36	MDF633	POMBAL	0	1	15%	89%
36	MDF634	POMBAL	0	1	15%	85%
36	MDF635	POMBAL	0	1	15%	86%
36	MDF636	POMBAL	0	1	15%	85%
38	MDF637	GOUVEIA	0	1	21%	60%
38	MDF638	OLIVEIRA DO HOSPITAL	0	1	21%	65%
38	MDF639	OLIVEIRA DO HOSPITAL	0	1	21%	67%
38	MDF640	GOUVEIA	0	1	21%	69%
38	MDF641	OLIVEIRA DO HOSPITAL	0	1	21%	69%
38	MDF642	SEIA	0	1	30%	61%
38	MDF643	GOUVEIA	0	1	21%	68%
38	MDF644	OLIVEIRA DO HOSPITAL	0	1	21%	66%
38	MDF645	GOUVEIA	0	1	21%	71%
38	MDF646	SEIA	0	1	30%	51%
38	MDF647	OLIVEIRA DO HOSPITAL	0	1	21%	54%
38	MDF648	SEIA	0	1	30%	36%
38	MDF649	SEIA	0	1	30%	59%
38	MDF650	SEIA	0	1	30%	58%



38	MDF651	SEIA	0	1	30%	46%
38	MDF652	GOUVEIA	0	1	21%	66%
39	MDF653	CANTANHEDE	0	1	23%	87%
39	MDF654	MONTEMOR-O-VELHO	0	1	12%	87%
39	MDF655	MONTEMOR-O-VELHO	0	1	12%	88%
39	MDF656	LOUSÃ	0	1	19%	83%
39	MDF657	MONTEMOR-O-VELHO	0	1	12%	84%
39	MDF658	MONTEMOR-O-VELHO	0	1	12%	84%
39	MDF659	LOUSÃ	0	1	19%	89%
39	MDF660	MONTEMOR-O-VELHO	0	1	12%	87%
39	MDF661	MONTEMOR-O-VELHO	0	1	12%	90%
43	MDF662	ALPIARÇA	0	1	75%	64%
43	MDF663	RIO MAIOR	0	1	34%	85%
43	MDF664	RIO MAIOR	0	1	34%	81%
43	MDF665	RIO MAIOR	0	1	34%	85%
43	MDF666	CARTAXO	0	1	40%	80%
43	MDF667	CARTAXO	0	1	40%	77%
43	MDF668	CARTAXO	0	1	40%	78%
43	MDF669	RIO MAIOR	0	1	34%	79%
43	MDF670	RIO MAIOR	0	1	34%	80%
43	MDF671	RIO MAIOR	0	1	34%	82%
43	MDF672	RIO MAIOR	0	1	34%	83%
43	MDF673	CARTAXO	0	1	40%	78%
43	MDF674	CARTAXO	0	1	40%	83%
43	MDF675	CARTAXO	0	1	40%	79%
43	MDF676	CARTAXO	0	1	40%	78%
44	MDF677	MARINHA GRANDE	0	1	68%	60%
44	MDF678	BATALHA	0	1	19%	86%
44	MDF679	BATALHA	0	1	19%	87%
44	MDF680	PORTO DE MÓS	0	1	31%	86%
44	MDF681	MARINHA GRANDE	0	1	68%	63%
44	MDF682	OURÉM	0	1	26%	66%
44	MDF683	BATALHA	0	1	19%	85%
44	MDF684	ALCOBAÇA	0	1	44%	60%
44	MDF685	PORTO DE MÓS	0	1	31%	87%
44	MDF686	PORTO DE MÓS	0	1	31%	80%
44	MDF687	ALCOBAÇA	0	1	44%	49%
44	MDF688	MARINHA GRANDE	0	1	68%	67%
44	MDF689	PORTO DE MÓS	0	1	31%	86%
44	MDF690	BATALHA	0	1	19%	87%
44	MDF691	PORTO DE MÓS	0	1	31%	86%
44	MDF692	BATALHA	0	1	19%	86%
44	MDF693	MARINHA GRANDE	0	1	68%	58%
44	MDF694	MARINHA GRANDE	0	1	68%	61%
45	MDF695	PORTALEGRE	0	1	45%	67%
45	MDF696	PORTALEGRE	0	1	45%	52%
45	MDF697	PORTALEGRE	0	1	45%	65%
45	MDF698	PORTALEGRE	0	1	45%	45%



45	MDF699	PORTALEGRE	0	1	45%	72%
45	MDF700	PORTALEGRE	0	1	45%	67%
45	MDF701	PORTALEGRE	0	1	45%	52%
45	MDF702	PORTALEGRE	0	1	45%	69%
49	MDF703	ALCANENA	0	1	27%	83%
49	MDF704	TOMAR	0	1	28%	79%
49	MDF705	TORRES NOVAS	0	1	36%	72%
49	MDF706	OURÉM	0	1	26%	74%
49	MDF707	OURÉM	0	1	26%	74%
49	MDF708	TORRES NOVAS	0	1	36%	75%
49	MDF709	TOMAR	0	1	28%	73%
49	MDF710	TORRES NOVAS	0	1	36%	76%
49	MDF711	OURÉM	0	1	26%	76%
49	MDF712	OURÉM	0	1	26%	72%
49	MDF713	TOMAR	0	1	28%	81%
49	MDF714	TORRES NOVAS	0	1	36%	71%
49	MDF715	TOMAR	0	1	28%	74%
49	MDF716	PORTO DE MÓS	0	1	31%	87%
49	MDF717	OURÉM	0	1	26%	74%
49	MDF718	OURÉM	0	1	26%	74%
49	MDF719	OURÉM	0	1	26%	81%
49	MDF720	TORRES NOVAS	0	1	36%	77%
49	MDF721	TORRES NOVAS	0	1	36%	76%
49	MDF722	TORRES NOVAS	0	1	36%	80%
49	MDF723	ALCANENA	0	1	27%	82%
49	MDF724	TOMAR	0	1	28%	74%
49	MDF725	OURÉM	0	1	26%	74%
49	MDF726	OURÉM	0	1	26%	79%
49	MDF727	TOMAR	0	1	28%	76%
49	MDF728	TORRES NOVAS	0	1	36%	76%
49	MDF729	OURÉM	0	1	26%	69%
49	MDF730	OURÉM	0	1	26%	70%
49	MDF731	TOMAR	0	1	28%	74%
49	MDF732	ALCANENA	0	1	27%	63%
49	MDF733	TORRES NOVAS	0	1	36%	78%
49	MDF734	ALCANENA	0	1	27%	87%
49	MDF735	OURÉM	0	1	26%	73%
52	MDF736	PÓVOA DE VARZIM	0	1	67%	62%
52	MDF737	SANTO TIRSO	0	1	45%	67%
52	MDF738	VILA DO CONDE	0	1	54%	57%
52	MDF739	PÓVOA DE VARZIM	0	1	67%	62%
52	MDF740	BARCELOS	0	1	19%	83%
52	MDF741	VILA DO CONDE	0	1	54%	66%
52	MDF742	PÓVOA DE VARZIM	0	1	67%	61%
52	MDF743	BARCELOS	0	1	19%	81%
52	MDF744	VILA DO CONDE	0	1	54%	66%
52	MDF745	SANTO TIRSO	0	1	45%	66%
52	MDF746	PÓVOA DE VARZIM	0	1	67%	59%



52	MDF747	SANTO TIRSO	0	1	45%	68%
52	MDF748	VILA DO CONDE	0	1	54%	53%
52	MDF749	PÓVOA DE VARZIM	0	1	67%	50%
52	MDF750	SANTO TIRSO	0	1	45%	71%
52	MDF751	SANTO TIRSO	0	1	45%	70%
52	MDF752	SANTO TIRSO	0	1	45%	69%
52	MDF753	BARCELOS	0	1	19%	83%
52	MDF754	VILA DO CONDE	0	1	54%	55%
52	MDF755	VILA DO CONDE	0	1	54%	54%
52	MDF756	SANTO TIRSO	0	1	45%	66%
52	MDF757	VILA DO CONDE	0	1	54%	67%
53	MDF758	VILA VERDE	0	1	16%	59%
53	MDF759	BARCELOS	0	1	19%	83%
53	MDF760	BARCELOS	0	1	19%	81%
53	MDF761	ESPOSENDE	0	1	46%	76%
53	MDF762	FAFE	0	1	23%	76%
53	MDF763	BARCELOS	0	1	19%	79%
53	MDF764	GUIMARÃES	0	1	43%	67%
53	MDF765	GUIMARÃES	0	1	43%	66%
53	MDF766	BARCELOS	0	1	19%	80%
53	MDF767	GUIMARÃES	0	1	43%	67%
53	MDF768	BARCELOS	0	1	19%	82%
53	MDF769	GUIMARÃES	0	1	43%	65%
53	MDF770	ESPOSENDE	0	1	46%	78%
53	MDF771	ESPOSENDE	0	1	46%	78%
53	MDF772	GUIMARÃES	0	1	43%	63%
53	MDF773	ESPOSENDE	0	1	46%	75%
53	MDF774	VILA VERDE	0	1	16%	67%
53	MDF775	GUIMARÃES	0	1	43%	68%
53	MDF776	VIZELA	0	1	35%	81%
53	MDF777	VILA VERDE	0	1	16%	88%
53	MDF778	BARCELOS	0	1	19%	81%
53	MDF779	FAFE	0	1	23%	77%
53	MDF780	VILA VERDE	0	1	16%	81%
53	MDF781	GUIMARÃES	0	1	43%	66%
53	MDF782	VILA VERDE	0	1	16%	80%
53	MDF783	VILA VERDE	0	1	16%	86%
53	MDF784	VILA VERDE	0	1	16%	90%
53	MDF785	GUIMARÃES	0	1	43%	67%
53	MDF786	VIZELA	0	1	35%	80%
53	MDF787	BARCELOS	0	1	19%	81%
53	MDF788	GUIMARÃES	0	1	43%	69%
53	MDF789	VIZELA	0	1	35%	83%
53	MDF790	ESPOSENDE	0	1	46%	72%
53	MDF791	GUIMARÃES	0	1	43%	69%
53	MDF792	BARCELOS	0	1	19%	76%
53	MDF793	FAFE	0	1	23%	78%
53	MDF794	FAFE	0	1	23%	76%



53	MDF795	BARCELOS	0	1	19%	86%
53	MDF796	VILA VERDE	0	1	16%	85%
54	MDF797	PESO DA RÉGUA	0	1	22%	84%
54	MDF798	VILA REAL	0	1	39%	62%
54	MDF799	PESO DA RÉGUA	0	1	22%	89%
55	MDF800	FELGUEIRAS	0	1	17%	82%
55	MDF801	FELGUEIRAS	0	1	17%	80%
55	MDF802	AMARANTE	0	1	16%	69%
55	MDF803	PENAFIEL	0	1	12%	84%
55	MDF804	PENAFIEL	0	1	12%	81%
55	MDF805	PENAFIEL	0	1	12%	85%
55	MDF806	PAÇOS DE FERREIRA	0	1	31%	80%
55	MDF807	PAÇOS DE FERREIRA	0	1	31%	82%
55	MDF808	PAÇOS DE FERREIRA	0	1	31%	79%
55	MDF809	AMARANTE	0	1	16%	84%
55	MDF810	AMARANTE	0	1	16%	85%
55	MDF811	FELGUEIRAS	0	1	17%	81%
55	MDF812	FELGUEIRAS	0	1	17%	79%
55	MDF813	LOUSADA	0	1	10%	82%
55	MDF814	LOUSADA	0	1	10%	88%
55	MDF815	PENAFIEL	0	1	12%	83%
55	MDF816	FELGUEIRAS	0	1	17%	82%
55	MDF817	FELGUEIRAS	0	1	17%	79%
55	MDF818	PENAFIEL	0	1	12%	82%
55	MDF819	PENAFIEL	0	1	12%	86%
55	MDF820	PENAFIEL	0	1	12%	87%
55	MDF821	PENAFIEL	0	1	12%	83%
55	MDF822	PAÇOS DE FERREIRA	0	1	31%	78%
55	MDF823	LOUSADA	0	1	10%	81%
55	MDF824	AMARANTE	0	1	16%	88%
55	MDF825	PENAFIEL	0	1	12%	82%
55	MDF826	FELGUEIRAS	0	1	17%	81%
55	MDF827	AMARANTE	0	1	16%	90%
56	MDF828	VALE DE CAMBRA	0	1	39%	51%
56	MDF829	VALE DE CAMBRA	0	1	39%	53%
58	MDF830	VIANA DO CASTELO	0	1	42%	66%
58	MDF831	VIANA DO CASTELO	0	1	42%	69%
58	MDF832	VIANA DO CASTELO	0	1	42%	73%
58	MDF833	CAMINHA	0	1	31%	73%
58	MDF834	VIANA DO CASTELO	0	1	42%	69%
58	MDF835	VIANA DO CASTELO	0	1	42%	64%
58	MDF836	VIANA DO CASTELO	0	1	42%	70%
58	MDF837	VIANA DO CASTELO	0	1	42%	67%
58	MDF838	VIANA DO CASTELO	0	1	42%	71%
58	MDF839	BATALHA	0	1	19%	80%
58	MDF840	VIANA DO CASTELO	0	1	42%	70%
58	MDF841	CAMINHA	0	1	31%	79%
58	MDF842	VIANA DO CASTELO	0	1	42%	69%



58	MDF843	CAMINHA	0	1	31%	75%
59	MDF844	VILA REAL	0	1	39%	70%
59	MDF845	VILA REAL	0	1	39%	74%
59	MDF846	VILA REAL	0	1	39%	64%
59	MDF847	VILA REAL	0	1	39%	68%
59	MDF848	VILA REAL	0	1	39%	67%
59	MDF849	VILA REAL	0	1	39%	76%
59	MDF850	VILA REAL	0	1	39%	73%
59	MDF851	VILA REAL	0	1	39%	76%
61	MDF852	MAFRA	0	1	11%	95%
61	MDF853	MAFRA	0	1	11%	88%
61	MDF854	MAFRA	0	1	11%	86%
61	MDF855	MAFRA	0	1	11%	86%
61	MDF856	MAFRA	0	1	11%	88%
61	MDF857	MAFRA	0	1	11%	89%
62	MDF858	ALCOBAÇA	0	1	44%	57%
62	MDF859	ALCOBAÇA	0	1	44%	58%
62	MDF860	PENICHE	0	1	68%	45%
62	MDF861	ÓBIDOS	0	1	24%	53%
62	MDF862	PENICHE	0	1	68%	39%
62	MDF863	PENICHE	0	1	68%	30%
62	MDF864	ALCOBAÇA	0	1	44%	62%
62	MDF865	BOMBARRAL	0	1	44%	57%
62	MDF866	CADAVAL	0	1	18%	69%
62	MDF867	ÓBIDOS	0	1	24%	68%
62	MDF868	ALCOBAÇA	0	1	44%	35%
62	MDF869	CADAVAL	0	1	18%	36%
62	MDF870	CADAVAL	0	1	18%	54%
62	MDF871	ÓBIDOS	0	1	24%	68%
62	MDF872	BOMBARRAL	0	1	44%	57%
62	MDF873	ALCOBAÇA	0	1	44%	63%
62	MDF874	NAZARÉ	0	1	98%	15%
62	MDF875	CADAVAL	0	1	18%	72%
62	MDF876	ÓBIDOS	0	1	24%	65%
62	MDF877	ALCOBAÇA	0	1	44%	59%
62	MDF878	ALCOBAÇA	0	1	44%	58%
62	MDF879	ÓBIDOS	0	1	24%	70%
62	MDF880	PENICHE	0	1	68%	30%
62	MDF881	ALCOBAÇA	0	1	44%	60%
62	MDF882	ALCOBAÇA	0	1	44%	54%
62	MDF883	PENICHE	0	1	68%	39%
62	MDF884	ALCOBAÇA	0	1	44%	62%
62	MDF885	NAZARÉ	0	1	98%	21%
62	MDF886	ALCOBAÇA	0	1	44%	63%
62	MDF887	CADAVAL	0	1	18%	63%
63	MDF888	ALENQUER	0	1	41%	68%
63	MDF889	AZAMBUJA	0	1	39%	75%
63	MDF890	ALENQUER	0	1	41%	68%



63	MDF891	ARRUDA DOS VINHOS	0	1	43%	79%
63	MDF892	AZAMBUJA	0	1	39%	76%
63	MDF893	AZAMBUJA	0	1	39%	74%
63	MDF894	BENAVENTE	0	1	83%	60%
63	MDF895	VILA FRANCA DE XIRA	0	1	101%	40%
63	MDF896	VILA FRANCA DE XIRA	0	1	101%	62%
63	MDF897	AZAMBUJA	0	1	39%	67%
63	MDF898	ALENQUER	0	1	41%	72%
63	MDF899	ALENQUER	0	1	41%	69%
63	MDF900	ALENQUER	0	1	41%	68%
63	MDF901	ALENQUER	0	1	41%	70%
63	MDF902	BENAVENTE	0	1	83%	56%
63	MDF903	ALENQUER	0	1	41%	72%
63	MDF904	BENAVENTE	0	1	83%	64%
63	MDF905	ALENQUER	0	1	41%	64%
65	MDF906	MONTEMOR-O-NOVO	0	1	42%	51%
65	MDF907	GRÂNDOLA	0	1	35%	63%
65	MDF908	MONTEMOR-O-NOVO	0	1	42%	53%
65	MDF909	VENDAS NOVAS	0	1	86%	56%
65	MDF910	MONTEMOR-O-NOVO	0	1	42%	54%
65	MDF911	GRÂNDOLA	0	1	35%	53%
65	MDF912	GRÂNDOLA	0	1	35%	50%
66	MDF913	MONTEMOR-O-NOVO	0	1	42%	56%
66	MDF914	PORTEL	0	1	34%	62%
66	MDF915	PORTEL	0	1	34%	40%
66	MDF916	MONTEMOR-O-NOVO	0	1	42%	56%
66	MDF917	PORTEL	0	1	34%	62%
66	MDF918	MONTEMOR-O-NOVO	0	1	42%	52%
66	MDF919	PORTEL	0	1	34%	64%
66	MDF920	PORTEL	0	1	34%	42%
66	MDF921	PORTEL	0	1	34%	60%
66	MDF922	MONTEMOR-O-NOVO	0	1	42%	52%
66	MDF923	PORTEL	0	1	34%	56%
66	MDF924	MONTEMOR-O-NOVO	0	1	42%	36%
66	MDF925	MONTEMOR-O-NOVO	0	1	42%	62%
66	MDF926	PORTEL	0	1	34%	53%
68	MDF927	ESTREMOZ	0	1	49%	50%
68	MDF928	ELVAS	0	1	36%	52%
68	MDF929	BORBA	0	1	53%	54%
68	MDF930	ELVAS	0	1	36%	58%
68	MDF931	CAMPO MAIOR	0	1	49%	66%
68	MDF932	CAMPO MAIOR	0	1	49%	60%
68	MDF933	ESTREMOZ	0	1	49%	48%
68	MDF934	ELVAS	0	1	36%	58%
68	MDF935	ESTREMOZ	0	1	49%	39%
68	MDF936	BORBA	0	1	53%	64%
68	MDF937	ESTREMOZ	0	1	49%	48%
68	MDF938	ELVAS	0	1	36%	51%



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68	MDF939	ELVAS	0	1	36%	66%
68	MDF940	ESTREMOZ	0	1	49%	50%
68	MDF941	ELVAS	0	1	36%	62%
68	MDF942	ELVAS	0	1	36%	60%
69	MDF943	SANTIAGO DO CACÉM	0	1	36%	43%
69	MDF944	SANTIAGO DO CACÉM	0	1	36%	47%
69	MDF945	GRÂNDOLA	0	1	35%	67%
69	MDF946	SANTIAGO DO CACÉM	0	1	36%	50%
69	MDF947	GRÂNDOLA	0	1	35%	57%
69	MDF948	SANTIAGO DO CACÉM	0	1	36%	46%
69	MDF949	SANTIAGO DO CACÉM	0	1	36%	47%
69	MDF950	SANTIAGO DO CACÉM	0	1	36%	25%
69	MDF951	SANTIAGO DO CACÉM	0	1	36%	47%
69	MDF952	SANTIAGO DO CACÉM	0	1	36%	11%
69	MDF953	GRÂNDOLA	0	1	35%	64%
69	MDF954	GRÂNDOLA	0	1	35%	59%
69	MDF955	GRÂNDOLA	0	1	35%	44%
69	MDF956	SINES	0	1	74%	35%
69	MDF957	SINES	0	1	74%	18%
69	MDF958	GRÂNDOLA	0	1	35%	52%
69	MDF959	GRÂNDOLA	0	1	35%	45%
69	MDF960	SANTIAGO DO CACÉM	0	1	36%	45%
69	MDF961	SANTIAGO DO CACÉM	0	1	36%	53%
69	MDF962	SANTIAGO DO CACÉM	0	1	36%	39%
69	MDF963	GRÂNDOLA	0	1	35%	63%
69	MDF964	SINES	0	1	74%	33%
69	MDF965	SANTIAGO DO CACÉM	0	1	36%	28%
69	MDF966	GRÂNDOLA	0	1	35%	62%
69	MDF967	SANTIAGO DO CACÉM	0	1	36%	35%
71	MDF968	GUARDA	0	1	39%	38%
71	MDF969	GUARDA	0	1	39%	39%
71	MDF970	GUARDA	0	1	39%	47%
71	MDF971	GUARDA	0	1	39%	22%
71	MDF972	GUARDA	0	1	39%	43%
71	MDF973	GUARDA	0	1	39%	39%
71	MDF974	GUARDA	0	1	39%	42%
72	MDF975	CASTELO BRANCO	0	1	49%	40%
72	MDF976	CASTELO BRANCO	0	1	49%	14%
72	MDF977	CASTELO BRANCO	0	1	49%	36%
72	MDF978	CASTELO BRANCO	0	1	49%	41%
72	MDF979	FUNDÃO	0	1	24%	39%
72	MDF980	CASTELO BRANCO	0	1	49%	42%
72	MDF981	CASTELO BRANCO	0	1	49%	20%
72	MDF982	FUNDÃO	0	1	24%	59%
72	MDF983	CASTELO BRANCO	0	1	49%	43%
72	MDF984	CASTELO BRANCO	0	1	49%	17%
72	MDF985	CASTELO BRANCO	0	1	49%	4%
72	MDF986	CASTELO BRANCO	0	1	49%	42%



72	MDF987	CASTELO BRANCO	0	1	49%	35%
72	MDF988	CASTELO BRANCO	0	1	49%	15%
72	MDF989	CASTELO BRANCO	0	1	49%	42%
73	MDF990	BRAGANÇA	0	1	19%	88%
73	MDF991	BRAGANÇA	0	1	19%	91%
73	MDF992	BRAGANÇA	0	1	19%	89%
73	MDF993	BRAGANÇA	0	1	19%	88%
73	MDF994	BRAGANÇA	0	1	19%	89%
73	MDF995	BRAGANÇA	0	1	19%	80%
73	MDF996	BRAGANÇA	0	1	19%	87%
73	MDF997	BRAGANÇA	0	1	19%	80%
73	MDF998	BRAGANÇA	0	1	19%	90%
73	MDF999	BRAGANÇA	0	1	19%	96%
73	MDF1000	BRAGANÇA	0	1	19%	89%
73	MDF1001	BRAGANÇA	0	1	19%	91%
74	MDF1002	CASTELO BRANCO	0	1	49%	14%
75	MDF1003	FUNDÃO	0	1	24%	60%
75	MDF1004	FUNDÃO	0	1	24%	68%
75	MDF1005	FUNDÃO	0	1	24%	56%
75	MDF1006	FUNDÃO	0	1	24%	40%
75	MDF1007	FUNDÃO	0	1	24%	52%
75	MDF1008	BELMONTE	0	1	23%	62%
75	MDF1009	FUNDÃO	0	1	24%	60%
75	MDF1010	BELMONTE	0	1	23%	66%
75	MDF1011	COVILHÃ	0	1	50%	36%
75	MDF1012	FUNDÃO	0	1	24%	59%
75	MDF1013	COVILHÃ	0	1	50%	52%
75	MDF1014	COVILHÃ	0	1	50%	55%
75	MDF1015	FUNDÃO	0	1	24%	65%
75	MDF1016	GUARDA	0	1	39%	38%
75	MDF1017	FUNDÃO	0	1	24%	35%
75	MDF1018	COVILHÃ	0	1	50%	45%
75	MDF1019	COVILHÃ	0	1	50%	34%
75	MDF1020	COVILHÃ	0	1	50%	50%
75	MDF1021	COVILHÃ	0	1	50%	52%
75	MDF1022	FUNDÃO	0	1	24%	46%
75	MDF1023	COVILHÃ	0	1	50%	55%
75	MDF1024	FUNDÃO	0	1	24%	68%
75	MDF1025	COVILHÃ	0	1	50%	49%
75	MDF1026	COVILHÃ	0	1	50%	49%
75	MDF1027	COVILHÃ	0	1	50%	45%
75	MDF1028	COVILHÃ	0	1	50%	52%
75	MDF1029	GUARDA	0	1	39%	29%
75	MDF1030	COVILHÃ	0	1	50%	54%
75	MDF1031	COVILHÃ	0	1	50%	30%
76	MDF1032	CHAVES	0	1	21%	97%
76	MDF1033	CHAVES	0	1	21%	86%
76	MDF1034	CHAVES	0	1	21%	98%



76	MDF1035	CHAVES	0	1	21%	92%
76	MDF1036	CHAVES	0	1	21%	90%
76	MDF1037	CHAVES	0	1	21%	93%
76	MDF1038	CHAVES	0	1	21%	97%
76	MDF1039	CHAVES	0	1	21%	88%
76	MDF1040	CHAVES	0	1	21%	93%
76	MDF1041	CHAVES	0	1	21%	90%
76	MDF1042	CHAVES	0	1	21%	94%
78	MDF1043	BRAGANÇA	0	1	19%	79%
81	MDF1044	TAVIRA	0	1	22%	83%
81	MDF1045	TAVIRA	0	1	22%	83%
81	MDF1046	TAVIRA	0	1	22%	78%
81	MDF1047	TAVIRA	0	1	22%	82%
81	MDF1048	TAVIRA	0	1	22%	81%
81	MDF1049	VILA REAL DE SANTO ANTÓNIO	0	1	23%	86%
81	MDF1050	VILA REAL DE SANTO ANTÓNIO	0	1	23%	89%
82	MDF1051	SILVES	0	1	41%	75%
82	MDF1052	SILVES	0	1	41%	72%
82	MDF1053	SILVES	0	1	41%	70%
82	MDF1054	SILVES	0	1	41%	73%
82	MDF1055	SILVES	0	1	41%	45%
82	MDF1056	SILVES	0	1	41%	69%
82	MDF1057	SILVES	0	1	41%	70%
82	MDF1058	SILVES	0	1	41%	51%
82	MDF1059	SILVES	0	1	41%	68%
82	MDF1060	SILVES	0	1	41%	76%
84	MDF1061	BEJA	0	1	51%	35%
84	MDF1062	FERREIRA DO ALENTEJO	0	1	43%	49%
84	MDF1063	FERREIRA DO ALENTEJO	0	1	43%	50%
84	MDF1064	BEJA	0	1	51%	55%
84	MDF1065	BEJA	0	1	51%	45%
84	MDF1066	BEJA	0	1	51%	41%
84	MDF1067	BEJA	0	1	51%	46%
84	MDF1068	BEJA	0	1	51%	55%
84	MDF1069	FERREIRA DO ALENTEJO	0	1	43%	56%
84	MDF1070	CUBA	0	1	70%	50%
84	MDF1071	FERREIRA DO ALENTEJO	0	1	43%	51%
84	MDF1072	FERREIRA DO ALENTEJO	0	1	43%	65%
84	MDF1073	VIDIGUEIRA	0	1	45%	35%
84	MDF1074	FERREIRA DO ALENTEJO	0	1	43%	58%
84	MDF1075	BEJA	0	1	51%	55%
84	MDF1076	FERREIRA DO ALENTEJO	0	1	43%	61%
84	MDF1077	VIDIGUEIRA	0	1	45%	36%
84	MDF1078	BEJA	0	1	51%	58%
84	MDF1079	BEJA	0	1	51%	33%
84	MDF1080	BEJA	0	1	51%	49%
84	MDF1081	BEJA	0	1	51%	37%
84	MDF1082	BEJA	0	1	51%	54%



84	MDF1083	VIDIGUEIRA	0	1	45%	35%
84	MDF1084	BEJA	0	1	51%	42%
84	MDF1085	VIDIGUEIRA	0	1	45%	49%
84	MDF1086	CUBA	0	1	70%	45%
84	MDF1087	VIDIGUEIRA	0	1	45%	31%
89	MDF1088	LOULÉ	0	1	60%	40%
89	MDF1089	LOULÉ	0	1	60%	70%
89	MDF1090	LOULÉ	0	1	60%	60%
89	MDF1091	LOULÉ	0	1	60%	38%
89	MDF1092	FARO	0	1	79%	59%
89	MDF1093	LOULÉ	0	1	60%	41%
89	MDF1094	LOULÉ	0	1	60%	65%
89	MDF1095	LOULÉ	0	1	60%	72%
89	MDF1096	FARO	0	1	79%	64%
89	MDF1097	TAVIRA	0	1	22%	69%
89	MDF1098	LOULÉ	0	1	60%	46%
89	MDF1099	FARO	0	1	79%	59%
89	MDF1100	FARO	0	1	79%	60%
89	MDF1101	ALBUFEIRA	0	1	34%	81%
89	MDF1102	LOULÉ	0	1	60%	44%
89	MDF1103	OLHÃO	0	1	67%	56%
89	MDF1104	FARO	0	1	79%	40%
89	MDF1105	ALBUFEIRA	0	1	34%	76%
89	MDF1106	OLHÃO	0	1	67%	62%
89	MDF1107	ALBUFEIRA	0	1	34%	81%
89	MDF1108	OLHÃO	0	1	67%	62%
89	MDF1109	ALBUFEIRA	0	1	34%	79%
89	MDF1110	ALBUFEIRA	0	1	34%	85%
89	MDF1111	LOULÉ	0	1	60%	72%
89	MDF1112	LOULÉ	0	1	60%	67%
89	MDF1113	FARO	0	1	79%	60%
89	MDF1114	LOULÉ	0	1	60%	72%
89	MDF1115	LOULÉ	0	1	60%	62%
89	MDF1116	FARO	0	1	79%	62%
89	MDF1117	LOULÉ	0	1	60%	63%
89	MDF1118	FARO	0	1	79%	62%
89	MDF1119	SÃO BRÁS DE ALPORTEL	0	1	30%	81%
89	MDF1120	ALBUFEIRA	0	1	34%	80%
89	MDF1121	FARO	0	1	79%	57%
89	MDF1122	LOULÉ	0	1	60%	75%
89	MDF1123	LOULÉ	0	1	60%	68%
91	MDF1124	CALHETA (R.A.M.)	0	1	60%	65%
91	MDF1125	SANTANA	0	1	74%	63%
91	MDF1126	CALHETA (R.A.M.)	0	1	60%	62%
91	MDF1127	SANTA CRUZ	0	1	87%	29%
91	MDF1128	CÂMARA DE LOBOS	0	1	79%	31%
91	MDF1129	RIBEIRA BRAVA	0	1	51%	51%
91	MDF1130	PONTA DO SOL	0	1	58%	55%



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91	MDF1131	MACHICO	0	1	81%	35%
91	MDF1132	SANTA CRUZ	0	1	87%	28%
91	MDF1133	CÂMARA DE LOBOS	0	1	79%	38%
91	MDF1134	CÂMARA DE LOBOS	0	1	79%	39%
91	MDF1135	CALHETA (R.A.M.)	0	1	60%	64%
91	MDF1136	SANTA CRUZ	0	1	87%	35%
91	MDF1137	MACHICO	0	1	81%	40%
91	MDF1138	FUNCHAL	0	1	89%	25%
91	MDF1139	FUNCHAL	0	1	89%	29%
91	MDF1140	CALHETA (R.A.M.)	0	1	60%	57%
91	MDF1141	SÃO VICENTE	0	1	70%	61%
91	MDF1142	PONTA DO SOL	0	1	58%	57%
91	MDF1143	MACHICO	0	1	81%	42%
91	MDF1144	PORTO SANTO	0	1	65%	54%
91	MDF1145	RIBEIRA BRAVA	0	1	51%	43%
91	MDF1146	SÃO VICENTE	0	1	70%	69%
91	MDF1147	FUNCHAL	0	1	89%	26%
91	MDF1148	SANTA CRUZ	0	1	87%	33%
91	MDF1149	SANTANA	0	1	74%	62%
91	MDF1150	MACHICO	0	1	81%	50%
91	MDF1151	FUNCHAL	0	1	89%	29%
91	MDF1152	SANTANA	0	1	74%	64%
91	MDF1153	SANTANA	0	1	74%	57%
91	MDF1154	SÃO VICENTE	0	1	70%	67%
92	MDF1155	HORTA	0	1	41%	81%
92	MDF1156	HORTA	0	1	41%	81%
92	MDF1157	HORTA	0	1	41%	80%
92	MDF1158	HORTA	0	1	41%	79%
92	MDF1159	HORTA	0	1	41%	80%
92	MDF1160	HORTA	0	1	41%	78%
95	MDF1161	VILA DA PRAIA DA VITÓRIA	0	1	57%	67%
95	MDF1162	ANGRA DO HEROISMO	0	1	79%	66%
95	MDF1163	VILA DA PRAIA DA VITÓRIA	0	1	57%	75%
95	MDF1164	ANGRA DO HEROISMO	0	1	79%	74%
95	MDF1165	VILA DA PRAIA DA VITÓRIA	0	1	57%	77%
95	MDF1166	VILA DA PRAIA DA VITÓRIA	0	1	57%	73%
95	MDF1167	ANGRA DO HEROISMO	0	1	79%	69%
95	MDF1168	VILA DA PRAIA DA VITÓRIA	0	1	57%	75%
95	MDF1169	ANGRA DO HEROISMO	0	1	79%	66%
95	MDF1170	VILA DA PRAIA DA VITÓRIA	0	1	57%	90%
95	MDF1171	ANGRA DO HEROISMO	0	1	79%	71%
95	MDF1172	ANGRA DO HEROISMO	0	1	79%	69%
95	MDF1173	ANGRA DO HEROISMO	0	1	79%	59%
95	MDF1174	VILA DA PRAIA DA VITÓRIA	0	1	57%	71%
96	MDF1175	PONTA DELGADA	0	1	91%	69%
96	MDF1176	LAGOA (R.A.A)	0	1	83%	59%
96	MDF1177	PONTA DELGADA	0	1	91%	55%
96	MDF1178	PONTA DELGADA	0	1	91%	55%



96	MDF1179	LAGOA (R.A.A)	0	1	83%	64%
96	MDF1180	PONTA DELGADA	0	1	91%	53%
96	MDF1181	PONTA DELGADA	0	1	91%	58%
96	MDF1182	PONTA DELGADA	0	1	91%	51%
96	MDF1183	RIBEIRA GRANDE	0	1	66%	51%
96	MDF1184	PONTA DELGADA	0	1	91%	56%
96	MDF1185	PONTA DELGADA	0	1	91%	54%
96	MDF1186	LAGOA (R.A.A)	0	1	83%	58%
96	MDF1187	PONTA DELGADA	0	1	91%	60%
96	MDF1188	RIBEIRA GRANDE	0	1	66%	50%
96	MDF1189	RIBEIRA GRANDE	0	1	66%	57%
96	MDF1190	PONTA DELGADA	0	1	91%	54%
96	MDF1191	RIBEIRA GRANDE	0	1	66%	62%
96	MDF1192	VILA FRANCA DO CAMPO	0	1	97%	80%
96	MDF1193	VILA FRANCA DO CAMPO	0	1	97%	77%
96	MDF1194	RIBEIRA GRANDE	0	1	66%	62%
96	MDF1195	PONTA DELGADA	0	1	91%	54%
96	MDF1196	RIBEIRA GRANDE	0	1	66%	58%
96	MDF1197	VILA FRANCA DO CAMPO	0	1	97%	74%
96	MDF1198	RIBEIRA GRANDE	0	1	66%	53%
96	MDF1199	PONTA DELGADA	0	1	91%	53%
96	MDF1200	PONTA DELGADA	0	1	91%	60%
96	MDF1201	PONTA DELGADA	0	1	91%	59%
96	MDF1202	VILA FRANCA DO CAMPO	0	1	97%	80%
31	MDF1203	MORTÁGUA	0	0	0%	100%
31	MDF1204	MORTÁGUA	0	0	0%	87%
31	MDF1205	MORTÁGUA	0	0	0%	73%
31	MDF1206	MORTÁGUA	0	0	0%	79%
31	MDF1207	MORTÁGUA	0	0	0%	78%
32	MDF1208	AGUIAR DA BEIRA	0	0	0%	89%
32	MDF1209	OLIVEIRA DE FRADES	0	0	0%	96%
32	MDF1210	SÁTÃO	0	0	0%	95%
32	MDF1211	CARREGAL DO SAL	0	0	0%	94%
32	MDF1212	VOUZELA	0	0	0%	98%
32	MDF1213	VOUZELA	0	0	0%	90%
32	MDF1214	PENALVA DO CASTELO	0	0	0%	100%
32	MDF1215	AGUIAR DA BEIRA	0	0	0%	90%
32	MDF1216	CARREGAL DO SAL	0	0	0%	90%
32	MDF1217	CASTRO DAIRE	0	0	0%	88%
32	MDF1218	CASTRO DAIRE	0	0	0%	93%
32	MDF1219	AGUIAR DA BEIRA	0	0	0%	88%
32	MDF1220	SÁTÃO	0	0	0%	94%
32	MDF1221	CASTRO DAIRE	0	0	0%	95%
32	MDF1222	OLIVEIRA DE FRADES	0	0	0%	89%
32	MDF1223	CASTRO DAIRE	0	0	0%	98%
32	MDF1224	PENALVA DO CASTELO	0	0	0%	97%
32	MDF1225	VILA NOVA DE PAIVA	0	0	0%	100%
32	MDF1226	VOUZELA	0	0	0%	93%



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AUTORIDADE NACIONAL DE COMUNICAÇÕES

32	MDF1227	SANTA COMBA DÃO	0	0	0%	95%
32	MDF1228	SANTA COMBA DÃO	0	0	0%	93%
32	MDF1229	SÃO PEDRO DO SUL	0	0	0%	96%
32	MDF1230	SÃO PEDRO DO SUL	0	0	0%	91%
32	MDF1231	SÁTÃO	0	0	0%	91%
32	MDF1232	SÃO PEDRO DO SUL	0	0	0%	92%
32	MDF1233	MOIMENTA DA BEIRA	0	0	0%	100%
32	MDF1234	SÃO PEDRO DO SUL	0	0	0%	97%
32	MDF1235	VILA NOVA DE PAIVA	0	0	0%	100%
32	MDF1236	SÁTÃO	0	0	0%	95%
32	MDF1237	VILA NOVA DE PAIVA	0	0	0%	88%
32	MDF1238	SANTA COMBA DÃO	0	0	0%	97%
32	MDF1239	VOUZELA	0	0	0%	93%
34	MDF1240	SEVER DO VOUGA	0	0	0%	95%
34	MDF1241	SEVER DO VOUGA	0	0	0%	90%
34	MDF1242	SEVER DO VOUGA	0	0	0%	91%
35	MDF1243	GÓIS	0	0	0%	82%
35	MDF1244	PAMPILHOSA DA SERRA	0	0	0%	86%
35	MDF1245	ARGANIL	0	0	0%	94%
35	MDF1246	PAMPILHOSA DA SERRA	0	0	0%	98%
35	MDF1247	ARGANIL	0	0	0%	95%
35	MDF1248	GÓIS	0	0	0%	100%
35	MDF1249	PAMPILHOSA DA SERRA	0	0	0%	100%
35	MDF1250	GÓIS	0	0	0%	95%
35	MDF1251	TÁBUA	0	0	0%	89%
35	MDF1252	TÁBUA	0	0	0%	94%
35	MDF1253	PAMPILHOSA DA SERRA	0	0	0%	96%
35	MDF1254	PAMPILHOSA DA SERRA	0	0	0%	93%
35	MDF1255	ARGANIL	0	0	0%	100%
35	MDF1256	ARGANIL	0	0	0%	92%
35	MDF1257	TÁBUA	0	0	0%	93%
36	MDF1258	ALVAIÁZERE	0	0	0%	94%
36	MDF1259	ALVAIÁZERE	0	0	0%	86%
36	MDF1260	ANSIÃO	0	0	0%	97%
36	MDF1261	ANSIÃO	0	0	0%	92%
36	MDF1262	ANSIÃO	0	0	0%	86%
36	MDF1263	ALVAIÁZERE	0	0	0%	84%
36	MDF1264	CASTANHEIRA DE PÊRA	0	0	0%	92%
36	MDF1265	ANSIÃO	0	0	0%	95%
36	MDF1266	FIGUEIRÓ DOS VINHOS	0	0	0%	91%
36	MDF1267	ANSIÃO	0	0	0%	91%
36	MDF1268	ANSIÃO	0	0	0%	91%
36	MDF1269	ALVAIÁZERE	0	0	0%	90%
36	MDF1270	ANSIÃO	0	0	0%	100%
36	MDF1271	ANSIÃO	0	0	0%	100%
36	MDF1272	PEDRÓGÃO GRANDE	0	0	0%	90%
36	MDF1273	SERTÃ	0	0	0%	92%
36	MDF1274	PEDRÓGÃO GRANDE	0	0	0%	91%



39	MDF1275	PENELA	0	0	0%	94%
39	MDF1276	PENACOVA	0	0	0%	95%
39	MDF1277	MIRANDA DO CORVO	0	0	0%	90%
39	MDF1278	PENACOVA	0	0	0%	92%
39	MDF1279	PENELA	0	0	0%	83%
39	MDF1280	ARGANIL	0	0	0%	95%
39	MDF1281	MIRANDA DO CORVO	0	0	0%	92%
39	MDF1282	PENACOVA	0	0	0%	89%
39	MDF1283	SOURE	0	0	0%	89%
39	MDF1284	PENACOVA	0	0	0%	91%
39	MDF1285	PENACOVA	0	0	0%	100%
39	MDF1286	SOURE	0	0	0%	89%
39	MDF1287	VILA NOVA DE POIARES	0	0	0%	82%
39	MDF1288	SOURE	0	0	0%	89%
41	MDF1289	GAVIÃO	0	0	0%	96%
41	MDF1290	MAÇÃO	0	0	0%	76%
41	MDF1291	MAÇÃO	0	0	0%	96%
41	MDF1292	MAÇÃO	0	0	0%	92%
41	MDF1293	GAVIÃO	0	0	0%	95%
41	MDF1294	MAÇÃO	0	0	0%	95%
41	MDF1295	MAÇÃO	0	0	0%	98%
41	MDF1296	MAÇÃO	0	0	0%	86%
41	MDF1297	SARDOAL	0	0	0%	94%
41	MDF1298	GAVIÃO	0	0	0%	100%
42	MDF1299	AVIS	0	0	0%	90%
42	MDF1300	AVIS	0	0	0%	99%
42	MDF1301	AVIS	0	0	0%	94%
42	MDF1302	PONTE DE SOR	0	0	0%	100%
42	MDF1303	PONTE DE SOR	0	0	0%	97%
42	MDF1304	PONTE DE SOR	0	0	0%	100%
42	MDF1305	PONTE DE SOR	0	0	0%	89%
42	MDF1306	PONTE DE SOR	0	0	0%	94%
42	MDF1307	PONTE DE SOR	0	0	0%	97%
42	MDF1308	PONTE DE SOR	0	0	0%	96%
43	MDF1309	CORUCHE	0	0	0%	96%
43	MDF1310	CORUCHE	0	0	0%	92%
43	MDF1311	CORUCHE	0	0	0%	93%
43	MDF1312	CORUCHE	0	0	0%	95%
43	MDF1313	CORUCHE	0	0	0%	94%
43	MDF1314	SALVATERRA DE MAGOS	0	0	0%	94%
43	MDF1315	CORUCHE	0	0	0%	93%
43	MDF1316	CORUCHE	0	0	0%	97%
43	MDF1317	SALVATERRA DE MAGOS	0	0	0%	88%
43	MDF1318	CORUCHE	0	0	0%	97%
43	MDF1319	CORUCHE	0	0	0%	100%
45	MDF1320	CRATO	0	0	0%	96%
45	MDF1321	NISA	0	0	0%	91%
45	MDF1322	ALTER DO CHÃO	0	0	0%	91%



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AUTORIDADE NACIONAL DE COMUNICAÇÕES

45	MDF1323	NISA	0	0	0%	91%
45	MDF1324	NISA	0	0	0%	100%
45	MDF1325	ARRONCHES	0	0	0%	98%
45	MDF1326	MONFORTE	0	0	0%	98%
45	MDF1327	FRONTEIRA	0	0	0%	97%
45	MDF1328	CASTELO DE VIDE	0	0	0%	96%
45	MDF1329	ALTER DO CHÃO	0	0	0%	97%
45	MDF1330	GAVIÃO	0	0	0%	97%
45	MDF1331	CRATO	0	0	0%	85%
45	MDF1332	ALTER DO CHÃO	0	0	0%	100%
45	MDF1333	ARRONCHES	0	0	0%	96%
45	MDF1334	FRONTEIRA	0	0	0%	97%
45	MDF1335	CRATO	0	0	0%	97%
45	MDF1336	MARVÃO	0	0	0%	97%
45	MDF1337	MONFORTE	0	0	0%	91%
45	MDF1338	NISA	0	0	0%	100%
45	MDF1339	CRATO	0	0	0%	83%
45	MDF1340	ARRONCHES	0	0	0%	100%
45	MDF1341	NISA	0	0	0%	96%
45	MDF1342	MARVÃO	0	0	0%	92%
45	MDF1343	CASTELO DE VIDE	0	0	0%	97%
45	MDF1344	MARVÃO	0	0	0%	93%
45	MDF1345	ALTER DO CHÃO	0	0	0%	89%
45	MDF1346	NISA	0	0	0%	98%
45	MDF1347	MONFORTE	0	0	0%	97%
45	MDF1348	FRONTEIRA	0	0	0%	94%
45	MDF1349	CRATO	0	0	0%	93%
45	MDF1350	NISA	0	0	0%	94%
49	MDF1351	FERREIRA DO ZÉZERE	0	0	0%	90%
49	MDF1352	GOLEGÃ	0	0	0%	99%
49	MDF1353	CHAMUSCA	0	0	0%	92%
49	MDF1354	CONSTÂNCIA	0	0	0%	94%
49	MDF1355	FERREIRA DO ZÉZERE	0	0	0%	91%
49	MDF1356	CHAMUSCA	0	0	0%	100%
49	MDF1357	GOLEGÃ	0	0	0%	94%
49	MDF1358	VILA NOVA DA BARQUINHA	0	0	0%	92%
49	MDF1359	FERREIRA DO ZÉZERE	0	0	0%	89%
49	MDF1360	CHAMUSCA	0	0	0%	96%
49	MDF1361	CHAMUSCA	0	0	0%	94%
49	MDF1362	VILA NOVA DA BARQUINHA	0	0	0%	95%
49	MDF1363	CONSTÂNCIA	0	0	0%	91%
49	MDF1364	CHAMUSCA	0	0	0%	100%
49	MDF1365	CHAMUSCA	0	0	0%	94%
49	MDF1366	CHAMUSCA	0	0	0%	96%
51	MDF1367	MELGAÇO	0	0	0%	88%
51	MDF1368	VILA NOVA DE CERVEIRA	0	0	0%	81%
51	MDF1369	MELGAÇO	0	0	0%	90%
51	MDF1370	PAREDES DE COURA	0	0	0%	94%



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AUTORIDADE NACIONAL DE COMUNICAÇÕES

51	MDF1371	VALENÇA	0	0	0%	94%
51	MDF1372	MELGAÇO	0	0	0%	88%
51	MDF1373	MONÇÃO	0	0	0%	92%
51	MDF1374	MONÇÃO	0	0	0%	92%
51	MDF1375	PAREDES DE COURA	0	0	0%	87%
51	MDF1376	MELGAÇO	0	0	0%	82%
51	MDF1377	MELGAÇO	0	0	0%	100%
51	MDF1378	VALENÇA	0	0	0%	78%
51	MDF1379	MONÇÃO	0	0	0%	96%
51	MDF1380	MONÇÃO	0	0	0%	92%
51	MDF1381	VILA NOVA DE CERVEIRA	0	0	0%	89%
53	MDF1382	VILA DE REI	0	0	0%	77%
53	MDF1383	MONTALEGRE	0	0	0%	93%
53	MDF1384	CABECEIRAS DE BASTO	0	0	0%	79%
53	MDF1385	MONTALEGRE	0	0	0%	100%
53	MDF1386	CABECEIRAS DE BASTO	0	0	0%	78%
53	MDF1387	VIEIRA DO MINHO	0	0	0%	88%
53	MDF1388	TERRAS DE BOURO	0	0	0%	71%
53	MDF1389	MONTALEGRE	0	0	0%	83%
53	MDF1390	TERRAS DE BOURO	0	0	0%	89%
53	MDF1391	PÓVOA DE LANHOSO	0	0	0%	83%
53	MDF1392	CELORICO DE BASTO	0	0	0%	87%
53	MDF1393	TERRAS DE BOURO	0	0	0%	92%
53	MDF1394	VIEIRA DO MINHO	0	0	0%	100%
53	MDF1395	VILA DE REI	0	0	0%	96%
53	MDF1396	VILA DE REI	0	0	0%	89%
53	MDF1397	PÓVOA DE LANHOSO	0	0	0%	87%
53	MDF1398	PÓVOA DE LANHOSO	0	0	0%	79%
53	MDF1399	CELORICO DE BASTO	0	0	0%	97%
53	MDF1400	VIEIRA DO MINHO	0	0	0%	92%
53	MDF1401	VIEIRA DO MINHO	0	0	0%	100%
53	MDF1402	PÓVOA DE LANHOSO	0	0	0%	83%
53	MDF1403	PÓVOA DE LANHOSO	0	0	0%	95%
53	MDF1404	TERRAS DE BOURO	0	0	0%	84%
53	MDF1405	TERRAS DE BOURO	0	0	0%	91%
53	MDF1406	VIEIRA DO MINHO	0	0	0%	92%
54	MDF1407	TABUAÇO	0	0	0%	98%
54	MDF1408	RESENDE	0	0	0%	95%
54	MDF1409	ARMAMAR	0	0	0%	93%
54	MDF1410	LAMEGO	0	0	0%	88%
54	MDF1411	LAMEGO	0	0	0%	91%
54	MDF1412	SÃO JOÃO DA PESQUEIRA	0	0	0%	100%
54	MDF1413	SÃO JOÃO DA PESQUEIRA	0	0	0%	100%
54	MDF1414	SERNANCELHE	0	0	0%	100%
54	MDF1415	MOIMENTA DA BEIRA	0	0	0%	97%
54	MDF1416	LAMEGO	0	0	0%	94%
54	MDF1417	SANTA MARTA DE PENAGUIÃO	0	0	0%	96%
54	MDF1418	MESÃO FRIO	0	0	0%	96%



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AUTORIDADE NACIONAL DE COMUNICAÇÕES

54	MDF1419	MOIMENTA DA BEIRA	0	0	0%	94%
54	MDF1420	SÃO JOÃO DA PESQUEIRA	0	0	0%	97%
54	MDF1421	LAMEGO	0	0	0%	98%
54	MDF1422	PENEDONO	0	0	0%	94%
54	MDF1423	ALIJÓ	0	0	0%	96%
54	MDF1424	LAMEGO	0	0	0%	97%
54	MDF1425	SERNANCELHE	0	0	0%	100%
54	MDF1426	RESENDE	0	0	0%	90%
54	MDF1427	TAROUCA	0	0	0%	97%
54	MDF1428	BAIÃO	0	0	0%	98%
54	MDF1429	BAIÃO	0	0	0%	95%
54	MDF1430	SANTA MARTA DE PENAGUIÃO	0	0	0%	88%
54	MDF1431	ARMAMAR	0	0	0%	97%
54	MDF1432	SÃO JOÃO DA PESQUEIRA	0	0	0%	96%
54	MDF1433	RESENDE	0	0	0%	95%
54	MDF1434	SERNANCELHE	0	0	0%	86%
54	MDF1435	TABUAÇO	0	0	0%	95%
54	MDF1436	TAROUCA	0	0	0%	90%
54	MDF1437	LAMEGO	0	0	0%	95%
54	MDF1438	MOIMENTA DA BEIRA	0	0	0%	99%
54	MDF1439	MESÃO FRIO	0	0	0%	95%
54	MDF1440	SÃO JOÃO DA PESQUEIRA	0	0	0%	100%
55	MDF1441	MARCO DE CANAVESES	0	0	0%	93%
55	MDF1442	BAIÃO	0	0	0%	95%
55	MDF1443	MONDIM DE BASTO	0	0	0%	92%
55	MDF1444	BAIÃO	0	0	0%	87%
55	MDF1445	MARCO DE CANAVESES	0	0	0%	95%
55	MDF1446	CASTELO DE PAIVA	0	0	0%	94%
55	MDF1447	CELORICO DE BASTO	0	0	0%	84%
55	MDF1448	CINFÃES	0	0	0%	90%
55	MDF1449	CINFÃES	0	0	0%	92%
55	MDF1450	CINFÃES	0	0	0%	98%
55	MDF1451	MARCO DE CANAVESES	0	0	0%	90%
55	MDF1452	CELORICO DE BASTO	0	0	0%	84%
55	MDF1453	CELORICO DE BASTO	0	0	0%	90%
55	MDF1454	MARCO DE CANAVESES	0	0	0%	94%
55	MDF1455	MONDIM DE BASTO	0	0	0%	87%
55	MDF1456	CASTELO DE PAIVA	0	0	0%	91%
55	MDF1457	MARCO DE CANAVESES	0	0	0%	92%
55	MDF1458	CINFÃES	0	0	0%	97%
55	MDF1459	MARCO DE CANAVESES	0	0	0%	91%
55	MDF1460	MARCO DE CANAVESES	0	0	0%	92%
55	MDF1461	MONDIM DE BASTO	0	0	0%	89%
56	MDF1462	AROUCA	0	0	0%	95%
56	MDF1463	AROUCA	0	0	0%	85%
56	MDF1464	AROUCA	0	0	0%	92%
56	MDF1465	AROUCA	0	0	0%	95%
58	MDF1466	ARCOS DE VALDEVEZ	0	0	0%	88%



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AUTORIDADE NACIONAL DE COMUNICAÇÕES

58	MDF1467	PONTE DE LIMA	0	0	0%	88%
58	MDF1468	ARCOS DE VALDEVEZ	0	0	0%	93%
58	MDF1469	ARCOS DE VALDEVEZ	0	0	0%	100%
58	MDF1470	PONTE DA BARCA	0	0	0%	93%
58	MDF1471	PONTE DA BARCA	0	0	0%	92%
58	MDF1472	PONTE DE LIMA	0	0	0%	88%
58	MDF1473	PONTE DE LIMA	0	0	0%	94%
58	MDF1474	ARCOS DE VALDEVEZ	0	0	0%	93%
58	MDF1475	PONTE DE LIMA	0	0	0%	92%
58	MDF1476	PONTE DE LIMA	0	0	0%	93%
58	MDF1477	PONTE DA BARCA	0	0	0%	94%
58	MDF1478	ARCOS DE VALDEVEZ	0	0	0%	90%
59	MDF1479	ALIJÓ	0	0	0%	95%
59	MDF1480	VILA POUCA DE AGUIAR	0	0	0%	95%
59	MDF1481	MURÇA	0	0	0%	100%
59	MDF1482	ALIJÓ	0	0	0%	100%
59	MDF1483	RIBEIRA DE PENA	0	0	0%	91%
59	MDF1484	SANTA MARTA DE PENAGUIÃO	0	0	0%	98%
59	MDF1485	ALIJÓ	0	0	0%	95%
59	MDF1486	MURÇA	0	0	0%	93%
59	MDF1487	MURÇA	0	0	0%	93%
59	MDF1488	VILA POUCA DE AGUIAR	0	0	0%	91%
59	MDF1489	ALIJÓ	0	0	0%	96%
59	MDF1490	RIBEIRA DE PENA	0	0	0%	94%
59	MDF1491	SABROSA	0	0	0%	88%
59	MDF1492	VILA POUCA DE AGUIAR	0	0	0%	91%
59	MDF1493	ALIJÓ	0	0	0%	95%
59	MDF1494	ALIJÓ	0	0	0%	100%
59	MDF1495	VILA POUCA DE AGUIAR	0	0	0%	91%
59	MDF1496	VILA POUCA DE AGUIAR	0	0	0%	89%
59	MDF1497	ALIJÓ	0	0	0%	91%
61	MDF1498	SOBRAL DE MONTE AGRAÇO	0	0	0%	91%
63	MDF1499	SALVATERRA DE MAGOS	0	0	0%	94%
63	MDF1500	SALVATERRA DE MAGOS	0	0	0%	88%
63	MDF1501	SALVATERRA DE MAGOS	0	0	0%	91%
63	MDF1502	SALVATERRA DE MAGOS	0	0	0%	91%
65	MDF1503	ALCÁCER DO SAL	0	0	0%	100%
65	MDF1504	ALCÁCER DO SAL	0	0	0%	100%
65	MDF1505	ALCÁCER DO SAL	0	0	0%	81%
65	MDF1506	ALCÁCER DO SAL	0	0	0%	97%
65	MDF1507	ALCÁCER DO SAL	0	0	0%	100%
65	MDF1508	ALCÁCER DO SAL	0	0	0%	100%
65	MDF1509	ALCÁCER DO SAL	0	0	0%	100%
65	MDF1510	ALCÁCER DO SAL	0	0	0%	100%
65	MDF1511	ALCÁCER DO SAL	0	0	0%	94%
65	MDF1512	ALCÁCER DO SAL	0	0	0%	100%
66	MDF1513	VIANA DO ALENTEJO	0	0	0%	97%
66	MDF1514	VIANA DO ALENTEJO	0	0	0%	90%



66	MDF1515	MOURÃO	0	0	0%	100%
66	MDF1516	ARRAIOS	0	0	0%	90%
66	MDF1517	MORA	0	0	0%	96%
66	MDF1518	MORA	0	0	0%	100%
66	MDF1519	REGUENGOS DE MONSARAZ	0	0	0%	98%
66	MDF1520	REDONDO	0	0	0%	100%
66	MDF1521	MOURÃO	0	0	0%	100%
66	MDF1522	ARRAIOS	0	0	0%	97%
66	MDF1523	MORA	0	0	0%	100%
66	MDF1524	REDONDO	0	0	0%	97%
66	MDF1525	MORA	0	0	0%	92%
66	MDF1526	MOURÃO	0	0	0%	95%
66	MDF1527	MORA	0	0	0%	98%
66	MDF1528	REDONDO	0	0	0%	94%
66	MDF1529	REGUENGOS DE MONSARAZ	0	0	0%	93%
66	MDF1530	REDONDO	0	0	0%	100%
66	MDF1531	ARRAIOS	0	0	0%	100%
66	MDF1532	ARRAIOS	0	0	0%	91%
66	MDF1533	REGUENGOS DE MONSARAZ	0	0	0%	100%
66	MDF1534	REGUENGOS DE MONSARAZ	0	0	0%	96%
66	MDF1535	REGUENGOS DE MONSARAZ	0	0	0%	98%
66	MDF1536	VIANA DO ALENTEJO	0	0	0%	95%
66	MDF1537	ARRAIOS	0	0	0%	96%
68	MDF1538	ALANDROAL	0	0	0%	93%
68	MDF1539	ALANDROAL	0	0	0%	95%
68	MDF1540	VILA VIÇOSA	0	0	0%	99%
68	MDF1541	SOUSEL	0	0	0%	97%
68	MDF1542	SOUSEL	0	0	0%	99%
68	MDF1543	ALANDROAL	0	0	0%	100%
68	MDF1544	ALANDROAL	0	0	0%	100%
68	MDF1545	MONFORTE	0	0	0%	96%
68	MDF1546	SOUSEL	0	0	0%	96%
68	MDF1547	VILA VIÇOSA	0	0	0%	100%
68	MDF1548	SOUSEL	0	0	0%	96%
68	MDF1549	ALANDROAL	0	0	0%	96%
68	MDF1550	VILA VIÇOSA	0	0	0%	95%
71	MDF1551	SABUGAL	0	0	0%	92%
71	MDF1552	ALMEIDA	0	0	0%	82%
71	MDF1553	SABUGAL	0	0	0%	88%
71	MDF1554	FIGUEIRA DE CASTELO RODRIGO	0	0	0%	100%
71	MDF1555	ALMEIDA	0	0	0%	97%
71	MDF1556	PINHEL	0	0	0%	96%
71	MDF1557	PINHEL	0	0	0%	92%
71	MDF1558	FIGUEIRA DE CASTELO RODRIGO	0	0	0%	100%
71	MDF1559	CELORICO DA BEIRA	0	0	0%	100%
71	MDF1560	CELORICO DA BEIRA	0	0	0%	99%
71	MDF1561	CELORICO DA BEIRA	0	0	0%	95%
71	MDF1562	SABUGAL	0	0	0%	96%



71	MDF1563	TRANCOSO	0	0	0%	94%
71	MDF1564	FIGUEIRA DE CASTELO RODRIGO	0	0	0%	100%
71	MDF1565	FIGUEIRA DE CASTELO RODRIGO	0	0	0%	95%
71	MDF1566	FORNOS DE ALGODRES	0	0	0%	91%
71	MDF1567	TRANCOSO	0	0	0%	93%
71	MDF1568	PINHEL	0	0	0%	95%
71	MDF1569	CELORICO DA BEIRA	0	0	0%	92%
71	MDF1570	FORNOS DE ALGODRES	0	0	0%	98%
71	MDF1571	SABUGAL	0	0	0%	92%
71	MDF1572	ALMEIDA	0	0	0%	93%
71	MDF1573	ALMEIDA	0	0	0%	100%
71	MDF1574	ALMEIDA	0	0	0%	93%
71	MDF1575	PINHEL	0	0	0%	93%
71	MDF1576	PINHEL	0	0	0%	98%
71	MDF1577	CELORICO DA BEIRA	0	0	0%	100%
71	MDF1578	FIGUEIRA DE CASTELO RODRIGO	0	0	0%	96%
71	MDF1579	SABUGAL	0	0	0%	87%
71	MDF1580	SABUGAL	0	0	0%	93%
71	MDF1581	PINHEL	0	0	0%	98%
71	MDF1582	SABUGAL	0	0	0%	91%
71	MDF1583	SABUGAL	0	0	0%	93%
71	MDF1584	TRANCOSO	0	0	0%	100%
71	MDF1585	TRANCOSO	0	0	0%	95%
71	MDF1586	SABUGAL	0	0	0%	100%
71	MDF1587	FIGUEIRA DE CASTELO RODRIGO	0	0	0%	100%
71	MDF1588	TRANCOSO	0	0	0%	97%
71	MDF1589	TRANCOSO	0	0	0%	96%
71	MDF1590	ALMEIDA	0	0	0%	88%
72	MDF1591	OLEIROS	0	0	0%	100%
72	MDF1592	VILA VELHA DE RÓDÃO	0	0	0%	100%
72	MDF1593	OLEIROS	0	0	0%	100%
72	MDF1594	OLEIROS	0	0	0%	100%
72	MDF1595	OLEIROS	0	0	0%	98%
72	MDF1596	VILA VELHA DE RÓDÃO	0	0	0%	97%
72	MDF1597	OLEIROS	0	0	0%	100%
72	MDF1598	OLEIROS	0	0	0%	92%
72	MDF1599	OLEIROS	0	0	0%	75%
72	MDF1600	VILA VELHA DE RÓDÃO	0	0	0%	96%
72	MDF1601	VILA VELHA DE RÓDÃO	0	0	0%	96%
73	MDF1602	VIMIOSO	0	0	0%	100%
73	MDF1603	VIMIOSO	0	0	0%	87%
73	MDF1604	VIMIOSO	0	0	0%	78%
73	MDF1605	VIMIOSO	0	0	0%	100%
73	MDF1606	MIRANDA DO DOURO	0	0	0%	96%
73	MDF1607	VINHAIS	0	0	0%	100%
73	MDF1608	MIRANDA DO DOURO	0	0	0%	100%
73	MDF1609	MIRANDA DO DOURO	0	0	0%	88%
73	MDF1610	MIRANDA DO DOURO	0	0	0%	97%



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AUTORIDADE NACIONAL DE COMUNICAÇÕES

73	MDF1611	VINHAIIS	0	0	0%	100%
73	MDF1612	VINHAIIS	0	0	0%	100%
73	MDF1613	MIRANDA DO DOURO	0	0	0%	97%
73	MDF1614	VINHAIIS	0	0	0%	100%
73	MDF1615	VIMIOSO	0	0	0%	100%
73	MDF1616	MIRANDA DO DOURO	0	0	0%	100%
73	MDF1617	MIRANDA DO DOURO	0	0	0%	100%
73	MDF1618	MIRANDA DO DOURO	0	0	0%	96%
73	MDF1619	VINHAIIS	0	0	0%	100%
73	MDF1620	VINHAIIS	0	0	0%	100%
73	MDF1621	VIMIOSO	0	0	0%	90%
73	MDF1622	VINHAIIS	0	0	0%	96%
74	MDF1623	MAÇÃO	0	0	0%	92%
74	MDF1624	MAÇÃO	0	0	0%	100%
74	MDF1625	PROENÇA-A-NOVA	0	0	0%	98%
74	MDF1626	SERTÃ	0	0	0%	91%
74	MDF1627	VILA DE REI	0	0	0%	93%
74	MDF1628	PROENÇA-A-NOVA	0	0	0%	100%
74	MDF1629	PROENÇA-A-NOVA	0	0	0%	92%
74	MDF1630	PROENÇA-A-NOVA	0	0	0%	95%
74	MDF1631	SERTÃ	0	0	0%	94%
74	MDF1632	PROENÇA-A-NOVA	0	0	0%	97%
74	MDF1633	SERTÃ	0	0	0%	96%
74	MDF1634	SERTÃ	0	0	0%	97%
74	MDF1635	VILA DE REI	0	0	0%	94%
75	MDF1636	SABUGAL	0	0	0%	87%
75	MDF1637	MANTEIGAS	0	0	0%	97%
76	MDF1638	MONTALEGRE	0	0	0%	90%
76	MDF1639	BOTICAS	0	0	0%	90%
76	MDF1640	BOTICAS	0	0	0%	88%
76	MDF1641	BOTICAS	0	0	0%	85%
76	MDF1642	MONTALEGRE	0	0	0%	97%
76	MDF1643	VALPAÇOS	0	0	0%	100%
76	MDF1644	MONTALEGRE	0	0	0%	94%
76	MDF1645	MONTALEGRE	0	0	0%	98%
76	MDF1646	MONTALEGRE	0	0	0%	97%
76	MDF1647	MONTALEGRE	0	0	0%	86%
77	MDF1648	IDANHA-A-NOVA	0	0	0%	100%
77	MDF1649	PENAMACOR	0	0	0%	93%
77	MDF1650	PENAMACOR	0	0	0%	98%
77	MDF1651	IDANHA-A-NOVA	0	0	0%	95%
77	MDF1652	IDANHA-A-NOVA	0	0	0%	99%
77	MDF1653	IDANHA-A-NOVA	0	0	0%	90%
77	MDF1654	IDANHA-A-NOVA	0	0	0%	97%
77	MDF1655	PENAMACOR	0	0	0%	97%
77	MDF1656	PENAMACOR	0	0	0%	92%
77	MDF1657	IDANHA-A-NOVA	0	0	0%	100%
77	MDF1658	IDANHA-A-NOVA	0	0	0%	100%



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AUTORIDADE NACIONAL DE COMUNICAÇÕES

77	MDF1659	IDANHA-A-NOVA	0	0	0%	94%
77	MDF1660	IDANHA-A-NOVA	0	0	0%	100%
77	MDF1661	IDANHA-A-NOVA	0	0	0%	100%
77	MDF1662	IDANHA-A-NOVA	0	0	0%	98%
77	MDF1663	IDANHA-A-NOVA	0	0	0%	100%
77	MDF1664	IDANHA-A-NOVA	0	0	0%	100%
78	MDF1665	MIRANDELA	0	0	0%	94%
78	MDF1666	MACEDO DE CAVALEIROS	0	0	0%	89%
78	MDF1667	MACEDO DE CAVALEIROS	0	0	0%	100%
78	MDF1668	MIRANDELA	0	0	0%	98%
78	MDF1669	VILA FLOR	0	0	0%	100%
78	MDF1670	CARRAZEDA DE ANSIÃES	0	0	0%	93%
78	MDF1671	VALPAÇOS	0	0	0%	94%
78	MDF1672	MIRANDELA	0	0	0%	89%
78	MDF1673	CARRAZEDA DE ANSIÃES	0	0	0%	100%
78	MDF1674	MOGADOURO	0	0	0%	100%
78	MDF1675	MACEDO DE CAVALEIROS	0	0	0%	97%
78	MDF1676	VINHAI	0	0	0%	94%
78	MDF1677	MACEDO DE CAVALEIROS	0	0	0%	82%
78	MDF1678	MIRANDELA	0	0	0%	100%
78	MDF1679	MIRANDELA	0	0	0%	96%
78	MDF1680	VILA FLOR	0	0	0%	97%
78	MDF1681	MIRANDELA	0	0	0%	96%
78	MDF1682	MACEDO DE CAVALEIROS	0	0	0%	100%
78	MDF1683	MACEDO DE CAVALEIROS	0	0	0%	100%
78	MDF1684	MACEDO DE CAVALEIROS	0	0	0%	89%
78	MDF1685	MIRANDELA	0	0	0%	100%
78	MDF1686	MACEDO DE CAVALEIROS	0	0	0%	100%
78	MDF1687	MIRANDELA	0	0	0%	95%
78	MDF1688	MACEDO DE CAVALEIROS	0	0	0%	95%
78	MDF1689	CARRAZEDA DE ANSIÃES	0	0	0%	96%
78	MDF1690	VINHAI	0	0	0%	100%
78	MDF1691	MIRANDELA	0	0	0%	90%
78	MDF1692	MACEDO DE CAVALEIROS	0	0	0%	93%
78	MDF1693	VILA FLOR	0	0	0%	93%
78	MDF1694	VALPAÇOS	0	0	0%	100%
78	MDF1695	VALPAÇOS	0	0	0%	100%
78	MDF1696	VALPAÇOS	0	0	0%	97%
78	MDF1697	CARRAZEDA DE ANSIÃES	0	0	0%	98%
78	MDF1698	MIRANDELA	0	0	0%	94%
78	MDF1699	MIRANDELA	0	0	0%	98%
78	MDF1700	VALPAÇOS	0	0	0%	91%
78	MDF1701	VILA FLOR	0	0	0%	89%
78	MDF1702	VALPAÇOS	0	0	0%	89%
78	MDF1703	CARRAZEDA DE ANSIÃES	0	0	0%	97%
78	MDF1704	VILA FLOR	0	0	0%	96%
79	MDF1705	ALFÂNDEGA DA FÉ	0	0	0%	100%
79	MDF1706	ALFÂNDEGA DA FÉ	0	0	0%	94%



79	MDF1707	VILA NOVA DE FOZ CÔA	0	0	0%	97%
79	MDF1708	MOGADOURO	0	0	0%	89%
79	MDF1709	TORRE DE MONCORVO	0	0	0%	100%
79	MDF1710	TORRE DE MONCORVO	0	0	0%	97%
79	MDF1711	MOGADOURO	0	0	0%	100%
79	MDF1712	VILA NOVA DE FOZ CÔA	0	0	0%	97%
79	MDF1713	VILA NOVA DE FOZ CÔA	0	0	0%	100%
79	MDF1714	TORRE DE MONCORVO	0	0	0%	98%
79	MDF1715	ALFÂNDEGA DA FÉ	0	0	0%	79%
79	MDF1716	FREIXO DE ESPADA À CINTA	0	0	0%	95%
79	MDF1717	VILA NOVA DE FOZ CÔA	0	0	0%	100%
79	MDF1718	TORRE DE MONCORVO	0	0	0%	96%
79	MDF1719	FREIXO DE ESPADA À CINTA	0	0	0%	100%
79	MDF1720	FREIXO DE ESPADA À CINTA	0	0	0%	94%
79	MDF1721	MEDA	0	0	0%	100%
79	MDF1722	TORRE DE MONCORVO	0	0	0%	100%
79	MDF1723	MEDA	0	0	0%	95%
79	MDF1724	MEDA	0	0	0%	96%
79	MDF1725	MOGADOURO	0	0	0%	90%
79	MDF1726	TORRE DE MONCORVO	0	0	0%	92%
79	MDF1727	ALFÂNDEGA DA FÉ	0	0	0%	92%
79	MDF1728	MOGADOURO	0	0	0%	94%
79	MDF1729	MOGADOURO	0	0	0%	100%
79	MDF1730	ALFÂNDEGA DA FÉ	0	0	0%	96%
79	MDF1731	VILA NOVA DE FOZ CÔA	0	0	0%	100%
79	MDF1732	TORRE DE MONCORVO	0	0	0%	100%
79	MDF1733	TORRE DE MONCORVO	0	0	0%	100%
79	MDF1734	MEDA	0	0	0%	89%
79	MDF1735	MOGADOURO	0	0	0%	100%
79	MDF1736	VILA NOVA DE FOZ CÔA	0	0	0%	95%
79	MDF1737	MOGADOURO	0	0	0%	100%
81	MDF1738	ALCOUTIM	0	0	0%	96%
81	MDF1739	CASTRO MARIM	0	0	0%	93%
81	MDF1740	CASTRO MARIM	0	0	0%	96%
81	MDF1741	ALCOUTIM	0	0	0%	94%
81	MDF1742	CASTRO MARIM	0	0	0%	93%
81	MDF1743	ALCOUTIM	0	0	0%	97%
82	MDF1744	ALJEZUR	0	0	0%	96%
82	MDF1745	ALJEZUR	0	0	0%	90%
82	MDF1746	ODEMIRA	0	0	0%	100%
82	MDF1747	VILA DO BISPO	0	0	0%	94%
82	MDF1748	MONCHIQUE	0	0	0%	91%
82	MDF1749	MONCHIQUE	0	0	0%	100%
82	MDF1750	MONCHIQUE	0	0	0%	96%
82	MDF1751	ALJEZUR	0	0	0%	95%
82	MDF1752	ALJEZUR	0	0	0%	94%
82	MDF1753	VILA DO BISPO	0	0	0%	95%
82	MDF1754	ALJEZUR	0	0	0%	97%



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AUTORIDADE NACIONAL DE COMUNICAÇÕES

82	MDF1755	VILA DO BISPO	0	0	0%	98%
83	MDF1756	ODEMIRA	0	0	0%	100%
83	MDF1757	ODEMIRA	0	0	0%	93%
83	MDF1758	ODEMIRA	0	0	0%	100%
83	MDF1759	ODEMIRA	0	0	0%	91%
83	MDF1760	ODEMIRA	0	0	0%	98%
83	MDF1761	ODEMIRA	0	0	0%	99%
83	MDF1762	ODEMIRA	0	0	0%	95%
83	MDF1763	ODEMIRA	0	0	0%	90%
83	MDF1764	ODEMIRA	0	0	0%	93%
83	MDF1765	ODEMIRA	0	0	0%	98%
83	MDF1766	ODEMIRA	0	0	0%	98%
83	MDF1767	ODEMIRA	0	0	0%	96%
83	MDF1768	ODEMIRA	0	0	0%	97%
83	MDF1769	ODEMIRA	0	0	0%	93%
83	MDF1770	ODEMIRA	0	0	0%	95%
83	MDF1771	ODEMIRA	0	0	0%	83%
84	MDF1772	ALJUSTREL	0	0	0%	90%
84	MDF1773	ALVITO	0	0	0%	95%
84	MDF1774	SERPA	0	0	0%	100%
84	MDF1775	ALJUSTREL	0	0	0%	95%
84	MDF1776	ALJUSTREL	0	0	0%	97%
84	MDF1777	SERPA	0	0	0%	99%
84	MDF1778	ALJUSTREL	0	0	0%	100%
84	MDF1779	ALJUSTREL	0	0	0%	58%
84	MDF1780	SERPA	0	0	0%	94%
84	MDF1781	SERPA	0	0	0%	100%
84	MDF1782	SERPA	0	0	0%	100%
84	MDF1783	ALVITO	0	0	0%	99%
84	MDF1784	SERPA	0	0	0%	97%
84	MDF1785	SERPA	0	0	0%	99%
85	MDF1786	MOURA	0	0	0%	97%
85	MDF1787	BARRANCOS	0	0	0%	96%
85	MDF1788	MOURA	0	0	0%	94%
85	MDF1789	MOURA	0	0	0%	100%
85	MDF1790	MOURA	0	0	0%	98%
85	MDF1791	MOURA	0	0	0%	74%
85	MDF1792	MOURA	0	0	0%	100%
85	MDF1793	MOURA	0	0	0%	98%
86	MDF1794	MÉRTOLA	0	0	0%	96%
86	MDF1795	OURIQUE	0	0	0%	100%
86	MDF1796	ALMODÔVAR	0	0	0%	100%
86	MDF1797	MÉRTOLA	0	0	0%	100%
86	MDF1798	ALMODÔVAR	0	0	0%	94%
86	MDF1799	CASTRO VERDE	0	0	0%	100%
86	MDF1800	ALMODÔVAR	0	0	0%	85%
86	MDF1801	CASTRO VERDE	0	0	0%	88%
86	MDF1802	MÉRTOLA	0	0	0%	100%



ANACOM

AUTORIDADE NACIONAL DE COMUNICAÇÕES

86	MDF1803	OURIQUE	0	0	0%	98%
86	MDF1804	ALMODÔVAR	0	0	0%	83%
86	MDF1805	MÉRTOLA	0	0	0%	93%
86	MDF1806	MÉRTOLA	0	0	0%	100%
86	MDF1807	CASTRO VERDE	0	0	0%	79%
86	MDF1808	OURIQUE	0	0	0%	97%
86	MDF1809	OURIQUE	0	0	0%	100%
86	MDF1810	MÉRTOLA	0	0	0%	94%
86	MDF1811	ALMODÔVAR	0	0	0%	86%
86	MDF1812	CASTRO VERDE	0	0	0%	97%
86	MDF1813	ALMODÔVAR	0	0	0%	100%
86	MDF1814	MÉRTOLA	0	0	0%	85%
86	MDF1815	OURIQUE	0	0	0%	100%
86	MDF1816	ALMODÔVAR	0	0	0%	100%
86	MDF1817	CASTRO VERDE	0	0	0%	95%
86	MDF1818	MÉRTOLA	0	0	0%	100%
86	MDF1819	ALMODÔVAR	0	0	0%	94%
86	MDF1820	MÉRTOLA	0	0	0%	100%
91	MDF1821	PORTO MONIZ	0	0	0%	93%
91	MDF1822	PORTO MONIZ	0	0	0%	93%
92	MDF1823	MADALENA	0	0	0%	93%
92	MDF1824	CORVO	0	0	0%	97%
92	MDF1825	LAJES DAS FLORES	0	0	0%	100%
92	MDF1826	LAJES DAS FLORES	0	0	0%	99%
92	MDF1827	LAJES DO PICO	0	0	0%	95%
92	MDF1828	MADALENA	0	0	0%	89%
92	MDF1829	LAJES DO PICO	0	0	0%	99%
92	MDF1830	LAJES DO PICO	0	0	0%	93%
92	MDF1831	SANTA CRUZ DAS FLORES	0	0	0%	99%
92	MDF1832	SÃO ROQUE DO PICO	0	0	0%	81%
92	MDF1833	SÃO ROQUE DO PICO	0	0	0%	88%
92	MDF1834	LAJES DO PICO	0	0	0%	91%
92	MDF1835	MADALENA	0	0	0%	91%
92	MDF1836	SÃO ROQUE DO PICO	0	0	0%	78%
95	MDF1837	CALHETA (R.A.A.)	0	0	0%	97%
95	MDF1838	SANTA CRUZ DA GRACIOSA	0	0	0%	99%
95	MDF1839	VELAS	0	0	0%	98%
95	MDF1840	VELAS	0	0	0%	99%
95	MDF1841	SANTA CRUZ DA GRACIOSA	0	0	0%	97%
95	MDF1842	VELAS	0	0	0%	94%
95	MDF1843	CALHETA (R.A.A.)	0	0	0%	100%
95	MDF1844	VELAS	0	0	0%	99%
95	MDF1845	VELAS	0	0	0%	98%
96	MDF1846	NORDESTE	0	0	0%	94%
96	MDF1847	VILA DO PORTO	0	0	0%	100%
96	MDF1848	POVOAÇÃO	0	0	0%	85%
96	MDF1849	POVOAÇÃO	0	0	0%	91%
96	MDF1850	NORDESTE	0	0	0%	93%



ANACOM

AUTORIDADE NACIONAL DE COMUNICAÇÕES

96	MDF1851	NORDESTE	0	0	0%	90%
96	MDF1852	POVOAÇÃO	0	0	0%	86%
96	MDF1853	VILA DO PORTO	0	0	0%	97%

**ANEXO 3 – ATTENDANCE POINTS WHERE THERE IS AT LEAST ONE CO-
INSTALLED OPERATOR AND WHERE THERE IS AT LEAST ONE OPERATOR
OF CABLE DISTRIBUTION NETWORKS AND WHERE THE PERCENTAGE OF
HOUSEHOLDS CABLED BY THE PRINCIPAL OPERATOR IN THE
MUNICIPALITY IS GREATER THAN 60%**

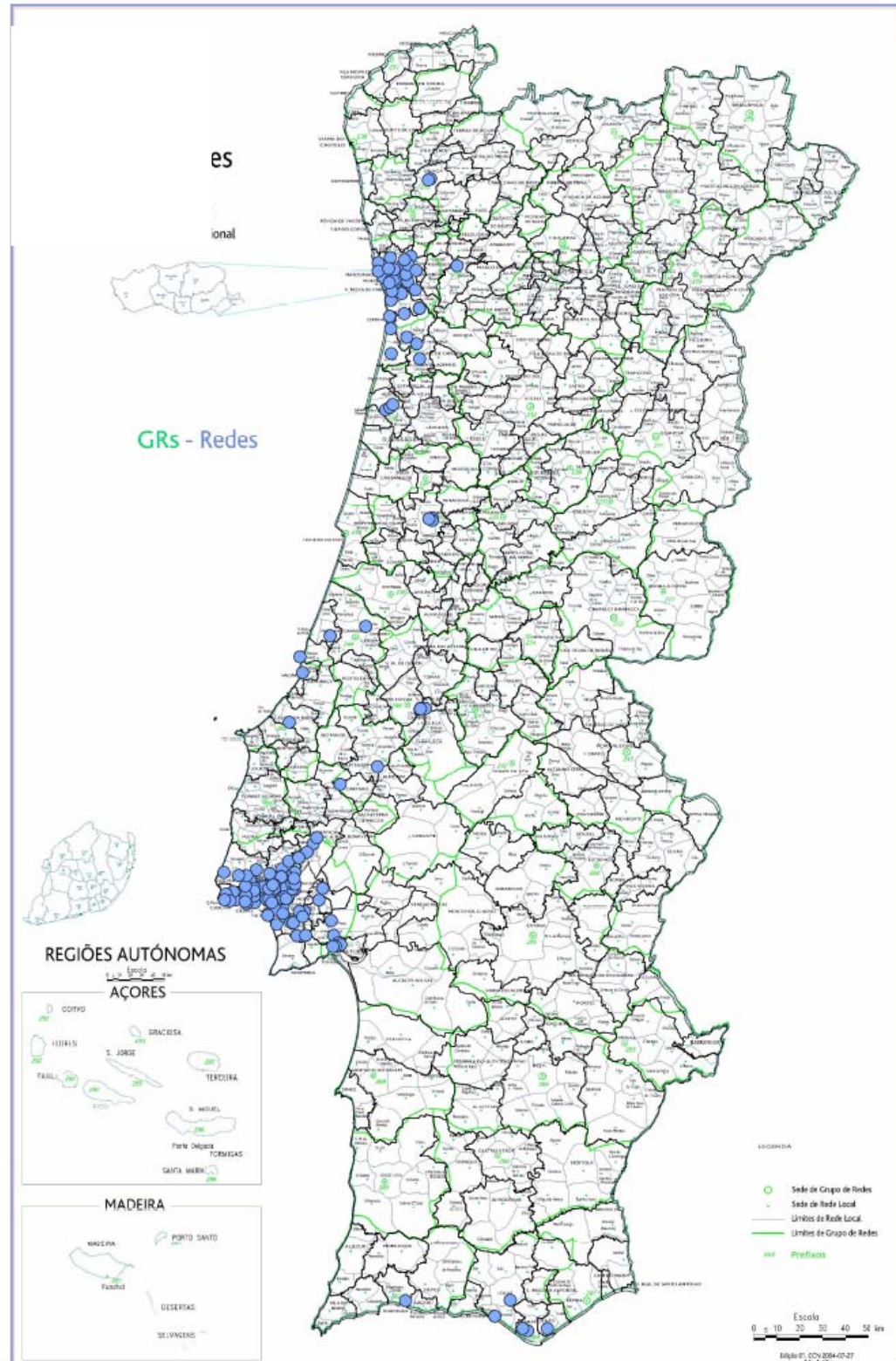
01AB01 - Abóboda
01AU01 - Aqualva
01AQ01 - Albarraque
01AD01 - Alcabideche
01AO01 - Alcochete
01AJ01 - Aldeia de Juzo
01AF01 - Alfragide
01AG01 - Algés
01AH01 - Alhandra
01AA01 - Almada
01AV01 - Alverca
01AM01 - Amadora
01LX01 - Amoreiras
01LX10 - Areeiro
01BB01 - Baixa da Banheira
01BA01 - Barreiro
01LX02 - Belém
01LX03 - Benfica
01BO01 - Bobadela
01CC01 - Cacém
01CM01 - Camarate
01LX11 - Campo Pequeno
01CN01 - Caneças
01CA01 - Caparica
01CV01 - Carcavelos
01CX01 - Carnaxide
01LX04 - Carnide
01CS01 - Cascais
01LX12 - Castelo
01CH01 - Charneca
01LX13 - Chelas
01CL01 - Colares
01CR01 - Corroios
01CP01 - Cruz de Pau
01DM01 - Damaia
01ES01 - Estoril
01LX05 - Estrela
01FJ01 - Feijó

01FF01 - Fernão Ferro
01LX14 - Graça
01LX06 - Laranjeiras
01LV01 - Linda-a-Velha
01LU01 - Loures
01LX15 - Lumiar
01MH01 - Marinha
01MS01 - Massamá
01MM01 - Mem Martins
01MF01 - Miraflores
01MO01 - Moita
01MN01 - Montijo
01LX07 - Norte
01OD01 - Odivelas
01OE01 - Oeiras
01LX16 - Olivais
01LX20 - Oriente
01PM01 - Palmela
01PR01 - Parede
01LX08 - Pedrouços
01PP01 - Pero Pinheiro
01PN01 - Pinhal Novo
01LX17 - Poço do Bispo
01PO01 - Pontinha
01LX09 - Portas de Benfica
01PT01 - Portela
01PL01 - Porto Salvo
01PV01 - Póvoa de Santa Iria
01PA01 - Póvoa de Santo Adrião
01PS01 - Praia do Sol
01QE01 - Queluz
01QC01 - Quinta do Conde
01RB01 - Reboleira
01RM01 - Rio de Mouro
01SB01 - Sabugo
01SC01 - Sacavém
01SA01 - Santo António dos Cavaleiros
01SM01 - São Marcos
01SN01 - Sintra
01PL04 - Tagus Park
01TJ01 - Tojal
01TM01 - Torre da Marinha
01LX18 - Trindade
01VN01 - Venda Nova
01VA01 - Vialonga
01VC01 - Vila Chã
02AF01 - Afurada

02AN01 - Alfena
02AC01 - Arcozelo
02PT02 - Areosa
02PT03 - Boavista
02PT04 - Bonfim
02PT06 - Carvalhido
02PT13 - Condominhas
02EM01 - Ermesinde
02EP01 - Espinho
02PT12 - Ferreira Dias
02PT07 - Foz
02GA01 - Gaia
02PT11 - Galiza
02GO01 - Gondomar
02GJ01 - Grijó
02JV01 - Jovim
02PT08 - Lapa
02LC01 - Leça da Palmeira
02MA01 - Maia
02MT01 - Matosinhos
02OD01 - Oliveira do Douro
02PT09 - Pícaria
02RT01 - Rio Tinto
02EM03 - Sá
02EM02 - Sampaio
02SD01 - Sandim
02SO01 - Santo Ovidio
02SM01 - São Mamede de Infesta
02SH01 - Senhora da Hora
02GA02 - Simopre
02VC01 - Valongo Centro
34AV01 - Aveiro
34AV02 - Esgueira
34AV05 - Quinta do Simão
39CO02 - Calhabé
39CO09 - Celas
39CO01 - Mercado
39CO03 - Santa Clara
44MR01 - Marinha Grande
49ET01 - Entroncamento
52PZ01 - Póvoa de Varzim
52PZ02 - Póvoa de Varzim Centro
53BG01 - Braga
53BG06 - Maximinos
56EZ01 - Esmoriz
56AZ01 - Oliveira de Azeméis
56OV01 - Ovar

56SM01 - São João da Madeira
56VF01 - Vila da Feira
62CH01 - Caldas da Rainha
62NR01 - Nazaré
63VX01 - Vila Franca de Xira
65SB11 - Azeda
65SB13 - Jaime Cortesão
65SB03 - Montebelo
65SB01 - Setúbal
65VN01 - Vendas Novas
65SB08 - Viso
82PM01 - Portimão
89FR01 - Faro
89LE01 - Loulé
89FR03 - Montenegro
89OH01 - Olhão
89QT01 - Quarteira
91FX01 - Funchal

ANNEX 4 – MAP OF THE GEOGRAPHICAL LOCATION OF THE ATTENDANCE POINTS IDENTIFIED IN ANNEX 3



10.

ANNEX 5 – LIST OF ACRONYMS AND ABBREVIATIONS

AAS	Analytical Accounting System
AdC.....	Autoridade da Concorrência (The Competition Authority)
ADSL.....	Asymmetric Digital Subscriber Line
AP	Attendance Point
ATM.....	Asynchronous Transfer Mode
BWA.....	Broadband Wireless Access
CJEC.....	Court of Justice of the European Communities
DSL.....	Digital Subscriber Line
DSLAM	Digital Subscriber Line Access Multiplexer
DTH	Direct To Home
EC	European Commission
ECNS	Electronic Communications Networks and Services
EIC	End of Confidential Information
ERG	European Regulators Group
EU	European Union
FL-LRIC	Forward-looking long-run incremental cost
FTS.....	Fixed Telephone Service
FWA.....	Fixed Wireless Access
HSDPA	High-Speed Downlink Packet Access
HSUPA	High-Speed Uplink Packet Access
IP.....	Internet Protocol
ISP.....	Internet Service Provider
ISDN.....	Integrated Services Digital Network
Kbps.....	Kilobits per second
Guidelines	Guidelines of the European Commission on the analysis and assessment of significant market power with respect to the regulatory framework for electronic communication networks and services
LLU.....	Local Loop Unbundling
Mbps	Megabit per second
MDF.....	Main Distribution Frame
NGN.....	Next Generation Network
NRA	National Regulatory Authority
NUTS	Nomenclature of Territorial Units for Statistics
OFCOM	Office of Communications (United Kingdom communications regulator)
OLL.....	Oferta do Lacete Local (Local loop offer)
OSP.....	Operator and Service Provider (not part of Grupo PT)

ORAC	Oferta de Referência de Acesso a Conduitas (Reference Offer for Access to Conduits)
ORALL	Oferta de Referência para Acesso ao Lacete Local (Reference Offer for Access to the Local Loop)
PC.....	Personal Computer
PCI	Peripheral Component Interconnect
PCMCIA	Personal Computer Memory Card International Association
PTC	PT Comunicações, S.A.
Recommendation	Recommendation on relevant product and service markets within the electronic communications sector of the European Commission
PSTN.....	Public Switched Telephone Network
SIC	Start of Confidential Information
SMP	Significant Market Power
SSNIP.....	Small but Significant Non-transitory Increase in Price
UMIC	Unidade de Missão Inovação e Conhecimento (The Knowledge Society Agency)
UMTS	Universal Mobile Telecommunication System
USB.....	Universal Serial Bus
VAT	Value Added Tax