ANACOM AUTORIDADE NACIONAL DE COMUNICAÇÕES

RETAIL MARKET AND WHOLESALE MARKETS OF TERMINATING AND TRUNK SEGMENTS OF LEASED LINES

Product and geographic market analysis, assessment of SMP and imposition, maintenance, amendment or withdrawal of regulatory obligations

ICP-ANACOM

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1. INTRODUCTION

1.1. The conclusions of the last market analysis

By determination of 8 July 2005, the Management Board of ICP-ANACOM adopted a decision on the definition of product and geographic markets, assessment of significant market power (SMP) and the imposition, amendment or withdrawal of regulatory obligations concerning the retail market for leased lines and wholesale markets for terminating and trunk segments of leased lines[1].

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

- retail market of analogue and digital leased lines up to 2 Mbps (inclusive), covering the entire national territory;
- wholesale market of analogue and digital terminating segments, irrespective of capacity, covering the entire national territory;
- wholesale market of analogue and digital trunk segments, irrespective of capacity, covering the entire national territory.

With analysis made of the above markets[2], ICP-ANACOM concluded that Grupo PT had SMP in the relevant markets identified and consequently imposed on the undertakings comprising Grupo PT the obligations which are set out in **Table 1** and **Table 2**, at retail and wholesale level respectively.

Table 1 - Obligations imposed on undertakings identified as having SMP in the relevant retail market

Obligations	Retail market of analogue and digital leased lines up to and including 2 Mbps
Non-discrimination in the offer of access and interconnection and in the respective disclosure of information	▪ The application of similar conditions in similar circumstances to their corporate end-users and, where applicable, to offer retail customers leased lines of the same quality and under the same conditions as those which they make available to their own services or partners.

[1] Markets 7, 13 and 14 of European Commission Recommendation 2003/311/EC of 11 February 2003.

[2] Taking utmost account of the Guidelines of the European Commission on market analysis and SMP assessment in the context of the EU regulatory framework for electronic communications networks and services.

Obligations	Retail market of analogue and digital leased lines up to 2 Mbps
Transparency in the disclosure of information	▪ Disclosure of the following information about the minimum set of leased lines: (a) Technical characteristics, including physical and electrical characteristics, as well as the technical and performance specifications applicable to the network termination point; (b) Prices, including initial connection charges, the periodic rental charges and other charges, whereas it must be indicated whenever prices are differentiated (including discounts); (c) Conditions of supply, including, in particular, and by obligation, the ordering procedure, the normal period of delivery, contract period, the typical repair time and degree of availability, and refund procedure, if any.
Price control and cost accounting	▪ Develop and implement an appropriate cost accounting system. ▪ Set cost-oriented prices.

Table 2 - Obligations imposed on undertakings identified as having SMP in the relevant wholesale markets

Obligations	Wholesale markets of terminating segments and trunk segments
Access to and use of specific network resources	▪ Respond to reasonable requests for access, according to transparent, fair and non discriminatory conditions. ▪ Provision for co-location on the undertaking's premises[3]. ▪ Negotiate in good faith with undertakings requesting access. ▪ Do not remove access which has already been granted to determined resources.
Non-discrimination in the offer of access and interconnection and in the respective provision of information	▪ Provide alternative operator with information, resources and services with a level of timeliness, with a base and a quality that should be at least as good as those offered to the retail departments and companies of Grupo PT. ▪ The contractual times taken for delivery and for the repair of faults applied to the wholesale supply of leased lines (including leased line part circuits) should be no less than the times taken for delivery which are observed in the retail markets. ▪ Do not provide any discounts for loyalty and/or for quantity and/or capacity. Any proposal in this respect must be duly substantiated and justified and previously submitted to ICP-ANACOM. ▪ Send, on a quarterly basis, information regarding times taken for delivery and the repair of faults and the degree of availability, disaggregated by

[3] In line with the RUO and RIO wholesale offers

	capacity and by operator[4].
Obligations	**Wholesale markets of terminating segments and trunk segments**
Transparency in the publication of information, including reference proposals	▪ Publish[5] a reference offer of analogue and digital leased lines up to 155 Mbps (inclusive), including leased line part circuits (and interconnection support components), supplied to wholesale customers, including: (a) the technical characteristics and performance characteristics of the different types of leased lines segments; (b) the prices, appropriately separated by component; (c) Binding SLAs, including the conditions governing delivery and migration, notification and repair of faults, and the respective penalties in the event of non-compliance; (d) specific conditions associated with the routes, the CAM circuits, the service of leased lines part circuits (and support components for interconnection), the service of access to submarine cables and the offer of symmetric xDSL technologies (if and when made available at retail level or to the companies of Grupo PT).
Separation of accounts for specific activities related to access and/or interconnection	▪ Cost accounting system and accounting separation.
Price control and cost accounting	▪ Set cost-oriented prices. ▪ Price control - the minimum difference between the wholesale pricing of leased lines and the pricing of the relevant leased lines at retail level, as practiced by the companies of Grupo PT, shall be 26%.
Financial Reporting	▪ Provide accounting records (AAS), including data on revenues from third parties.

In accordance with the obligations imposed, PT Comunicações, S.A. (PTC) has published and maintains the Leased Lines Reference Offer (LLRO), wherein the characteristics and technical and commercial conditions associated with the provision of wholesale leased lines by the company are established[6].

1.2. Market developments

[4] Delivery time for 95% of cases (in days), repair times for 80% of cases (in hours) and availability disaggregated by type of line: analogue and digital - 64 kbps / n×64 kbps / 2 Mbps / 34 Mbps / 155 Mbps.

[5] Within a period of 30 days following notification of the final decision.

[6] See http://ptwholesale.telecom.pt/GSW/PT/Canais/ProdutosServicos/OfertasReferencia/ORCA/ORCA.htm.

Since mid-2005, when the analysis referred to above was published, the main developments seen impacting the offer on the market relate to the significant development of leased lines offers based on Ethernet solutions and the expansion by the main alternative operators of their own transport networks.

Among other changes in the domestic market which have affected the structure of the electronic communications market, the following are of note:

– 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. - hereinafter ZON) from Portugal Telecom, SGPS, S.A., occurring on 7 November 2007 was a driver of greater competition in markets where these companies operate[7]. In this context, the analysis of the "markets for wholesale (physical) network infrastructure access at a fixed location and wholesale broadband access" clarified the regulatory situation following the "*spin off*"[8].

– Concentration operations, including:

  - the acquisition, in 2007 by Sonaecom, S.G.P.S., S.A. (Sonaecom) of sole control of the entire share capital of Telemilénio - Telecomunicações, Sociedade Unipessoal, Lda. (Tele2);

  - the acquisition in 2007 by Sonaecom[9] of sole control of a set of assets corresponding to the residential segment and SoHo (Small Office/Home Office) segment of the fixed network retail communications business of Onitelecom - Infocomunicações, S.A. (OniTelecom).

  - the acquisition by CATVP (now ZON)[10] of sole control of Bragatel[11], Pluricanal Leiria[12] and Pluricanal Santarém[13], through the acquisition of shares currently held in these companies, by Parfitel - SGPS, S.A.;

  - the acquisition, by ZON, of sole control of TVTEL[14].

– The expansion of the local loop unbundling offer (LLU), in terms of local exchanges with co-located operators using mainly their own transport infrastructure (supported over

[7] In this context, ICPANACOM clarified that with the "spin-off", ZON Multimédia was no longer part of Grupo PT, whereby it was not subject to the obligations consequent to the market analysis conducted under Title IV of Chapter II of Law No. 5/2004 of 10 February 10 (Electronic Communications Law) and incumbent on this group.

[8] See Markets for wholesale (physical) network infrastructure access at a fixed location and wholesale broadband access - consultation launched on 30.6.2008.

[9] Through its subsidiary, Novis Telecom, S.A.

[10] TV Cabo Portugal, S.A. (TV Cabo).

[11] Companhia de Televisão de Cabos de Braga, S.A.

[12] Pluricanal Leiria - Televisão por Cabo, S.A.

[13] Pluricanal Santarém - Televisão por Cabo, S.A.

[14] TVTEL Comunicações, S.A.

optical fibre) - e.g., Sonaecom and OniTelecom -, and the entry of new operators, as in the case of COLT TELECOM - Serviços de Telecomunicações, Unipessoal, Lda. (COLT), and VODAFONE PORTUGAL - Comunicações Pessoais, S.A. (Vodafone).

– The expansion of mobile broadband, in particular and for the purposes of the present analysis, supported over enhanced base station capacity, in many cases using leased lines and/or own infrastructure[15].

– The launch by alternative operators of new products (e.g. "triple-play") supported over optical fibre, enabled by recent developments related to the expansion of own or leased optical fibre networks (for example, utilities).

– Rising speeds of broadband offers, with a requirement for enhanced capacity in terms of the transport and interconnection/peering network, including the use of leased lines.

Looking to the future, the evolution to next generation networks (NGN - Next Generation Networks), should be monitored, both in terms of the transport and interconnection networks, as well as in terms of the access networks.[16].

Moreover, the European Commission (EC) has since revised the Recommendation on relevant markets, whose final version was published at the end of 2007, as described in detail in section **1.4** of this document.

1.3. The need to review the analyses of relevant markets

In the previous analysis of the market, it was already envisaged that a review of the markets would be required in the event that:

– the EC Recommendation on relevant markets was revised; or

– significant changes occurred in the market altering the conditions thereof.

As such, for the reasons stated above, it is deemed timely and necessary to review the analysis of markets of leased lines, at both retail and wholesale level.

1.4. The revision of the EC Recommendation on relevant markets

[15] In particular, through the use of the local loop unbundling offer and SHDSL technologies.

[16] See, in this respect, the public consultation report of ICPANACOM at Report on the regulatory approach to next generation access networks.

On 17 December 2007, the EC published a revised Recommendation on relevant markets - "Recommendation 2007/879/EC of 17 December on relevant product and service markets within 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" (Hereinafter Recommendation)[17].

This recommendation replaces the previous European Commission Recommendation 2003/311/EC of 11 February, whose content was revised in view of developments occurring in the markets over the previous years. Seven relevant markets are now defined as being susceptible to *ex ante* regulation, one at retail level[18] and the remaining six at wholesale level[19], which compares with a total of eighteen markets under the previous recommendation (seven at retail level and eleven at wholesale level).

As in the previous version of the Recommendation, the revised version is accompanied by an "Explanatory Note" where the EC seeks to explain the definition of above markets as being relevant for the purposes of *ex ante* regulation[20].

In this document, the EC justifies the withdrawal of the retail market (old Market 7) and the wholesale market of trunk segments of leased lines (old Market 14) from the list of relevant markets, whereas the old Market 13 (of the previous Recommendation) is now designated as Market 6 with the following definition:

– Wholesale terminating segments of leased lines, irrespective of the technology used to provide leased or dedicated capacity.

With specific regard to Market 14 of the previous recommendation, the fact that alternative transport network infrastructure is being developed in the majority of Member States, especially on major routes/trunk segments, suggests to the EC that barriers to entry into this wholesale market will be reduced. In these cases, i.e. where alternative operators have invested in infrastructure, there is a trend towards a competitive situation. According to the EC, in their

[17] "Commission Recommendation of 17 December 2007 on relevant product and service markets within 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". Published in the Official Journal of the European Union of 28 December 2007 and available at Commission Recommendation 2007/879/EC, of 17.12.2007.

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

[19] As follows:

- 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.

[20] "Explanatory Note" available at http://ec.europa.eu/information_society/policy/ecomm/doc/library/proposals/sec2007_1483_final.pdf.

analyses of the wholesale markets of trunk segments of leased lines, the majority of National Regulatory Authorities (NRA) found these markets to be effectively competitive as a result of the development of parallel infrastructures. The EC further considers that this trend should be maintained, thereby eliminating the high and non-transitory barriers to entry and enabling effective competition in the wholesale market.

On the other hand, the EC recognizes that a significant number of routes, especially routes with less capacity, may continue to be served by a single operator since other operators are not expected to be able to compete with the incumbent in the entire territory (even this may vary in different Member States). In this sense, the EC considers that the NRA may be able to demonstrate that the market for trunk segments of leased lines continues to meet the "three criteria" - when applied cumulatively - giving grounds for *ex ante* regulation[21]:

- Obstacles to market entry and the development of competition - persistence of high entry barriers, whether structural, legal or regulatory in nature.

- Dynamic factors - the characteristics of the market will not lead to effective competition over a relevant time horizon, without requiring *ex ante* regulatory intervention. Applying this test requires a prospective examination of the competition situation behind the barriers to entry.

- Relative effectiveness of competition law - application of competition law alone would not adequately address the market failure(s) concerned.

In this sense, although the EC considers that competition law can address the market failures on routes with greater capacity, it deems that it is unrealistic to resort to this law on its own, while the number of routes with no alternative supplier remains high[22].

Regarding the retail market for leased lines (formerly Market 7), the EC considers, again as stated in the "Explanatory Note", that there do not appear to be such significant market failures as would warrant the maintenance of *ex ante* regulation at retail level. The EC notes that the "minimum set of leased lines" was part of the previous recommendation, but with regulation in wholesale markets, including the imposition of obligations on the SMP operator, there should be no problems for (retail) users of leased lines, i.e., regulation at wholesale level, where appropriate, should be sufficient to ensure competitive supply at retail level.

Moreover, the EC tests this retail market against the satisfaction of the "three criteria", concluding, again in the "Explanatory Note", that in the presence of wholesale regulation, the (associated) retail market's barriers to entry should be reduced. In fact, because companies in this market are able to maintain a ubiquitous offer, using, where necessary, the regulated leased lines or other wholesale offer to complement their own infrastructure, then the barriers to entry are no

[21] See. Recommendation, whereas (5).
[22] See "Explanatory Note", page 39.

longer high. Therefore, in the Recommendation, the EC does not identify the leased lines retail market as a relevant market which is susceptible to *ex ante* regulation and proposes to reduce the "minimum set of leased lines" to "zero", enacted pursuant to Decision 2008/60/EC of the European Commission of 21 December 2007 amending Decision 2003/548/EC as regards the deletion of specific types of leased line from the Minimum Set of Leased Lines[23].

1.5. The market analysis process

Law no. 5/2004 of 10 February (Electronic Communications Law, hereinafter ECL), gave approval to the legal regime applicable to electronic communications networks and services and associated facilities and services, defining the powers and responsibilities of ICP-ANACOM in this field.

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

ICP-ANACOM is thereby charged with defining and analyzing the relevant markets, identifying undertakings with SMP and, where undertakings with SMP are present, determining suitable measures in respect of such undertakings (Article 18 of ECL).

This process is carried out according to the following stages (articles 55 to 61 of the ECL)[24]:

- Definition of the relevant markets of products and services within the electronic communications sector, including the relevant geographic markets, in accordance with the principles of competition law (article 58 of the ECL).

  In the course of market definition, the NRA, having regard to national circumstances, shall take due account of the Recommendation and Guidelines of the EC with respect to the analysis and assessment of significant market power in the context of the EU regulatory framework for electronic communications networks and services[25] (hereinafter the "Guidelines").

- Analysis of relevant markets defined under the previous paragraph, taking into account the Guidelines (Article 59 of the ECL).

[23] See http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:015:0032:0032:EN:PDF.
[24] See. Framework Directive, articles 7 and 14 to 16.
[25] Available at Commission guidelines 2002/C 165/03, of 11.7.2002.

- The objective of the market analysis procedure is to investigate the existence of effective competition. There is no effective competition if undertakings are identified as having SMP[26].

  An undertaking shall be deemed to have significant market power if, either individually[27] or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors customers and ultimately consumers.

- Imposition, maintenance, amendment or withdrawal of obligations (art. 66 of the ECL).

  In the event that ICP-ANACOM determines that a market is effectively competitive, it is bound to refrain from imposing any specific regulatory obligation, and shall remove such obligation where these exist.

  In the event that ICP-ANACOM determines that the relevant market is not effectively competitive, it is bound to impose appropriate and specific regulatory obligations on undertakings with SMP in this market or maintain or amend such obligations where these already exist.

  The obligations imposed:

  – shall, having regard to the nature of the problem identified, be proportionate and justified according to the regulatory objectives set out in article 5 of this law;

  – shall be objectively justifiable in relation to the networks, services or facilities to which they refer;

  – may not give rise to undue discrimination with respect to any entity;

  – shall be transparent in relation to the intended purposes.

In the analysis and definition of the obligations to be imposed (or withdrawn), account shall also taken of the principles established in the ERG Common Position on the subject, presented in the

[26] Furthermore according to the Guidelines (§ 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*".

[27] It is noted that, according to ECJ Judgement of 12 July 1984 *Hydrotherm*, "the term 'undertaking' *must be understood as designating an economic unit for the purposes 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 art. 2. paragraph 1 and 2 of Law No. 18/2003 of June 11 (approving the legal framework for competition), "*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 paragraph 1 of Article 10.º*".

document "*Revised ERG Common Position on the approach to appropriate remedies in the ECNS regulatory framework*"[28], as well as the common position on best practice in remedies imposed as a consequence of a position of significant market power in the relevant markets for wholesale leased lines[29].

According to the methodology which continues to be adopted in the Recommendation[30], the starting point for the identification of relevant wholesale markets is the definition of retail markets over a given time horizon, their geographical size and the competitive pressures to which they are subject, on both the demand and supply side. Therefore, in the first phase, the retail market for leased lines is defined. It is then appropriate to identify the corresponding wholesale markets, having regard to the same geographic dimensions, and to perform an assessment of any SMP in these markets. Finally, an assessment is made of the regulatory obligations which are to be imposed on undertakings with SMP.

In this context, this document constitutes the decision of ICP-ANACOM on the definition of product markets and geographic markets, the assessment of SMP and the imposition, maintenance, amendment or withdrawal of regulatory obligations in the retail and wholesale markets of leased lines.

1.6. Draft decision

On 16 December 2009, the Management Board of ICP-ANACOM approved a draft decision on the definition of product markets and geographic markets, evaluation of significant market power (SMP) and imposition, maintenance, amendment or withdrawal of regulatory obligations in relation to the markets of retail supply of leased lines (previous market 7) and the market of wholesale supply of terminating and trunk segments of leased lines (Market 6 and previous Market 14 of the Recommendation).

At the same, approval was given to the submission of this draft decision to Autoridade da Concorrência (the Competition Authority), pursuant to art. 61. of Law no. 5/2004 of 10 February.

Also on that date, the Management Board determined that the draft measures mentioned above be submitted to public consultation, and in accordance with the provisions of articles 100 and 101 of the Administrative Proceeding Code, interested parties were notified that they were allowed 30 working days in which to comment on the draft decision.

[28] Available at http://www.erg.eu.int/doc/meeting/erg_06_33_remedies_common_position_june_06.pdf.
[29] Available at http://erg.eu.int/doc/publications/erg_07_54_wll_cp_final_080331.pdf.
[30] See. Recommendation - "Explanatory Note", Section 2.1.

The consultation closed on 3 February 2010 and ICP-ANACOM received replies from the following entities, for which it is grateful[31]:

- APRITEL - Associação dos Operadores de Telecomunicações (Association of Telecommunications Operators)[32]
- BT Portugal - Telecomunicações, Unipessoal, Lda. (BT)[33]
- Grupo PT (Portugal Telecom SGPS, S.A., PT Comunicações S.A. (PTC), PT Prime - Soluções Empresariais de Telecomunicações e Sistemas, S.A., TMN - Telecomunicações Móveis Nacionais, S.A. and PT Acessos de Internet Wi-Fi, S.A.)[34]
- Grupo SGC AR Telecom (ARTelecom)[35]
- OniTelecom Infocomunicações, S.A. (OniTelecom)[36]
- Rádio e Televisão de Portugal, S.A. (RTP)[37]
- Sonaecom - Serviços de Comunicações, S.A. (Sonaecom)[38]
- Vodafone Portugal, Comunicações Pessoais, S.A. (Vodafone)[39]
- ZON TV Cabo Portugal, S.A. and its subsidiaries (ZON)[40]

Autoridade da Concorrência (Competition Authority), in an opinion sent on 19 January, stated its non-opposition to the definition of the relevant product and geographic markets, and non-opposition to the assessment of significant market power. The Competition Authority agreed with the wording of the draft decision, considering that the analysis conducted to be appropriate and generally consistent with the methodology underlying the application of competition law and that the definition of geographic markets appears appropriate to the identification of heterogeneous competitive conditions.

[31] Responses available at www.anacom.pt.
[32] E-mail from APRITEL of 03.02.2010, which reveals that this is the position of the majority of its members, not including PT Comunicações, S.A..
[33] Letter of BT Portugal of 29.01.2010.
[34] Letter of Grupo PT of 03.02.2010.
[35] Email message from AR Telecom of 03.02.2010.
[36] E-mail message from OniTelecom of 03/02/2010.
[37] E-mail message from RTP of 28.01.2010, reporting that it had no comment to make in respect of the referred document, arguing that RTP/RDP does not provide such services.
[38] E-mail message from Sonaecom of 03.02.2010.
[39] E-mail message from Vodafone of 03/02/2010.
[40] Email message from ZON of 03.02.2010.

The comments received in this context and position of ICP-ANACOM were duly considered in drafting the final decision, and were the subject of a separate report, which can be found on ICP-ANACOM's website.

1.7. Notification to the EC and the NRA of other Member States

The final draft decision was notified to the EC and the NRA of other Member States pursuant to paragraph 1 of article 57 of Law no. 5/2004, with submission of the summary notification form prepared in accordance with Annex I of EC Recommendation of 15 October 2008 on notifications, time limits and consultations provided for in Article 7 of Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services.

On 25 August 2010, the EC sent a request for information to ICP-ANACOM, to which this Authority replied on 30 August 2010.

Under the terms set out in paragraph 3 of article 7 of the Framework Directive, on 15 September 2010, the EC presented its observations with respect to the notified draft decision, in which the following aspects are of particular note[41]:

- The EC did not contest the conclusions of ICP-ANACOM with respect to the definition of the markets. However, the EC called upon this Authority to compile information on market shares and their evolution over time, distinguishing the trunk segments and terminal segments. The EC further called upon ICP-ANACOM to compile information about pricing and any discounts for quantity, "custom" offers and/or temporary promotions/offers provided by Grupo PT and aimed at capturing specific customer segments or geographical areas. According to the EC, the next market analysis should be based on a more detailed assessment of such data.

- The EC made no objections to the findings of ICP-ANACOM that the infrastructure of Grupo PT on non-competitive routes is not sufficiently replicable. However, taking into account the relevance of "dark" optical fibre in assessing barriers to entry into the wholesale markets for trunk segments, the EC called upon ICP-ANACOM to give basis, in the final measures taken, to the evaluation of the first criterion, especially taking into account the answer given by ICP-ANACOM to the request for information made by the EC, and to keep the future development of the transport/core network under close review.

With respect to the EC's first comment, ICP-ANACOM has already acknowledged difficulties in collecting detailed information, which has not, however, prevented this Authority from the conduct of an analysis of the markets concerned, made in some cases according to estimates.

[41] See http://circa.europa.eu/Public/irc/infso/ecctf/library?l=/portugal/registeredsnotifications/pt20101120-1121/pt-2010-1119-20-21/_PT_1.0_&a=d.

Nevertheless, it recognizes that there needs to be more detailed data available from all operators in the next analysis, allowing, on the one hand, terminating segments to be clearly distinguished from trunk segments and, on the other hand, clear identification of the areas/routes where operators have their own infrastructure and areas/routes where they need to resort to the regulated leased lines offer due to a lack of alternative infrastructure. The optical fibre network – with geo-referencing - of the different operators will remain relevant information. ICP-ANACOM hereby gives notice to the operators as to these information requirements, whose specificity, detail and periodicity will be defined in due course.

With respect to the comment on the information which the EC called upon ICP-ANACOM to compile regarding prices and any discounts for quantity, "custom" offers and/or temporary promotions/offers provided by Grupo PT and aimed at capturing specific customer segments or geographical areas, this specific obligation is explained under the obligation of transparency[42].

Regarding the second comment, ICP-ANACOM complements the present analysis (in particular Section 4.2.3.2) with the information sent to the EC in response to the request for information made by that institution, in particular the identification of the leading suppliers of optical fibre and respective volumes of supply, when available, with confidentiality safeguarded.

The reasoning adopted with respect to the first criterion is also expanded upon in Section 4.3.2.1 and 4.3.2.2 by reference to the above mentioned information.

Pursuant to paragraph 5 of article 7 of the Framework Directive, ICP-ANACOM shall take the comments of other NRA and the EC into full consideration and may adopt the resulting draft measure and, if in doing so, must communicate it to the EC.

[42] Table 7 includes the obligation of Grupo PT to refrain, in the wholesale market, from the practice, in the absence of reasoning, any discounts for loyalty and/or for quantity and/or capacity, besides that set out in the text of the analysis relating to the obligation of non-discrimination

2. THE LEASED LINES SERVICE

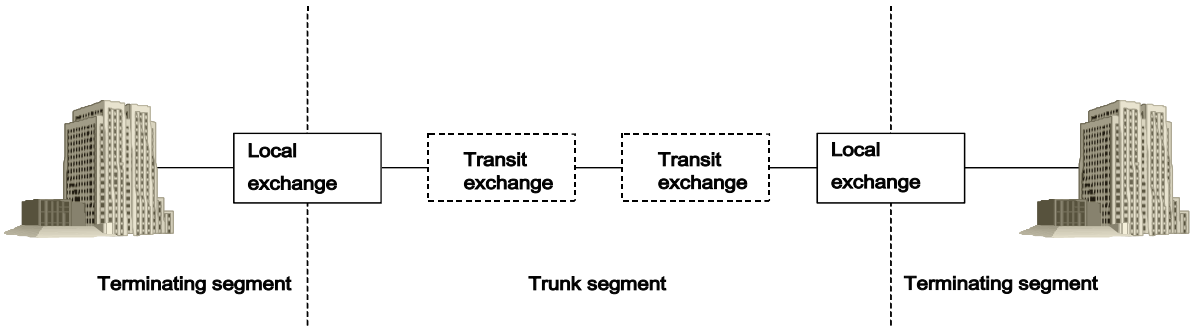
For the purposes of the present analysis of the retail and wholesale leased lines markets, ICP-ANACOM maintains the generic definition of a leased line as corresponding to a permanent and transparent physical connection between two points, for the exclusive and non-shared use of the user, with guaranteed and symmetric transmission speed and over which any kind (of traffic) of electronic communications is routed[43].

The definition of a leased line (wholesale[44]) is briefly recalled, generally consisting of two types of elements (*see* **Figure 1**)[45]:

- terminating segment (also called a local extension), which corresponds to the physical connection between the installations of the customer and the nearest local exchange of the network supplier, where a node of its transport/transmission network is located - for the effects of this analysis, the local exchange of PTC[46];

- trunk segment (also referred to as main section), which corresponds to the physical connection between local exchanges/ terminating segments[47].

Figure 1 - Leased circuit (schematic diagram) end-to-end



[43] The capacity of leased lines can be dedicated or shared on the network supporting them, depending on the associated technology.

[44] Retail leased lines do not typically have any segmentation, i.e., they are marketed as dedicated connections between two sites (extremes).

[45] Leased lines can have different configurations, for example, there may be lines consisting solely of terminating segments (if the customer's premises are located in the same exchange area) or a terminating segment and a trunk segment (e.g., for interconnection of networks). The tariffs for leased lines (wholesale) usually reflects this segmentation.

[46] More precisely, according to PTC, the local exchanges, considered as the points terminating the terminating segments (local extensions), correspond to the Main Access Points as well as the buildings where the PGI Nacionais of PTC are located (Boa-Hora, Picoas, Batalha e Devesas). In the case of leased lines services, these local exchanges comprise the location of the nodes of the transport/transmission network of PTC.

[47] Or between a terminating segment (which terminates in a local exchange) and a node of the transport network (local or transit exchange) of an operator.

Leased lines may use different supporting technologies and infrastructure (e.g. copper pairs or optical fibre). They can be characterized according to their transmission speed, type of use (e.g. for interconnection of networks or to support the access of end-customers) and quality of service. They can also be characterized according to the locations served and the type and needs of their retail and wholesale customers.

The infrastructure and technology supporting the leased line service are, in the case of higher speed circuits[48] (greater than 2 Mbps) consists in the most part of the optical fibre network and SDH transmission equipment[49] and more recently, Ethernet[50]. On lower-speed analogue and digital terminal segments, use is essentially made of the copper pair network and associated technologies (including PDH[51]).

On a smaller scale and on network nodes with lower capacity requirements and/or areas with difficult access, microwave (radio link) technologies may be used, and in the case of local terminations, especially of 2 Mbps[52], xDSL technologies may also be used, including HDSL or SHDSL[53].

For large distances, submarine cables can be used. These systems are used in both international lines[54] and in the connections to the Autonomous Regions of the Azores and Madeira. PTC's service of leased line access to submarine cables (terminating in Sesimbra and Carcavelos) is known as "*backhaul*". The leased lines between the mainland and the Autonomous Regions are known as CAM lines[55].

[48] In the case of digital leased lines, speeds range from 64 Kbps up to 2.5 Gbps (or more in the future), so that 2 Mbps can be considered as a level marking a transition between low and high speed, both in terms of the set of lines and in terms of the actual supporting technologies.

[49] SDH - Synchronous Digital Hierarchy, technology mostly used in transport networks, as well as in high-speed access networks, (normally at speeds exceeding 2 Mbps).

[50] In particular through the commercial offer of PTC, "Rede Ethernet PT", currently a non-regulated wholesale offer.

[51] PDH - Plesiochronous Digital Hierarchy, technology proceeding SDH technology (which is substituting it on the transport networks), primarily used in access networks and lower speed circuits.

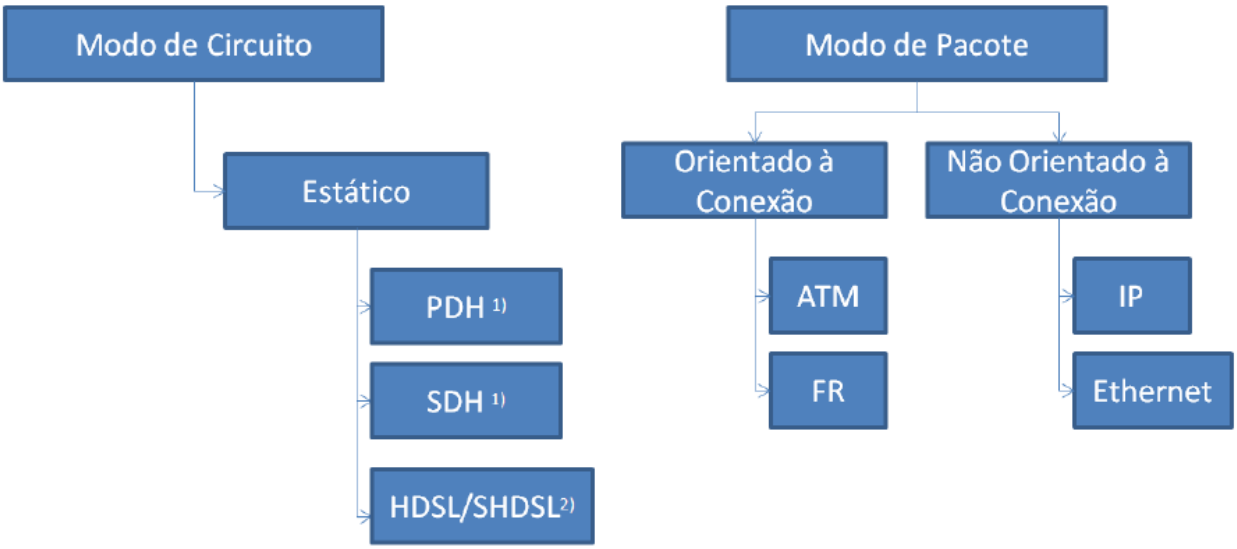
[52] Possibly even higher, depending on the number of copper pairs allocated to a determined connection and the xDSL standard used.

[53] *x* Digital Subscriber Line - Digital subscriber line technologies, generically termed DSL, which are 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 fast Internet access and Video-on-demand. HDSL (High-bitrate DSL), SHDSL (Symmetric HDSL) and ADSL (Asymmetric DSL) or VDSL (Very high-bitrate DSL) are some of its variants.

[54] There is also considerable terrestrial infrastructure (optical fibre) between Portugal and Spain supporting international leased lines.

[55] CAM Lines: Mainland- Azores - Madeira.

In schematic form, the technologies used in fixed access and transport networks (which also support leased lines) are, in particular, the following:



1) Tecnologias utilizadas sobre cabos de fibra óptica e feixes hertzianos.
2) Tecnologias utilizadas sobre cabos de cobre

Source: Grupo PT response to public consultation on the draft decision regarding the present market analysis.

Some of these technologies are used together, because they offer specific advantages to the overall system, and also due to issues related to their development and gradual introduction on the already installed network[56]. Traditional leased lines are supported using technologies presented on the left side of the diagram[57], but for several years dedicated lines have been offered based on package switching technology (right side of the diagram), with ATM[58] or over Ethernet.

Despite this multiplicity of technologies and types of physical support infrastructure, the provision of leased lines services is transparent to operators and end-users and is conducted in a way that is technologically neutral according to the specifications of the situation (e.g. low-speed analogue or digital circuits are usually supported over the copper access network, while high-speed circuits are supported using optical fibre)[59]. The definition given by PTC to the service[60] - "*a leased line corresponds to a permanent and transparent physical connection between two points, for transporting voice and/or data traffic, supported over digital or analogue technology, with dedicated and symmetric transmission capacity*" - is an important factor for this finding.

[56] For example, PDH or STM over SDH or Ethernet over DWDM, etc. See glossary given in **Appendix I**.
[57] Circuit-switched technologies in static mode, PDH and SDH supported over optical fibre cables or radio relay.
[58] Using, in particular, "circuit emulation" techniques.
[59] Indeed, in certain segments, particularly in remote areas, various types of infrastructure and technology can be used simultaneously (e.g. radio link and optical fibre transmission technologies - e.g. SDH - and over copper pairs).
[60] See LLRO.

It is noted that the EC advocates the same principle (of technology neutrality), taking the position that the markets for services must be analyzed independently from the network or infrastructure used to supply these same services to users.

Leased lines are used by two major types of customers:

- end-customers (retail)[61], which use leased lines in particular for transporting data, voice and/or video traffic between two or more facilities at different geographical locations; and

- wholesale customers (operators providing electronic communications networks and services), which use the wholesale supply of leased lines for the purpose of[62]:

  - interconnection between fixed, mobile or data networks[63];

  - development of operators' own network, required for the provision of other electronic communications services which are purchased downstream by their customers - data transport services[64], Internet access services, fixed and mobile communication services and enterprise solutions (e.g., virtual private networks - VPN), among others; and

  - resale (to wholesale or retail customers).

Unlike the retail offers of leased lines aimed at end-users, the wholesale offers to fixed and mobile operators - especially the LLRO[65] and, more recently, wholesale Ethernet offers (such as PTC's "Rede Ethernet PT") – have, due to the specific characteristics of this business, been used primarily in developing own networks and seldom for the resale of leased circuits, with the exception of PT Prime, a company of Grupo PT which is a leading reseller of leased lines at retail.

Leased line wholesale products and services for are therefore elements that enable the delivery of symmetrical, dedicated and transparent transmission capacity at wholesale and retail level. These features characterize the services provided, regardless of the technology used to deliver them.

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[61] SME or large companies, private or state (including, notably, the Public Administration).

[62] According to the LLRO, "*Leased lines are specifically suited to the establishment of point-to-point links, public electronic communications networks, access connections, security systems and private electronic communication networks, providing features which enable fitting levels of availability, protection and performance*".

[63] Including lines for interconnecting traffic with PTC, including "interconnection lines" and "interconnection internal extensions", or connections between operators within the exchanges of PTC.

[64] For example, ATM, broadband technology designed for switching and transport of different voice, data and video services.

[65] The current version of the LLRO covers the following services (*see* section **4.1** for more details):

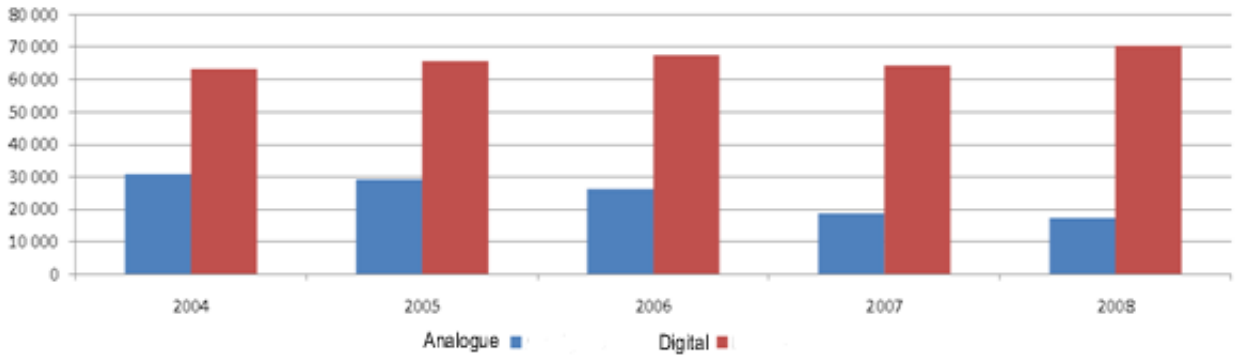
- Leased lines, including end-to-end and part circuits;
- Lines for traffic interconnection with PTC, including interconnection lines and interconnection internal extensions;
- Submarine cable access lines (*backhaul*);
- Links between operators inside PTC exchanges.

As such, leased lines remain a fundamental tool for the development of the markets for electronic communications services, also to a large extent driving the development of transport and access networks (broadband) throughout the national territory.

Finally, reference is made to some general data related to leased lines:

– The number of analogue lines is still relatively high compared to the total number of lines , although a substantial and sustained reduction has been seen in recent years[66], especially at retail level, and are offered almost exclusively by Grupo PT. At wholesale level, less than a hundred analogue lines are provided by operators outside of Grupo PT. The revenue earned through the leasing of these lines is marginal, particularly in relation to total revenue obtained from leased lines - in the wholesale market in 2008, these revenues amounted to about 5% (compared to total leased lines revenues).

Graph 1 - Evolution in total retail and wholesale leased lines volumes contracted between 2003 and 2008[67]



– The number of terminating segments is much higher than that of trunk segments, particularly due to the high number of short-distance lines (local loops) or part and interconnection lines[68].

– The number of low-capacity analogue and digital lines (up to 2 Mbps) is significantly higher than the number of lines with capacity exceeding 2 Mbps. The number of leased lines with very high capacity (155 Mbps and higher) is almost residual at retail level and inexpressive in wholesale markets[69], although their importance has increased significantly since 2005 - an increase of about 50% from 2005 to 2008 in the volume of lines with capacity exceeding 155 Mbps. This trend should continue in the future, given

[66] Wholesale analogue lines accounted for around 29% of all lines in 2006 and approximately 19% in 2008.

[67] Source: State of Communications 2008 (*see* State of Communications 2008).

[68] Given the larger extent of transport networks of the alternative operators which reach a larger number of PTC local exchanges. The part or interconnection lines are types of leased lines where, usually, the operator does not rent the trunk segment because it is co-located in the local exchange itself. In these cases, PTC interconnection traffic is supported over an "internal extension", i.e. a link inside this exchange.

[69] Likewise, the set of installed international lines (analogue and digital) has little relevance

the growing demands for bandwidth by end-customers, including with respect to wireless broadband.

– There are currently several operators and concessionaires of public services which are wholesale suppliers of passive optical infrastructure[70], i.e. dark optical fibre, with more than 40,000 km currently contracted for the construction of transport networks and the offer of wholesale and retail leased lines.

– Currently all operators active in the retail and wholesale leased lines markets make use (in whole or in part) of their own networks and only one retail operator uses third party networks (wholesale) on an exclusive basis.

– In general, with only a couple of exceptions, the number of lines (especially trunk segments) leased by PTC to operators outside of Grupo PT has seen a slight reduction[71].

– In the case of the PTC offer, an increase in use is reported by other operators of part circuits and interconnection internal extensions, rather than end-to-end lines, and at the end of 2008, over 40% of lines leased by operators are lines of this type.

[70] In particular, the **[Start of Confidential information - hereinafter SCI]** **[End of Confidential information - hereinafter ECI]**.

[71] For example, according to monthly data from the PTC, the volume of trunk segments contracted by other operators from PTC fell by 12% between 2006 and 2008.

3. THE RETAIL MARKET OF LEASED LINES

In its previous Recommendation on relevant markets, the EC considered that the relevant retail market includes the minimum set of leased lines which "*comprises the specified types of leased lines up to and including 2Mb/sec as referenced in Article 18 and Annex VII of the Universal Service Directive*". This "minimum set of leased lines" refers to specific leased lines with harmonized features which should be available under certain conditions throughout the national territory[72].

Under current legislation, ICP-ANACOM is charged with imposing obligations to provide the minimum set of leased lines (and associated conditions) on undertakings with SMP with respect to the provision of specific elements or provision of the entire minimum set, throughout the entire national territory or part thereof. Indeed, the ECL expressly addresses the minimum set of leased lines in the context of the controls in the retail markets - see Article 82 and 83[73].

Following the market analysis conducted in 2005, it was found that the leased lines retail market in Portugal consisted of analogue and digital lines of up to 2 Mbps, covering the entire national territory, whereas obligations were imposed on the provider with SMP as set out in **Table 1** (see section **1.1**). Having examined the digital leased lines of a capacity equal to or exceeding 34 Mbps, ICP-ANACOM did not identify a relevant retail market covering these products, also considering that market regulation at wholesale level would be sufficient to meet the regulatory objectives in this respect, in view especially of the extremely low volume and revenues from higher-capacity retail lines (up to 2004).

This market of analogue circuits and digital lines up to 2 Mbps coincided with the retail market for leased lines covered by the minimum set, as previously defined by the EC.

However, in the current Recommendation, , the EC does not identify the retail market for leased lines as a relevant market susceptible to *ex ante* regulation and proposed from the outset to "*reduce the minimum set of leased lines to zero*"[74]. Indeed, on 21/12/2007, the EC adopted "Commission Decision amending Decision 2003/548/EC[75] as regards the deletion of specific types of leased line from the Minimum Set of Leased Lines", specifically article one - "*The list entitled 'Identification of the minimum set of leased lines with harmonised characteristics and*

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[72] Guaranteeing, in particular: open access to leased lines, according to conditions of equality, transparency and non-discrimination; the provision and publication of information on conditions of supply; the observation, with respect to the prices charged and the discounts made, of the basic principles of cost orientation, transparency and non-discrimination; and the observation of goals which may be defined by ICP-ANACOM for the established conditions of supply (especially regarding levels of quality of service).

[73] The ECL (article 121, paragraph 3) further sets out that the obligations comprised in the bases for the concession of the telecommunications public service approved by Decree-Law no. 31/2003 of 17 February shall remain in force, whereby the concessionaire company shall remains subject to the obligation to provide the leased lines required for the provision of telecommunications services of public use in the entire national territory.

[74] See. "Explanatory Note", page 39.

[75] Decision of 24 July 2003 on the minimum set of leased lines with harmonised characteristics and associated standards referred to in Article 18 of the Universal Service Directive (Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002).

associated standards' *is hereby deleted from the Annex to Decision 2003/548/EC*" [76].

According to the EC, analogue leased lines are no longer technically relevant, given the widespread migration to new network architectures supported over digital technologies. Additionally, the EC deems that demand for digital circuits is being met by the market and is also growing for high-speed connections, over 2 Mbps.

However, this in itself does not exclude the possibility of the retail market for leased lines being identified as a relevant market for the purposes of *ex ante* regulation at a national level. On the other hand, because some time has elapsed since the completion of the previous analysis of the leased lines market, ICP-ANACOM deems it necessary to confirm that the factors considered at that time have not changed at retail level.

Therefore, and in light of indication given by the EC in the Recommendation in question, it is necessary to analyse in any case if the retail market for leased line meets the "three criteria" test - see section **1.4** above- and if it should remain as a relevant market subject to *ex ante* regulation.

In order to apply this test to the retail market for leased lines, it is first necessary to proceed with the definition of the product market and of the geographic market at retail level - this is done in the following sections.

Finally, according to the European Regulators Group (ERG)[77], if, in its analysis of a given market, the NRA concludes that the "three criteria" which might justify the imposition of *ex ante* regulatory obligations are not cumulatively satisfied, the NRA must also conclude that no operator has SMP in this market and, accordingly, it should remove the previously imposed obligations within a reasonable period, following notification to interested parties. In such cases a further in-depth analysis of SMP is not deemed necessary.

3.1. Methodology for market definition

In this section, the market definition methodology used by ANACOM in its market analysis is characterised in an abbreviated form.

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

The aim of the process of defining the product market is to identify all those products or services that are sufficiently interchangeable or substitutable, not only in terms of their objective

[76] Paragraph 3 of article 18 of the Universal Service Directive provides that the EC may delete certain types of leased lines from the minimum set. The EC public consultation "*revealed broad support from Member States, industry associations and stakeholders for the deletion of the five types of leased lines from the current minimum set*".

[77] *See* "ERG Report on Guidance on the application of the three criteria test".

characteristics, by virtue of which they are particularly suitable for satisfying the constant needs of consumers, but also in terms of their prices and their intended use[78].

The exercise of defining the relevant product or service market is begun by grouping together products or services that are used by consumers for the same purposes (end use). [79].

These products and services will form part of the same relevant market if the behaviour of producers or suppliers of services involved are subject to the same kind of competitive constraints, particularly in terms of pricing.

In this context, two main types of competitive constraints are identified:

(i) substitutability on the demand side; and

(ii) substitutability on the supply side [80].

These competitive constraints may, alternatively or in conjunction, constitute grounds to define the same product market.

In theoretical terms, the degree of substitutability or complementarity between two products can be estimated through the cross-elasticity of demand. However, in practice, such analysis is complex and the available data is scarce; as such one of the forms used to determine the existence of substitutability of demand and supply is the application of the "hypothetical monopolist test", SSNIP (Small but significant non-transitory increase in price)[81].

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 with respect to neighbouring areas[82]. The process of defining the limits of the geographic market uses the same methodology as that used in the definition of the product market, i.e. the identification of competitive constraints with respect to substitutability on the demand side and on the supply side. According to the "Explanatory Note", there is a need to identify potential competitors of SMP undertakings and determine their geographical areas of operation (and supply). These potential competitors may include current operators with alternative offers in the product market or operators which may enter the market in the event that there is a small but significant and non-transitory increase in the price of the offer of the hypothetical monopolist in the market.

The assessment and definition of product and geographic markets will be based, in particular, on the extent of restrictions imposed on the provision of leased line services, regardless of the

[78] See. Guidelines, § 44.
[79] Idem.
[80] See. Guidelines, § 38. A third source of competitive constraint on an operator's behaviour is potential competition. This possibility will be considered where relevant.
[81] See. Guidelines §40-43.
[82] See. Guidelines, §56.

infrastructure used by the providers of such services. In this regard, note should be made of the EC's position in the "Explanatory Memorandum" with respect to the "principle of technological neutrality": "*The European Union's market-based approach to the regulation of services is independent of the technology used in the core network* [of leased lines] (…). *When defining markets taking into account this Recommendation, NRAs should analyse on a case-by-case basis substitutability of services provided using these various technologies, thereby taking the principle of technology-neutral regulation as a starting point*".

3.2. Definition of the leased lines retail market

3.2.1. Definition of the product market

In this section the product market is defined with regard to the leased line service provided to retail customers.

According to the position of the EC, "*retail markets should in principle be examined, for market definition purposes, in a way that is independent of the network or infrastructure being used to provide services*", whereby there may be two ways of assessing demand-side substitution[83]:

- by considering customer reaction to a small and permanent increase in the pricing of the services and any substitutes; and
- by comparing the characteristics of products or services in order to determine whether they are particularly suitable for satisfying the constant needs of customers and whether they can be substituted by other products and services.

The key elements in demand and supply of dedicated connections at retail level are the bandwidth, distance and guaranteed quality of service, whereby any services that could substitute leased lines must be capable of providing transparent and dedicated end-to-end connections, of ensuring high and symmetrical (and constant) speeds and of ensuring the agreed levels of quality of service.

Where relevant, in the analysis of substitutability, use is made of the prices of the leased line service practiced by Grupo PT at retail level[84].

Given the assumptions identified and substitutability analyses conducted to date, ICP-ANACOM considers that, given the limited development reported since the last market analysis, the conclusions that were taken from it remain valid as regards the definition of the product market.

[83] See Guidelines, §48.

[84] The prices used for the purposes of the present analysis - the prices charged by PT Prime, retail company of Grupo PT for the provision of services to corporations - may be considered as equivalent to the level of prices in a competitive environment, given the regulatory obligation of cost orientation of prices which, to date, has been imposed on the company by ICP-ANACOM.

That is, the substitutability analyses performed previously are deemed to remain valid and current[85] between:

- analogue lines and digital lines with low bandwidth;
- large companies and SMEs; and
- leased lines and other data services.

In this context, a brief summary of the substitutability analyses is presented below, fully updated to reflect market developments and in particular the most recent statistical data compiled by ICP-ANACOM.

Later, in separate sections, the limits of the market and the possible need to segment it according to transport technology (lines supported on traditional technology. vs. Ethernet) and according to the speed/capacity of the digital circuits is discussed in greater detail.

3.2.1.1. Summary of substitutability analyses performed in the previous market analysis

Low-speed and analogue leased lines

From a strictly functional point of view, the low-speed digital leased line service (up to 64 kbps inclusive) is presented as a possible alternative to analogue leased lines, since both services provide a permanent and dedicated physical connection between two points, with symmetrical speed, allowing transmission of voice and/or data traffic, distinguished by the provision of higher levels of quality of service and flexibility of use to end corporate clients.

The application of the hypothetical monopolist test on the prices presented by Grupo PT confirms that, given a 10% increase in the price of analogue circuits, substitutability exists between analogue circuits and digital circuits up to 64 Kbps[86].

In view of the evolution of prices for leased lines from 2004 until 2008, it is seen that the prices for installation and the monthly fees charged for analogue lines have remained fairly flat or increased only slightly, whereas the prices of low-speed digital lines decreased by an average of 2% between 2006 and 2008. Therefore, the trend in the tariff by itself constitutes an incentive to the substitution of analogue lines by low-speed digital lines[87].

The supply of analogue lines and low-speed digital lines can be supported using the same

[85] See Section 2.1 of the previous market analysis.

[86] Taking, as an example, a leased line consisting of two terminal segments and one 5km trunk segment, it is concluded that, from the outset, digital circuits with a speed equal to or less than 64 Kbps generally have a lower price than an analogue circuit (one of the various types) whose price has risen by 10% - *see* section **2.1.1.1** of the previous market analysis.

[87] Even if, for some customers, the option of migration is restricted due to the existence of a range of costs incurred in switching (e.g. replacement of terminal equipment or termination of existing contracts).

platform/technology solution, with the main difference found in terms of the network terminal equipment. Consequently, the substitution of an analogue service by a digital service is essentially the replacement of this network equipment, which is a relatively simple process from a technical point of view[88].

Over recent years a substitution has been reported of analogue lines with digital lines, whereby the volume of analogue lines has been declining steadily, with a less pronounced decline reported in the set of low-speed digital lines. This trend of technological substitution will remain in place and even grow, given the progressive migration of electronic communications networks to more advanced digital supports.

Therefore, and also taking into account the added functionality of low-speed digital leased lines, ICP-ANACOM concluded that these lines can, on the demand and supply sides, be regarded as substitutes to analogue circuits, which conclusion is maintained from the previous market analysis.

Asymmetric services or other data transmission services

It is possible to identify a set of broadband and data transmission services that could hypothetically be analyzed from a perspective of substitutability of the leased line service by retail customers, including ADSL-based services and transmission services provided over the cable television distribution network[89] or over wireless systems.

However, with these services there is no guarantee to the end-user of an end-to-end symmetric connection[90] that is dedicated (not shared/ without contention) and transparent between two locations. As such, these services are not fully comparable to those provided over leased lines. Moreover, these latter services have more demanding assured levels of quality of service. Therefore asymmetric services have features which are distinct from the leased lines services, whereby they do not impose constraints on the behaviour of a hypothetical monopolist offering the latter service.

On the supply side, it is concluded that most providers of the leased lines service also participate actively in the provision of ADSL-based services, including access to broadband Internet, whereas the reverse is not true[91]. As such, besides the limited complementarity indicated with

[88] It is considered that there are suppliers of low-speed digital lines which could switch to supply analogue lines, in the event of a small but significant and non-transitory increase in the pricing of analogue circuits by a hypothetical monopolist, since the additional investment would not be significant, nor would the suppliers incur irrecoverable costs associated with substantive changes in configuration and functionality of their networks, but only one-off investment in network terminal equipment and its installation and configuration.

[89] In this type of service, the average user is usually interested in asymmetric bandwidths since the need for information in the network-user direction is generally greater than the need to send information. In fact, the majority of commercially available broadband internet access offers are asymmetric.

[90] Theoretically, an ADSL product, for example of 2048/512 Kbps, could constitute a symmetric product of 512 Kbps. However, this would be a very inefficient way of allocating transmission resources.

[91] That is, the cable network operators and most smaller alternative operators (no or very small own network) do not offer leased lines.

respect to the offer of both services, it is considered that the possibility of an asymmetric service provider initiating provision of the leased lines service, following a small but significant and non-transient increase in pricing (e.g. 10%) of this service, is not deemed relevant.

Moreover, the price differences between ADSL services and leased lines services are so significant that they do not indicate real substitutability (on the demand side) between the two services, reflecting rather the difference in functionality and performance levels. For example, the monthly charge for a Class 29 local access[92] was, in mid-2009, 15.02 euros and the monthly payment for a terminating terminal segment with equivalent capacity - 1024 Kbps - 75.26 euros.

Indeed, in addition to the guaranteed speed, the quality of service guaranteed by leased lines, both in terms of fault repair and in terms of availability, is substantially higher than that provided by the asymmetric and data transmission services.

Therefore, it is not considered that there is effective substitutability, either in terms of demand or in terms of supply, between leased lines and asymmetric services, particularly considering the differentiation in terms of the features associated with each of these services. The characteristics of services and offers in question and the size of the segment potentially affected by the possibility of substitution between the two types of services under analysis are not sufficient to consider that the behaviour of a hypothetical monopolist would be constrained by any such substitutability[93].

On the other hand, the services supported by FWA, Radio Local Area Networks (RLAN)[94] and VPN and capacity management services[95] could only be considered substitutes for the leased line service in the case that, among other factors, they had similar territorial coverage, the number of customers of these services was comparatively relevant and the level of pricing was similar to that of the leased line service, which continues not to be the case.

Moreover, for most of these services, there are important limitation in terms of the provision of transparent and dedicated end-to-end links (there is usually a sharing of resources[96]), of quality (levels) of service and contracted speed. There is also a high level of uncertainty associated with

[92] Local access with 1024 kbps/1024 kbps and maximum contention of 1:10 (lower rate than that of a leased line, which has a "nil" contention rate i.e., 1:1).

[93] A further reflection of its weak substitutability is the almost total lack of correspondence between the type of clients that acquire each of these services: primarily residential customers in the case of cable TV distribution networks, ADSL or mobile, and enterprise clients (especially medium and large companies) in the case of leased lines.

[94] The areas potentially covered by RLAN/BWA offers are limited to certain urban and higher density areas/buildings where there is "line of sight" to the base stations. Limitations in coverage may also affect the quality of service (signal degradation). Leased line services supported using these offers do not therefore constitute an effective alternative to leased lines services for the majority of retail customers, given their limited availability in commercial terms and in terms of territorial coverage.

[95] Even while the definition of leased line supposes a permanent physical link between two points for the exclusive use of the user, with symmetrical transmission speed and capacity to deliver voice and data, there are some solutions such as VPNs or other capacity management services which, from a functional point of view, may be deemed by some end customers as replacements for conventional leased lines for the purpose of certain applications.

[96] Even though, for example using FWA, a dedicated and transparent connection which is symmetrical up to 2 Mbps can be guaranteed, for the transport of voice and data traffic with acceptable levels of quality of service, and there are offers in the retail market based on these types of support.

the evolution of these services, both at a technological level, and in terms of the definition and stabilization of the offer of the service itself and business model.

Likewise, for data services (e.g. VPN) and those supported over wireless networks, it is unlikely that any provider of these services will, in the short term, start to offer symmetrical leased lines to retail customers, where it is not already in possession of the network infrastructure required to do so, without incurring significant investment[97].

The analysis of substitutability on the demand and supply sides makes it possible, given the difference in terms of their specifications and their features, as well as in terms of current penetration, to reject the hypothesis that the asymmetric services and the services supported over FWA, RLAN and VPN and capacity management services might constitute a substitute for leased lines.

It is further noted that most of these services (including data transmission) are actually supported using a leased lines wholesale offer. Specifically, according to the website of PT Prime, "*the Broadband/ATM family of services* is *based on the country's largest and most advanced ATM backbone, supported by more than 70 ATM switching nodes and SDH/DWDM transmission network over optical fibre, widely deployed in major urban centres*".

Finally, and with regard to services supported over symmetric xDSL technologies such as HDSL and SHDSL, from the standpoint of the retail customer's intended use and the actual characteristics of the product, these may constitute effective substitutes for the "traditional" leased lines service, for speeds of up to 2 Mbps or even slightly higher. In fact, these services enable the end-to-end transmission of voice and data traffic in a symmetrical transparent and dedicated manner. For example, Sonaecom mentions, on its *website*, that "*During the second half of 2008 the number of COs unbundled for SHDSL circuit interconnection remained stable. With these circuits (installed at 174 COs), Sonaecom is capable of operating direct connections for most of our mobile access network, thus further reducing the dependency on the incumbents' leased circuits.*"[98].

Therefore, the conclusion of the previous market analysis is maintained, whereby, unlike the symmetrical services supported over SHDSL, asymmetric services and other data services are not deemed part of the same retail leased lines product market, and no significant developments are expected prior to the next market definition and SMP analysis.

[97] Considering the differences in pricing and perceived flexibility between these two types of solution for the end-user, with clear advantages for more complex data transmission services, there is no incentive for a provider of services based on BWA (FWA), RLAN, VPNs or capacity management to alter its service portfolio as a result of a hypothetical monopolist effecting a small and non-transitory increase in prices with respect to the leased line service.

[98] See http://www.sonaecom.pt/filedownload.aspx?schema=a67f9277-d23c-4f99-8642-9acd3e463b93&channel=44E65941-12EC-4115-9D0F-898A110E2077&content_id=85C33410-BB1F-4B23-8A29-738A3EE7700B&field=file_src&lang=pt&ver=1.

Large companies vs. SME

Since the retail market for leased lines is primarily targeted at the corporate sector, it is important to examine whether there is some segmentation in terms of supply and demand between SME and large enterprises.

Even though the requirements of small and medium enterprises (SME) and large firms are not, *a priori* exactly the same, with larger firms typically more demanding in terms of needs, with more profound knowledge of electronic communications products and services and with greater negotiating power[99], the conditions of the offer advertised by the operators for leased lines are not dependent on the type of user.

There seems to be chain substitutability, on both the demand and supply, among non-residential customers of different sizes, which would determine the definition of a single market.

Indeed, operators provide leased line services throughout the entire territory and without apparent discrimination according to type of customer, although large firms may be located in different areas to SME. Currently, companies that offer services to SME, usually also offer them to large enterprises, and vice versa, regardless of the existence of a small but significant non transitory price increase by a hypothetical monopolist.

Considering the uniformity of the conditions, including pricing, of the leased lines offer for large companies and SME, and since there appears to be no restrictions on pricing, while acknowledging some differences between the SME and large enterprise segments, ICP-ANACOM maintains the view set out in the previous analysis that the relevant retail market includes any business customer.

3.2.1.2. Traditional digital lines vs. lines supported over Ethernet

Recently, in addition to the continued use of optical fibre and PDH and SDH technologies, there has been increased use of another alternative technology - Ethernet - to support capacity/leased lines services, and in several countries this technology already represents a very important weight in the provision of these services[100].

Since the introduction into the market of services supported using Ethernet technology is a relevant fact occurring since the previous analysis, it is important to examine whether these

[99] The offers of the operators to large companies typically consist of integrated communications solutions for voice, data information systems, Internet, electronic commerce, *network outsourcing* , among many others. These companies are also more demanding in terms of guarantees of quality of service, given the greater volume and critical nature of the information they transmit.

[100] In Spain, in 2008, Ethernet corresponded to 46% of volume and 58% of revenues of all leased line services, with Telefónica holding a market share of 73% - See http://circa.europa.eu/Public/irc/infso/ecctf/library?l=/espaa/adopted_measures/es20090930-0931/market_and_ex-7/resolucin_2008-1944pdf/_ES_1.0_&a=d.

services are substitutes for the traditional leased line service (in addition to symmetric solutions based on xDSL, already considered a substitute, as concluded above).

In this regard, it should be noted that ICP-ANACOM concurs with the view of the EC, according to which "*retail markets should in principle be examined, for market definition purposes, in a way that is independent of the network or infrastructure being used to provide services*", i.e., the principle of technological neutrality should be considered when analyzing the market(s) of leased lines services.

The demand for Ethernet services

Since its inception, the Ethernet has been used as a basic protocol for the implementation of local access networks (LAN), allowing, in a second phase, the offer of "virtual" enterprise solutions (VLAN). At first, Ethernet-supported solutions were mainly used for the provision of data services, while traditional lines saw mixed use (transporting voice services as well, particularly on interconnection lines).

More recently, however, a progressive migration has been reported from traditional technologies supporting electronic communications services (voice, data, or even image) to IP-based technologies, whereby Ethernet-based data networks began to carry any type of traffic. In fact, currently, nearly all Internet traffic originates and/or terminates at an Ethernet interface.

This convergence with respect to data communications networks supported using Ethernet/IP technologies, especially when it comes to corporate networks, has led to network operators seeing increasing demand on the part of such companies for Ethernet (capacity/transport) services[101].

Corporations have actively sought solutions to interconnect their different points of geographical presence - "*inter-office*"), including their information technology infrastructure, so that they can use common resources with the same interfaces, protocols and equipment - especially over Ethernet – as already used on their local area networks ("*intra-office*"). The availability of Ethernet circuits on (public) electronic communications networks can meet this requirement.

On the demand side, it therefore appears reasonable to assume that companies, especially large and medium enterprises which have already deployed LAN (or even WLAN) systems supported using Ethernet technologies, recognize obvious advantages in choosing to acquire leased lines which are also Ethernet supported, for example for (inter)connection of these LAN. These benefits can be measured in terms of efficiency and cost savings compared to interconnection solutions based on traditional leased lines.

[101] Traditionally, these requirements have been met through leased lines supported over traditional technologies (TDM). It is likely that, in the future, services based, for example, on Frame Relay and ATM, which had been exclusively using TDM transport technologies (e.g. SDH), will be transported using a common transport platform: Ethernet.

The offer of Ethernet services

The major operators and service providers present in the Portuguese electronic communications market have Ethernet-based offers, such as OniTelecom, Sonaecom or COLT and PT Prime, the company of Grupo PT present in the retail enterprise services market. The last of these companies has a wide variety of "Data Services" offers [102], including the service "*Prime Link*" (analogue, digital and "*Premium*" lines) and Ethernet services, which are described briefly below.

Acessos Ethernet and Ethernet2Connect[103] *of PT Prime*

Through PT Prime's Ethernet2Connect (E2C) service, logical links are established to carry traffic between the retail customer's Ethernet network accesses - basically, prolongations of PT Prime's Ethernet platform up to the premises of the end-customer. These links have classes of service[104] associated with them and can be point-to-multipoint and point-to-point[105].

The accesses to PT Prime's Ethernet network, over which the E2C service is established, may be provided with an E (10 Mbps), FE (100 Mbps) or GE (1 Gbps) interface [106] - depending on the requested speeds - and are implemented over point-to-point optical fibre.

According to PT Prime, the use of Ethernet technology as an interface with the public network, which is based on a widely disclosed and well-known standard in LAN environments, leads to a range of benefits, including:

- economy;
- simplicity, flexibility and speed;
- technological edge; and
- reliability and high performance.

These services enable companies to interconnect their LAN using a wide range of Ethernet connection options, with point-multipoint and point-to-point systems, maintaining traffic control, i.e. it is possible to establish transparent and dedicated connections.

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[102] See, for example, http://www.oni.pt/Solucoes_01_02_01.htm, http://www.novis.pt/corporate-dados-interlan/211493.html, http://www.colt.net/business/pt-PT/services/private-networking/ethernet/products/index.html e http://62.48.147.70/PTPrime/HomePage/ProdutosServicos/Lista/?IdFamilia=2&IdClas=92&Familia=Networking%20e%20IP&Classe=Ethernet.

[103] Network access and "layer 2" (OSI) transport services - Ethernet - of PT Prime. See http://empresas.telecom.pt/PTPrime/Homepage/ProdutosServicos/DescricaoCategoria/?Familia=Dados%20e%20Internet&IdCategoria=192&Classe=Serviços%20de%20Dados&IdFamilia=2&IdClas=5.

[104] Additionally, associated with each access, a wide choice of secure accesses can be provided (at the interface, connection and/or network node level).

[105] Use of the E2C service requires the existence, or prior installation, of access to PT Prime's Ethernet (network).

[106] E - Ethernet; FE - FastEthernet and GE - GigaEthernet.

ICP-ANACOM recognizes that, in theory, the guarantees of quality provided by the Ethernet-supported lines may be inferior to those provided with traditional leased lines, taking into account that the ETSI standards establish very demanding quality parameters for traditional technologies.

However, Ethernet services providing secure access to data communication networks (increasingly demanding in the levels of quality of service that are required) are available[107].

For Ethernet-supported high-speed lines, access (terminal segment) and the connection into the transport network (trunk segment) is typically supported over optical fibre, which by itself ensures greater reliability in terms of the physical means of transmission.

The "Rede Ethernet PT" wholesale offer

PTC keeps in force, on its own initiative, a wholesale offer called "Rede Ethernet PT"[108], which provides high capacity point-to-point connections, i.e., Ethernet connectivity between network termination points, with a wide range of speeds from 10 Mbps to 1 Gbps and "*competitive pricing*", according to PTC's own website. In recent years, alternative operators have been acquiring leased lines under this offer, pointing to significant economic advantages in the use of services supported by the "Rede Ethernet PT" offer over the conditions provided in the LLRO.

The apparently lower price of Ethernet circuits compared to traditional circuit (equivalent capacity)[109] can be partly explained by increased efficiency in the use of the Ethernet transport network, since it has multiple access, without a fully dedicated physical connection as in the case of SDH circuits, although it guarantees the existence of dedicated point-to-point capacity. Additionally, Ethernet interfaces have prices which are currently lower than those of traditional interfaces[110]. See section **4.2.2.2**. for more detailed information.

In this context, there already appears that there is substitutability in practice between traditional circuits and Ethernet, both on the supply side and demand side. Both in the case of copper pairs and in the case of optical fibre, the cost of replacing traditional leased lines with Ethernet is relatively low and can in many cases, be limited to the replacement of equipment (interfaces) at the extreme(s) of the link.

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[107] "*Associating each access, and if requested, ... a wide choice of secure accesses (interface, path and/or POP)*", according to PT Prime. Also according to PT Prime's website, "*With the aim of ensuring high levels of Quality of Service and high network standards, PT Prime has defined three technical solutions: - Secures Access Network - Acesso Premium - Securing Access Network and Core Network - Acesso Premium Plus; - Secures Access Network, Core Network and POPs - Acesso Premium Gold*".

[108] This offer is analyzed in greater detail in Chapter 4, in the definition of the wholesale product markets. *See* http://ptwholesale.telecom.pt/GSW/PT/Canais/ProdutosServicos/AcessoInternet/RedeEthernetPT/Rede+Ethernet+PT.htm.

[109] Although without specific and detailed elements of cost (with respect to the Ethernet circuits), it is noted that in certain cases, and as discussed in greater detail in Chapter 4, Ethernet circuits provided by PTC (e.g. a logical link of 10 Mbps between two points within the same Group of Networks) have prices for installation and monthly fees below those of an equivalent line offered in the context of the LLRO (even below the cost of a 2 Mbps line in conditions similar to the given example).

[110] It should be noted in this respect that the use of Ethernet-based interfaces could result in a substantial reduction in equipment costs compared to using traditional interfaces (TDM).

The possibility that operators in retail markets can acquire lines in the wholesale markets at prices which are potentially lower than the traditional LLRO-based offer, even while there are currently limitations in PTC's Ethernet network coverage, could enable these operators, from the outset, to engage in the resale of leased lines (and retail services) to businesses under potentially more favourable conditions.

It is therefore to be expected that these cost reductions for operators that might translate into lower prices for business end-users.

Migration between traditional leased lines and Ethernet

There is evidence, supported by concrete data, that there is growing demand (and supply) of Ethernet-supported leased lines, i.e., a real migration in the context of the retail (and wholesale) market.

In other markets, perhaps because of greater competition, this migration is even more evident. Such, for example, is the case of Spain, where in 2008 the percentage of Ethernet-based circuits already amounted to 46% in terms of volumes and 58% in terms of revenues of all leased line services.

This evidence is recognized by the incumbent itself, which notes a gradual "abandonment" of traditional technologies in favour of Ethernet (and IP) technologies, resulting in greater efficiency and lower costs. It may be more correct to say that, for some specific and more demanding clients (for example, certain banks in determined situations) Ethernet-based lines do not yet constitute a (global) alternative to traditional lines, yet the possible existence of this particular segment does not contradict the premise that Ethernet-supported lines and lines supported over traditional technologies are found within the same product market.

Indeed, the application of the principle of technological neutrality in the definition of the retail market for leased lines results, first and foremost, from current market realities, particularly the increasing use (and in lieu of others) of Ethernet technology to provide such services.

Conclusion

In conclusion, although there may be (small) differences with respect to the services provided by both types of lines (traditional and Ethernet), both in terms of transport capacity actually acquired and in terms of quality of service, there seems to be increased and sustained demand and supply with respect to Ethernet-supported lines, which are used for the same purposes as traditional and digital circuits and which will even tend, with the increasing development of (fully) IP-supported networks, to assume a preponderant weight in the near future.

Indeed, according to the "2008 Annual Results" of Grupo PT[111], even while "*wholesale revenues*

[111] *See* http://www.telecom.pt/NR/rdonlyres/AF80D5B1-F72A-465A-85EE-F847513E1242/1427716/PT_4Q08_E.pdf, page 17.

decreased (...) as a result of lower sales of leased lines and capacity (...), *revenues from data and corporate services increased* (...), *as a result of* (...) *continued successful migration of customers from traditional voice and data services to more advanced and integrated solutions, which include: (1) the provision of more bandwidth for end-users based on Ethernet and IP technologies, and (2) convergent and customised solutions combining telecoms and IT* ".

it is also recalled that the Recommendation defines the relevant (wholesale) market in its Annex, "*irrespective of the technology used to provide leased or dedicated capacity*", and that the wholesale market is defined from the retail market, which means that this market is also not dependent on technology.

Indeed, in the analysis of the leased lines markets, several NRA explicitly included point-to-point Ethernet in the retail market. Examples include Germany, Austria, Slovenia, Spain, Estonia, France, Ireland, Italy, Lithuania, the United Kingdom and Sweden. This does not mean that the Ethernet is not implicitly considered as part of the relevant market in other countries, given the principle of technological neutrality.

Therefore, and also mindful of the principle of technological neutrality, for a small but significant non-transitory increase in the price of a traditional lines, there are strong indications that end-users would move to acquire Ethernet lines, rendering this price increase unprofitable and leading to the conclusion that traditional lines and Ethernet lines form part of the same product market.

Under these conditions and with a high degree of substitutability found on the supply side and on the demand side, there is no reason to differentiate (the market) according to the technology.

3.2.1.3. Segmentation of digital lines according to capacity

In the previous market analysis, ICP-ANACOM concluded that all digital lines with capacity up to 2 Mbps (inclusive) were in the same product market, finding at this point a break in the substitutability chain on both the demand and on the supply side. This conclusion allowed the exclusion of circuits with capacity exceeding 2 Mbps from the relevant retail market, which position was in line with the EC's position on the minimum supply of leased lines[112].

Given the changes occurring since the previous analysis, both in terms of the regulatory framework and in the development of the retail market, especially with regard to higher speed connections, now also supported over Ethernet[113], it is important to review the previous analysis of substitutability between different capacity digital lines to determine whether the cut-off point

[112] Leased lines with capacity exceeding 2 Mbps had, at retail and to date, a low weight in the total volume of lines, as well as the volume of associated revenue.

[113] Especially "Ethernet - 10 Mbps" and “Fast Ethernet - 100 Mbps" lines (and to a lesser degree, "Giga Ethernet - 1 Gbps"), which were not considered, to date, as relevant at the level of retail provision of leased lines.

of the substitutability chain (from the analysis of 2005) should be maintained at 2 Mbps or whether other cut-off points might exist[114].

Demand-side substitutability

Table 3 shows the prices charged by PT Prime in its retail offer of traditional leased lines:

Table 3 - Prices charged by PT Prime for lines between 64 Kbps and 34 Mbps

Speeds (Kbps)	Monthly charge								Installations	Price[115] in euros per Kbps
	Category 1 Local Line	Line						CAM		
		Category 2 ≤ 5 km	Category 3 6 to 10 km	Category 4 11 to 30 km	Category 5 31 to 60 km	Category 6 61 to 125 km	Category 7 ≥ 126 km			
64	94	136	178	228	291	344	514	745	1150	1.47
128	148	244	310	406	555	682	1000	1434	1352	1.16
192	180	316	389	509	707	880	1339	2064	1352	0.94
256	207	369	458	607	854	1073	1659	2400	1352	0.81
384	220	409	514	691	986	1252	1965	2900	1352	0.57
512	244	459	580	786	1130	1442	2282	3300	1352	0.48
768	258	486	615	836	1204	1538	2442	3550	1352	0.34
1024	270	511	648	883	1276	1633	2600	3800	1352	0.26
1536	278	526	678	927	1343	1724	2755	4050	1352	0.18
2048	290	529	704	980	1425	1832	2936	4250	2028	0.14
34000	2176	3968	5278	7353	10688	13741	22020	31750	2703	0.06

Source: PT - Current Tariff (all figures are in Euros, excluding VAT).

For lines up to 2 Mbps (inclusive), in the light of a small but significant and non-transitory increase in the price of lower-speed circuits, the difference in price between acquiring or maintaining a solution based on lower-speed circuits compared to acquiring a new solution based on lines at the next highest speed, leads to the conclusion that incentives exist for most retail customers to opt for the second option. That is, a significant proportion of customers tend to acquire new lines with the next highest speed rather than (maintain) lines at a lower-speed which have seen an increase in pricing; as such the price increase by the hypothetical monopolist is rendered unprofitable[116].

This conclusion is valid both with respect to the initial acquisition of the service by new

[114] It is noted that in the previous market analysis, the operators (except Grupo PT) considered that the relevant market for retail leased lines should include higher speed lines (exceeding 2 Mbps), at least up to a capacity of 34 Mbps . One of the undertakings took the view that a second market should be considered for up to at least 622 Mbps.

[115] Monthly charge of local lines.

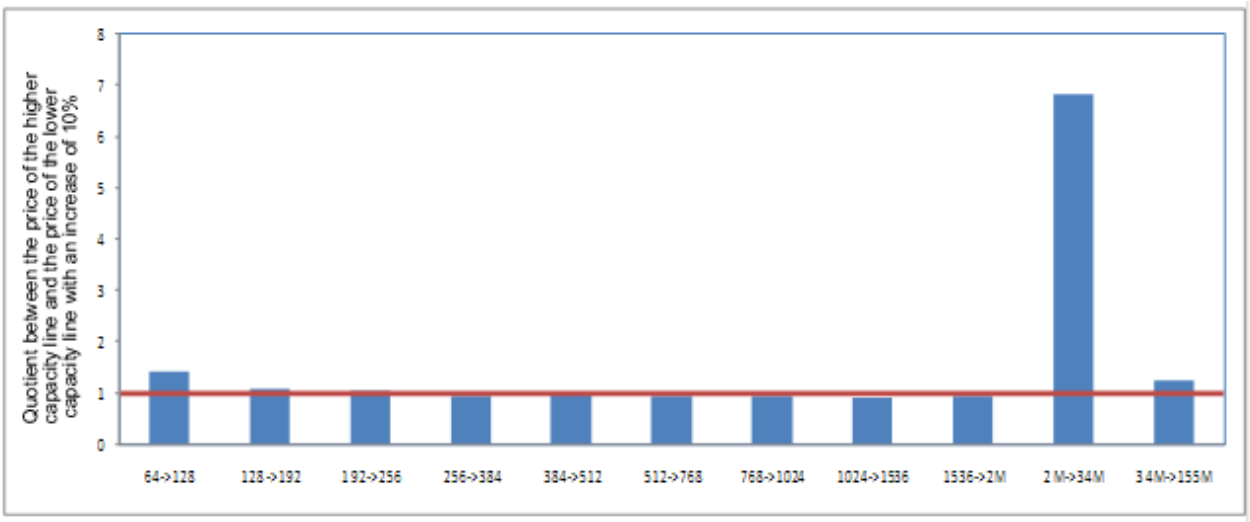
[116] For example, a local network of 384 Kbps costs 220 euros per month. An SSNIP (10%) in this price represents an increase to 244 euros, which is exactly the price of a line immediately above (512 Kbps). The substitutability in this case appears evident (greater speed for the same price).

customers and with regards to replacement of the service previously acquired by customers of the hypothetical monopolist. Note is also made of the gradual decrease in the price per Kbps as the line's capacity increases, the effect of economies of scale, reflecting the potential increased value of higher capacity circuits.

Regarding the possibility of chain substitutability for digital lines of 2, 10, 34, 100, 155 Mbps or 1 Gbps, for most retail customers, from a strictly functional point of view, this hypothesis remains likely, considering that the previous wide capacity differential between levels 2 vs. 34 vs. 155 Mbps no longer exists, since there are now two intermediate levels, 10 Mbps and 100 Mbps associated with the Ethernet offer (which, as was found, is part of the relevant market); this results in a reduction in the price difference between the capabilities of sequential lines.

Until recently, with the maturation / deployment of Ethernet-supported products, it would be inconceivable that the greater capacity digital lines could be considered a substitute for 2 Mbps digital circuits for most retail customers, whereby. in the analysis of 2005, a cut-off point was identified in the substitutability chain at 2 Mbps - *see* **Graph 2**.

Graph 2 - Price difference considering only traditional circuits: acquisition of higher-capacity lines vs. maintenance of lower-capacity lines, with an increase of 10% (local line)[117]

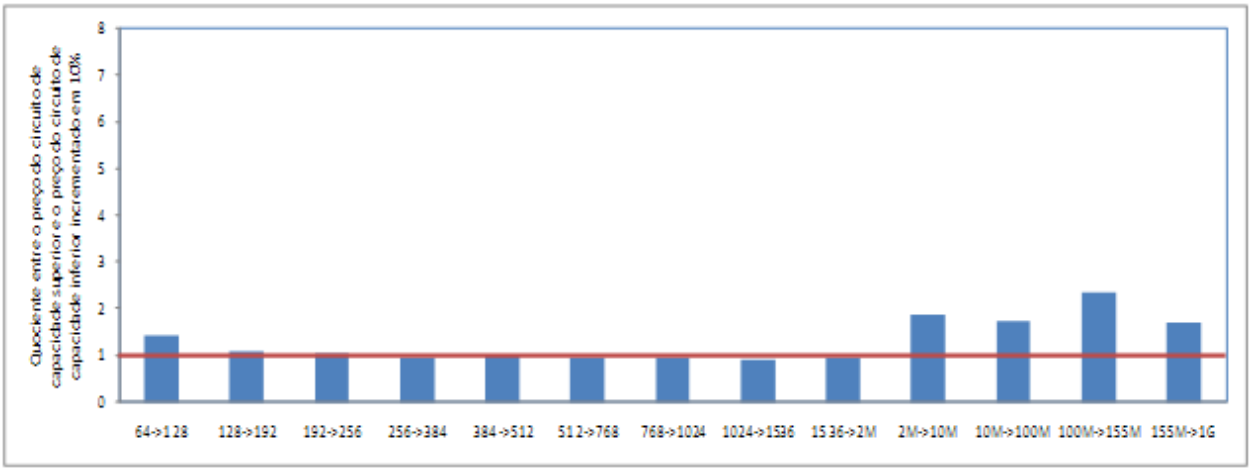


However, recent technological developments in terms of symmetric transmission solutions over xDSL and Ethernet have come to support the growing (and recent) demand for lines with capacities exceeding 2 Mbps (e.g. 10 Mbps and 100 Mbps), as these already have pricing which is competitive compared to traditional lines of 34 Mbps and above (and in some cases, compared to the "traditional" 2 Mbps lines themselves).

[117] In the case of lines of 155 Mbps, where the retail price is established on a case by case basis with no fixed price list, it is estimated that this will be equivalent to the wholesale price plus a margin of 26% (minimum margin to ensure fulfilment of current retail-minus obligation).

This substitutability chain effect continues to apply in the case of digital lines with transmission speeds up to 1 Gbps inclusive, as shown in **Graph 3**.

Graph 3 - Price difference considering traditional lines and Ethernet lines: acquisition of greater capacity lines vs. maintenance of lower capacity circuits, with an increase of 10% (local loop)[118]



Considering a scenario of a hypothetical monopolist implementing a non-transitory 10% increase in the price of 2 Mbps lines, the small difference between this price and the price of a line at the next level, would make it feasible to substitute the 2 Mbps line with the 10 Mbps line[119]. The same behaviour is observed in the case of lines of 34 Mbps, with their likely substitution by 100 Mbps lines. The substitutability chain that exists up to 2 Mbps can therefore be extended - as seen in **Graph 3** - to (local) lines up to 1 Gbps (GE). Finally, it should be noted that despite the fact that Ethernet interfaces make (maximum) standard speeds available of 10 Mbps, 100 Mbps, 1 Gbps, etc., it is possible and even current, that lines will be established ("logical connections") with sub-multiples of those standard levels (e.g. 5 Mbps Ethernet lines - 10 Mbps interface, 50 Mbps - 100 Mbps interface, or 500 Mbps - 1 Gbps interface), so that, conceptually, there is an almost continuous chain in the speeds of Ethernet-supported lines.

Also from a technical standpoint, the current trend of migration to convergent and more technologically advanced solutions, especially using Ethernet (and IP protocol), leads in practice to an increasing substitution of traditional lines by Ethernet-supported lines - E and FE (or even GE, in more occasional cases) - with greater capacity.

Additionally, in light of currently available data, increasing demand can be seen for higher capacity lines. In fact, in 2004, the representation of lines with capacity exceeding 2 Mbps was

[118] To calculate the monthly charges for Ethernet lines (usually established on a case by case basis, at retail) representative reference values were used from certain PT Prime products.

[119] In practice, a local line of 10 Mbps (E) will substitute a "traditional line" of 4 Mbps (consisting of 2 lines of 2 Mbps), since the end business customer is provided with a speed 2.5 time greater for the same price.

residual[120] while, at the end of 2008, there were already 200 lines with capacity exceeding 2 Mbps leased on the retail market.

Furthermore, the current trend of migration from lower-capacity lines to higher-capacity lines, also satisfied through lines leased by new entrants with access to the same technologies as the incumbent, e.g., Ethernet, constitutes a relevant indicator of effective substitutability between leased lines of different capacities.

Considering the technological and market developments, as well as the differences seen in pricing, based on the conducted analysis, it is concluded that for most retail customers a solution based on higher capacity digital lines is a real alternative following a small but significant and non-transitory price increase in lower capacity lines (previous component of the chain)[121].

Supply-side substitutability

From the demand side analysis, it has been found that there is no longer a cut-off point in the substitutability chain for lines with speeds exceeding 2 Mbps.

From the standpoint of infrastructure/technology supporting leased line services, note is made of the apparent existence of a cut-off point at that capacity level, given that most of the supply of lines with capacity exceeding 2 Mbps is typically supported over optical fibre networks and SDH technologies and, more recently, Ethernet, typically with use of the copper network (e.g., PDH and/or xDSL) on lower-speed lines and particularly on the access network[122].

However, in the case of a small but significant and non-transitory increase by a hypothetical monopolist in the price of lines of up to 2 Mbps (supported over the copper network), the operators which already offer high-speed lines supported over optical fibre networks will start to provide this type of service using higher-speed lines (e.g., 10 or even 34 Mbps), even while incurring (some) investment associated with alterations to the configuration and functionality of their networks.[123]. A substitutability chain can therefore be assumed on the supply side between circuits with capacities equal to or less than 2 Mbps and with greater capacity - 2 Mbps vs. 10 Mbps vs. 34 Mbps vs. 100 Mbps vs. 155 Mbps vs. 1 Gbps.

Additionally, the “massive" deployment of optical fibre is evident in the access network, particularly in the context of next generation access networks (NGA), in addition to continued investment in the optical transport network, which facilitates supply-side substitutability.

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[120] According to data obtained from the responses given to questionnaires on leased lines for the purposes of SMP assessment, in 2004 there were 28 lines with capacity greater than 2 Mbps at retail level.

[121] Contrary to the results of the substitutability analysis conducted in the previous market analysis (where Ethernet-supported lines were not considered).

[122] Furthermore , the implementation of leased lines with capacity exceeding 2 Mbps is more complex, typically requiring a more complex individual assessment (especially in planning the transport network) and, due to the associated large volume of traffic, increased security requirements may be needed.

[123] E.g., in multiplexing (and demultiplexing) low-speed connections into high-speed connections at the level of access.

It is noted that recent technological developments in terms of Ethernet-based symmetric transmission solutions has made enabled the supply of leased lines with capacities exceeding 2 Mbps at prices which are competitive compared to "traditional" PDH/SDH lines at 34 Mbps, and actual lines of 2 Mbps (and even inferior capacity) - *see* section **4.2.2.2**.

Furthermore, there is a wholesale offer with various capacities available, whereby any operator may offer lines of different capacity, integrating with greater and lesser amplitude elements of their own network.

Conclusion: segmentation of digital lines according to capacity

Having regard to the analysis, it is considered that leased lines with capacity of up to 1 Gbps, regardless of supporting technology or infrastructure, are within the same product market, and there is no break in the substitution chain, either on the demand side or on the supply side.

This finding leads to the inference that lines with capacity exceeding 2 Mbps cannot be excluded from the product market of retail leased lines, which is a revised position compared to that of the previous market analysis.

3.2.1.4. Conclusion: definition of the product market

The analysis of substitutability on the demand and supply sides points to the definition of a single product market for lines leased to retail customers, specifically:

- the retail market of analogue and digital leased lines, irrespective of capacity or technology.

With the view that there is substitutability, on both the demand and supply side, of leased lines supported over Ethernet and traditional technologies and, therefore, given the existence of new intermediate levels (e.g. 10 Mbps and 100 Mbps) in the substitutability chain, this Authority takes the position that this market should not be segmented by capacity.

Additionally, no practical use is envisaged in any segmentation into several sub-markets (most of all, into a high number), since such segmentation would not substantially change the position of ICP-ANACOM regarding the competitive situation in the (retail, and as a consequence, wholesale) leased lines market(s). This is because, as demonstrated, in any such sub-segment of the retail market, the "three criteria" test would not be met as a result of a lack of entry barriers and the sufficiency of Competition Law.

3.2.2. Definition of the geographic market

Following identification of the product market, it is necessary to define its geographical dimension.

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"*[124].

In this context, the geographical scope of a market can be defined according to two main criteria:

- *The existence of legal instruments and regulations, including restrictions associated with licensing/authorization, tariff obligations and obligations to provide services*

  Grupo PT provides retail leased lines services throughout the national territory[125] and, in the last known tariffs, does not have specific prices for different geographic areas or specific routes. Only the prices for CAM lines are distinct, since they are supported largely over submarine cables[126], whereas the price of the lines of higher bandwidth exceeding or equal to 155 Mbps) are defined on a case by case basis, but have a volume which does currently have the significance to justify any geographic segmentation.

- *The area covered by a network*

  Grupo PT's network covers the entire national territory, but the transport networks of the main alternative operators, supported largely on optical fibre and DWDM and SDH transmission systems, essentially interconnect the major cities of the mainland, while there is a limited set of metropolitan optical fibre networks[127] in some of these cities[128].

  There are operators and other entities with extensive optical fibre and transport network infrastructure e.g., REN and ReferTelecom, mainly covering the main routes between cities (including district capitals and other medium-sized cities) in the mainland territory, but whose offer has not been expressive in terms of the retail leased lines service. In terms of market competition, optical fibre has a significant impact in the leased lines wholesale market, particularly in terms of the trunk segments. The transport networks of the smaller operators can mainly be found in the urban centres of Lisbon and Porto. This matter will be dealt with in greater detail in Chapter 4.

Although there are more operators concentrated in major urban centres, retail products are offered homogeneously inside and outside these areas, and, in general, there is no difference in

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[124] See Guidelines § 56.

[125] Obligation (applicable to the minimum set)set out in the bases for the concession of the public telecommunications service approved by Decree-Law no. 31/2003 of 17 February.

[126] See, in this respect, more detailed analysis in this section and in Chapter 4 with regard to PTC's "*backhaul*" wholesale service.

[127] MAN, Metropolitan Area Network - High-speed communications network in a metropolitan area. Conceived in closed form over fibre optic cable.

[128] According to the provider, the MAN of Novis covered more than 23 thousand km of optical fibre pairs in 2006. In addition, Sonaecom has 920 km of metropolitan network ducts.

their marketing strategies according to product, price and conditions[129], for example, Lisbon or Porto, or other areas of the territory. Grupo PT - which has the largest market share at retail - charges uniform prices throughout the territory.

Furthermore, the alternative operators may use the wholesale offers of Grupo PT (regulated and unregulated) to complement their offer and resell leased lines at retail, thereby presenting the end-customer with a portfolio at national level.

In this sense, ICP-ANACOM takes the view that the product is offered uniformly throughout the national territory.

According to available information, notwithstanding the recognition that there are differences in terms of the coverage and ownership of infrastructure, no differences are recognized in the retail market in terms of the competitive dynamic among geographic areas or specific routes, and as a result there are no grounds for the identification of different geographic markets at retail level.

With respect to CAM lines, corresponding to leased lines between two points, one on the mainland and another in the Autonomous Regions of the Azores and Madeira, which serve the retail customer, it is considered that the competitive conditions which they face are more serious than those associated with the other leased lines, since there is a lack of alternative wholesale offers in the current connections to the Azores and Madeira over the submarine cable belonging to PTC. That is, any provider intending to offer the leased line retail service in these regions will have to acquire CAM lines (wholesale), because the alternative, the development of its own network from the mainland to these regions is not economically feasible. These conditions are not, however, sufficiently heterogeneous in respect of the others to justify exclusion from a single national retail market. The specific characteristics of these lines will be dealt at the wholesale level.

For international leased lines, it is noted that the demand for such lines on the part of operators fell considerably from 2001 to 2004[130] and, according to currently available retail data [131], maintain a low weight in the total volume of lines, as well as revenue volumes[132].

3.2.3. Conclusion: the retail market for leased lines

Following the conducted analysis, it is considered that the retail market for leased lines is composed of analogue circuits and digital circuits irrespective of capacity, regardless of the supporting technology, and covering the entire national territory (including the lines to the

[129] For example, in terms of security or quality of service.

[130] Data from the analytical accounting system of PTC, from 2001 to 2004 (1st half).

[131] Data provided in responses to questionnaires from 2006 to 2008.

[132] Meanwhile, it appears that the current competitive situation with regard to international leased circuits is substantially different from that of national leased lines, with a very diverse offer in such lines, provided by the operators' own infrastructure and by agreements or partnerships established with international operators.

Azores and Madeira).

3.3. The application of the "three criteria" test

The retail market ("of the minimum set of leased lines"[133]) is no longer included in the list of markets susceptible to *ex ante* regulation in the Recommendation. However, according to the same EC Recommendation, a given market can be defined as relevant if the "three criteria" test is met.

In this section, an analysis is made as to whether the retail market for leased lines, as defined above, meets the "three criteria" test and is, as such, to be regarded as a relevant market for the purposes of *ex ante* regulation.

The three criteria are cumulative and, therefore, must be applied in conjunction. According to the Recommendation, "*In order to identify markets that are susceptible to ex ante regulation, it is appropriate to apply the following cumulative criteria. The first criterion is the presence of high and non-transitory barriers to entry. These may be of a structural, legal or regulatory nature. However, given the dynamic character and functioning of electronic communications markets, possibilities to overcome barriers to entry within the relevant time horizon should also be taken into consideration when carrying out a prospective analysis to identify the relevant markets for possible ex ante regulation. Therefore the second criterion admits only those markets whose structure does not tend towards effective competition within the relevant time horizon. The application of this criterion involves examining the state of competition behind the barriers to entry. The third criterion is that application of competition law alone would not adequately address the market failure(s) concerned.*".

If a criterion is not fulfilled, then it can be concluded from the outset, that the market concerned is not a relevant market susceptible to *ex ante* regulation[134].

3.3.1. Presence of high and non-transitory barriers to entry

At the outset, there are no legal, administrative or regulatory barriers to entry into the retail market for leased lines.

With regard to structural barriers, according to the Recommendation, it is important to examine "*indicators of barriers to entry in the absence of regulation, (including the extent of sunk costs), market structure, market performance and market dynamics, including indicators such as market shares and trends, market prices and trends, and the extent and coverage of competing networks or infrastructures.* ".

[133] As defined in the previous Recommendation.

[134] *See* "ERG Report on Guidance on the application of the three criteria test".

In the previous market analysis, ICP-ANACOM concluded that the high and persistent market share of the companies of Grupo PT, together with the barriers to entry associated with network expansion and the vertical integration of these companies, would constitute an indicator that Grupo PT's retail dominance would persist into the future. On the other hand, ICP-ANACOM considered that regulation at wholesale level was not, in itself, sufficient to address potential market failures, i.e. not sufficient to meet the regulatory objectives in this area.

Indeed, in 2004, only Grupo PT was present in the retail market for analogue leased lines, so its market share was of course 100%. In terms of digital leased lines, Grupo PT's market share at the end of the same year was about 93% in terms of revenue[135] in the market of lines up to 2 Mbps, lines covered by the minimum set. Grupo PT's share in the 64 Kbps and n×64 Kbps components exceeded this value (around 97%), while this was not the case for lines of 2 Mbps and above (but these were already outside the relevant market[136]), where the share fell to about 81%. This has also indicated a willingness to enter the market, fundamentally in terms of lines of greater capacity, especially those associated with longer distances, which allow greater profitability from the outset.

These high market shares of Grupo PT have been declining over the period under analysis (2006 to 2008).

With respect to analogue lines, although Grupo PT's share remains around 100%, two operators entered this segment of the retail market in 2007. Meanwhile, there is a clear migration from analogue lines to low-speed digital lines, with the volume of analogue circuits at retail declining 16.1% between 2006 and 2008.

In terms of digital leased lines (up to 2 Mbps, exclusive), the overall volume and revenue of these lines has seen a sharp decline in recent years (of 47.1% and 23.7% respectively from 2006 to 2008). The market share of Grupo PT[137] in these lines, which, as at the end of 2008, was 87.3% in terms of revenue and 90.8% in terms of volume, has reported declines of 6%.

At first glance, this decline in the market share of Grupo PT appears to represent a minor reduction, but this does not take account of developments seen in the segments of 2 Mbps line (and higher capacity, but which are not currently regulated), where revenue and volume, unlike in the case of analogue and low capacity digital circuits, has increased significantly and in which regard it should be noted that the market shares of Grupo PT in these two "segments" (2 Mbps and higher capacity) fell, at the end of 2008, to values of 70.3% and 39.7% in terms of volume, for segments of 2 Mbps and higher capacities respectively[138].

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[135] And approximately 96% in terms of the volume of lines.

[136] Taking into account the limited volume and revenue, at retail level, derived from higher-capacity lines (greater than 2 Mbps), these were excluded from the relevant market in this decision, and no longer belonged to the minimum set of leased lines defined at EU level.

[137] Since 2005, only one company of Grupo PT, PT Prime, has been present in the retail market for leased lines.

[138] And to 87.2% and 34.2%, in terms of revenue from lines, of 2 Mbps and above this capacity, respectively.

Additionally, it is noted that since 2005, various new operators have entered the retail market, particularly in the segments of capacity equal to or exceeding 2 Mbps. This has brought a new dynamic to this market, especially in those segments considered most profitable, reflected in a significant increase in the market share of the new operators with respect to this same segment. There are therefore no insurmountable barriers to entry, as found above, with respect to analogue lines.

As such, given:

- the entry of new providers into the retail market (including the entry of two operators into the analogue lines segment in 2007);
- the continued decline in the volume of analogue and lower-capacity digital lines and in corresponding income;
- the trend of migration from analogue lines to low-speed digital lines, as well as to higher-capacity circuits (e.g., greater than 2 Mbps); and
- the significant market shares (especially in volume) already achieved by new operators in the segment of 2 Mbps and, crucially, with capacity exceeding 2 Mbps,

it is reasonable to affirm that barriers to entry into the retail market for leased lines are no longer (so) high. Looking to the future, it is likely that these trends will be confirmed and even accentuated.

The main barriers to entry identified by ICP-ANACOM in the previous market analysis were associated with Grupo PT's control of the network supporting the leased lines service. Sunk costs, which in the case of leased lines are extremely high, were and still are an important structural barrier to entry[139]. Indeed, it is not economically viable for new entrants to replicate PTC's entire access network, but the significant economies of scale and scope associated with this network should also be taken into account. Additionally, Grupo PT is composed of vertically integrated operators with a presence at wholesale level and in the retail market. If there was difficulty in acquiring *inputs* from the wholesale market or in obtaining these *inputs* at a competitive price, the barriers to entry at retail level could become more pronounced.

All these barriers were considered in previous market analysis of 2005, as being high and non-transitory, whereas, at that time, it was not deemed likely that they would be diminished within a reasonable period of time.

It is likely that this finding could be maintained in the future, were it not for the substantial structural changes which have occurred in the markets, especially in terms of the networks and

[139] A potential entrant will want to bear such investment costs if these are likely to be recovered, along with the costs of production, as a result of the revenues achieved. The incumbent operator (who has already made its investments) can there exploit this asymmetry signalling to the potential entrant that if it decides to initiate an activity in this market, prices will be too low to cover sunk costs. As such, entry is discouraged.

technology (e.g. Ethernet) since, overall, despite a decline, Grupo PT's market share remains high, above 80% for the entire leased lines retail market.

However, in accordance with the Guidelines, the present analysis should be conducted on the assumption that the retail market is not subject to *ex ante* regulation, whereas the possible regulation of related wholesale markets is considered.

In this context, the ERG considers that, for example, an obligation of wholesale access could reduce or even eliminate barriers in the downstream retail market:

- control of infrastructure which is not easily replicable: alternative operators can access and use specific resources of the dominant operator's network according to reasonable and non discriminatory conditions;

- technological advantage or superiority: alternative operators have access to technologies used by the dominant operator and can compete using the same technological advantages;

- vertical integration: the provision of regulated wholesale products makes it possible for alternative operators to gradually develop their own networks, supporting themselves (as a complement) on the network of the dominant operator.

According to the ERG, an obligation of cost orientation of wholesale prices, in conjunction with the obligation of access, may further contribute to the reduction of barriers to entry in the downstream retail market, allowing operators to acquire the necessary wholesale *inputs* which enable them to compete at the same level as the dominant retail provider.

Finally, it may be useful, also according to the ERG, to examine the actual impact of the wholesale obligations in terms of the entry of downstream operators, i.e., whether such obligations are effective in the elimination of market failure.

As mentioned above, in the previous analysis ICP-ANACOM concluded that Grupo PT had SMP in the identified relevant markets and therefore imposed the following obligations on this undertaking: i) access and use of specific network resources, ii) non-discrimination in access and interconnection and in the respective provision of relevant information, iii) transparency in disclosure of information; iv) separation of accounts for specific activities related to access and/or interconnection; v) price control and cost accounting and vi) financial reporting.

In 2005, in compliance with these obligations, PTC published the wholesale leased lines reference offer - LLRO - covering the entire national territory and analogue and digital technologies, comprising, in this case, speeds from 64 Kbps to 2 Mbps, 34 Mbps and 155 Mbps. This offer is actively used by most operators and service providers, including operators acting in the leased lines retail market.

Under the LLRO, operators have "guaranteed" access, on a non-discriminatory basis, throughout the national territory to wholesale *inputs* at cost-oriented prices according to well defined time

periods and with a determined quality of service. This allows them, in addition to building their own networks, to engage in the resale of leased lines in the retail market, benefiting from the ubiquity of the PTC network, without, for example, having to invest heavily in alternative network infrastructure. Alternative operators are also able to profit from the infrastructure in their possession using the lease of partial lines, accessible through co-location in PTC exchanges, where they can share space and features already available for other service, including access to local loops and network interconnection.

Furthermore, ICP-ANACOM considers that it is possible and even necessary to improve various aspects of the current regulated wholesale offer, and plans to promote its alteration following the present market analysis so that it has a greater impact on retail markets - especially with the inclusion of Ethernet circuits in the LLRO. This matter is discussed in detail in Chapter 6, but note should be made at this stage that the imposition of price control obligations, particularly in terms of cost orientation, enables alternative operators to benefit from Grupo PT's economies of scale and scope.

Nevertheless, it should be pointed out that alternative operators have developed their optical fibre networks, including though the use of dark fibre (for example, of utilities), and deploying network access point/nodes in major cities. Since there is alternative transport infrastructure on routes linking these network nodes, it can be affirmed that, on those same routes, there are no barriers to entry, even if there were no regulated wholesale offer. This issue will be detailed further in the following Chapter.

In conclusion, in line with the position stated by the EC, where operators in the retail market are able to maintain a ubiquitous offering using the regulated wholesale offer of leased lines, in particular to complement their own infrastructure, the barriers to entry are no longer high.

The wholesale markets and the obligations imposed on the SMP operator are discussed in later sections, but, for the purpose of this test, ICP-ANACOM considers that the effective imposition, where appropriate, of such wholesale obligations is sufficient to reduce the high and non-transitory barriers to entry into the leased lines retail market.

In light of the above analysis, ICP-ANACOM considers that the obligations imposed on Grupo PT, as presently enshrined in the wholesale reference offer and in its implementation, effectively enables the entry and expansion of operators at retail level, as well as increased competition in this market, especially with respect to lines of 2 Mbps and of greater capacity, with the latter of these now also part of the product market.

Accordingly, ICP-ANACOM considers that the retail market for leased lines fails to meet the first criterion for defining a relevant market susceptible to *ex ante regulation*.

Since the three criteria are cumulative, the fact that the first is not met automatically implies the overall failure of the test and the corresponding exclusion of the retail market from all relevant markets for purposes of *ex ante* regulation. Nevertheless, there will a brief analysis will be conducted with regard to the two remaining criteria, as indeed has been the practice of other

regulators.

3.3.2. Tendency of the market towards effective competition

As mentioned above, over the last several years and especially since the previous market analysis, a change has been reported in the structure of demand for retail leased lines, with a trend towards the replacement of analogue and low-speed digital lines with higher capacity lines, segments where there has been a growing competitive dynamic. Indeed, the number of providers in the retail market has increased considerably, especially in 2007, from ten (in 2006) to seventeen, including two new operators supplying analogue lines.

On the other hand, note should be made of the progressive and continued reduction in the volume of leased lines at retail and related revenue for operators, felt mainly with respect to analogue and low-speed digital circuits, up to 2 Mbps - see Chapter 2 and the statistical annex of "Communications Situation" Report, published by ICP-ANACOM in 2009 [140]:

Table 4 - Evolution in the volume of retail leased lines

Lines leased to retail clients		2004	2005	2006	2007	2008
Analogue		7 519	6 809	6 170	5 567	5 101
Digital		12 081	11 586	8 604	8 507	6 532
	< 64 Kbps	116	131	109	95	87
	64 Kbps	3 497	3 207	3 051	2 730	1 840
	n * 64 Kbps	6 103	5 881	3 763	3 522	2 132
	2 Mbps	2 282	2 272	1 586	2 042	2 363
	34 Mbps	54	90	77	89	70
	>= 140 Mbps	29	5	18	29	40

It appears that the current trend of migration from low-capacity circuits to higher-capacity circuits is also being satisfied through lines leased by new operators, which currently have access to the same technology as the incumbent, i.e., using the same technological advantages (e.g. Ethernet).

On the other hand, this trend of migration from analogue and low capacity digital lines to higher-capacity lines (exceeding or equal to 2 Mbps), now in part leased to new operators, has not yet enabled a substantial reduction in the overall share of Grupo PT in the retail market.

With respect to analogue lines and low-speed digital lines, volumes and corresponding revenues are falling, yet, in terms of overall volume, these lines continue to be a significant part of the retail market and Grupo PT's market shares remain at a high level, even if they have shrunk since 2005. At the level of lines with capacity equal to or exceeding 2 Mbps, the competitive dynamics is already substantially different, and Grupo PT has seen its share shrink, as at the end of 2008, to 70.3% and 39.7% in volume, for segments of lines of 2 Mbps and higher capacities,

[140] *See* Chapter 3 of the Annex at http://www.anacom.pt/download.jsp?contentId=955402&fileId=955461&channel=graphic.

respectively[141].

On the other hand, the countervailing negotiating power of purchasers of leased lines services, primarily large corporate customers, is relatively large and has a tendency to increase, given the larger dynamic of PTC's main competitors and alternative offers that are available to purchasers. In this market segment, the behaviour of the incumbent could be constrained by the combined efforts of a small number of customers with a high share of turnover. However this is dependent on the existence of alternative operators, which was previously recognised as limited, especially in terms of the local network offer. This limitation is now addressed, both through own network (especially on the main routes) and as a result of the LLRO wholesale offer, which has now stabilized.

As stated previously, the evolution of Grupo PT's market shares with respect to lines of a capacity equal to or exceeding 2 Mbps (currently around 70% and 40% respectively) indicates a future trend towards a decline in the overall share in the leased lines retail market, given the tendency of the progressive disappearance of analogue and nx64 Kbps lines.

Note is made, in this regard, that the number of Grupo PT's clients has been falling over the years, especially since the previous analysis, with it its market share in terms of number of clients falling in 2007 to 62.6% and 9.4% in lines with capacity equal to or exceeding 2 Mbps, respectively.

PT Prime is the largest supplier in the leased lines retail market with OniTelecom, Sonaecom and COLT, as alternative providers, with some presence in this market, as well as other smaller alternative providers. It should be taken into consideration that the main providers of leased lines are included in major economic groups, e.g. Grupo Sonae and, until 2007, Grupo EDP[142], in addition to COLT (an international group), with easy or privileged access to financial resources and/or capital markets. These connections of the main operators to large groups may have led and continue to lead to increasing rivalry with Grupo PT in the market in question.

On the other hand, no great development of innovative offerings has been seen in the market for leased lines, except in the case of lines supported over Ethernet and SHDSL technology (using unbundled loops). The Ethernet offer is primarily used to support higher-capacity circuits over 2 Mbps, whereas ICP-ANACOM deems it likely that this offer will exercise sufficient pressure in this segment so that the market structure evolves, over the medium and long term, towards effective competition.

Although there is an increase in the competitive dynamic resulting from the expansion of existing operators and new entrants, reflected in increased penetration, especially in terms of market share in lines of a capacity equal to or exceeding 2Mbps, or resulting from the countervailing negotiating power of acquirers, it is unlikely, however, that in the short term, the market share of

[141] In terms of revenue, 87.4% and 34.2%, respectively.
[142] OniTelecom belonged to Grupo EDP until 2007.

the dominant operator, Grupo PT, will be substantially reduced from values near 80% (in 2008)[143] or might quickly reach levels below 50%, especially in volume, even given the continued and important weight of analogue and low-speed digital circuits in the leased lines retail market. This could be an indicator of persistence of SMP whereby, notwithstanding the greater dynamic in the market, it is not clear that there is failure to meet the second criterion. Since, however, the criteria are cumulative, it is recalled that with the analysis of the previous criterion it can already be concluded that there are no high and non-transitory barriers to entry.

3.3.3. Insufficiency of competition law

ICP-ANACOM considers that the developments that will prospectively be reported in the retail market, particularly with the reduction of barriers to entry and the increase in the competitive dynamics (especially regarding higher-capacity lines and lines supported on Ethernet technology) of the operators with expanding own networks and/or customers of the leased lines wholesale offers of PTC, does not lead to the conclusion Grupo PT will maintain a position of economic strength at retail level which will allow it to act completely independently of its corporate end-customers and of other companies which supply the same types of services.

Autoridade da Concorrência (the Competition Authority) intervened in the context of a public tender for the acquisition of electronic communications services, including leased lines, seeking an opinion from ICP-ANACOM on the alleged existence of anti-competitive clauses in one of the proposals presented to the tender. However, ICP-ANACOM has not received any complaints directly from undertakings acting in the leased lines retail market - with the exception of occasional concerns related to the wholesale offer (in particular the absence of a regulated offer of Ethernet lines and certain SLAs[144]) or related to a lack of capacity, over a certain period of time, on the CAM links - and has not therefore intervened in this market since the previous analysis, with the exception of the analysis conducted in respect of the tender mentioned above, whereby it was concluded that there was no evidence of anticompetitive practice and behaviour by Grupo PT.

Taking into account the analysis now being carried out and given the information available, this Authority considers that the absence of market intervention justifies the non-imposition of *ex ante* regulatory obligations in the retail market, since the existence of a regulated wholesale offer reduces the opportunity for possible anti-competitive behaviour. Competition law is sufficient to resolve such situations that may occur, mainly with regard to the market conditions of negotiation and the offer of aggregated electronic communication services and communications services supported over leased lines to business customers[145].

It is therefore concluded that the absence of complaints or disputes shows that competition law is

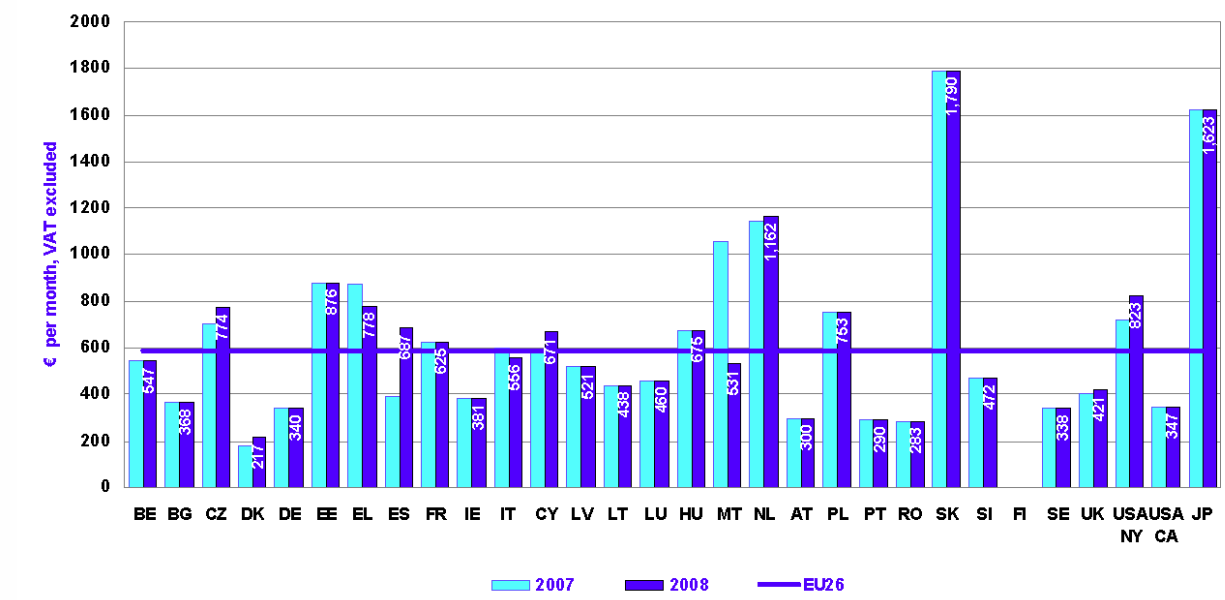
[143] The latest responses to the questionnaire on the situation of communications were also taken into account in this value.
[144] *Service Level Agreement* - Service Level Agreement, establishing quality objectives and compensation for non-compliance.
[145] ICP-ANACOM intervened in related wholesale markets by imposing obligations *ex ante* .

sufficient to resolve any problems that may occur in the leased lines retail market, whereby the third criterion is also unsatisfied. Nevertheless, in defining the obligations associated with the wholesale markets, ICP-ANACOM will seek to ensure safeguards against situations of illegitimate leverage in retail markets and anti-competitive practices in these markets, particularly with regard to margin squeeze, and will cooperate actively with Autoridade da Concorrência (the Competition Authority) in any proceedings related to the markets that will no longer be subject to *ex ante* regulation.

3.4. International comparison

According to the Progress report on the Single European Electronic Communications Market in 2008 (14th Report) of the EC, the retail prices charged by Grupo PT in 2007 and 2008 compare favourably with the prices charged by incumbents of the 26 Member States. Indeed, the prices of leased lines with capacities of 2 Mbps and 34 Mbps (and for a distance of 2 km) were, in both cases, lower than the average prices reported by the incumbent operators.[146] The monthly rental price of a 2 Mbps lines with 2 km length was 290 euros, i.e., the third lowest of all 26 countries and less than 50% of the average price[147] - *see* **Graph 4** and Graph 5.

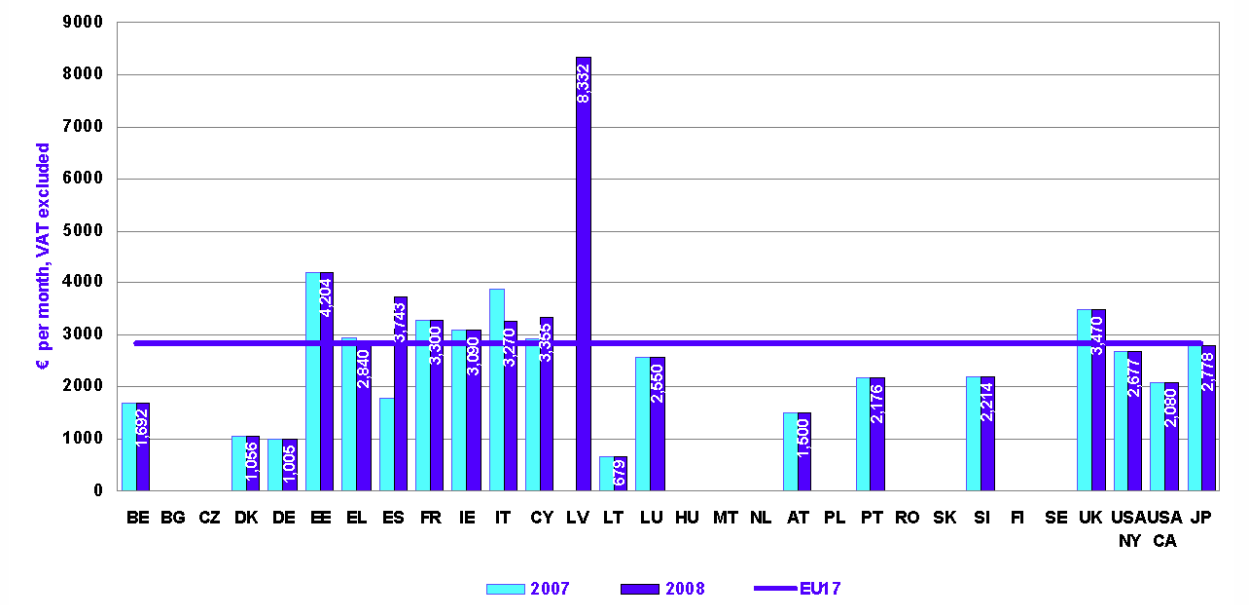
Graph 4 - Comparison of prices for leased lines of 2 Mbps with 2 km in length



Blue line represents EU average= € 587
Finland – no data

[146] *See* section 6 of the working document annexed to the Commission Report: http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/annualreports/14threport/annex2.pdf.
[147] Prices for 200 km circuits have little expression, given the limited demand for retail lines with such lengths.

Graph 5 - Comparison of prices for leased lines of 34 Mbps with 2 km length



Blue line represents EU average= € 2 852
Bulgaria, Czech Republic, Hungary, Malta, Netherlands, Poland, Romania, Slovakia, Finland, Sweden – no data

Meanwhile, the EC considers that a competitive supply at retail level can be achieved in particular by imposing obligations on operators with SMP in the leased lines wholesale markets. A similar position was taken in the market analyses conducted by the NRA of other Member States. In fact, most of the NRA which performed market analyses of the leased lines markets pursuant to the revised Recommendation on relevant markets concluded that the retail market did not justify the imposition of *ex ante* regulatory obligations. This is the case in Slovenia, Spain, Netherlands, Ireland and the Czech Republic. Furthermore, in some of these countries (as, for example, in the Netherlands), the market share of the incumbent operator is between 70 and 80%. Only Austria, Hungary and the United Kingdom considered that the retail market for leased lines justified the imposition of *ex ante* regulatory obligations. In the case of Austria and Hungary these obligations were linked to lines of up to 2 Mbps and in the case of the United Kingdom up to 8 Mbps.

In the case of Austria, only three operators that provide retail offers entered into an agreement with Telekom Austria to use the wholesale reference offer and rarely, if ever, made use of this offer. In its comments on the RTR decision, the EC suggested that the RTR reconsider the efficiency of existing wholesale obligations, altering them so that they impact the retail markets.

In the United Kingdom, OFCOM found, among its conclusions that there are high (non-transitory) entry barriers, which are not mitigated by the remedies imposed in the wholesale market due to certain shortcomings in the implementation of wholesale regulation; this makes it difficult for other operators to replicate the retail offers - according to OFCOM, the fact that BT's

market share is high and even increased from 2004 to 2006 (from 78 to 80%) confirm the existence of these barriers to entry[148]. In comments made with respect to OFCOM's notification, the EC stated that with the imposition of wholesale regulation, barriers should be reduced, and if there is a strict observance of the obligations imposed (or due to be imposed) at wholesale level, then the barriers to entry may disappear. In this respect, the EC called on OFCOM to increase efforts in order to ensure full compliance with wholesale obligations and to intensely monitor market developments, particularly in order to verify whether the first and second criteria remain satisfied in the future (e.g. with the transition to alternative technologies).

In the case of Hungary, the EC made identical comments to those outlined above: the fact that the Hungarian regulator concluded that the wholesale market for trunk segments was competitive, in conjunction with the imposition of appropriate obligations in the wholesale market for terminating segments, should lead to reduced barriers to entry in the retail market and facilitate the provision of the minimum set of leased lines. In this respect, the EC called upon the NHH to ensure the effective enforcement of regulation at the wholesale level.

3.5. Conclusion: leased lines retail market

As a result of this analysis, no significant and insurmountable barriers to entry and to expansion were identified in the leased lines retail market. Indeed, both the expansion of own network of operators, and the obligations imposed in the meantime, primarily at wholesale level, appear to have been sufficient to reduce barriers to entry and to expansion and to allow alternative operators, so intending, to overcome these barriers and enter and/or increase their retail market share.

ICP-ANACOM considers that, in the presence of *ex ante* regulation at wholesale level, in areas where it is needed, the potential barriers to the development of effective competition in the retail market are not insurmountable. As such the first criterion of the test[149] is not fulfilled, and therefor no regulatory intervention or imposition of remedies through *ex ante* regulatory controls is called for.

Also there was been no intervention by this Authority at retail level, whereby it is considered that in the event that there is a need to intervene in this market, competition law, *per se*, will suffice.

Following the analysis conducted, it is therefore considered that, in Portugal, the leased lines retail market is not a relevant market susceptible to *ex ante* regulation, in line with the EC Recommendation. It should be noted, in this context and as stated earlier, that the EC takes the view that regulation in leased lines wholesale markets, including the imposition of obligations on

[149] As well as the 3rd option, since competition law is considered to be sufficient.

operators with SMP in these markets, may be sufficient to ensure a competitive offer at retail level.

ICP-ANACOM considers that the factors considered in this analysis will not change over the short to medium term, prior to conduct of the next market definition and SMP analysis[150].

[150] The next market definition will be triggered as soon as: (1) there is an occurrence which significantly alters the conditions of market competition or (2) as soon as the recommendation is reviewed with respect to this market or (3) within a period of 24 months.

4. DEFINITION AND ANALYSIS OF WHOLESALE MARKETS OF TERMINATING AND TRUNK SEGMENTS OF LEASED LINES

An identification is now made of the relevant wholesale markets, i.e. markets where operators and service providers seek to acquire and offer leased lines, both for use in the development of their own networks and to support leased lines offers or other services in the wholesale and retail markets.

The definition of these wholesale markets should take into account, where deemed relevant, the related retail market, since the demand for wholesale services generally results from demand for retail services offered to end-users[151].

4.1. The wholesale leased lines services

At the wholesale level it is possible to define independent components of a leased line, including terminating segments and trunk segments - see Chapter 2.

The terminating segments provide symmetrical transmission capacity from a customer's network termination point up to an appropriate aggregation point, which, in the national case, is the local exchange[152].

The trunk segments, in turn, provide symmetrical transmission capacity between two points of traffic aggregation, i.e., generally between two local exchanges.

On the wholesale market, an operator can acquire a leased line consisting only of:

i) one or two terminating segments;

ii) only of the transit segment (for example, a line connecting two exchanges in two cities or a CAM line); or

iii) both terminating and transit segments,

[151] The starting point for the definition and identification of wholesale markets is the definition of retail markets over a given time horizon and of the competitive pressures to which they are subject, on both the demand and supply side, pursuant to the methodology set forth in the Recommendation. This is justified by the fact that, in general, demand for wholesale services is a derived demand, i.e., the level of demand for wholesale *inputs* depends, as a rule, on demand for retail services. In the case of leased lines, as noted, some demand is directly driven by retail circuit demand and other circuits and other demand is to satisfy the needs of operators and service providers to expand their own network and services (e.g. broadband access).

[152] The wholesale reference offer (LLRO) defines the terminating segment (or local extension) as the section that connects the local exchange of PTC to the premises of the end-customer.

ultimately depending on the typology and coverage of their own network, which can be used in the provision of the service to the end-user.

In the national market, demand has existed, on the part of fixed network, cable distribution network and mobile network operators, for terminating segments and trunk segments of leased lines (including CAM lines), leased line part circuits, interconnection lines and submarine cable access lines, to support own networks and also other services provided by these operators at retail (e.g., VPNs or direct access). This demand has been satisfied, in part by PTC's wholesale reference offer, the LLRO. It has also been satisfied by PTC's non-regulated Ethernet offers and offers from other operators, especially on trunk routes/segments where these operators have their own infrastructure[153].

As already mentioned, the LLRO was published pursuant to ICP-ANACOM decision of 8 July 2005 and establishes the technical[154] and commercial characteristics and conditions associated with the provision of wholesale leased lines by PTC, covering the entire national territory and for analogue and digital technologies (including, in this case, speeds of 64 Kbps, N×64 kbps (N = 2,..., 30), 2 Mbps, 34 Mbps and 155 Mbps)[155].

The LLRO covers the following wholesale services:

- end-to-end leased lines and part lines [156] (*see* Figure 2 and Figure 3);
- lines for traffic interconnection with PTC, including interconnection lines and internal interconnection extensions[157];
- lines for access to submarine cables ("*backhaul*")[158];
- links between operators inside the exchanges of PTC[159].

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[153] Or rented, for example, contracting dark fibre, as is the case of the main alternative operators, such as OniTelecom, Sonaecom or Vodafone.

[154] The parameters of quality of service, the applicable performance objectives and compensation for failure to comply with these objectives, related to services provided under the LLRO, are set out in Annex 4 of this offer.

[155] According to the LLRO, "*operators may use the leased lines offer of PTC, specifically for: i) Establishment and development of their electronic communications networks; ii) interconnection between public electronic communications networks (fixed and mobile), including interconnection with PTC's network; iii) Support the provision of other retail electronic communications services acquired by their downstream customers - data transport services (ATM, Frame Relay, etc.) Internet access services (IP access), fixed and mobile electronic communications services, enterprise solutions (e.g., VPN, etc.). iv) Rental of leased lines to their customers*".

[156] Also, according to the LLRO, "*a part circuit is the link between a PTR not co-located in a PTC exchange and a PTR co-located in a PTC exchange, with an internal extension and half-circuit, comprising a PL and TP, where necessary, provided by PTC*". In the event that the operator has its own infrastructure, for example, to supply trunk segments, it may make use of PTC's offer of terminating segments for the provision of the leased lines service at retail or wholesale level, through the leased line part circuits service.

[157] According to the LLRO, " *connection between the PTC network PGI of the OSP network is accomplished using dedicated connections, known as traffic interconnection lines, which are designed to route switched traffic originating on and/or destined for the respective networks*".

[158] In the LLRO, it is stated that " *the service of lines for access to submarine cables (backhaul) consists in the connection of a specific capacity of an international submarine cable system which connects at one of PTC's ECS (Sesimbra or Carcavelos) to an OSP POP, located in the national territory*".

Figure 2 - Simplified architecture of end-to-end lines[160]

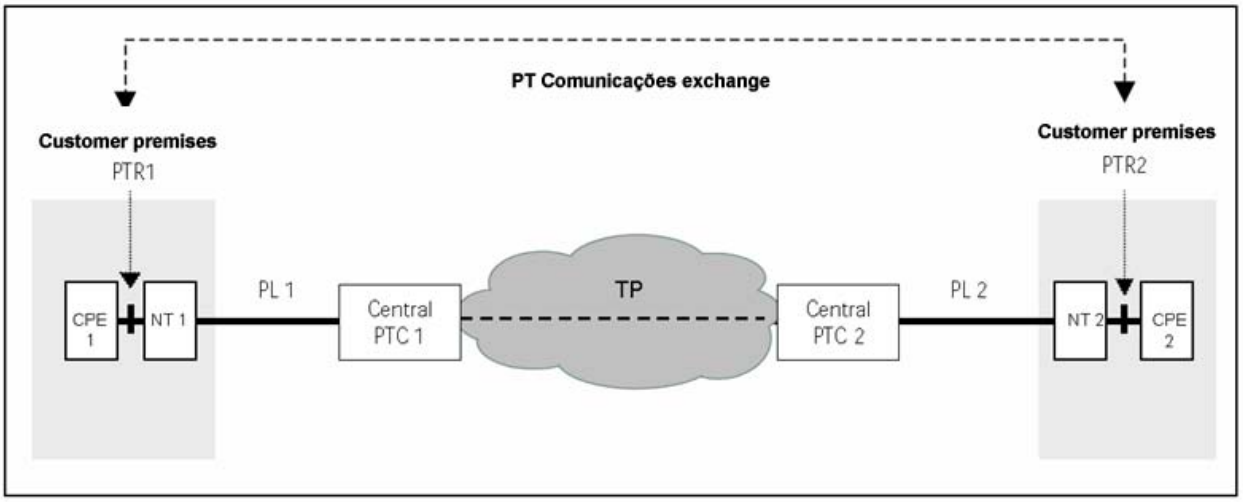
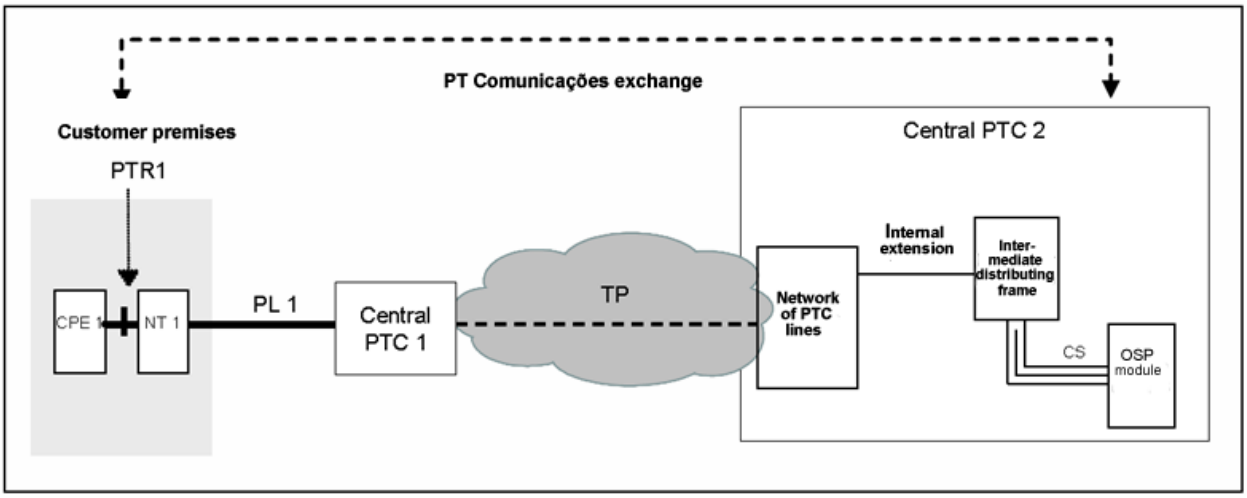


Figure 3 - Simplified architecture of the part circuits[160]



4.2. Wholesale markets for terminating and trunk segments

4.2.1. The previous markets 13 and 14 and the Recommendation

In the previous recommendation, the EC identified two wholesale markets comprising components related to the provision of leased lines with different characteristics, particularly in terms of the support networks, speed and lengths:

[159] According to the LLRO "*an internal OSP-OSP extension is the connection between two OSP co-located in a PTC exchange*".
[160] Source: LLRO - Annex 1.

- Market 13: Wholesale terminating segments of leased lines;
- Market 14: Wholesale trunk segments of leased lines

As already mentioned in section **1.4**, on 17 December 2007, the EC adopted a Recommendation, in which seven relevant electronic communications markets were identified whose characteristics may justify the imposition of *ex ante* regulatory obligations.

In the current version of the Recommendation, only one wholesale market is identified for leased lines (formerly Market 13), as follows:

- Market 6: Wholesale terminating segments of leased lines, irrespective of the technology used to provide leased or dedicated capacity.

It is therefore necessary to proceed with the definition of the wholesale markets, including verification of whether or not former Market 14 remains relevant for the purposes of applying *ex ante* regulation.

Given the different competitive dynamics on certain specific trunk routes/segments, a fact also evidenced by the EC recommendation, special attention will be given to the definition of any distinct geographic markets. It is noted that in the previous market analysis, recognition was given to the specifications of certain routes and the increasing competitive dynamics present on such routes.

4.2.2. Definition of product markets

According to the "Explanatory Note", what constitutes a terminating segment depends on the network topology of a Member State in particular and should be decided by the respective NRA.

In the analysis made in 2005, for the purpose of identifying the point of separation/delimiting between the two wholesale markets defined therein, ICP-ANACOM adopted a direct correspondence between terminating segments and local extensions and trunk segments and main sections, where the PTC local exchange marked the point of division between the two components of a wholesale leased line. It is recalled that the terminating segments are the elements found on the network periphery, enabling the connection to end-users/operators and the trunk segments are part of the core network (transport), providing capacity between the nodes that constitute it.

In fact, the two segments constitute distinct product markets, as complementary rather than substitute products, corresponding to different needs related to different network elements, depending on the network of each wholesale customer. For example, an operator with an extensive transportation network may choose to lease terminating segments only and not to substitute them with trunk segments. In this context, an operator who is present (co-located) in all PTC's local exchanges, accessing them through their own network, needs, at maximum, to

acquire only terminating segments (in the figure of part circuits and respective internal extensions) to offer an end-to-end leased lines service throughout the entire national territory.

The provision of terminating segments requires a ubiquitous access network, and also investment in more rapid trunk segments, with (larger) economies of scale by virtue of speed aggregation which, as a result, allows easier return.

On the other hand, the majority of leased lines available in the wholesale market follow this disaggregation, whereby it is noted that on the supply side it will not be easy for a provider of trunk segments to commence supply of terminating segments without incurring a very significant increase in costs and investment risks and long implementation periods; as such, it is not likely that a hypothetical monopolist in this market will be so constrained.

ICP-ANACOM also holds the view that an alteration in the point marking the division between the two components, terminating segments and trunk segments, could cause a significant impact and lead to instability in the market, particularly with respect to the decisions of alternative operators regarding future investments for the development of their networks and their existing network models supporting the provision of leased lines - and also, for example, supporting connections to local exchanges where there is co-located equipment - and therefore the business models of the operators.

Furthermore, in most cases, the co-located operators have developed their "core" networks precisely up to the local exchanges where they are collocated.

Accordingly, for the purposes of the present analysis, the local exchange remains the point marking the division between the terminating segments and trunk segments which constitute, for the reasons expressed above, separate markets.

4.2.2.1. Summary of previous substitutability analyses

ICP-ANACOM considers that, given the developments reported since the last market analysis and the substitutability analyses performed to date, the conclusions taken therefrom remain valid with respect to the definition of the product market. That is, the analysis of substitutability between terminating segments and other data services and according to capacity remains current and valid. This substitution is most visible with respect to terminating segments, particularly in the cases of xDSL technologies and wireless local area networks (R-LAN), since these technologies are not the most appropriate in the case of trunk segments.

Also taking into account the analysis performed with respect to the retail market (in sections **3.2.1.1** and **3.2.1.3**) and considering that the analysis and the conclusions regarding the wholesale markets will be very similar, it was decided to examine, in an aggregated and simplified way, substitutability on the demand and supply side of the various existing data/transmission services, as well as the market of terminating segments according to their capacity.

Terminating segments vs. other data services

Certain operators are currently using symmetric xDSL technologies for the provision of the leased line service in its local termination component. More specifically, from a functional point of view, and based on LLU[161], it is possible in certain cases, to replace the leasing of terminating segments with SHDSL solutions, based on unbundled loops acquired from the incumbent operator, providing low-capacity lines and lines up to 2 Mbps, inclusive[162].

However, to obtain a solution which, in general and functional terms, is equivalent to the leasing of terminating segments would require additional investment in transmission equipment and in co-location in a large number of local exchanges, as well as at the level of quality of service - levels currently guaranteed by the RUO are lower than those defined for leased lines pursuant to the LLRO - for example, with the establishment of more technical local copper pair network operation and maintenance teams. On the other hand, this investment in co-location allows operators to extend their transport network to these local exchanges, which leads to a drop in demand for trunk segments connecting them, a situation that has been confirmed in practice[163]. Additionally, operators can use this infrastructure for themselves in the offer of leased lines in the wholesale market.

Furthermore, services offered through: a) cable television distribution networks; b) ADSL; c) Wireless local area networks; d) FWA services; and e) services such as VPNs or other capacity management services[164], do not constitute a viable and widespread alternative to wholesale leased lines services - see in this respect the substitutability analysis performed in Chapter 3 for the corresponding retail services[165].

In this context, at the wholesale level, rather than substitutes, these services assume a high degree of complementarity, because many offers of these service (wholesale and retail) are themselves supported over leased lines[166].

Finally, the volume of investment and time required to deploy fixed access infrastructure to the end-customer makes it difficult for other operators, in response to a small but significant and

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[161] That is, using the ROU wholesale reference offer. For example, according to the 2008 Management Report and Accounts - 2008 of Sonaecom, "*During the second half of 2008 the number of central offices unbundled for SHDSL circuit interconnection remained stable. With these circuits (installed at 174 central offices), Sonaecom is capable of operating direct connections for most of our mobile access network, thus further reducing the dependency on the incumbents' leased circuits.*".

[162] Although the latest technological solutions at this level, using multiple copper pairs, enable speeds of up to around 5 Mbps.

[163] As at the end of 2008, one of the main co-located operators had over 86% of the lines acquired from PTC as partial circuits and internal extensions, i.e., less than 14% of the total lines consisted of end-to-end lines, which indicates that this operator's own network extends up to a large number of PTC local exchanges.

[164] Including ATM services. For example, carrying traffic between ATM switches is also usually performed using leased lines (especially trunk segments).

[165] In fact, for most of these services, there are limitations in terms of (i) the provision of end-to-end, transparent and dedicated links, since resources are shared; (ii) quality of service (levels of service) to be contracted; (iii) the transmission rate, which conclusion is further reinforced by the absence (except for ADSL) of any type of wholesale offer from the providers of the services in question targeted at all operators/providers of communications services.

[166] For example, the transport of traffic between ATM switches or interconnection at the level of Aggregated Access in ADSL offers ("Rede ADSL PT") is also implemented using the leased line service.

non-transitory increase in the price of these services, to offer terminating segments in the short and medium term across a large part of the national territory.

Given that, in general:

- services that could potentially substitute leased lines have different perceptible characteristics and features for operators, especially in terms of quality, symmetry and sharing of transport traffic;
- their pricing is different;
- the offer of these services is small and/or geographically dispersed,

a hypothetical monopolist would not see its behaviour minimally constrained by the services concerned.

ICP-ANACOM considers, for the reasons outlined above, that there is insufficient evidence to allow the conclusion that the services under analysis are substitutes for leased lines on the demand or supply side.

An exception is maintained, however, in respect of leased lines services based on symmetric xDSL technologies. That is, the conclusion remains that these services belong to the same relevant market for terminating segments of leased lines, as explained at the beginning of the section (and in the previous market analysis). Moreover, as mentioned above, Sonaecom, using SHDSL technology "*is capable of operating direct connections for most of our mobile access network, thus further reducing the dependency on the incumbents' leased circuits.*".

Segmentation of the wholesale markets for terminating segments according to capacity[167]

In the first place, it should be noted that ICP-ANACOM maintains the view that trunk segments with different capabilities should not be regarded as separate markets, since in this case these segments are usually aggregated into higher capacity systems at transport network level, providing, without any particular difficulty, the offer of segments of varying capacities, facilitated by the nature of the transmission system. For example, an SDH connection at 155 Mbps between two exchanges can aggregate 63 leased lines of 2 Mbps or 3 lines of 34 Mbps, among other combinations.

The same arguments used in the analysis of July 2005, as well as in the retail market analysis conducted in Chapter 3, can be used in the analysis of the related wholesale market of terminating segments, since demand in this market is also partly considered as being derived

[167] ICP-ANACOM maintains the view that trunk segments with different capabilities should not be considered separate markets, since, unlike in the case of terminating segments, these components are usually aggregated into higher capacity systems at transmission network level. For example, an SDH connection at 155 Mbps between two exchanges can aggregate 63 leased lines of 2 Mbps or 3 lines of 34 Mbps, among other combinations.

from demand at retail[168]. In this case, the capacities of the terminating segments are determined, in part, by the capacity existing or acquired in the retail leased lines.

Indeed, with respect to terminating segments, the demand for higher speed lines (greater than 2 Mbps) is lower than that of lower-speed lines, which situation is equivalent to that found at retail, although looking ahead it is likely that demand for higher-speed terminating segments will increase, considering the growing need for bandwidth[169], particularly in terms of optical fibre access networks, with the development of so-called next generation networks (NGN / NGA)[170].

The relevant question on the supply side is to assess chain substitutability at the level of the supply of terminating segments: for example, if a supplier of 2 Mbps enters the market for terminating segments of 10 Mbps or 34 Mbps in response to a small but significant non-transitory increase by a hypothetical monopolist in the price of these components.

The current trend of migration from low-capacity circuits to higher capacity circuits, also seen in the wholesale markets - with the sharp decline in lower-speed circuit volumes - is a relevant indicator of the trend towards an effective substitution between leased lines of different speeds. Likewise, recent convergent (based on IP) and more technologically advanced solutions, especially using Ethernet, lead in practice to an increasing substitution of traditional lines by higher capacity Ethernet lines.

Furthermore, at present, and due to the persistent low penetration of new entrants at a local network infrastructure level, it is not possible for an alternative operator to enter into the market of terminating segments in any fast and non-onerous manner, whatever the capacity considered for the terminating segment. On the supply side, there is therefore no evidence regarding substitutability of the extensions of different capacities in a way that might constrain a hypothetical monopolist in setting its prices for a determined capacity.

For circuits with higher capacity (exceeding 155 Mbps or 100 Mbps in the case of Ethernet-supported lines), it also noted that costs incurred in the offer thereof are not particularly relevant compared to the costs of providing circuits at 155 Mbps (or 100 Mbps in the case of Ethernet), since they are not associated with any greater need for security. Besides this factor, and obviously the greater efficiency of Ethernet technology over traditional technology, the main difference in terms of cost of offering traditional or Ethernet lines is essentially found with respect to interface cards - the cost of Ethernet interfaces, e.g. *Gigabit* Ethernet[171], is less than that of traditional interfaces.

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[168] In particular, the finding that the possibility of chain substitutability for digital lines of 2, 10, 34, 100, or 155 Mbps or even 1 Gbps, for most retail customers, is deemed likely from a functional point of view, since the high differential of capacity/price no longer exists between the "levels" 2 vs. 34 vs. 155 Mbps seen previously (*see* section **3.2.1.3**).

[169] Although it should be noted that mobile operators are not present in the retail market (nor some fixed operators), since these are in fact large wholesale customers of leased lines, primarily for components with capacities equal to or exceeding 2 Mbps .

[170] This increased demand for higher bandwidth is also found, of course, in the case of trunk segments.

[171] See the next section.

ICP-ANACOM therefore takes the view that, even while, at the moment and in theory, it is possible to identify a substitutability chain on the supply side of low-capacity terminating segments in Mbps lines, i.e., a separation between terminating segments supported on copper up to 2 Mbps and higher capacity segments supported over optical fibre, there is no justification for a division based on the capacity of the terminating segments. In fact, the cut-off point of this division, in the reality associated with infrastructure and not with capacity, will tend to blur over time and has no justification in terms of demand-side substitution; it is also noted that, from a regulatory point of view, the definition of a single market or multiple markets depending on the capacity would have the same effect, since, as discussed below, the competitive situation is similar, resulting in the imposition of the same type of regulatory obligations.

It is also recalled that the Recommendation defines the wholesale market for terminating segments irrespective of capacity.

In conclusion, according to the demand and supply-side substitutability analysis, in the view of ICP-ANACOM, the wholesale market for terminating segments should not be segmented according to capacity.

4.2.2.2. Traditional digital lines vs. Ethernet-supported lines

In Chapter 3, a detailed analysis has already been performed in order to assess the substitutability of Ethernet-supported leased lines with respect to lines supported over traditional technologies (e.g. SDH) in the retail market, whereby it was concluded that they are effectively substitutes on both the demand and supply side.

The arguments used in that analysis apply fully in the analysis of related wholesale markets[172].

Indeed, especially in the case of lines with speeds exceeding 2 Mbps, there appear to be economic advantages in the use of services supported by PTC's Ethernet offer compared to the conditions provided by the current reference offer for wholesale leased lines (traditional). In this section, the intention is to assess the validity of this premise, estimating the extent of these potential benefits and assessing whether, as a result, Ethernet-supported lines belong to the same wholesale market, i.e. whether they are substitutes of traditional circuits from the point of view of both the demand and supply.

As a starting point, it should be stated that the application *per se* of the principle of technological neutrality to offers with similar functionality would lead to the inclusion of Ethernet-supported lines in the leased lines wholesale markets being considered from the outset. This is in line with the Recommendation that explains this principle in the definition of the relevant market for terminating segments.

[172] As mentioned above, demand in these markets is also considered demand induced by demand at retail.

Demand for Ethernet services

In wholesale markets, Ethernet-supported capacity solutions have been increasingly used to support services (data) at retail and also for the own use of the beneficiary operators of these wholesale offers[173]. In fact, as already indicated, there has been a progressive migration from traditional technologies to Ethernet and IP based technologies, which means that currently, nearly all Internet traffic, including traffic associated with the VoIP service that has replaced, to an increasingly significant degree, the traditional telephone service, has its origin and/or destination on an Ethernet interface.

Companies and operators have actively sought more efficient solutions to interconnect their different points of geographic presence and/or network nodes, seeking to make use of common resources, including using the same interfaces, protocols and equipment, which are available with the offer(s) of Ethernet lines. Accordingly, operators who engage Ethernet-supported capacity services obtain advantages in terms of flexibility, efficiency and cost savings compared with capacity/interconnection solutions based on traditional leased lines, while fulfilling their needs in terms of dedicated and transparent capacity.

The possibility of operators acquiring lines in the wholesale market at reduced prices compared to the traditional offer under the LLRO, although currently subject to certain limitations in the coverage of the Ethernet network(s), enables them to engage, from the outset, in the resale of leased lines (and other retail services) to their end business customers with conditions which are potentially more favourable as well as enabling cost savings in constructing their own network /solutions.

"Rede Ethernet PT"

In 2004, on its own initiative, PTC launched a wholesale offer called "Rede Ethernet PT", which remains in force[174]. This offer provides Ethernet connectivity for high-speed data transport between geographically distinct sites, allowing logical connections supported on Ethernet technology (with E, FE or GE type interfaces) in access and switching at the level of the *backbone*/transport network. These solutions are implemented over point-to-point optical fibre.

According to PTC, this offer provides:

– a wide range of speeds from 10 Mbps (E) up to 1 Gbps (GE);

[173] Progressive migration has been seen from technologies supporting the service (e.g. voice) to IP-based technologies and from data networks on Ethernet transport (and access) to all types of voice traffic, data, or even image. This convergence with respect to data communications networks (supported on Ethernet and IP), especially in companies and even in the operators, has led to a growing demand for Ethernet services (capacity/transport). It is noted that currently, nearly all Internet traffic has its origin and/or destination on an Ethernet interface.

[174] Although PTC has reported, that due to limitations of growth, it will conduct a reorganisation of network equipment (switches and management platform), impacting the logical links (i.e., the actual traffic to be routed). See website of PT Wholesale (PTC unit that provides services to operators):
http://ptwholesale.telecom.pt/GSW/PT/Canais/ProdutosServicos/AcessoInternet/RedeEthernetPT/Rede+Ethernet+PT.htm.

- enhanced scalability and flexibility in increasing the speed of logical connections;
- support for multiple protocols, in transparent form, over Ethernet connectivity;
- different securing methods (in the access component);
- competitive pricing;
- simple configuration and service installation;
- specialized technical supervision (technical assistance provided 24 hours per day, 7 days per week).

The offer is thereby configurable in accordance with the technical and commercial needs of the operators. In this context, the conditions of the offer, including prices and installation periods, are available on a case by case basis, including budgets, according to PTC, "*a commercial margin for negotiation*"[175].

Leased lines supported over "Rede Ethernet PT"

There are various operators which, more recently, have acquired higher capacity circuits from PTC through the "Rede Ethernet PT" offer, sometimes substituting (or not acquiring) lines based on the LLRO, since, according to these operators, this Ethernet offer brings them substantial advantages especially in terms of pricing.

Indeed, between 2006 and 2008, the operators acquired about four times more Ethernet circuits from PTC than traditional lines with capacity equal to or exceeding 2 Mbps, whereas many of these traditional lines are associated with submarine cable access ("*backhaul*") or CAM, where there are no alternative offers and where the needs are greater in terms of quality and security.

ICP-ANACOM also has information regarding the various budgets and price proposals submitted by PTC in response to requests from operators for leased lines based on Ethernet technology. This information also includes, in some situations and for the same location as the Ethernet line, the price of the SDH line offered under the LLRO.

The following table identifies some examples of budget requests and their characteristics[176]:

[175] Since the "Rede Ethernet PT" offer is unregulated, PTC makes proposals on a case by case basis according to each operator's request for lines.

[176] The analysed budgets show several requests for budgeting with respect to lines supported through the "Rede Ethernet PT" and LLRO wholesale offers, at different points in time and as a result of requests from various operators considering different speed requirements.

Table 5 - Main characteristics of some of the budgets requested from PTC[177]

Request	Date	Client operator	Technology	Speed	Installation (Euros)	Monthly charge (Euros)
1	2005	A	Ethernet	100 Mbps	0	4,900
			Ethernet	256 Mbps	0	8,030
			SDH	155 Mbps	3,000	36,618
2	2005	B	Ethernet FE	100 Mbps	0	1,150
			Ethernet GE	500 Mbps	0	3,710
			Ethernet GE	1 Gbps	0	5,600
			SDH	155 Mbps	3,000	6,142
3	2006	C[178]	Ethernet FE	100 Mbps	0	10,000
			SDH/CAM	155 Mbps	3,000	34,930
4	2006	D	Ethernet GE	256 Mbps	3,000	2,255
			SDH	155 Mbps	3,000	4,582
5	2006	E	Ethernet FE	10 Mbps	1,000	600
			SDH/PDH	5×2 Mbps	1,500	1,724
6	2006	C	Ethernet FE	100 Mbps	1,500	1,150
			Ethernet GE	1 Gbps	3,600	6,600
			SDH	155 Mbps	3,000	7,850

It should be kept in consideration that it is not possible to directly compare values between different proposal requests since the lines in question may be supported using the same technology and have the same speed, but will not have the same terminal points. However, within the same request, the different options can be compared. As such, the comparison relates to lines which, within the same budget request and with the same terminal points, are supported using different wholesale offers, the LLRO and "Rede Ethernet PT".

From the comparison made using available data, it appears that:

– the monthly fee for a 155 Mbps SDH line can be more than four times the monthly fee for a higher-speed Ethernet line (256 Mbps), while in certain situations, PTC does not charge for the installation of the Ethernet circuit line, as is its practice with regard to SDH circuits;

[177] Between 2005 and 2006, the price of leased lines provided under the LLRO underwent changes, most significantly with regard to speeds of 155 Mbps.

[178] Connection between the mainland and Autonomous Region of Madeira.

- the monthly charge for a 1 Gbps Ethernet lines may be lower than the monthly charge payable for a 155 Mbps SDH line;
- in most cases, the charges for SDH lines are higher than those charged for Ethernet lines with higher speeds[179].

Demand-side substitutability

The examples presented, besides showing that, in most situations, solutions supported using Ethernet technology have significantly more favourable economic conditions compared to solutions provided under the LLRO, also show that operators, by requesting proposals for SDH and Ethernet technologies, consider the services supported on them, at least initially, as possible substitutes.

From the above analysis, it is concluded that use of the Ethernet offer is economically more favourable when there is a requirement for capacity in excess of 2 Mbps and the greater the distance between the extremes, i.e., the greater the length of the trunk segment, noting increasing and sustained demand for Ethernet lines under these conditions, which are used for the same purposes as traditional lines.

Furthermore, as mentioned above, there has been a progressive migration of the supporting technologies of electronic communications services to Ethernet-based technologies (and IP), which has led to a growing demand for Ethernet services from and by network operators.

On the demand side, it is reasonable to assume that operators which have already deployed network solutions supported on Ethernet technologies have advantages in opting for leased lines supported on Ethernet, which can be measured in terms of efficiency and cost savings compared to solutions based on traditional leased lines.

Supply-side substitutability

The fact that there are significant differences in the prices of offers that have solutions which meet similar needs does not mean that the prices of such offers are not appropriate. These price differences may be due to several factors, including the different technological solutions used.

In this context, substitutability on the supply-side between traditional and Ethernet lines seems to be even greater than on the demand side. In fact, both in the case of copper pairs and in the case of optical fibre, the cost to replace traditional leased lines with Ethernet are relatively small and may, in certain cases, consist of no more than the replacement of (interface) equipment at both ends of the leased line.

[179] It appears, for example, that the monthly charge for an SDH/CAM (155 Mbps) line is 3.5 times higher than the proposed monthly charge for an Ethernet line (100 Mbps). Even considering the price per Mbps, it appears that the price of the Ethernet line is less than 45% the price of an equivalent SDH line.

Therefore, the apparently lower price of Ethernet lines compared to traditional lines (equivalent capacity) can be partly explained by the greater efficiency in the use of the Ethernet transport network, since this is shared[180] and since there is no unique and permanently dedicated physical connection[181]. Additionally, Ethernet interfaces currently have lower prices than those of traditional interfaces.

It should be noted in this connection that, according to several studies[182], the migration from traditional (TDM) interfaces to Ethernet interfaces can result in a reduction of up to 75% in equipment costs. According to one study, services based on *Frame Relay* and ATM, which had exclusively been using transport TDM technology (e.g., SDH), will be transported in future over a common Ethernet transport platform[183].

On the other hand, and in theory, it could be considered that the guarantees of quality provided by the Ethernet- supported lines would be inferior to those of traditional leased lines, taking into account that the ETSI standards establish very demanding quality parameters for traditional technologies, including SDH. However, Ethernet access services are provided (e.g. in retail, as mentioned above) properly secured at the level of the data communication networks. According to PT[184], "*revenues from data and corporate services increased* (...), *as a result of* (...) *migration of customers from traditional voice and data services to more advanced and integrated solutions, which include: (1) the provision of more bandwidth for end-users based on Ethernet and IP technologies, and (2) convergent and customised solutions combining telecoms and IT*".

Furthermore, for Ethernet-supported high-speed lines, access (terminating segment) and the transport network connection (trunk segment) are typically supported over optical fibre, which, by itself, guarantees a high level of reliability in terms of the physical means of transmission.

Conclusion: traditional leased lines vs. Ethernet-supported lines

ICP-ANACOM concluded that although there are some differences in the services provided by both types of offers, particularly regarding the existence (or not) of resource sharing, these differences are not such as to counteract the increased and sustained demand and supply of Ethernet-supported lines, which are used for the same purposes as traditional lines.

It is noted, as already mentioned, that several NRA have adopted regulatory measures in the

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[180] In traditional Ethernet topologies all nodes/stations share the entire bandwidth of the network.

[181] Moreover, Ethernet lines provide more efficient transmission of IP packets, since they reduce *overheads* and eliminate unnecessary protocol conversions.

[182] See, for example, http://www.quante-netzwerke.de/Produkte/Transport/downloads/Corrigent_KDDIcasestudy.pdf or http://www.lightreading.com/document.asp?doc_id=86662.

[183] The capacity of Ethernet connections has increased steadily and 10 Gbit/s interfaces are already available with capacities up to 100 Gbit/s in development versions. The Ethernet has also been used for the provision of public WAN (Wide Area Networks) networks, which permits the use of these technologies in the areas of data networks and (tele)communication services, with advantages over the use of multiple traditional technologies (e.g. Frame Relay, ATM or SDH).

[184] *See* Group PT's "2008 Annual Results".

context of the offer of Ethernet-supported leased lines, including Germany, Austria, Slovenia, Spain, Estonia, France, Ireland, Italy, Lithuania, the United Kingdom and Sweden.

Besides the demonstrated substitutability between the two types of lines (traditional and Ethernet), ICP-ANACOM acknowledges that one of the risks of not including Ethernet lines in the relevant wholesale markets susceptible to *ex ante* regulation might be that such an omission would enable the SMP operator in these markets to use this technology to present commercial proposals which are more attractive than would be possible using the traditional wholesale lines under the LLRO. This would prohibit their replication and give rise to situations of discrimination and lack of transparency. In fact, traditional lines with prices which are regulated and currently higher than Ethernet lines are, in many cases, the only option for alternative operators to support their service offers to end customers, placing these operators at a disadvantage compared to the dominant operator which is vertically integrated and which provides these lines internally over Ethernet (and at a lower cost).

In this regard, it is also noted also that there have been situations in which ICP-ANACOM has been called to rule on the conditions offered in the context of the Ethernet offer, in the light of allegations that these conditions may be deemed discriminatory.

Finally, in this context, given the position of ICP-ANACOM regarding substitutability of leased lines supported over traditional and Ethernet technologies, on both the demand and supply side, the position regarding the (non) segmentation by capacity[185] is taken in this case. Additionally, no practical utility is envisaged in any segmentation into several sub-markets (especially, into a high numbers), since such segmentation will not substantially change the position of ICP-ANACOM regarding the competitive situation in the leased lines wholesale markets.

4.2.2.3. Conclusion of the substitutability analysis - definition of the product market

The substitutability analysis of demand and supply results in the following definition of wholesale product markets:

- market of terminating segments of analogue and digital leased lines, irrespective of the capacity or technology
- the market of trunk segments of analogue and digital leased lines, irrespective of the capacity or technology.

4.2.3. Definition of the geographic market

After identifying the relevant product market, it is necessary to define its geographical dimension.

[185] Given, fundamentally, the existence of new intermediate levels (e.g. 10 Mbps and 100 Mbps) in the substitutability chain.

According to the Guidelines (§56) *"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"*

In the electronic communications sector, the geographic scope of the relevant market has traditionally been defined according to two main criteria: the existence of legal and regulatory instruments and the area covered by a network.

4.2.3.1. The existence of legal instruments and regulations, including restrictions associated with licensing/authorization, tariff obligations and obligations to provide services

PTC provides leased lines services pursuant to its obligations as holder of SMP in the leased lines wholesale markets, whereby it is bound to provide them throughout the entire national territory, currently under the LLRO.

PTC provides special rates for pre-defined routes (Lisbon-Coimbra, Lisbon-Porto and Lisbon-Faro), for CAM lines and backhaul lines, which does not necessarily mean that this price difference is justified by different competitive pressures and may rather be the natural result of greater economies of scale, particularly in the case of these routes.

4.2.3.2. The area covered by a network

The PTC network

PTC's network, specifically the optical transport network, is a well developed network with flexibility for growth and with up-to-date technology, covering the entire national territory.

This network supports a large part of the wholesale leased lines offer, which, in turn, supports a large part of the transport network of the subsidiary companies of Grupo PT, including TMN[186] and of PT Prime[187].

As noted above, PTC's network covers the entire national territory.

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[186] Both the core network and the base stations links (including "B Nodes" of the UMTS network), using multiple lines of 2 Mbps. With the development of UMTS standards, in the future, it will be possible to use Ethernet technology on these links as well.

PTC supports the TMN network primarily in the component of interconnection lines between base stations and switching nodes. Moreover, according to a news article in AICEP's "Convergir" magazine, "*in an attempt to reduce operating costs, TMN is positioned to lease optical fibre from PTC as opposed to leasing signal transport over leased lines*". See http://www.aicep.pt/media/revistas/15-1.pdf.

[187] Including its ATM network, with significant geographic presence in about 80 locations and the IP/MPLS network, networks with hierarchical and redundant architecture at core (and transport) network level.

The network of the alternative operators and other entities

Sonaecom

Sonaecom not possess its own access network in copper pairs, using the RUO to offer direct broadband access and leased lines supported over SHDSL. For this purpose, and the interconnection of its network (including with PTC), it has transport network equipment/lines in the vast majority of PTC local exchanges where it is co-located, making use of various solutions for connecting this equipment[188]:

- own or leased optical fibre network;
- radio (e.g. radio links);
- leased lines.

In 184 of these local exchanges, it uses the signal transport service of PTC, i.e., Sonaecom's optical network also reaches these exchanges/network nodes[189].

Sonaecom's transport network is based on DWDM and SDH technologies[190], covering over 6100 km (length of fibre segments) of territory in 2006,. Additionally, its metropolitan networks cover 920 km (km of ducts).

The following figures show the diagrams of Sonaecom's access and transport network [191]:

[188] *See* http://www.sonae.com/channelDetail.aspx?channelId=98744E53-0354-40C1-8FBC-A586A6D6F760.

[189] 2008 data.

[190] Sonaecom also uses Ethernet technology to aggregate traffic from different service platforms installed at their network nodes and delivery of this traffic on the transport network.

[191] Sources: 2007 Annual Report and Accounts (http://www.sonae.com/channelDetailLast.aspx?channelId=E2BB095D-B966-4560-B6F8-71E38F33D774&schemaId=7FFB69F6-FC3B-476C-88AA-A9FA73545E13) and http://eden.dei.uc.pt/eei2005/docs/apresentacoes/pdfs/VOIP_Novis.pdf.

Figure 4 - Access network - Sonaecom LLU coverage (2007)

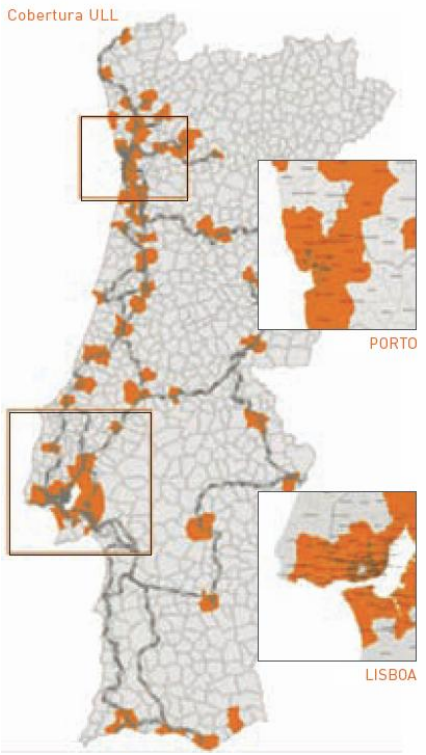
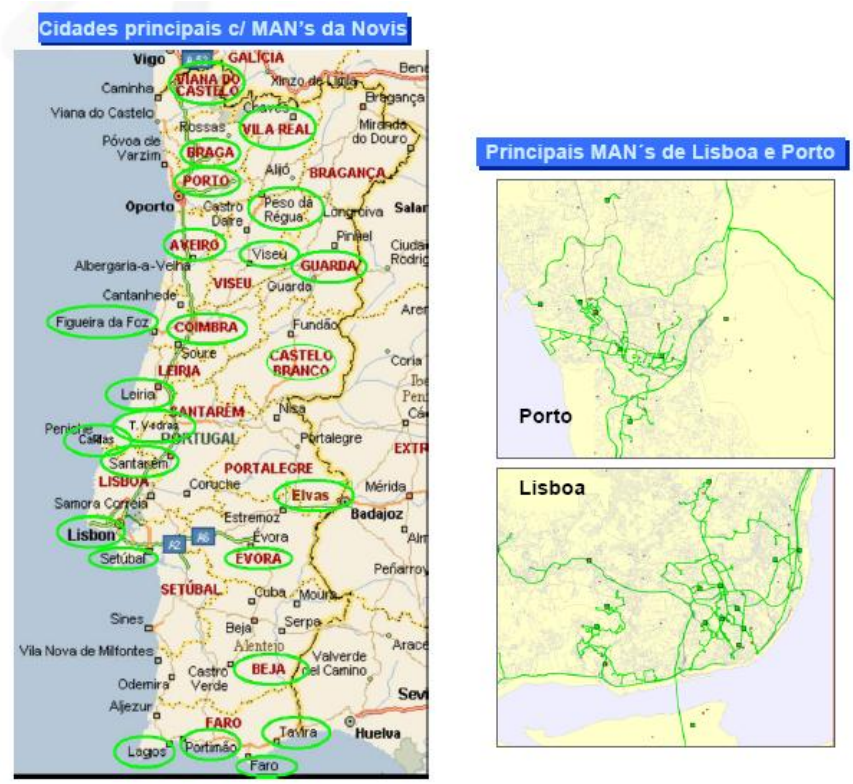


Figure 5 - Novis/Sonaecom optical fibre transport network (2005)

Figure 6 - Novis/Sonaecom metropolitan optical fibre network (2005)



According to Sonaecom's 2008 Management Report and Accounts[192], the "*backhaul transmission network has been optimised, in order to accommodate the ever increasing mobile broadband bandwidths and traffic (...). This evolution, which is based on IP transmission solutions (including with Ethernet First Mile and fibre optics to connect 2G/3G sites)* (...) *prepares the network for any future developments. Sonaecom has also increased its network resilience, by deploying fibre optic transmission links, strengthening the network and decreasing the probability of transmission failures*[193]".

Onitelecom

OniTelecom has regularly invested in its own optical fibre networks[194], which in 2008 had a total length of over 6,000 kilometres of fibre[195], complemented by fibre optic infrastructure leased from existing shareholders such as EDP and Brisa - about 40% of pairs of optical fibre that it uses.

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[192] *See* http://www.sonae.com/channelDetailLast.aspx?channelId=E2BB095D-B966-4560-B6F8-71E38F33D774&schemaId=7FFB69F6-FC3B-476C-88AA-A9FA73545E13.

[193] "*... New network topologies and equipments were deployed with the objective of guaranteeing increased network availability. Furthermore, in 2008 Sonaecom completed the integration of its core networks (including the previous networks of Optimus, Novis and Tele2) in its NGN network, increasing service levels and optimising operational costs.*".

[194] According to statements of the company, it has so far invested about $400 million in its own network, including 200 million in optical fibre and active equipment (high-speed routers which make up the metropolitan IP network and long-distance transport network equipment). See, for example, http://exameinformatica.clix.pt/noticias/mercados/1000935.html.

[195] According to the Annual Report and Accounts 2008 (http://www.oni.pt/Imprensa_02_03.htm).

Figure 7 - Transport network (optical) of OniTelecom[196]

[SCI] **[ECI]**

The transportation network of OniTelecom, with national coverage, is structured on several levels, the SDH level (*backbone* and client connection) with multiple multiplexer elements and regional rings, DWDM and a metropolitan ring in Lisbon. ATM transport networks, Metro Ethernet and IP/MPLS support a variety of operator and enterprise services (OniTelecom target market), including the offer of leased lines[197].

[196] Source: Information sent in the context of the SMP analysis.

[197] According to the same report, "*In this segment, Oni Communications provides a comprehensive portfolio of products and services that include* (...) *Connectivity: includes national and international services of leased lines* from *64kbps to 155Mbps, lambdas services up to 10Gbps, SAN and LAN Extension and several Ethernet services from 10Mbps to 10Gbps*."

The methods of local client access are varied[198]:

- point-to-point optical fibre (own);
- unbundled local loop;
- FWA;
- leased lines.

In late 2008, OniTelecom had optical fibre connections in 111 PTC local exchanges where it was co-located.

Vodafone

Vodafone shares its transport network infrastructure for the provision of mobile network services and fixed access, also making use of the RUO and was linked by optical fibre in 185 PTC local exchanges as at the end of 2008.

The (part of) the transportation network where Vodafone uses only its own resources is also relatively small in size, based on fibre leased from others[199] and leased lines from PTC[200] and favouring wireless links in the mobile access network. According to the 2007 Report and Accounts of Vodafone, "*as part of its strategy of technological independence, in 2007 Vodafone strengthened its programme of transmission network construction, having surpassed the mark of 60% of own network. Also during this year, and as a consequence of the growth in broadband services, the company began an ambitious programme building out a fibre optic network to link their points of presence, initially in urban areas*".

Other operators

There are also operators who possess optical fibre infrastructure, including Cabovisão and ZON[201], which have not had much expression in terms of leased lines to third parties, at retail or wholesale, but which cover some of the major links between cities.

These entities have optical fibre transport networks and also local optical fibre networks which extend up to the optical nodes (in relation to the hybrid fibre-coaxial cable network). The figure below shows a diagram of the coverage of Cabovisao's transport network as in early 2007.

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[198] The access network is present in all municipalities of Portugal.

[199] Not exclusively from PTC. According to the Annual Report and Accounts of ReferTelecom 2007, Vodafone is its main client of dark fibre.

[200] Although for links to "B Nodes", Vodafone has initiated the adoption of Ethernet-based transport, for greater flexibility in the use of capacity in respect of PTC leased lines.

[201] The access network of the operators of coaxial cable distribution networks, in particular of ZON and Cabovisão, is based on hybrid optical fibre and coaxial cable access technology (HFC). According to the response given to the questionnaire, up to 2008, ZON did not possess its own optical infrastructure (only leased dark fibre).

Figure 8 - Cabovisão Transport network [202] (2007)

[SCI] [ECI]

The transport network of the other fixed network operators, for example COLT[203] and ARTelecom[204], is present mainly in large urban centres, especially in Lisbon and Porto.

Other entities with optical fibre

Finally, note should be made of the extensive offer of optical fibre and capacity by entities whose shareholders are concessionaire companies of public interest services, such as ReferTelecom, or utilities such as REN, whose optical fibre networks are supported on their "transport networks" (railways, electricity and gas) and cover the major population areas of the Portuguese territory[205].

The following figures shows the REN's network of power transmission lines, since, according to this company, its optical fibre network follows the path of these power transmission lines - and the optical fibre transport network of ReferTelecom as well as the railway network, since these are also largely coincident.

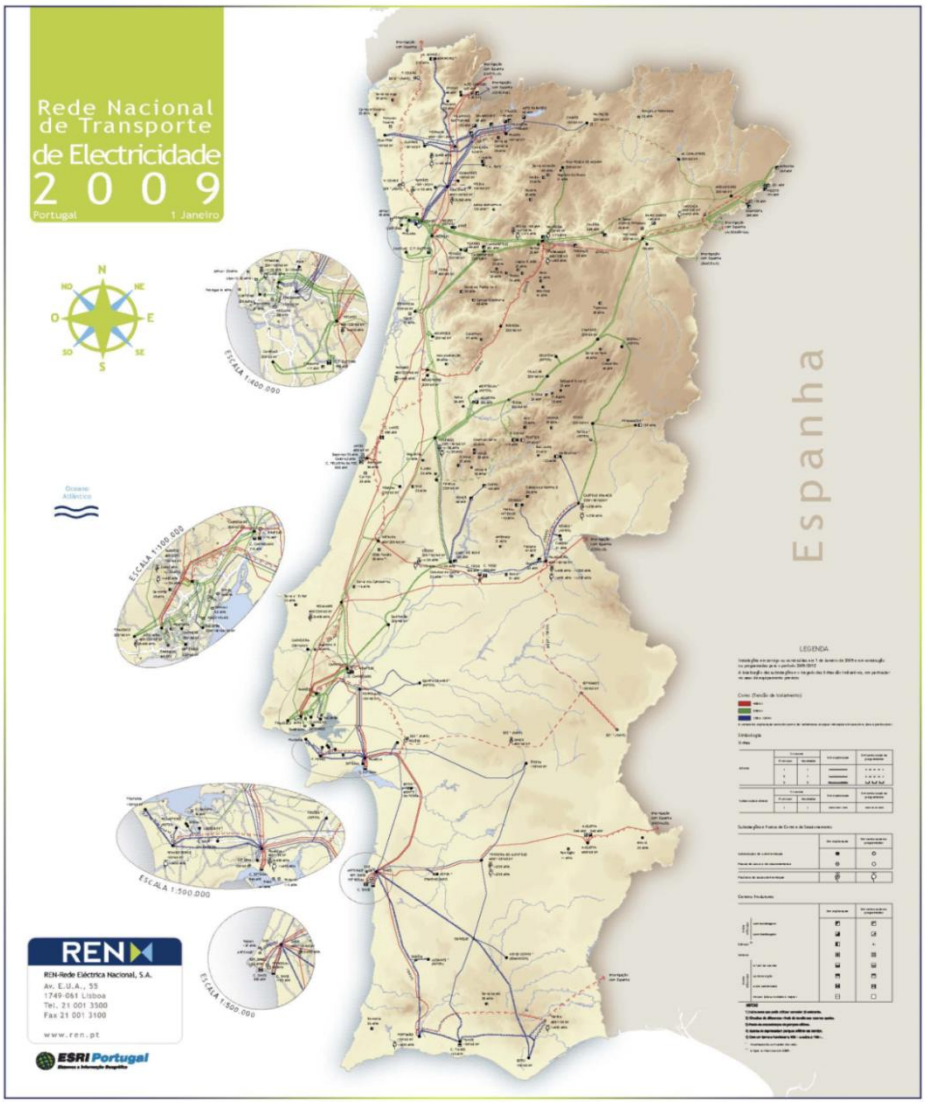
[202] Source: COGECO (company shareholder in Cabovisão).

[203] In 2005, COLT continued to develop its optical fibre network, which grew by 110 kilometres to reach a total of 300 kilometres. Additionally, COLT is present in nine local exchanges in the Lisbon area, from which it offers direct access service to customers.

[204] The capacity of the transport network (optical fibre) is relatively limited, but ARTelecom uses its own and leased optical fibre for the provision of services to corporate clients and for connections to their base stations (FWA). Its IP/MPLS network is structured on two main nodes and nodes access (with sixteen points of presence in Lisbon) and is interconnected with the main service providers in Portugal.

[205] There are other entities that provide a dark fibre offer, but which are not present in the leased lines markets, such as EDP, Metro de Lisboa or Lusoponte.

Figure 9 - Map of the National Electricity Transmission Network 2009[206]



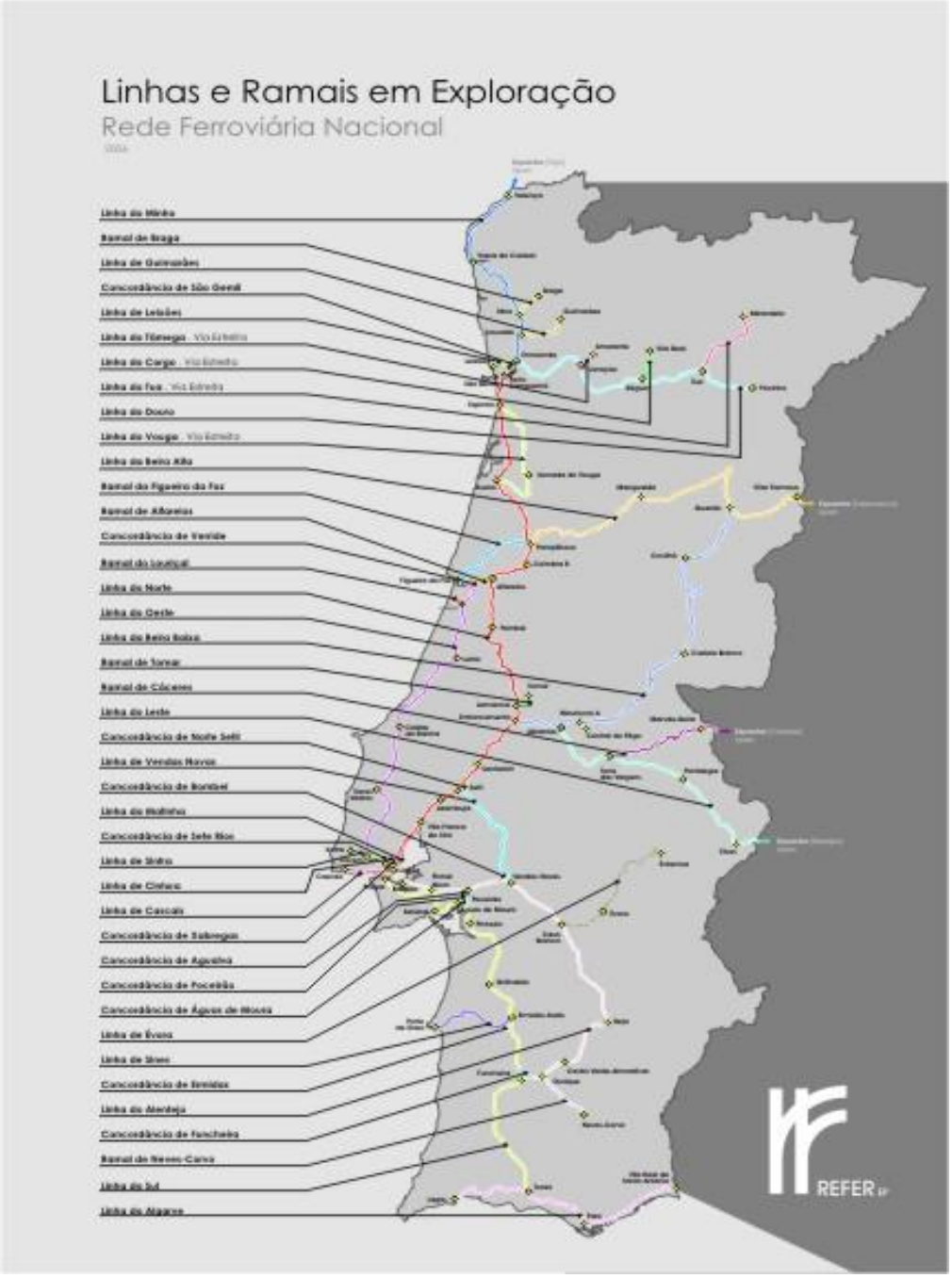
[206] Source: REN (http://www.ren.pt/vPT/Electricidade/Transporte/Pages/electricidade_transporte.aspx).

Figure 10 - Diagram of the optical fibre transmission network of REFER TELECOM[207]

[SCI] [ECI]

[207] Source: Information submitted pursuant to the market analysis.

Figure 11 - Map of National Railway Network 2009[208]



ReferTelecom has been developing its optical fibre transmission network (currently with over 2,800 km and present in the major urban centres of the mainland territory) along the national railway line, also with a view to increasing its offer in the leased lines market[209].

[208] Source: Refer (http://www.refer.pt/pt/rede.php?id=620&idold=618).

Summarizing, ICP-ANACOM has identified the following suppliers of optical fibre (dark fibre):

[SCI]

[ECI]

It is noted that some of the operators mentioned above can, in some cases or geographic areas, be engaged in resale (i.e., may acquire dark fibre from a supplier and provide the same fibre to another operator).

[209] According to its website (www.refertelecom.pt), ReferTelecom is deploying optical fibre between Castelo Branco and Guarda, between Abrantes and Portalegre and Entroncamento, forming part of ReferTelecom's plan of closing interior optical rings through the deployment of optical cables along the railways penetrating the interior regions of the country. According to this undertaking, "*These investments will also increase the offer at Carrier level and meet the needs and expectations of certain of our main clients in the Operator market*".

It should be noted that, in many circumstances, the connection of operator fibre networks to available dark fibre is difficult, first because the respective network nodes may not be in proximity (which could entail the need to construct additional infrastructure).

The scope of the various networks

Historically, the definition of the geographic market has followed, in general terms, the area covered by the incumbent's network, and tends therefore to be national in scope.

However, the developments that, in the meantime, have occurred in the access markets and, crucially, in optical fibre supported transport infrastructure [210], as detailed above, indicate that currently, there are several operators and undertakings with extensive transport networks which already provide significant coverage, with points of presence (optical/transmission network nodes) in the major cities of the national territory, especially in the metropolitan areas of Lisbon and Porto, but also in most district capitals and major urban areas of the mainland territory.

These transport networks, by connecting these points of presence with optical fibre, including locations where OniTelecom and Sonaecom, as well as Vodafone, are co-located, enable an offer of leased lines in its trunk segments component using these same connections. This therefore suggests the existence of different competitive conditions in different areas, or more precisely in the connections between local exchanges, i.e., between different trunk route /segments, whereas two extreme situations can be identified:

- trunk segments (routes/connections between local exchanges) where only PTC has network, i.e. where there is no alternative wholesale offer of leased lines; and
- trunk segments where there are several alternatives to the PTC network enabling a (competitive) offer of leased lines on these trunk routes/segments.

Indeed, the existence of heterogeneous competitive conditions at a geographic level would justify a definition of the relevant geographic market(s) which no longer corresponds to the entire national territory in this case.

4.2.3.3. Terminating segments

At wholesale level, the possibility of there being heterogeneous competitive conditions and, as a consequence, different degrees of customer choice (in this case, operators which offer electronic communications networks and services), will be related to the geographic coverage of electronic communications networks of the various holders of own active infrastructure in these markets.

It should be noted at the outset that an analysis of supply-side substitutability indicates that the

[210] As well as the developments observed in the broadband market, especially the expansion of LLU in terms of local exchanges with co-located operators.

provision of alternative access networks is extremely limited - and virtually nonexistent in the case of the network of copper pairs (not via LLU) - and that, according to available information, there are, in fact, no terminating segment offers supported on own network, with the exception of PTC. See section **5.1.2**, regarding the analysis of market shares in the context of SMP in the terminating segments market.

Indeed, although several alternative operators have significantly developed have their own transport infrastructure on their core network, in many cases it remains necessary for the same operators to employ PTC's wholesale offer to deploy their own (and customer) equipment, including at access network level, i.e., terminating segments.

In addition, with regard to pricing and discounts and other conditions related to terminating segments, operators generally do not differentiate their marketing strategies according to different areas of the territory. In this respect, ICP-ANACOM maintains its view that the terminal segments are offered in a homogeneous way throughout the national territory, whereas, although some differences are seen in competitive conditions, the limits of these differences cannot be identified in a clear and permanent manner.

In this respect, it is also reported that of the countries that have already carried out market analyses under the revised Recommendation on relevant markets[211], only Austria and the United Kingdom considered that the offer of certain types of terminating segments in normally very limited areas have competitive conditions which are distinct from the others, indicating effective competition. This was the case of terminating segments of capacity equal to or greater than 2 Mbps in major cities in Austria[212] or traditional terminating segments up to 155 Mbps in Central and East London[213].

Regarding the segmentation of the terminating segments in Austria, the EC stated that the geographical differentiation should be based on robust evidence related to the heterogeneity of competitive conditions in the different identified regions and called upon the RTR to provide more detailed data about the existence of different competitive conditions in the areas identified by the RTR, in particular, data on the evolution of market shares and pricing structure.

With regard to the United Kingdom, the EC stated that the definition of geographic markets based solely on the number of operators in the market is not sufficiently detailed or robust to identify significant differences in competitive conditions (for purposes of market definition). In

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[211] Market analyses of terminating segments pursuant to the revised Recommendation have already been conducted in Austria, Spain, Ireland, Hungary, Netherlands, Slovenia and the United Kingdom.

[212] The (12) municipalities concerned meet the following cumulative criteria:

(a) they have at least 15 thousand inhabitants;

(b) there are at least three operators who lease terminating segments in the city based on their own infrastructure; and

(c) the market share of Telekom Austria, measured in terms of equivalent capacity (64 kbps) and number of lines, is less than 50%.

The terminating segments of capacity exceeding 155 Mbps were found to be competitive regardless of location.

[213] Whereas traditional terminating segments of 622 Mbps and Ethernet lines with speeds exceeding 1 Gbps are deemed competitive regardless of location.

this context, besides advocating the need to identify structural and behavioural factors that support this premise, the EC recognizes that OFCOM has demonstrated the existence of different conditions of demand and supply in Central and East London, with three or more operators able to provide services to business customers. The EC also called on OFCOM to assess whether the low-speed leased lines would not be competitive in the areas concerned, since it considered that there does not seem to be a high correlation between the development of operator network and the speed being offered.

4.2.3.4. Trunk segments

The EC takes the view that, for purposes of *ex ante* regulation, the relevant geographic market may be defined on a route-by-route basis[214]. Also according to the EC[215], all Member States are witnessing the construction of network infrastructure in parallel, particularly on major routes. In most of these countries, according to the EC, the respective NRA has concluded that the market for trunk segments was effectively competitive. Indeed, in the market analyses performed to date, about half of the Member States considered the market for trunk segments as competitive and not subject to *ex ante* regulation[216].

Under the previous Recommendation on relevant markets, Germany, Belgium, Denmark, Finland, Lithuania, Slovakia, Slovenia, the Czech Republic and Sweden had considered the entire trunk segment market as competitive. It is noted, however, that this conclusion depends largely on the definition used in relation to terminating segments and trunk segments. In fact, some countries define trunk segments as links between the main exchanges of the network of the operators, while in Portugal, the trunk segments reach local exchange level.

All analyses conducted under the revised Recommendation on relevant markets concluded that the market for trunk segments was, in whole or in part, competitive. Such were the cases of Austria, the Netherlands, Hungary and Ireland - which concluded that the market was fully competitive - and Spain and Poland, which concluded that several routes were competitive (in the case of Spain, just a few submarine cable links were considered non-competitive).

In this regard, the ERG considers that in the trunk segments market, investment decisions are not often made on the basis of geographical area, but on the basis of determined links ("*by destination*")[217]. In this case, it is more appropriate to consider links between determined geographic points as geographical units, such as the trunk segments between certain cities. The number of geographical units depends on the specific circumstances of each case but, as experience shows, can be significant. According to the ERG, although it is possible to perform separate market analyses for each unit, it will probably be more appropriate and practical to

[214] See. Guidelines, § 61.
[215] See Explanatory Memorandum.
[216] *See* document "COCOM09 Rev1-07 - Article 7 procedures", available at http://circa.europa.eu/Public/irc/infso/cocom1/library?l=/public_documents_2009/cocom09-07_proceduresdf/_EN_1.0_&a=d.
[217] "ERG draft Common Position on Geographic Aspects of Market Analysis (definition and remedies)".

combine these units according to the homogeneity of competitive conditions, in line with the guidelines of the EC.

In Portugal, the possibility of there being heterogeneous competitive conditions and, as a consequence, different degrees of choice by wholesale customers (in this case, operators which offer electronic communications networks and services), will be related to the geographical coverage of the transport networks of the various holders of active own infrastructure in these markets.

These specific trunk routes/segments are the in same relevant market if the behaviour of the suppliers of services in question are subject to the same type of competitive pressures, particularly in terms of pricing. It should be noted that PTC already has different prices for specific trunk segments of routes on the Porto-Coimbra-Lisbon-Faro axis, as well as in its offer of Ethernet-supported capacity, where the price of any link/route is calculated on a case-by-case basis. The routes on this axis have historically been treated differently in terms of prices under PTC's leased lines offer (currently in the LLRO) which is justified, according to PTC, by the cost savings, i.e., through economies of scale derived from the use of large-capacity systems on these specific routes where there is higher traffic concentration/aggregation and increased capacity of demand and supply[218].

On the other hand, there are certain trunk routes/segments between the local exchanges of the country's major urban area, especially Lisbon and Porto and other district capitals[219] which, because there are other operators with available optical transmission infrastructure, have competitive conditions which are different from other routes - particularly between smaller local exchanges located in more remote areas and/or areas which are economically less attractive, and where only PTC possesses transport network, that is, PTC is the only wholesale supplier of leased line trunk segments.

Using the latest data (2008) on the coverage of the transport networks of network operators and suppliers of leased lines of undertakings such as ReferTelecom or REN (with extensive optical networks), as well as information from PTC on its wholesale offer(s) to operators[220], a comprehensive analysis was performed on the network supply conditions on all trunk routes/segments (in the context of the LLRO), i.e., for all connections between PTC local exchanges.

The following figure shows the transport networks of ReferTelecom or REN and the exchanges with operators with their own infrastructure co-located in PTC exchanges. The local exchanges

[218] In its decision of 8 July 2005, recognizing the inherent cost savings, ICP-ANACOM took the position that the prices set for Porto-Coimbra-Lisbon-Faro routes could continue to be different from those established for the trunk segments market, but always from a standpoint of cost orientation.

[219] More than 200 (main) PTC local exchanges, where the beneficiaries of the RUO (and LLRO and RIO) are already co-located, provide coverage of over 60% of the all telephone and broadband access, which in the case of leased lines corresponds to a potentially higher level of coverage given that companies (especially large and medium companies) have activities concentrated in major urban centres (where the majority of these local exchanges are sited).

[220] Data on trunk segments provided by PTC under the LLRO and the Ethernet offer to other operators.

represented are those that are connected by operators' own network, in accordance with information compiled from the questionnaire on the analysis of the leased lines markets.

Figure 12 - Transport infrastructure of ReferTelecom [221] and of REN (links in blue and green) and PTC local exchanges where there is only one (yellow), two (orange) of three (black) co-located operators with their own transmission [222]

[221] Railway network.

[222] Due to differences in base data formatting, the information presented is not exactly on the same scale.

This analysis led to the following distinction to be considered in the trunk segments market:

1. Trunk routes/segments between local exchanges in which at least two alternative operators who are active in the market are co-located[223], making use of transmission networks not leased from PTC[224], designated "Routes C".

   There is found to be effective existence of (competing) alternatives in the offer of these specific trunk segments, including offers (of dark fibre) by utilities, especially ReferTelecom and REN[225].

   These routes are hereinafter designated as "Routes C" – for a complete list of the closed set of 110 local exchanges[226] that define the endpoints of these routes see **Annex I**, with the geographical location of these exchanges shown on the following map.

   The leased lines associated with these routes account for 20% of all trunk segments leased at wholesale level by Grupo PT (excluding internal supply), and assuming that the trunk segments leased by alternative operators are all on "Routes C", they would correspond to 42% of all trunk segments leased at wholesale level (for all operators, including Grupo PT).

   It is noted that in the event that it had been decided to consider exchanges with at least three co-located operators[227], this would result in only 7 fewer local exchanges for the purposes of defining "Routes C" - and with identical competitive conditions in practice.

[223] Currently, Sonaecom, OniTelecom (both active in the wholesale and retail leased lines markets), whereas COLT is co-located in a very limited set of exchanges. Vodafone is not active in the leased lines markets.

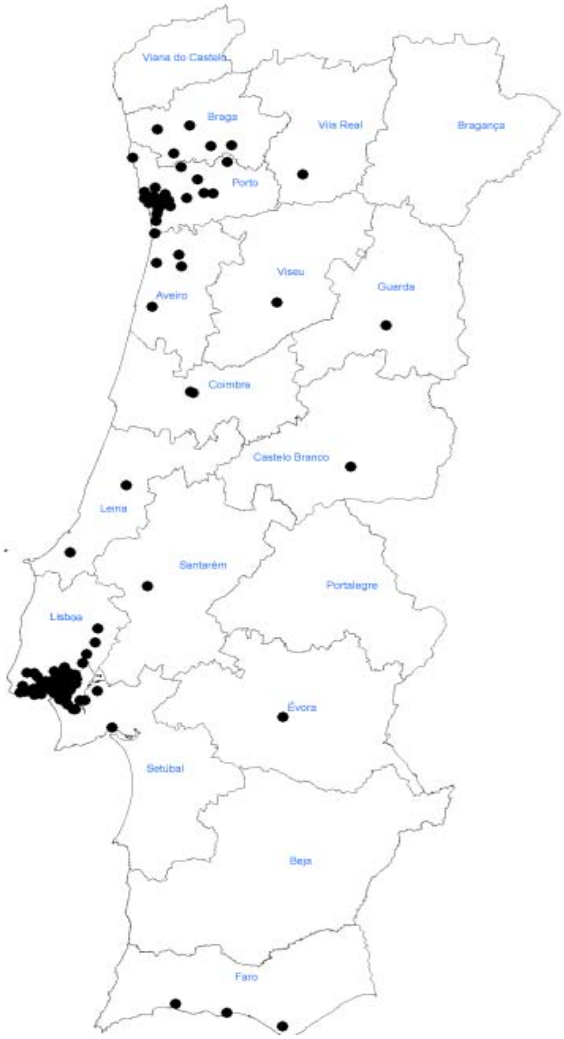
[224] This means that in these local exchanges, operators reach the exchange using their own means of transmission or by leasing this type of resource from operators other than PTC.

[225] **[SCI]**
[ECI].

[226] Including the two National PGIs, Picoas and Batalha (which are, strictly speaking, "trunk" segments).

[227] Specifically Sonaecom and OniTelecom, the operators currently active in the leased lines markets.

Figure 13 - Location of exchanges that correspond to "Routes C"



2. Other trunk routes/segments, designated "Routes NC", including all trunk routes/segments in which at least one of the local exchanges constituting the end point is not included in the set of 110 exchanges defined above (and in **Annex I**).

   These routes are characterized by the absence of effective alternative to the network offer of PTC (i.e., this is the only entity able to make its own offer on many of these same routes, since no alternative operator exists) and are so characterized by a lack of competition or potential therefor, or by the existence of limited supply resulting both from the number of co-located operators (less than or equal to one) or even by an (almost) complete lack of infrastructure from utilities or third party operators.

   In these cases, considering that there is no effective alternative to the ubiquitous offer of PTC, whereby these routes do not constitute a homogeneous group that is distinct in terms of competitive dynamic, for the purposes of this analysis, they are included in the "Routes NC".

Currently, and in light of available data, the competitive conditions are, *a priori*, substantially different in the case of the trunk segments of "Routes C" and the remaining trunk segments of "Routes NC". In the geographic market of "Routes C", the presence of transport networks and wholesale offers which provide an alternative to the PTC network affirm that, from the perspective of this indicator, the competitive conditions on the trunk segments that constitute them are sufficiently homogeneous and distinct from the other trunk segments (where there is no real possibility of a competitive offer). As such, it is deemed that there are grounds to define separate geographic markets for "Routes C" and for the remaining trunk segments, "Routes NC".

This geographical differentiation is accordingly based on robust evidence related to the heterogeneity of the competitive conditions with respect to the two different sets of routes identified:

- "Routes C", linking the major urban centres (and within them, particularly in the metropolitan areas of Lisbon and Porto) with more dense population and corporate activity, and where there are various alternative network and trunk segment offers in competition;

- "Routes NC" linking areas of lower population and business density and where, in most cases, only the incumbent operator is present (and, in such cases, obviously, with a market share of 100%).

ICP-ANACOM considers that the factors considered in this analysis will not change significantly over the short to medium term, before the next market definition is conducted, since the growing number of exchanges where operators are co-located has been reported as levelling off, whereas links to new exchanges involve a smaller number of connected customers, meaning that the profitability of co-locating in these exchanges is more challenging.

In order to validate and consolidate the definition of geographic markets based on the number of operators present, identifying significant differences in competitive conditions for the purposes of market definition, there are deemed to be other structural factors and behaviours that support this premise, including the following:

- With respect to the distribution of market shares and their evolution over time, on the "Routes NC" Grupo PT's market share is around 100% and has remained relatively constant, particularly since the end of 2007, while growth in the number of local exchanges with co-located operators has been seen levelling off. Looking ahead, although it is possible that alternative transport networks will be developed, it is considered that this situation will not change over the short and medium term, given the size of the market segment in question, covering routes between over 1,600 PTC local exchanges. The existence of barriers to entry in this segment is evidenced by PTC's high and persistent market share and by the substantial and sunk investments that operators need to make in order to have a relevant presence in the same market covering, in general, rural and/or remote areas with limited demand which are therefore unlikely to generate the required return on the investment made in co-location and/or in the development of their

own network up to these areas.

- The operator networks are mainly located in areas where enterprise clients are located, in particular (and between) Lisbon, Porto and the main urban centres of the mainland, and competition mainly exists at the highest speeds (equal to or exceeding 2 Mbps). For this reason, the circuits on "Routes C" represented only about 10% of the lines contracted from PTC in 2008 by the alternative operators, when over 50% of PTC's loops are connected to these exchanges. This indicates that there are , in fact alternatives to PTC's leased lines offer on these routes.

- The main operators present in the leased lines wholesale market do not need to use PTC's offer to provide trunk segments on "Routes C", since they have their own infrastructure. Indeed, in 2008:

    - one of the co-located operators acquired only two end-to-end lines on these routes, and proceeded to acquire several part circuits (i.e., without trunk segment). The percentage of end-to-end lines acquired by the same operator was only 15% of the total number of lines contracted from PTC;

    - another of the co-located operators only acquired 26 lines from PTC with a capacity equal to or exceeding 2 Mbps, of which 9 were part circuits.

- Other entities providing dark fibre to operators[228], whereby some of these only use PTC to acquire leased circuits on an occasional basis.

- There are different wholesale prices due to different competitive pressures - Since the wholesale prices under the LLRO are fixed and independent of the geographic area (with the exception of routes on the Porto-Coimbra-Lisbon-Faro axis and CAM lines), PTC has offered Ethernet-supported lines at a reduced price in (and between) certain local exchanges where it has network nodes with this technology, coinciding in practice and to a great extent with those exchanges listed in **Annex I** (and which constitute the extreme nodes of the "Routes C").

- It is possible and likely that customers will switch suppliers, and, as already indicated, the major changes have been seen in the dynamics of the trunk segments wholesale market (on "Routes C"), whereas for some operators, PTC is no longer the main (but third or fourth or even not at all) supplier of leased lines, primarily on "Routes C". There are also no high barriers to switching in this market segment.

ICP-ANACOM is therefore of the position that the competitive differences found are such that there are grounds for identifying distinct geographic markets in respect of the trunk segments wholesale market. That is, from a regulatory standpoint, and from the outset, the consequence of

[228] As mentioned previously, **[SCI] [ECI]** are the main suppliers of dark fibre of more representative alternative operators.

defining a single national market - as in previous market analysis of 2005 - or different wholesale markets is no longer the same, since the competitive situation is not similar. This finding calls for a need for differentiation in terms of defining relevant markets subject to *ex ante* regulation and, ultimately, the imposition (or not) of regulatory obligations.

CAM, "backhaul" and international lines

As mentioned in section 2, submarine cables, which are used both for international lines and on the links to the Autonomous Regions of Azores and Madeira, can be used over large distances. The service of leased line access to the submarine cables of PTC (terminating in Sesimbra and Carcavelos) is called "*backhaul*". The lines (trunk segments) that connect mainland Portugal to one of the Autonomous Regions (Azores and Madeira) or which connect the Autonomous Regions to each other are called CAM lines[229].

It is considered that the competitive conditions that wholesalers face in gaining access to the CAM lines are more restrictive than those associated with other trunk segments included in "Routes NC" on the mainland, since there are no alternative offers to the current links to the Autonomous Regions of Azores and Madeira, nor is there any likelihood of such over the short and medium term, given the large investment required for the laying of (new) submarine cable[230]. That is, it is not technically and economically viable, either now or with any likelihood in the future, for alternative operators to extend their own transport networks from the Mainland to the Autonomous Regions or between the Autonomous Regions, even if they are co-located in exchanges in the region(s) for the provision of electronic communications services. The CAM lines therefore represent a virtually insurmountable "obstacle" to access to electronic communications networks and services in the Azores and Madeira.

The wholesale service of access to submarine cables ("backhaul"), provided by PTC for access, in particular, to the transmission lines supporting international traffic, comprises the secure ring connection, from the submarine cable landing point to a point on the terrestrial transmission network of the client operator[231]. The connection to the installations of the wholesale client operator consists of a trunk segment and, possibly, a terminating segment up to the operator's installations, whereby ICP-ANACOM is of the position that this connection is naturally included in the national leased lines wholesale market (each segment - terminal and trunk - in the respective wholesale market of terminating segments and trunk segments on "Routes NC"); also the connection in the referenced secure ring, since there are no alternative offers for access to submarine cable stations, is included in the wholesale market for trunk segments on "Routes NC".

The CAM lines and submarine cables access lines are supplied exclusively by PTC, and there is

[229] Lines CAM: Continente (mainland) - Azores - Madeira.

[230] Whereas satellite links are not real alternatives, especially for leased lines, due particularly to obvious capacity constraints.

[231] In the LLRO it is stated that " *the service of lines for access to submarine cables (backhaul) is comprised of the connection of a specific capacity to an international submarine cable system which connects one of the ECS of PTC (Sesimbra or Carcavelos) to an OSP POP, located in the national territory*".

no current possibility of implementing any alternative solution, i.e. there is a de facto situation of dominance in the provision of such lines. Any segmentation between trunk segments, CAM lines and submarine cable access would not bring any substantive change to the conclusions of the analysis of SMP on "Routes NC"; which include these circuits, and consequently, the obligations to be imposed.

Finally, with regard to international leased lines, it is noted that the demand for this type of retail line has remain subdued since 2005[232] and with a reduced weight in the total volume of lines, as well as in the volume of revenue. Moreover, it appears that the current competitive situation in international leased lines is substantially different from that of national leased lines, and the supply of these circuits is very diverse, since they are provided using the operators' own infrastructure (with various cross-border links in place) or under agreements or partnerships with established international operators.

In this respect, in the previous market analysis, this Authority did not consider international circuits as being relevant for the purposes of *ex ante* regulation, which position is maintained in the present analysis.

In conclusion:

- CAM lines are included in the trunk segment market of "Routes NC", which conclusion is not dependent on whether or not there are operators co-located in the Autonomous Regions;
- The submarine cable access lines of PTC are in the trunk market segment of "Routes NC";
- International lines are excluded from this market analysis.

4.2.4. Conclusion: Wholesale markets of terminating segments and trunk segments

As a result of the analysis conducted, ICP-ANACOM considers that the following markets for wholesale leased lines exist in Portugal:

- terminating segments of leased lines, irrespective of capacity and technology, covering the entire national territory;
- trunk segments irrespective of capacity and technology, consisting of "Routes C" - Market of "Routes C"; and
- trunk segments irrespective of capacity and technology, comprising the other routes -

[232] Data from responses to questionnaires regarding leased lines.

Market of "Routes NC"[233].

ICP-ANACOM takes the view that the factors considered in this analysis will not change over the short to medium term, prior to the next market definition and SMP analysis[234].

4.3. Analysis of relevant wholesale markets susceptible to *ex ante* regulation

4.3.1. Wholesale market for terminating segments

According to the ERG, the application of the "three criteria" test to the markets included in the Recommendation and which are susceptible to *ex ante regulation*, is not a prerequisite for the analysis of these markets, although the NRA may adopt this approach if they see fit.

Indeed, according to the "Explanatory Note "[235] the EC recognizes that for the relevant markets identified in the Recommendation there is a presumption for the NRA that the three criteria are met and therefore NRAs do not need to apply the test. However, the EC also states that it is open to an NRA to decide on any application of the test, if they see fit.

In general, according to the experience of the ERG regarding the first round of market analysis, and for the relevant markets identified by the EC, NRA have mainly focused on assessment of SMP (and not on the application of the "three criteria" test) to determine whether a particular market should be subject to *ex* ante regulation. Additionally, experience with this test also shows, again according to the ERG, that where the test and assessment of SMP is made, there is some overlap between the first criteria (entry barriers) and the second criteria (tendency to effective competition) and the elements considered in the assessment of SMP (since barriers to entry and potential competition are also evaluation criteria used in the assessment of SMP). In these circumstances, the ERG states that the level of detail required to implement the "three criteria" test has been below the level of detail required for the assessment of SMP.

Given that the wholesale market for terminating segments of leased lines is maintained in the Recommendation, and in light of the results of the analysis of SMP performed in 2005, ICP-ANACOM shares the view expressed by the EC and does not consider it necessary to perform both analyses at this time, dispensing with the application of the "three criteria" test to this market. (Detailed) analysis of SMP is conducted in the following chapter, Chapter 5.

[233] Including CAM lines and "*backhaul*".

[234] The next market definition is triggered as soon as: (1) a fact emerges which significantly alters the conditions of competition in the market or (2) as soon as the Recommendation is revised with respect to these markets, and/or (3) a period has elapsed of 24 months.

[235] See § 2.2, page 11.

4.3.2. Wholesale market for trunk segments

In the "Explanatory Note", the EC gives its reasons for having removed the old Market 14 from the list of relevant markets, explaining that in the majority of Member States, development has been seen in alternative transport infrastructure, particularly on main routes, suggesting that barriers to entry to the market of trunk segments are reduced, whereby there is a tendency towards the existence of competition with the incumbent operator, and in some cases barriers have even been eliminated enabling effective competition in this (or in parts of this) wholesale market.

Meanwhile, the EC also recognizes that on a significant number of routes, particularly on smaller capacity routes, it may not be possible for alternative operators to compete with the incumbent operator, i.e., these routes are served by a single operator and it is unlikely that other operators will enter. In this respect, the EC considers that the NRA may be able to demonstrate that the market for trunk segments, or a part thereof, shall continue to meet the "three criteria" and be subject to *ex ante* regulation.

According to the ERG, the onus of proof that the "three criteria" test is met, and, consequently, for the maintenance of a relevant market included in the previous Recommendation but not in the current Recommendation, should be less than the requirement for defining a market as relevant when this market has never been included in the Recommendation. This is because the EC's reasoning for the justifying the removal of a previously regulated market from the Recommendation might not be valid for a given Member State, where the competitive situation in the market may be more in line with the situation identified in the first round of market analysis.

In this respect, and in light of the arguments above, it is important to apply, as was performed in Chapter 3 with respect to the retail market, the "three criteria" test to both the wholesale markets for trunk segments identified above: the market of "Routes C" and the market of "Routes NC".

It should again be noted that the criteria are cumulative and, therefore, must be applied in conjunction. It can only be concluded that the relevant market is susceptible to *ex ante regulation* if all three criteria are met.

4.3.2.1. The market for trunk segments consisting of "Routes C"

Criterion 1 - Presence of high and non-transitory barriers to entry

From the outset, there are no legal, administrative or regulatory barriers to entry into the market of "Routes C".

Regarding the persistence of high structural obstacles to entry and to the development of competition, according to the Recommendation, it is important to examine the "*market structure, market performance and market dynamics, including indicators such as market shares and*

trends, market prices and trends, and the extent and coverage of competing networks or infrastructures".

In its decision of 8 July 2005, ICP-ANACOM concluded that there was no justification to define separate geographic markets for the routes on the Porto-Faro axis "set of trunk segments Lisbon-Oporto, Lisbon and Coimbra-Lisbon-Faro" and for the remaining trunk segments. Indeed, if a geographic market had been defined for the routes on this axis, PTC's market share in revenue in this market would be similar (lower by only 7.2% in 2004) to the market share of all trunk segments, which did not allow it to be affirmed, from the perspective of this indicator, that the conditions of competition on these routes were sufficiently homogeneous and distinct from other trunk segments.

However, PTC's market share by volume of leased on these routes was then much lower (less than 40%) than its share in revenue terms, due to there being a large number of 2 Mbps lines provided by alternative operators (many more than the number of the same type of lines provided by PTC), for which revenues were much lower than for higher-capacity lines.

However, there is now a higher propensity to enter the market at the level of higher capacity circuits, enabling greater profitability. As already noted, the alternative operators are more interested in offering lines with capacity equal to or exceeding 2 Mbps, where the potential return is higher than for lower-speed circuits, whereby these routes are included in the group of trunk segments where operators and the utilities make most investment and provide greater capacity, i.e., "Routes C".

The main barriers to entry identified by ICP-ANACOM in the previous market analysis were associated with Grupo PT's control of the largest leased lines support network. Sunk costs, which in the case of leased lines are extremely high, constitute an important structural barrier to entry. Indeed, it was not and continues not to be economically viable for new entrants to replicate PTC's entire optical fibre transport network, whereas the significant economies of scale and scope associated with this network should also be taken into account.

All these barriers were considered high and non-transient, whereas it was not deemed likely that, within a reasonable period of time, such barriers will be reduced, even while, in the decision of July 2005, "*ICP-ANACOM recognised that there are lower barriers to entry and expansion, especially on some specific segments (including routes), and there is some evidence which points to the emergence of some potential competition*". ICP-ANACOM has acknowledged that there are several organizations whose networks have replicated the coverage of the incumbent operator with respect to certain trunk segments, specifically on the axis referred to above.

It should be noted however that, since the last market analysis, a change has been seen in the competitive dynamics, especially on the "Routes C" with the entry of new providers and their expansion (as well as the expansion of the operators already present) in this segment. This is especially true of those providers that offer LLU-based services and which are co-located in a large number of PTC local exchanges, to which they have extended their own optical fibre network.

OniTelecom and Sonaecom, the main alternative wholesalers, have been actively present in the market, developing their network infrastructure, including transport networks, up to the local exchanges where they are co-located. Note should also be made of the presence of other operators in this market, such as COLT (especially in terms of lines with capacity exceeding 2 Mbps, but with network essentially in Lisbon and Porto).

According to the information given above, on specific trunk segments, primarily on the trunk segment between Lisbon, Porto, Coimbra and Faro, and between various local exchanges in major cities and district capitals of the mainland- i.e., "Routes C" - there are several players present and high capacity available, primarily for their own use, but also used for the resale of wholesale and retail leased lines.

Apart from a greater concentration of supply of capacity by major operators of the national market on these "Routes C", the presence is also observed of operators whose shareholders are (concessionaire) companies of public interest services, such as ReferTelecom[236] and, additionally, of utilities such as EDP or REN, which also have an extensive network of optical fibre and/or ducts leased to operators on these routes. While they may not directly provide the leased lines service, they provide services at the level of optical infrastructure (including dark fibre), also contracted by operators to complement their transport networks, while reducing or even eliminating the need of these operators to make use of PTC's leased lines offer on these routes.

In fact, in section **4.2.3.2** the optical fibre networks of various organizations and the suppliers of dark optical fibre are identified, with details of the extent of fibre supplied to third parties and the number of customers of each supplier. This information leads to the conclusion that the dark fibre market, which exists mainly on "Routes C", has some competitive dynamics in this specific segment, and the existence of alternative suppliers of dark fibre and the volume of dark fibre supplied indicates that there are no barriers to entry in the market for trunk segments of leased lines on "Routes C".

It should be noted, moreover, that in terms of available own infrastructure (its large scale and, to a lesser extent, scope), given the specific conditions of these links and for a section with the same distance, the average cost associated with leased lines on "Routes C" is comparatively lower than the average cost of supplying a trunk segment on "Routes NC", which typically have a smaller scale, i.e., lower demand and supply capacity.

Additionally, the current trend of migration from low-capacity circuits to higher- capacity circuits can be easily satisfied through the procurement of leased lines from alternative operators, which currently have access to the same technology as the incumbent operator, allowing them to offer high-speed lines and long distances, with reduced additional cost, for example using technologies such as DWDM.

This is possible because, in the specific case of "Routes C", it is feasible to replicate the offer of

[236] ReferTelecom currently has a notable position at the level of 2 Mbps lines.

wholesale leased lines (of trunk segments) of the incumbent operator. Indeed, the alternative operators have access to basic physical infrastructure (some have already built their own optical fibre network) and to the latest transport technologies (e.g. DWDM and Ethernet), whereas some smaller operators have supplied wholesale leased lines to PTC itself.

In this context, the presence of various operators with transport networks and wholesale offers which provide an alternative to those of PTC has led to a situation where there are various operators for whom the incumbent operator is no longer the main supplier of trunk segments. According to information compiled from operator questionnaires, there are operators which in 2008 acquired less than 25% of their wholesale leased lines requirements from PTC. Since most of these circuits comprise terminating segments, where, in practice there is a lack of alternative to PTC's offer, then it may be considered that certain operators make practically no use of trunk segments - obviously on "Routes C", as the routes which essentially connect the areas where they are deployed - of the operator.

The barriers to entry and expansion, still evident in most of the terminating segments and trunk segments of leased lines on "Routes NC", no longer exist in the market comprised of "Routes C".

It should also be noted that on "Routes C", alternative operators also have access to dark fibre from other entities (e.g., from utilities or even other players, including PTC[237]), allowing them to expand their transport network and therefore their offer of leased lines trunk segments on these same routes.

In fact, a high percentage of lines leased by Sonaecom or OniTelecom from PTC are part circuits (in this case, terminating segments connected to local exchanges where Sonaecom/OniTelecom is co-located), suggesting that these alternative operators already have trunk segments to complete them.

That is, on "Routes C" most operators already have their own transport network infrastructure, supported by their own optical fibre or leased from third parties, whereby, in practice, this wholesale market is actually less "active" and of a size which is less relevant[238] (In addition to the satisfaction of the internal needs of the companies of Grupo PT by PTC) [239].

This fact also enabled a decline in the high market shares of Grupo PT in the previous wholesale market of trunk segments (of national scope), albeit a slight decline, over the period now under review - from 2006 to 2008[240] -, another fact which is relevant to the analysis of this criterion.

This is substantiated by the information provided to ANACOM in the specific questionnaires for

[237] Which has a commercial offer of optical fibre to operators.

[238] In practice, the offer on these routes is partly targeted at certain special cases, such as more complex projects or projects integrated into a converged offering, or for smaller operators who lack their own network and particularly require capacity on the route(s) in question.

[239] It should be noted that the main beneficiaries of the wholesale offer of PTC are the actual companies of Grupo PT, including TMN and PT Prime.

[240] PTC reaching a share, in revenue terms, of about 66% at the end of 2008.

this analysis and by detailed information on the trunk segments provided by PTC to alternative operators. Based on this information, and assuming that all the leased lines provided by alternative operators in the wholesale market consist of trunk segments on "Routes C" (where they have infrastructure), the market share of PTC in 2008, in terms of volume, would be about 35%. This is, accordingly, a clear indicator of a strong competitive dynamic in the market of "Routes C" and of an absence of barriers to entry and to expansion.

Nevertheless, in this analysis, market share may not be the most important indicator, since most of the demand for wholesale leased lines is satisfied internally within Grupo PT and the demand of some operators is also satisfied using their own networks.

Indeed, the volume and the percentage of lines on "Routes C" leased from other operators is very small compared to the total volume of trunk segments and has even been falling in recent years[241]:

Table 6 - Volume of trunk segments provided by PTC to other operators

Trunk segments - Volumes	***Totals***	***Routes C***		***Routes NC***	***Total Routes***	***Segments at exchange***
Total (up to 2008) – Excluding internal supply	14989	1944	13.0%	7428	9372	5617
2006	2241	315	14.1%	1102	1417	824
2007	1974	283	14.3%	899	1182	792
2008	2510	253	10.1%	1404	1657	853
Total 2008 – Including internal supply	42113	4.6%				

Furthermore, in 2008, the percentage of trunk segments deployed on "Routes C", compared to total deployments, was only 10.1%. At the end of the same that year, the percentage of trunk segments on "Routes C" contracted by other operators was only 4.6% of the total number of trunk segments in service (including PTC's internal provision).

Finally, it is noted that, according to monthly data from PTC, the volume of trunk segments contracted by other operators from PTC declined by 12% between 2006 and 2008, while for the companies of Grupo PT supplies increased by 30%. This suggests that the operators have less need to make use of PTC's offer, since they have alternatives (including their own network) on certain routes. Meanwhile, in the same period, the terminating segments supplied by PTC to other operators increased by 18%.

As such, in the light of:

[241] Contrary to the number of lines on "Routes NC", which has increased.

- availability of own optical infrastructure (or contracted from third parties, such as from certain utilities substantially reducing the impact of sunk costs, economies of scale and difficulties in the replication of infrastructure) on "Routes C";
- high transport capacity available on "Routes C"
- entry of new entrants in this particular segment, thereby strengthening the negotiating power of buyers;
- expansion of the wholesale offer of alternative operators on "Routes C";
- reduced demand (which has also been decreasing) for trunk segments on "Routes C" from other operators; and
- small market share of PTC (less than 40%) in this market,

it can be affirmed that there are no high and non-transitory barriers to entry in market of "Routes C". Looking to the future, it is likely that this conclusion will remain unchanged, since the investment required in this type of infrastructure is long term.

As such, ICP-ANACOM considers that the market comprising "Routes C" fails the first criterion for defining a relevant market susceptible to *ex ante* regulation.

Since the three criteria are cumulative, the fact that the first is not met automatically implies the failure of the whole test. Nevertheless, there will be a brief analysis of the two remaining criteria.

2nd Criterion - Tendency of the market towards effective competition

According to the EC, on routes where alternative operators have invested sufficiently in infrastructure, there is a tendency towards the existence of competition with the incumbent operator.

As mentioned above, and with respect to the dynamic aspects of the market analysis, if the market characteristics lead to effective competition over a relevant time horizon, without the need for *ex ante* regulatory intervention, the second criterion is not fulfilled. The application of this criterion involves the prospective examination of the competition situation behind the barriers to entry.

From a prospective point of view, ICP-ANACOM expects this trend of concentration of traffic on these routes to continue or even grow, as will the offer of alternative infrastructure by fixed network operators and utilities, making it likely that the strong competitive dynamics in the market of "Routes C" can be maintained or might even increase.

Indeed, it is expected that, in the context of NGA, large investments will take place in optical fibre networks, especially in access, but also in terms of the transport network, which needs to be connected to these next generation access networks. It is natural that the extension of optical

fibre networks and of the transport network will allow an extension of the offer of trunk segments by alternative operators (who have decided to invest in NGA), primarily on "Routes C" and possibly over the longer term, even in certain trunk segments currently comprised by "Routes NC".

The intention of various entities to expand their transport networks, in particular in support of new offers enabled by NGA, is therefore a clear indicator of the strong competition dynamics in the markets for trunk segments, a clear indicator of the market's tendency towards an increase in effective competition.

It is also considered that the market of "Routes C" does not meet the second criterion for defining a relevant market susceptible to *ex ante* regulation.

3rd Criterion - Insufficiency of competition law

It is concluded that, and also given the lack of dominance of one company in the market of "Routes C", there is no need for *ex ante* regulation, whereby competition law is sufficient to ensure effective functioning of the market for wholesale leased lines of "Routes C", and so the third criterion is also not met.

4.3.2.2. The market for trunk segments consisting of the "Routes NC"

The EC recognizes that on a significant number of routes, especially routes with less capacity, alternative operators may not be able to compete with the incumbent operator, and such routes will be served by this (single) operator. In this respect, the EC considers that the NRA may demonstrate that (part of) the market for trunk segments will continue to meet the "three criteria" and be susceptible to *ex ante* regulation.

1st Criterion - Presence of high and non-transitory barriers to entry

At the outset, there are no legal, administrative or regulatory barriers to entry into the market of "Routes NC".

Regarding the persistence of high structural obstacles to entry and to the development of competition, according to the Recommendation, it is important to examine the "*market structure, market performance and market dynamics, including indicators such as market shares and trends, market prices and trends, and the extent and coverage of competing networks or infrastructures*".

ICP-ANACOM recognized, as previously stated, the existence of several entities whose networks have already replicated the coverage of the incumbent operator's network at the level of certain trunk segments, specifically on "Routes C".

To the contrary, and as discussed above, in the set of trunk segments that constitute "Routes NC",

in general, there are no alternative wholesale operators with networks or offers which enable them to compete with leased line services of the incumbent operator. That is, on "Routes NC" only the incumbent operator[242] is currently present with the offer of trunk segments, as the only operator with a transport network[243].

According to available information on the development of the operators' networks, since the last market analysis, no substantial change has been seen in the competitive dynamics of this market and there were no entries by new providers into this market.

In the previous market analysis, ICP-ANACOM identified the main barriers associated with Grupo PT's control of the largest leased lines support network. Sunk costs, which in the case of leased lines are extremely high, constitute an important structural barrier to entry[244]. It will not be (and it is not) economically viable for new entrants to replicate PTC's entire transport network - for this purpose, the network supporting the trunk segments between the majority[245] of the PTC local exchanges -, whereas the significant economies of scale and scope associated with the optical fibre transport network should also be taken into account.

All these barriers were considered high and non-transitory, since it is unlikely that they will diminish over a reasonable period of time. In fact, for the set of trunk segments that constitute the "Routes NC", entry barriers remain high and there have been no recent relevant entries (nor are any expected in the short term). Indeed, the number of local exchanges with co-located operators has been growing at an increasingly slowing rate, and has now levelled off, especially in terms of the number of local exchanges with two or more co-located operators.

This is because in the specific case of “Routes NC", it remains, in practice very difficult to replicate the physical infrastructure of the incumbent operator and the alternative operators do not have (easy) access to alternative optical fibre infrastructure and therefore cannot extend their transport networks to these routes on an economically viable basis.

It should be noted that in practice, there is no optical infrastructure (dark fibre) providing an alternative to PTC. Additionally, the fact that there may be dark fibre "parallel" to a particular route, does not mean that this fibre is easily accessible to alternative operators from any local exchange sited on this route. Indeed, there may be no access points (optical nodes) to the infrastructure in the vicinity of a given exchange and even where there are access points, it will be still be necessary to connect this access point to the infrastructure of the operators (including

[242] Or, in a very limited number of situations, only this undertaking and one alternative operator. However, the existence of any "duopoly" in the provision of trunk segments on these routes cannot be considered *a priori* as a guarantee of effective competition in the provision of services.

[243] Although there may be alternative optical networks of limited extent on certain sections (including of utilities) but not used by the wholesale operators present in leased lines markets.

[244] A potential entrant will want to bear such investment costs if these are likely to be recovered, along with the costs of production, as a result of the revenues achieved. The incumbent operator (who has already made its investments) can there exploit this asymmetry signalling to the potential entrant that if it decides to initiate an activity in this market, prices will be too low to cover sunk costs. As such, entry is discouraged.

[245] Except, obviously, the trunk segments included in the market of "Routes C"

making use of a PTC terminating segment, with added costs)[246].

It should be noted that, in light of the specific conditions of the "Routes NC" at the level of available own transport infrastructure - i.e., its smaller scale, resulting from lower demand and traffic to be supported - the cost associated with the offer of lines on these routes will be comparatively higher than the cost of supplying a trunk segment on "Routes C". In addition, many of these trunk segments connect local exchanges located in areas of lower population and business density and/or in more remote areas (with more difficult access).

As such, in the light of:

- limited or no availability of optical fibre (dark fibre) and transport infrastructure on most trunk segments on "Routes NC", which link less densely populated areas and/or more remote and inaccessible areas;
- absence of entry of (at least two) alternative operators in this specific segment and another with the capacity to provide the leased line service on these routes at any time;
- lack of wholesale offers of alternative operators on "Routes NC"; and, as a consequence,
- high market share of Grupo PT, reaching in practice nearly 100% in the market of "Routes NC",

it is reasonable to assert that barriers to entry remain high and non-transitory in the market of "Routes NC". Looking to the future, it is likely that this conclusion will remain unchanged, given recent developments, especially since the expansion of the alternative offer is more concentrated on "Routes C" and on terminating segments (e.g. optical fibre access network) and, crucially, given the fact that the investments necessary to build infrastructure on these routes are very large.

As such, ICP-ANACOM considers that the market of "Routes NC" fulfils the first criterion for defining a relevant market susceptible to *ex ante* regulation.

Since all three cumulative criteria, the fact that the first criterion is fulfilled does not automatically imply fulfilment of the whole test. The two remaining criteria will be examined.

2nd Criterion - Tendency of the market towards effective competition

It has already been recognised that there has been construction of parallel network infrastructure, but essentially on the main routes, that is on "Routes C". From a prospective point of view, ICP-ANACOM deemed it likely that this trend towards concentration of traffic on these routes will be

[246] See, for example, the case of ReferTelecom where:
- optical fibre infrastructure does not exist along the entire length of the "railway" lines; and
- when this infrastructure exists, the network access nodes are only available at certain stations, which, particularly outside major cities, are located a significant distance from local exchanges.

maintained or even expanded, and likewise the provision of alternative infrastructure by fixed network operators and utilities.

Indeed, investments in optical fibre networks which are expected going forward in the context of NGA, especially in access, but also at transport network level, may allow an extension of the offer of trunk segments by alternative operators which have decided to invest in optical fibre; but fundamentally such investment will be associated with links between the main local exchanges (especially Lisbon and Porto), already included in the market of "Routes C" (see **Annex I**).

Accordingly, ANACOM takes the view that a significant number of routes - links between local exchanges which are small and/or located in remote areas and areas with lower economic activity, "Routes NC" - will continue to be served over the short and medium term only by the incumbent operator (or, at most and on a very narrow set of routes, by one other operator), since it is not expected that alternative operators will be able to compete in the leased lines market with the incumbent across the entire national territory.

Given that in most cases the incumbent operator is the only operator present in the market of "Routes NC", i.e. the only operator with transport network on these links, in practice, the shares in terms of volume and revenue of Grupo PT in the same market are 100%. There is no intent among other undertakings to expand their transport networks (even to support new NGA-based offers) in order to offer wholesale leased lines services on these routes, and any expansion would be slow. As a result, the share of Grupo PT in the market "Routes NC" will approximate 100% over the medium term and, according to expectation, until the next market analysis, resulting from a lack of competitive dynamic in the trunk segments market; this is a clear indicator of that the market does not have a tendency towards effective competition.

It is therefore considered that the market for "Routes NC" also fulfils the second criterion for defining a relevant market susceptible to *ex ante* regulation.

3rd Criterion - Insufficiency of competition law

ICP-ANACOM acknowledges that there have been frequent and/or urgent requests for intervention in the market. However, this is because currently there are *ex ante* obligations imposed on Grupo PT, as undertaking with SMP in the wholesale trunk segments markets (which to date includes all segments, including those of "Routes C" and "Routes NC"), and not because the competition law is sufficient to resolve any disputes.

This Authority also considers that, in the future, developments in the wholesale market of "Routes NC" which will change Grupo PT's position of economic power are unlikely. That is, on these routes there are no effective alternatives to the offer of the incumbent operator, which is able to act completely independently of other wholesaler operators, customers or potential competitors, because these are unable to provide the same type of service.

It is concluded that, given the dominance of one company in the market of "Routes NC", supported by market share close to 100% as well as the maintenance of high barriers to the entry

and expansion of operators, there is no likelihood of potential competition. As such, it is deemed necessary to have *ex ante* regulation, since competition law is insufficient, by itself, to resolve the problems of the market.

In this context, competition law will not suffice to ensure effective functioning of the market for wholesale leased lines of "Routes NC", also fulfilling the third criterion[247].

4.3.2.3. Conclusion

In conclusion, and as a result of this analysis, ICP-ANACOM takes the position that significant and insurmountable barriers to entry and to expansion persist in the offer of trunk segments on "Routes NC", whereby this market does not exhibit a tendency towards effective competition and is considered uncompetitive. In addition, it is considered that competition law is not sufficient to overcome the failures of this market.

This conclusion is in line with the position taken by the EC, as outlined above, that while competition law can address the market failures on routes with greater capacity, it is unrealistic to resort to this law on its own when the number of routes with no alternative supplier remains high.

Furthermore, in the absence of *ex ante* regulation, there is significant risk that the incumbent operator may provide transit segments on "Routes NC" in a discriminatory manner, which will reduce competition in downstream markets.

Accordingly, the position is taken that, in Portugal, "NC Routes" constitute a relevant market subject to *ex ante* regulation.

ICP-ANACOM considers that the factors considered in this analysis will not change over the short and medium term, before the next market definition and SMP assessment is conducted.

4.3.3. Conclusion: relevant wholesale markets susceptible to *ex ante* regulation

According to the analysis conducted, ICP-ANACOM concluded that the following markets are relevant wholesale markets susceptible to *ex ante* regulation:

- Market 6: terminating segments of leased lines, irrespective of capacity and technology, covering the entire national territory - hereafter designated as terminating segments;
- Market 8: Trunk segments of leased lines, irrespective of capacity and technology, consisting of "Routes NC" - hereafter designated as "Routes NC".

[247] Despite considering that competition law can address the market failures on routes with less capacity, the EC deems that it is unrealistic to resort to this law on its own while the number of unduplicated routes (with no alternative supplier) remains high.

5. SMP ASSESSMENT IN THE WHOLESALE MARKETS OF TERMINATING SEGMENTS AND TRUNK SEGMENTS ON "ROUTES NC"

After identifying the relevant markets, an analysis is conducted in order to determine whether or not they are competitive, and, if they are not competitive, to identify the operator(s) with SMP.

According to art. 60, paragraph 1 of the ECL (Art. 14. of the Framework Directive) "*an undertaking shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and consumers*".

SMP may be held by only one company in the market (single dominance) or by more than one entity (joint dominance)[248].

In the assessment of SMP in the wholesale markets of leased lines, as in the previous market analysis, ICP-ANACOM took the Guidelines (§19) into utmost account, assessing "*whether competition is effective. A finding that effective competition exists on a relevant market is equivalent to a finding that no operator enjoys a single or joint dominant position on that market*".

In the same document (§ 20), 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 is relevant to the developments in that market in the foreseeable future*".

In the Guidelines, the EC presents market shares as an indicator of market power[249].

However, it also states that the existence (or absence) of a dominant position cannot be established on the sole basis of large (or small) market shares, whereby the NRA should make use of other criteria. The various criteria include the following:

[248] Additionally, where an undertaking has SMP in a specific market, it may also be deemed to have SMP in an adjacent market, where the links between the two markets are such as to allow the market power held in one market to be leveraged into the other market, thereby strengthening the market power of the undertaking (SMP leveraging).

[249] In administrative practice of the EC, concerns (and decisions) in respect of situations of individual dominance normally arise in cases of undertakings with market shares exceeding 40 percent

- overall size of the company;
- barriers to entry and expansion;
- control of infrastructure which is not easily replicable;
- technological advantage or superiority;
- countervailing buying power;
- easy or privileged access to capital markets/financial resources
- diversification of products/services;
- economies of scale and/or economies of scope;
- vertical integration;
- highly developed distribution and sales network;
- absence of potential competition; or
- barriers to expansion,

whereas a dominant position can derive from a combination of these criteria, which taken separately may not necessarily be determinative.

On this issue, the ERG published a document[250], where other criteria are developed for evaluating SMP:

- excessive pricing;
- ease of market entry;
- costs 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;

[250] "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).

- Price trends and pricing behaviour; or
- *international benchmarking*.

5.1. Single dominance in the wholesale markets of terminating segments and trunk segments on "Routes NC"

5.1.1. Criteria used in the assessment of SMP on the wholesale markets

In the view of ICP-ANACOM, and without prejudice to criteria, the most relevant criteria in the evaluation of the wholesale markets for leased lines continue to be the following:

- market shares and company size;
- barriers to entry and to expansion (including control of infrastructure which is not easily duplicated, economies of scale and scope and vertical integration);
- rivalry;
- potential competition;
- countervailing power.

As noted, the existence of a dominant position cannot be based solely on market share. Therefore, a thorough and overall analysis must be made of the economic characteristics of the relevant markets before reaching a conclusion as to the existence of SMP.

In order to conduct such an economic analysis of the market, ICP-ANACOM successively examines the degree of competition among the installed companies, the degree of potential competition and the countervailing power of buyers.

The remaining criteria are considered less relevant in this assessment of SMP, since the view is taken that any impact on the analysis would be limited[251].

[251] For example, "Highly developed distribution and sales network" - the services under analysis are acquired only at wholesale level only, therefore do not call for a complex and specialized distribution and sales network, "excessive pricing" - while it may support the conclusion existence of SMP, this criterion does not, however, constitute a prerequisite for its existence Additionally, there is no evidence of excessive pricing in the relevant markets under analysis, because they have been subject to regulation by ICP-ANACOM. However other criteria are addressed in context of economies of scale and/or scope and are therefore not analyzed separately.

5.1.2. Market shares

The present analysis begins with the calculation of market shares. In this way, and at a first stage, potential SMP operators are identified.

It should be noted that in the Commission's decision-making practice, single dominance concerns normally arise in the case of undertakings with market shares of over 40 percent. However, it is possible that there are situations of dominance even with lower market shares or cases where undertakings have higher market shares but are not regarded as dominant[252]. In any case, according to the EC, except in exceptional situations, undertakings with market shares exceeding 50% are deemed to be dominant[253].

Also according to the EC[254], "*As regards the methods used for measuring market size and market shares, both volume sales and value sales provide useful information for market measurement. In the case of bulk products preference is given to volume whereas in the case of differentiated products (i.e. branded products) sales in value and their associated market share will often be considered to reflect better the relative position and strength of each provider.* ".

Currently, PTC is, in practice, the only wholesale supplier of terminating segments in the entire territory and of trunk segments on "Routes NC", through its wholesale leased line offers - essentially the LLRO reference offer and the Ethernet offer. It should be noted, as mentioned above, that a large proportion of lines supplied by alternative operators to customers is dependent on terminating segments and trunk segments leased from PTC, given that the transport and access network infrastructure of these operators continues to have limited coverage, as set out above.

The market share of Grupo PT, both in terms of volume and revenue, has remained very close to 100% in the case of terminating segments and trunk segments on "Routes NC", regardless of transmission capacity, technology or their geographical location.

Specifically, Grupo PT's market share of terminating segments, in terms of revenue and volume between 2006 and 2008 was[255], always in excess of 90%[256]. In this context, it is important to

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[252] In the Guidelines, the EC presents the market shares as an indicator of market power, whereas it is unlikely that firms with a market share below 25% will have a dominant position in the market in question.

[253] See Guidelines, § 75.

[254] See Guidelines § 76. Also according to the EC (see Guidelines § 77), "*leased lines revenues, leased capacity or numbers of leased line termination points are possible criteria for measuring an undertaking's relative strength on leased lines markets*".

[255] Market shares were calculated based on data provided by answers to questionnaires from 2006, 2007 and 2008.

[256] In the previous market analysis of 2005, internal supply was considered in the calculation of market shares in the same market of terminating segment, both the internal supply of Grupo PT as well as alternative operators (e.g. Sonaecom), according to information submitted by operators. Additionally, in some cases, there was some difficulty in separating the data referring to the terminating segments from data referring to trunk segments (some operators do not have disaggregated data and only provide overall figures for "wholesale leased lines"). In any case, both in the previous analysis, as in the present analysis, any changes to the data of the alternative operators and/or supply considered internal does not alter the conclusions of the performed assessment of SMP, given the very high level of Grupo PT's market share. Internal supply is not considered in this analysis for purposes of calculating market shares, with each operator's own network having been considered for the purposes of the actual definition of the market and the analysis of the three criteria.

mention some additional data regarding the market for terminating segments:

- The volume and revenues of PTC, as well as of the total market, have remained relatively stable (albeit with a few, small, oscillations) since the previous market analysis.

- In fact, a decline in volume has been reported in terminating segments provided by PTC to alternative operators since 2006, but, in terms of equivalent and/or total leased capacity[257] this is not case, with relative stability reported with respect to this parameter. This results from increasing substitution of (a larger volume of) low-speed lines by (a lesser volume) of higher speed lines (e.g., 100 Mbps, 155 Mbps or 1 Gbps).

- If, as an unlikely example, all the lines supplied by alternative operators in the wholesale market were considered (usually no distinction is made between terminating and trunk segments) as terminating segment[258], Grupo PT's share in this conceptual market would be even higher at 88%.

- If in this latter situation, the wholesale supply by PTC to the companies of Grupo PT (internal supply) were also excluded from consideration, PT Group's share of that conceptual market of terminating segments would still be about 65%.

- Finally, and also as an unlikely example, if all the lines supplied by alternative operators in the wholesale market were considered as terminating segments concentrated only in the Lisbon area, Grupo PT's share (in Lisbon) would still exceed 50%.

In this context, and in light of this exercise (of a conceptual unlikely example) with respect to market shares in a conceptual wholesale market, the magnitude of Grupo PT's dominance in the market of terminating segments of leased lines is clear.

Regarding the trunk segments of "Routes NC", it is not possible to determine the value of Grupo PT's market share, but it is considered that it is likely very close to 100%, since on vast majority of these routes Grupo PT is the only supplier of such circuits. In this market, in dozens of PTC local exchanges, there is a single alternative wholesale operator (co-located)[259] whereas in the remaining PTC local exchanges, there is no alternative to the offer of leased lines by Grupo PT.

In this context, the market shares of PTC in both relevant wholesale markets are close to 100%, since, in practice, PTC is the only supplier of wholesale leased lines irrespective of whether or not internal supply (of Grupo PT or of the alternative operators) is considered. Indeed, the alternative operators do not have optical fibre infrastructure or their own transport network in the

[257] Equivalent capacity can be measured in number of circuits equivalent to 1 Mbps (or 64 Kbps, low-speed lines) For example, a line of 34 Mbps is equivalent, in this context, to 34 lines of 1 Mbps.

[258] A overwhelming majority of wholesale lines supplied (excluding resale) by these operators will be on "Routes C" (where they have transport infrastructure).

[259] Whereas the majority of these local exchanges are sited in urban areas of relatively low population and business density, especially when compared with the areas linked by "Routes C" (and in some of these the co-located operator is Vodafone which is not currently in this leased lines market).

areas covered by these markets, that is, both on the access network (terminating segments), save certain sporadic exceptions, and on the majority of routes between local exchanges, particularly those where they are not co-located ("Routes NC"). In this context, in the absence of supporting infrastructure, they are not able to provide capacity internally nor obviously able to supply leased lines to third parties.

In conclusion, in any of the markets (terminating segments in the entire territory and trunk segments on "Routes NC"), Grupo PT, which is effectively the only relevant wholesale operator, has a market share far in excess of 50% - clearly above the 40% threshold which has been used in EC decision-making practice as the limit above which it considers that there are concerns as to situations of dominant position -, whereas there is no situation considered exceptional which, with respect to this criteria, justifies not identifying SMP on the part of this Group in the two markets under analysis.

5.1.3. Competition among installed companies: Barriers to entry and to expansion and rivalry

ICP-ANACOM then examines the degree of competition among companies installed in the wholesale market of terminating segments in the entire territory and trunk segments on "Routes NC", taking into account the existence of barriers to entry and to expansion and rivalry between companies.

5.1.3.1. Economies of scale and/or scope

The incumbent operator benefits from strong economies of scale at the wholesale level, due to high levels of fixed costs in providing terminal segments (construction of local network infrastructure, including copper cables and optical fibre) and trunk segments (construction of infrastructure and optical fibre cables over long distances with provision of very high transport capacity). In addition, the incumbent operator, given the diversity of services it provides and which are supported on their own network, benefits from obvious economies of scope. Accordingly, after incurred costs, the marginal cost of providing additional capacity or circuitry over the same structure is relatively small. Further economies of scale are also achieved by the incumbent operator through equipment installed in their exchanges, whereas their costs do not increase substantially with capacity. That is, as the number of customers/lines supported by the equipment increases, unit cost per customer/line tends to decrease.

As such, given the scale and configuration of its network and all else being constant, the incumbent operator benefits from unit costs which are below those of its competitors.

It is also noted that it is likely, according to the ERG[260], that the development of new networks (including access) in optical fibre provides increased economies of scale and scope in the respective markets.

ICP-ANACOM takes the view that the incumbent operator, due to the high volume of capacity and of traffic on its network, is in a better position compared to other operators to exploit economies of scale and scope as a significant competitive advantage in terms of costs associated with the markets of terminating segments throughout the national territory and trunk segments on "Routes NC"[261].

5.1.3.2. Infrastructure which is difficult to replicate

The access and transport networks of the incumbent operator have universal coverage of the territory and allow it to provide terminating segments throughout the national territory and trunk segments on "Routes NC" at a normally low marginal cost.

For most terminating segments (as well as trunk segments), with speed equal to or less than 2 Mbps (and shorter length, especially in Lisbon and Porto), the network supporting the wholesale offer is, in large part, PTC's access network of copper pairs, as the most efficient means for its provision.

With respect to the trunk segments on "Routes NC", ICP-ANACOM has acknowledged that the current coverage provided by optical fibre networks make it impossible, in practice, for any alternative operator to replicate all the routes (between PTC local networks) covered by this market. According to available data, the alternative operators active in the wholesale market for leased lines have not, except in very specific cases, invested in terminating segments, having invested only in a relatively small number of trunk segments, primarily on "Routes C".

ICP-ANACOM therefore considers that it is not economically feasible for any alternative operator to replicate the incumbent's network, either in terms of terminating segments or in terms of trunk segments covering "Routes NC". This constitutes an insurmountable barrier to entry and to expansion in these markets.

5.1.3.3. Vertical integration and/or exclusivity agreements

Grupo PT make use of its own wholesale offer of terminating segments and trunk segments to be able to offer the leased lines service at retail level and to support other services of the Group.

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[260] See "Report on Next Generation Access - Economic Analysis and Regulatory Principles", available at http://erg.eu.int/doc/publications/erg_09_17_nga_economic_analysis_regulatory_principles_report_090603_v1.pdf.

[261] Under this analysis it is important to gauge the existence of significant sunk costs. However, only the incumbent operator will have incurred sunk costs, whereas the majority of operators providing wholesale leased line services have not yet invested in capacity to provide these services, not supporting sunk costs in this respect. These operators are not in a position to expand their activities to other customers without incurring significant sunk costs.

This internal demand, which is planned and has high volume, allows the incumbent operator to benefit from large economies of scale and to invest in the development of its networks with a level of risk which is far lower than that of its competitors.

5.1.3.4. Rivalry: pricing, profitability, offer innovation and degree of diversification in the resources used

ICP-ANACOM has analyzed the evolution of prices since 2006, naturally considered in the light of the impact of regulatory decisions in this context, concluding that there is no evidence that Grupo PT sets, or has set in the past, its prices in response to price changes effected by its wholesale competitors, either following the entry of a competitor into the marker or following the introduction of innovative or diversified offers (not taking into account Ethernet-supported offers, which are make up the same product market and, as mentioned above, have competitive pricing compared to the price of traditional leased lines).

ICP-ANACOM will be attentive to the development and impact of any deal based on SHDSL technologies (particularly for the provision of terminating segments using unbundled local loops) and Ethernet. In any case, ICP-ANACOM does not identify, at this time, any special advantages had by Grupo PT of a technological nature, given the high level of technological maturity used in support of the wholesale offer, nor in terms of relationships with key equipment and/or infrastructure suppliers in the wholesale markets under analysis.

5.1.3.5. Competition among installed companies, barriers to entry and to expansion and rivalry: Conclusion

The number and level of barriers to entry and to expansion in the markets under analysis impedes the development of effective competition in the markets concerned and offers no contradiction to the presumption of dominance resulting from the calculation of market shares. The factors that place the alternative operators at a disadvantage with respect to the incumbent operator continue to persist.

In conclusion, the analysis conducted with regard to competition among installed companies in the context of assessment of SMP in the wholesale markets of terminating segments throughout the entire national territory and trunk segments on "Routes NC" indicates an absence of effective competition in these markets.

As such, analysis of competition among installed companies, barriers to entry and to expansion and rivalry reinforces the conclusion stemming from the analysis of market shares.

5.1.4. Potential competition

As already noted, sunk costs related to the deployment and supply of terminating segments throughout the entire national territory and of trunk segments on "Routes NC", supported in the most part by the copper pair and optical fibre access networks and by the extensive optical fibre transport network of Grupo PT, built out over a period of decades, are extremely high and constitute a very high structural barriers to entry and to expansion. This means that an alternative provider (or potential entrant) is unable to build an economically viable operation in the light of such investment costs.

ICP-ANACOM takes the view that, given the high costs and time required to expand alternative networks which provide greater coverage of the territory under conditions which approximate those currently offered by Grupo PT in terms of terminating segments throughout the entire national territory and trunk segments on "Routes NC", development of effective competition in these markets would be difficult over the period of time to be reflected prospectively in this market analysis.

Given these and earlier findings, it is not deemed likely that, going forward, there will be a significant change in competitive conditions in these relevant wholesale markets over the medium term.

ICP-ANACOM expects that current competitive conditions will persist over the short and medium term, although there may be some reduction in the incumbent operator's market share in the wholesale market of trunk lines on "Routes NC", viewing any such reduction as necessarily slow, given the circumstances described above [262].

5.1.5. Countervailing buying power

Countervailing power of purchasers of terminating segments throughout the entire national territory and of trunk segments on "Routes NC", essentially from alternative fixed network and mobile network operators, is relatively insignificant, especially for lines with a capacity equal to or exceeding 2 Mbps. In fact, the wholesale supply of lines leased to TMN and PT Prime - both of Grupo PT - corresponds to around 80% of the total wholesale market in terms of volume and revenue for that type of circuits.

In both wholesale markets, the behaviour of the only wholesale supplier is not likely to be constrained by the combination of a small number of customers with a high share of turnover, since such countervailing power is dependent on the existence of alternative operators, which are not present in the markets in any active or relevant way. That is, although there are indeed

[262] Whereby it may result, in practice, in certain trunk segments being transferred to the market of "Routes C" after a detailed analysis of the competitive conditions on these specific routes.

alternative operators in these markets, the number of terminating segments throughout the entire national territory and of trunk segments on "Routes NC" offered by them is still extremely low.

The obligation to publish prices, the size of the market leader, the number of major clients and their contribution to total revenue does not indicate the existence of a countervailing power of purchasers restricting the behaviour of the dominant operator in the relevant wholesale markets.

5.1.6. Individual dominance in the wholesale markets of terminating segments and trunk segments on "Routes NC": Conclusion

ICP-ANACOM considers that the high barriers to entry and to expansion in the relevant wholesale markets persist, confirming the presumption of dominance resulting from the calculation of market shares and of such barriers.

In conclusion, the market shares and the size of the market leader, the existence of high and non-transitory barriers to entry and to expansion, the lack of evidence pointing to the existence of effective competition between companies and the lack of potential competition, lead to the conclusion that the companies of Grupo PT operating in the wholesale markets of terminating segments throughout the entire national territory and of trunk segments on "Routes NC" have SMP (single dominance) in these markets.

5.2. Joint dominance

Once the existence of individual dominance is determined in these markets, there can be no joint dominance.

5.3. Prospective analysis

ICP-ANACOM considers that all factors that justify the designation of the companies of Grupo PT operating in the wholesale markets of terminating segments throughout the entire national territory and of trunk segments on "Routes NC" as companies with SMP on these markets will remain in place over the short to medium term, until the next SMP assessment[263].

With respect to the market of trunk segments on "Routes NC", and according to the analysis conducted, ICP-ANACOM will remain attentive to the development of the coverage of the operators' networks, specifically for certain routes where there may be alternative offers over the

[263] The next assessment of SMP is triggered as soon as: (1) a fact emerges which significantly alters the conditions of competition in the market, and/or (2) the Recommendation is reviewed with respect to these markets, and/or (3) a period has elapsed of 24 months.

short or medium term, as well as other important criteria during the period for which the present analysis remains valid.

5.4. Assessment of SMP on the wholesale markets for terminating segments and trunk segments: conclusion

It is considered that the companies of Grupo PT operating in the wholesale markets of terminating segments throughout the entire national territory and trunk segments on "Routes NC" have SMP on these markets. Currently the company of the Group which is active in this market is PTC.

6. THE IMPOSITION, MAINTENANCE, ALTERATION OR REMOVAL OF OBLIGATIONS

In the previous sections identification was made and analysis conducted of the relevant markets for wholesale terminating segments throughout the entire national territory and of trunk segments on "Routes NC", whereby it was concluded that Grupo PT has SMP on these leased lines markets. Identification was also made of the retail markets of leased lines throughout the entire national territory and the wholesale market of trunk segments on "Routes C", which markets were not considered relevant for the purposes of *ex ante* regulation.

In this context, in markets where SMP exists, ICP-ANACOM is bound to impose one or more regulatory obligations or maintain or amend such obligations where these already exist[264], and shall withdraw obligations which have been imposed in any markets which are now not considered relevant for the purposes of *ex ante* regulation.

As noted above, the existing regulatory framework favours the imposition of obligations at wholesale market level, whereas regulatory measures should only be imposed on retail markets as a last resort[265].

The imposition of obligations at wholesale level over the imposition of obligations in retail markets has the advantage of tackling market failures through measures imposed directly where problems are identified. Additionally, the effects of these measures have an impact not only on the wholesale markets where they are imposed but also in downstream retail markets, promoting competition and general welfare, with benefits for end-users. Finally, it should also be noted that the principle of favouring the imposition of obligations on wholesale markets should be aligned with the objective of promoting efficient investment in infrastructure and innovation.

In the imposition, amendment and withdrawal of obligations, ICP-ANACOM takes into account several principles that stem from the documents of the EC and the ERG, from the ECL and also from the regulatory principles and objectives established by this Authority.

It is deemed appropriate that these principles are known to the market and taken into consideration prior to the imposition (or withdrawal) of any obligation(s) in the market(s), which is why they are set out in the next section of this document.

[264] See Guidelines §21 and §114 and articles 56, e) and 59, paragraph 4 of the ECL.
[265] See Recommendation -"Explanatory Memorandum", Section 4.

6.1. Principles considered in the imposition, amendment or withdrawal of obligations

In order to reduce or eliminate the problems of competition present in a determined market, this Authority is bound to select the obligations which, directly or indirectly, affect the strategic variables of SMP companies, ensuring that these obligations meet certain requirements, including that:

(a) they are appropriate to the nature of the competition problems identified in the phase of SMP assessment, and are proportionate and justified in the light of the regulatory objectives enshrined in art 5 of the ECL (art 5., paragraph 3, point to a));

(b) they are objectively justified in respect of the networks, services or infrastructure to which they refer (article 55, paragraph 3, point b), of the LCE)

(c) they do not result in undue discrimination in respect of any other entity (art. 55, paragraph 3, point c) of the ECL); and

(d) they are transparent in regard to their purposes. (art. 55, paragraph 3, point d), of the ECL).

As such, ICP-ANACOM is bound to adopt proportionate intervention in its fulfilment of the national regulatory framework and of European Directives, imposing the minimum obligations which enable the competition problems identified to be overcome and to effectively contribute to evolution into a competitive situation.

The ultimate goals of ICP-ANACOM in terms of regulation is to promote competition in the provision of electronic communications networks and services, resources and associated services, contribute to the development of the internal market of the European Union and uphold the interests of citizens[266]. In particular, it is incumbent on ICP-ANACOM to ensure that users derive maximum benefit in terms of choice, price and quality, ensuring that there is no distortion or restriction of competition in the electronic communications sector, and further to encourage efficient infrastructure investment and promote innovation;

According to art. 67 to 72 and 74 to 76 of the ECL, the obligations which may be imposed on undertakings with SMP on identified relevant markets are:

(a) transparency in relation to the publication of information, including reference offers;

[266] See ECL, art 5.

(b) non-discrimination in the offer of access and interconnection and in the respective provision of services and information

(c) separation of accounts for specific activities related to access and/or interconnection;

(d) response to reasonable requests for access and use of specific network elements and associated facilities; and

(e) price controls and cost accounting.

In the analysis and definition of obligations to impose (or withdraw), account is also taken, as previously stated, of the principles established in the context of the ERG's common position on the matter presented in the document "*Revised ERG Common Position on the approach to appropriate remedies in the ECNS regulatory framework*"[267], as well as the common position on best practice in remedies imposed as a consequence of a position of significant market power in the relevant markets for wholesale leased lines[268].

This latter common position states that, since wholesale leased lines are key inputs for providing a wide range of electronic communication services (especially to corporate end-clients), it is therefore vital that, where they are not supplied under conditions of effective competition, they are regulated effectively. According to ERG, the regulation of wholesale leased lines will promote competition and choice for businesses and so make a significant contribution to achievement of the Single Market.

As explained by the EC in the Guidelines (§119) "*particularly in the early stages of implementation of the new framework, the Commission would not expect NRAs to withdraw existing regulatory 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*". Although not obviously related in a direct way with the early stages of implementation of the new framework, ICP-ANACOM will consider this recommendation if it deems it necessary to withdraw existing obligations, duly explaining the reasoning for why such obligations are no longer necessary, also taking into account the measures which are necessary to ensure that the withdrawal is effected suitably for the markets and their stakeholders, especially for the end-user.

According to the Guidelines (§ 113) "*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(3) of the framework Directive, where the NRA*

[267] Available at http://www.erg.eu.int/doc/meeting/erg_06_33_remedies_common_position_june_06.pdf.
[268] Available at http://erg.eu.int/doc/publications/erg_07_54_wll_cp_final_080331.pdf.

proposes to remove existing regulatory obligations, it must give parties affected a reasonable period of notice ".

This provision is also reflected in paragraph 3 of art 59. of the ECL.

In this context, the ERG also argues 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.[269].

It is, therefore, the position of this Authority that, where there is a situation entailing the withdrawal of existing obligations, it is important to consider how the obligations currently in force might be withdrawn in an appropriate way which does not adversely affect end-users and the parties involved. This is precisely the case of the retail leased lines markets throughout the entire national territory and the wholesale trunk segments on "Routes C".

Taking into account that:

- the two markets now identified, associated with the wholesale supply of trunk segments ("Routes C" and "Routes NC") derive from a single wholesale market for trunk segments identified during the analysis of 2005;
- the obligations currently in force are applied uniformly in the two markets now identified;
- the analysis conducted indicates that SMP continues to exist on the market for "Routes NC", whereby obligations must continue to be applied and, in the other market ("Routes C"), where SMP no longer exists, no obligations should be applied,

and as such, a different regulatory framework is applied in respect of obligations existing in these two markets.

On the other hand, with markets identified and analyzed in which regulation should continue to exist - the wholesale markets for terminating segments throughout the entire national territory and of trunk segments on "Routes NC" - it is clarified that the imposition and enforcement of these obligations in an objective, detailed and rigorous manner constitutes a priority for ICP-ANACOM. The successful accomplishment of this objective is an important step in developing additional competition in the markets remaining subject to regulation, ensuring advantages and benefits for end-users and for operators, resulting in net gains for general welfare.

6.2. Obligations currently in force

[269] See "Revised ERG Common Position on the approach to appropriate remedies in the ECNS regulatory framework", section 5.6.2.

As noted above, on 8 July 2005, ICP-ANACOM approved the final decision on the analysis of the retail market for leased lines and, taking the guidelines into utmost account, and pursuant to article 82 of the ECL, imposed obligations regarding the offer of the minimum set of leased lines throughout the national territory on undertakings with SMP on this market, in conjunction with as the conditions for this offer as set out in article 83 of the same law. These obligations, detailed in **Table 1**, were as follows:

- non-discrimination[270];
- price control (cost orientation of prices)[271]; and
- transparency[272].

On the same occasion, this Authority concluded that Grupo PT had SMP in the wholesale markets of terminating segments and trunk segments of leased lines (markets 13 and 14 of the previous Recommendation) and that it was appropriate, proportionate and justified to impose the following set of obligations that are based on art. 66. of the ECL[273], given that there was no effective competition in these markets:

- access to and use of specific network resources;
- Non-discrimination in the provision of access and interconnection and in the respective disclosure of information;
- transparency in the publication of information, including the publication of reference offers;
- separation of accounts for specific activities related to access and/or interconnection;
- price control and cost accounting; and
- financial reporting.

[270] The principle of non-discrimination requires SMP undertakings to apply similar conditions in similar circumstances to their corporate end-users and, where applicable, to offer retail customers leased lines with the same quality leased and under the same conditions as those which they make available to their own services or partners.

[271] For the purposes of the principle of cost orientation of prices, article 83 of the ECL sets out that undertakings with SMP in the retail market for leased lines shall develop and implement an appropriate system of cost accounting. ICP-ANACOM takes the position that the implementation of the obligation of cost orientation of prices (i.e. maximum retail price), coupled with the definition of a minimum margin between retail and wholesale prices, would prevent companies with SMP in the retail market from engaging in the practice of predatory pricing and/or margin squeeze with respect to other operators in the retail market.

[272] The principle of transparency requires disclosure of the following information about the minimum set of leased lines: (a) Technical features and specifications, including physical and electrical characteristics, (b) Prices, including initial connection charges, periodic rental charges and other charges; and (c) Conditions of supply, including, in particular, and necessarily, the ordering procedure, time period (delivery or repair), the extent of availability, and refund procedure, if any.

[273] Descriptions in Table 2 on page 6.

These obligations were imposed at a national level, covering both the markets identified and analyzed.

In the following sections it is examined whether any amendment should be made to the obligations which are currently in force in the markets on which, in accordance with the present analysis, Grupo PT continues to have SMP. This analysis takes into account the relevant principles entailed in the imposition of obligations on the relevant markets and the reasons that underlie the existence of SMP in these markets, evaluating them in light of the principles and requirements set out in the ECL, as well as in the light of current market conditions. Additionally, in markets where there is no longer SMP - retail market throughout the entire national territory and wholesale market of trunk segments on "Routes C" -, an analysis is made of the most appropriate way of effecting the withdrawal of the (current) obligations, imposed following the Previous analysis of the market performed in 2005.

It is noted that consideration will be made of current competition problems and those which could potentially arises in the context of the markets under analysis and in the period elapsing before the next market analysis is conducted.

6.3. Withdrawal of obligations on the retail markets throughout the entire national territory and of trunk segments on "Routes C"

It has already been mentioned that if a particular market fails the "three criteria" test, *ex ante* obligations may not be imposed on undertakings operating in that market. Meanwhile, if there are already obligations imposed on any undertaking in this market - as is the case of the retail markets throughout the entire national territory and of trunk segments on "Routes C" - stakeholders would be given an appropriate period of notice as to their withdrawal. The view is also taken that a gradual transition should be ensured, taking into account the need to reconcile the actions of the regulator with the principles of predictability.

The following analysis seeks to demonstrate that the withdrawal of obligations on these markets is appropriate and does not imply significant loss or damage. Another purpose of this analysis is to identify the most appropriate way of withdrawing existing obligations, in particular assessing the duration of a transition period during which the obligations (or some obligations) shall continue in effect. This transitional period is justified by the fact that it may be necessary to protect end-users and operators who have invested in the market and who may require a period of time to adjust their offers, their objectives and their strategies to the new reality.

6.3.1. Withdrawal of obligations in the leased lines retail market

The findings of the analysis performed in this document (see section **3.3**) show that, in the presence of *ex ante* regulation at wholesale level, where appropriate, and in the presence of alternative infrastructures, the potential barriers to the development of effective competition in

the retail market are not insurmountable, whereby regulatory intervention is not required (i.e., the imposition of corrective remedies through *ex ante* regulatory control) on this same market.

In this context, no companies are identified as having SMP in the leased lines retail market and the regulatory obligations of transparency, non discrimination and price control and cost accounting previously imposed on the companies of Grupo PT operating in this market should be withdrawn, whereas no additional measures are required at the retail level.

6.3.1.1. Non-discrimination

According to the conducted analysis, it is not considered likely that any discrimination in respect of end-users, in terms of quality of service, the imposition of delaying tactics of or undue demands, in addition to any discrimination with regard to pricing, including through discriminatory discounts given for loyalty and/or quantity, would directly give the companies of Grupo PT which engage in such practices an advantageous position in the retail market; nor would such discrimination result in a situation that creates difficulties in satisfying the needs of end-users. Indeed, given that alternative operators have other means by which they can serve the end-user, including the wholesale reference offer (including the Ethernet offer) of PTC and, in significant parts of the territory, their own infrastructure or infrastructure belonging to other operators, end-users have several alternatives to choose from. Such practices would therefore lead to a reduction in revenues for the operator that engaged in them.

Furthermore, this Authority can report that, to date, it has not received any complaints from end-users as to any discrimination by the companies of Grupo PT in respect of the provision of retail leased lines services. Even while the activities of this Authority are not confined to processes triggered by complaints, taking into account the analysis performed in Chapter 3, it is not deemed likely that there will be discrimination among retail customers, either among existing customers, or among new customers. As such, the position is taken that the obligation of non-discrimination can be withdrawn with immediate effect, i.e., upon publication of the final decision regarding the present market analysis.

In the event that any discriminatory actions occur, there may be intervention on an *ex post* basis.

6.3.1.2. Transparency

ICP-ANACOM has mentioned that transparency is a natural complement to the obligation of non-discrimination, enabling any discriminatory behaviour to be detected and even prevented. Accordingly, as soon as it is shown that it is appropriate to withdraw the non-discrimination obligation, it is also fitting to withdraw the obligation of transparency.

The withdrawal of the transparency obligation means that the companies of Grupo PT which operate at retail level are no longer bound to provide information on the minimum set of leased

lines, i.e., information on the specifications, prices and conditions of the supply of analogue and digital lines up to 2 Mbps.

In this respect, it is noted that a significant percentage of leased line acquisition at retail level currently takes place in the context of public or limited tenders (e.g. in the case of larger non-state companies) with particular specifications and rules. It is further noted that the solutions (of services) which include and/or are supported by lines with capacity exceeding 2 Mbps, including Ethernet offers - which offer is currently unregulated - are usually built out on a case-by-case basis.

Given that there will be no transition period during which the obligation of non-discrimination would be maintained, neither should there be any transition period with respect to the obligation of transparency, also because there is no record of persistent complaints related to lack of transparency in the provision of retail leased lines. As such, this requirement is also withdrawn immediately upon the publication of the final decision.

6.3.1.3. Price control and cost accounting

ICP-ANACOM has concluded that the leased lines retail market does not meet the "three criteria" whereby it is deemed that neither Grupo PT nor any operator is in a position which enables them to act totally independently of the other market players. It is not therefore deemed likely that any operator has incentives to set retail prices at a level which is considerably higher than the level of the costs incurred in the provision of such services. Were it to do so, the other operators in the market, if efficient, would be able to offer services at a lower prices, satisfying the needs of end-customers and increasing their market share. As such the decision of the operator to set high prices is rendered unprofitable.

It is therefore deemed appropriate to withdraw the obligation of price control and cost accounting - specifically "to set cost-oriented prices" - which withdrawal constitutes a correct measure given the reality of the market and shall not cause any harm to the market. As such, this obligation can also be withdrawn with immediate effect.

6.3.2. Termination of obligations in the wholesale market of trunk segments on "Routes C"

Taking into account the conclusions of the above analysis (see section **4.2**), which demonstrates that barriers to entry and to the development of effective competition in the market comprising "Routes C" are not insurmountable, regulatory intervention is not required (i.e., the imposition of remedies through *ex ante* regulatory control) in this market.

In this context, since no companies are identified as having SMP in the wholesale market of trunk segments on "Routes C", it is necessary to withdraw the regulatory obligations of access, transparency, non-discrimination, accounting separation, cost control and financial reporting,

which obligations were previously imposed on the companies of Grupo PT operating in this market, whereas additional measures on this wholesale market are not required.

Nevertheless, the analysis which follows seeks to demonstrate that the removal of the obligations is appropriate and does not involve significant harm to the market. The analysis further seeks to assess the duration of any transition period during which certain obligations shall continue to apply - the period necessary to protect operators which have made investments in transport infrastructure and networks on these routes and/or which have acquired lines under the LLRO, considering that such operators may require a period of time to adjust their strategies and business plans to the new reality.

Notwithstanding the withdrawal of obligations, working closely with Autoridade da Concorrência (The Competition Authority), ICP-ANACOM will remain attentive to the development of wholesale offers (and related retail offers) of Grupo PT on "Routes C". Given the size of the network of Grupo PT, any refusal to supply wholesale leased lines, or its supply on unreasonable terms, especially in terms of (excessive) pricing, may severely restrict competition in downstream markets. This is particularly true in the event of margin squeeze, since wholesale leased lines constitute an essential component of networks which support various types of retail services (as well as supporting retail circuits, including circuits supported on "Routes C")

As such, any discriminatory action may justify intervention on an *ex post* basis.

6.3.2.1. Access to and use of specific network resources

Taking into account the analysis performed and the arguments presented in this section, this Authority takes the view that the withdrawal of the obligation to provide access to and use of specific network resources will not, in any relevant way, cause harm to the markets concerned. This ascertain is based, in particular, on the size and extent of optical network infrastructure and on alternatives available in terms of transport networks. It is envisaged that the development of such alternative infrastructure will continue to be supported mainly through investment in LLU or in own infrastructure, particularly in respect of the NGA supported over optical fibre networks.

Furthermore, it is deemed that Grupo PT has an incentive to maintain the supply of leased lines on "Routes C" under reasonable and competitive conditions. This incentive results from the existence of competing wholesale offers[274] which make it possible for other operators, supported over their own or third party network infrastructure (e.g. utilities) also to develop them, leading

[274] Even while other wholesalers (e.g., with investments in LLU) fail to provide any wholesale trunk segments on "Routes C", it remains possible for operators that currently use the LLRO wholesale offer (in future, including Ethernet lines) to compete effectively in the retail market for leased lines using their own infrastructure (or leased from third parties, e.g., utilities). In this situation, it is concluded that the decision to withdraw the obligation of access is in line with the principle of incentivising investment in own networks wherever possible and appropriate.

to a decline in Grupo PT's wholesale revenues. It is noted that any, contraction in Grupo PT's offer in this market would, from the outset, result in a decline in these revenues.

As such, alternative operators currently supported using the LLRO will be able to negotiate the wholesale provision of trunk segments on "Routes C" with such undertakings possessing their own infrastructure on "Routes C".

Another relevant question given consideration by ICP-ANACOM is the conclusion that, given the (smaller) volume of traffic on trunk segments that can actually be affected (i.e., only those comprising "Routes C"), the impact of the withdrawing this obligation is relatively small and not significant for the leased lines wholesale market as a whole, since the bulk of volume and revenue in this market is mainly concentrated in the terminating segments, as well as in lines up to 2 Mbps on "Routes NC".

As already mentioned, with the withdrawal of the obligation of access, in order to ensure that investments made by alternative operators in the LLRO (on "Routes C") are recovered, it must ensured that these operators are given a reasonable period of notice offer in respect of any termination of this Grupo PT wholesale offer.

Regarding the form in which the operators should be notified and how far in advance such notice should be given, it is deemed sufficient and appropriate to establish a transition period with a duration of six (6) months, during which time it shall be mandatory that the services currently provided must continue to be provided on terms which are no more onerous. This period applies to circuits already acquired as well as those leased in the 6 month period following the date of publication of the final decision regarding the present analysis.

Grupo PT may only withdraw access to the wholesale LLRO offer, or aggravate conditions of access on a particular "Route C" once a period of six months has elapsed following the final decision.

After this period, and subject to prior notice[275], the conditions of access and provision of services can now be established using mechanisms of commercial negotiation between interested operators.

The deadlines allow alternative operators to negotiate the provision of this service with other companies that have optical fibre and/or transport infrastructure, to negotiate with PTC to maintain services on terms which are advantageous to both parties, given the level of negotiating power (arising from the existence of alternatives in the market) which they have, or even choose to develop investments in their own transport network.

[275] In any case prior notice of no less than four months will have to be given before the date on which Grupo PT intends such a decision to take effect.

6.3.2.2. Non-discrimination

The fact that the obligation of access is withdrawn, means that, *a priori*, any obligation of non-discrimination loses relevance, since there is an alternative wholesale offer or (own) infrastructure.

It is concluded that, in this situation, any (i) discriminatory use or retention of information, (ii) discrimination by quality, (iii) delaying tactics or (iv) undue demands, in addition to any discrimination in respect of pricing, does not directly create a win-win situation for the undertaking perpetrating such practices. To the contrary, it was found that since alternative operators have access to alternative (or their own) transport networks to meet their own needs and/or the needs of third parties, particularly end-users, such practices would result in a decline in revenues for the operator that engaged in them.

It is also clear that, in line with the maintenance of the obligation of access to the network, there should be a transition period of the same period of six months, during which the obligation of non-discrimination must continue to apply. Accordingly, during this period, Grupo PT is bound to continue to ensure the same access to services it provides to itself (or affiliated companies) for similar services. More specifically, the prices and levels of performance in terms of quality of service, such as the times taken to supply services and time taken to repair faults, shall be identical for competing companies using the LLRO as for the companies of Grupo PT.

After this period, conditions governing access and provision of services will be established through commercial negotiation mechanisms between interested operators.

Also in this regard, it should recalled that during the transition period defined above, there shall be no control of the conditions of the retail offer of leased lines (analogue and digital up to 2 Mbps) of Grupo PT. As such, from the day on which the final decision is published, the companies of Grupo PT operating in the leased lines market shall be free to define the conditions of their (retail) offers covering, obviously, "Routes C", whereas the imposed differential of 26% between wholesale and retail prices shall be immediately withdrawn[276].

6.3.2.3. Transparency

Since transparency is a logical complement to the obligation of non-discrimination, enabling the detection of any discriminatory behaviour, as soon as it is shown that it is appropriate to withdraw the non-discrimination obligation, ICP-ANACOM considers that it is natural and appropriate to also withdraw the obligation of transparency.

The removal of this obligation means that Grupo PT is no longer obliged to include the trunk segments on "Routes C" in the LLRO, although it is likely and desirable that it will maintain the offer on its own initiative.

[276] *See* section **6.3.1.3**.

Given, however, the transition period during which the obligations of access and non-discrimination are maintained, it is natural that this period also apply in the case of the obligation of transparency. Accordingly, for a period of 6 months following the publication of the final decision on this market analysis, Grupo PT shall be bound to continue to provide and publish, according to the same conditions that currently apply in the framework of a regulated offer, the reference offer and the information currently made available to ICP-ANACOM and to the market (i.e. including all trunk segments of leased lines).

6.3.2.4. Price control and cost accounting

ICP-ANACOM has concluded that in the market comprising "Routes C" there is effective competition in the provision of wholesale services, whereby no operator may act independently with respect to other market players.

In this scenario, it is unlikely that any supplier has an incentive to set prices for its wholesale offer at a level which is considerably higher than the level of the costs incurred in the provision of such services, since, were it to do so, its wholesale clients will most likely seek alternative ways to satisfy their requirements, as well as those of their end-customers, rendering the decision of the supplier to set high prices an unprofitable one. The withdrawal of the obligation of price control and cost accounting is therefore appropriate, representing a correct measure in light of the reality of the market.

In this respect, the position is taken that there should be no *ex ante* control of the competitive conditions of Grupo PT's offers of trunk segments on "Routes C", including the cost orientation of prices.

ICP-ANACOM has concluded that the withdrawal of specifications related to the obligation of price control and cost accounting is appropriate and shall not cause any harm to the market.

Likewise, the transition period of six months indicated above shall apply in this case. At the end of this period, Grupo PT shall no longer be under obligation to comply with the specifications of the obligation to control prices and cost accounting, since these are no longer required as a guarantee of the existence of non-discrimination, given that, after this transition period, this obligation of non-discrimination is also withdrawn.

6.3.2.5. Separation of accounts

The obligation of accounting separation is also related to the need to ensure enforcement of the obligation of non-discrimination and of the obligation of price control and cost accounting, allowing verification of whether cross-subsidization is taking place. Having already deemed it appropriate to withdraw the obligations mentioned, it is also demonstrated appropriate to withdraw the obligation of accounting separation, considering the conditions prevailing in the market comprising "Routes C".

Again, given the provided transition period, during which some of the obligations currently existing in the market will remain in effect, including the obligations of non-discrimination and price control, the obligation of accounting separation should continue to apply during this period of six months.

6.3.2.6. Financial Reporting

Considering the withdraw of the obligations of transparency, non-discrimination, accounting separation and cost accounting, it is also clear that it is appropriate that the obligation of financial reporting be withdrawn.

Again, the obligation of financial reporting is withdrawn solely in the context of the obligations associated with the market under analysis, whereby other similar obligations, imposed by ICP-ANACOM in other contexts are obviously not covered by this decision.

It is concluded that it is appropriate to withdraw the obligation of financial reporting but that the transition period of 6 months should also apply in respect of this obligation.

6.4. Identification of appropriate obligations on relevant wholesale markets

In the following sections of the document, starting from the obligations currently imposed on Grupo PT, taking into account the relevant principles in imposing obligations on relevant markets and the reasons that underlie the existence of SMP on the wholesale markets of terminating segments throughout the entire national territory and trunk segments on "Routes NC", this Authority examines whether it is appropriate to maintain or amend obligations currently in effect, assessing them in the light of the principles and requirements set out in the ECL and in view of current market conditions.

It should also be noted that, given the planned deregulation of some of the leased lines markets, especially the entire retail market, it is essential to establish, in wholesale markets not considered competitive (terminating segments throughout the entire national territory and trunk segments on "Routes NC"), a set of appropriate obligations which, being proportionate and sufficiently strong and effective, ensure competitive conditions in adjacent markets, promoting conditions which are conducive to efficient investment.

It is noted that consideration will be made of current competition problems and those which could potentially arise in the context of the markets under analysis and in the period elapsing before the next market analysis is conducted[277].

[277] The next market definition is triggered as soon as: (1) a fact emerges which significantly alters the conditions of competition in the market or (2) as soon as the Recommendation is revised with respect to these markets, and/or (3) a period has elapsed of 24 months.

6.4.1. Competitive problems associated with discriminatory behaviour or pricing

The following sections describe the competition problems that may potentially arise in the wholesale markets under analysis, both in terms of terminating segments throughout the national territory and in terms of trunk segments on "Routes NC". This is a non-exhaustive but indicative list of the competition problems that ICP-ANACOM has identified in its analysis of these markets, which in the absence of regulation, may have an impact on key aspects of competition, related to price, diversity and quality of offers and may give rise to situations of SMP leverage into downstream markets.

- Refusal to negotiate and grant access

This problem is characterized by the activities of an SMP undertaking on a specific market, carried on in order to leverage its market power by refusing access to its network or refusing to deal with companies which operate (or wish to provide services) in adjacent retail markets and which compete with the SMP undertaking in these markets. This issue covers both situations of absolute refusal to do business and situations where conditions governing the supply of goods or services are unreasonable.

A single operator with terminating segments infrastructure throughout the national territory and trunk segment infrastructure comprising "Routes NC" would have an incentive to refuse access to its competitors if the benefits earned from such denial of access were to outweigh the costs, especially if the company concerned were facing greater competition that would put pressure on its profit (as opposed to a monopoly situation).

By making access to wholesale leased lines on reasonable terms an obligation with proper regulation, the problems of competition in the markets concerned will be mitigated (it is noted that in the case of terminating segments throughout the entire national territory and trunk segment on "Routes NC", in the large majority of cases, competing operators have no real access alternatives).

- Discrimination by quality

An undertaking with SMP on the wholesale markets, even when subject to an obligation of access, may attempt to increase the costs of rival companies in the retail market or put pressure on their sales by offering lower quality products which imply greater investment by the competitor in order to eliminate or reduce the disadvantage associated with low quality products and which may also lead to loss of customers.

Consequently, it is essential that an obligation of access is made in conjunction with an obligation of non-discrimination and transparency.

- Delaying tactics

This action is a behaviour engaged in by companies with dominant positions on wholesale markets where, while there is no categorical refusal to supply a product or service required by the competitor for the development of its retail activity, it is provided (or repaired) with a degree of delay compared to the supply (or repair) of the same product or service to the SMP company's own retail activity. Again, this type of behaviour can be minimized if the company concerned is subject to an obligation of non-discrimination (and transparency)[278].

- Strategic design of products

This behaviour is related to the design of products or services which induce an increase in the cost of competitors or a restriction in terms of their sales. A company with SMP can design their products according to their own network topology and, for example, demand that their competitors use the same standards, protocols or features that it itself uses. This may lead to a situation where these products or services are used more easily by the retail arm of the SMP operator while its competitors have to adapt their business plans to the conditions imposed by the dominant company. In the case of the markets under analysis, this company might also restrict access to a given technology and use another more efficient technologies for itself (e.g. Ethernet).

Such practices are remedied, once again, through the imposition of the obligation of non-discrimination and though the specifics of the obligation of access to and use of network resources.

- Excessive pricing, predatory pricing and cross subsidization

When it comes to products and services which are not easily replicated, companies with SMP tend to fix prices at a level which maximizes profits in the light of demand[279].

Furthermore, these companies also have incentives to engage in predatory pricing in the retail market, i.e. lowering prices to below marginal cost for a limited period of time, as a way of closing off the market to its competitors. There may be an incentive to leverage its power in the wholesale market into the retail market, incurring negative margins in the short term, in an effort to eliminate or alleviate competitive pressures over the medium to long term. As a result it will aim to recover the losses it incurred in the period during which it engaged in predatory pricing, with significant gains for itself but important harm caused to end-users.

In this case, cross-subsidization involves two prices in two different markets. While in the wholesale market, where the company has SMP and where there are significant barriers to entry,

[278] There are questions, raised by alternative operators, related to differences in terms of times taken to supply wholesale leased lines services, specifically in the case of CAM lines (and also in the repair of faults). In this regard it is made clear that non-discrimination is achieved when there is equality of treatment in respect of the most common cases, but also when the supplies in question are more specific or related to market segments that have other needs and uses of the services, such as CAM lines or the "*backhaul*".

[279] Pricing is considered excessive if it significantly exceeds production costs, including return on capital invested.

the price is significantly higher than the respective costs, in the retail market that is subject to leverage a predatory price is charged, in order to eliminate competition from the potentially competitive market.

In this case, an excessive price may be charged with respect to the terminating segments throughout the entire national territory and trunk segments on "Routes NC", where there is virtually no competition, while at retail level, in these same areas, there is risk of predatory pricing.

As a result of practices of excessive pricing at wholesale level, of predatory pricing or of cross subsidization at retail level, situations of margin squeeze may arise.

The setting of wholesale leased lines prices has an impact on competition in the retail markets of electronic communications services. This is why the obligations of price control and cost accounting and of accounting separation have such importance.

Considering the above and the continued focus on this matter in the context of regulatory intervention, in its decision of 8 July 2005, ICP-ANACOM considered that there were indications that the possibilities listed:

- were occurring in practice and affected consumers;
- could not be resolved in a timely manner solely by the application of competition law; and
- they tended to persist over time, since there were incentives and opportunities for action so that the dominant operator acted in an abusive manner.

Note is also made of the existence, at the time, of complaints presented to this Authority by operators and/or other entities regarding the diverse practices of PTC, which were connected to the identified problems. The existence of such complaints would suggest the actual existence of competition problems, persisting over time, and in respect of which the maintenance of the imposition of obligations under the new regulatory framework should have an effect.

In fact, since the time of the previous analysis, ICP-ANACOM has received complaints from alternative operators present in these wholesale markets, particularly complaints related to pricing, SLAs and the absence of regulation governing PTC's Ethernet offer[280].

The fact that PTC's Ethernet offer is not currently regulated raises a number of issues which were considered in the present market analysis:

[280] Although it is again noted that ICP-ANACOM's actions are not limited to situations where there are complaints from operators or end-users.

- Not all the conditions associated with the provision of the Ethernet service are clearly defined, whereby there may be a lack of transparency in relation to the provision of these services;

- The need for a budget to know the conditions under which a particular service is provided is an inefficient process, subject to delays - notwithstanding the existence of an average time period - and may create discrimination among operators and compared to the internal services and companies of Grupo PT;

- In the case of provision of a service whose conditions remain subject to commercial negotiation, this situation could lead, due to manifest inequality of negotiating power in the absence of alternatives in the markets concerned, to situations of inappropriate pricing, quality of service and SLA and also to situations of discrimination, especially to the favouring of the companies of Grupo PT[281];

- Assuming that these services are effective substitutes, it is clear that non-regulation of Ethernet circuits could lead to regulation without practical purposes and restricted to traditional leased lines[282]. If this occurred, it would constitute intervention in the market which failed to bring any benefit, since the existing or identified problems would persist.

Maintenance of the imposition of *ex ante* obligations in both the relevant wholesale markets (obligations of access, non-discrimination, transparency, cost accounting and accounting separation), helps prevent the behaviours identified above as possible practices from being adopted.

Finally, ICP-ANACOM must keep in mind the need to maintain a "*level playing field*" with respect to regulated access to wholesale leased lines, with emphasis given on this point to the ERG's common position on this matter setting out that there should be reasonable certainty that the alternative operators are able to compete at the same level as the operator identified with SMP. This implies that determined regulatory measures must be applied effectively in order to*:*

- ensure that the SMP operator does not have an unequal and unfair advantage (compared to other operators) due to economies of scale and scope (in terms of its network), especially if resulting from its position of dominance;

- prohibit the SMP operator from discriminating in favour of its own Group's companies and services, whether in terms of price or other conditions;

- effectively prevent behaviour causing obstruction and delay; and

[281] Indeed, discrimination may be driven by economic motives associated with the scale of the operators and the negotiating power which they possess, leading to economic discrimination that will harm smaller operators and new entrants, reducing potential and effective competition in the market.

[282] There is no merit in ensuring a certain quality of service or a given margin in a regulated supply when there is another type of offer which is more efficient and which enables provision of exactly the same type of services - or with better quality and/or a lower price - and which is not regulated.

– ensure that measures taken by the SMP operator in the development of new infrastructure, required to supply new retail services, allow all other operators the same opportunity to compete in that area.

6.4.2. Obligations to be imposed on the wholesale markets for terminating segments throughout the entire national territory and trunk segments on "Routes NC"

6.4.2.1. Access to and use of specific network resources

In considering whether it is fitting to maintain an obligation of access, ICP-ANACOM takes into account the provisions of article 72 of the ECL, according to which the proportionality of this obligation shall entail, specifically, 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*".

From the conclusions reached following the application of the "three criteria" test to the leased lines retail market, it is seen that one of the key factors which has brought about a reduction in the barriers to entry and to the dominance of Grupo PT on this market is precisely the existence of regulated wholesale access to PTC's leased lines, with all the associated obligations and the various interventions with regard to such access by ICP-ANACOM. Accordingly, it is essential to maintain the obligation of access to the wholesale markets of terminating segments throughout the national territory and trunk segments on "Routes NC", also contributing to the promotion of innovation (particularly in new technologies such as Ethernet) and efficient infrastructure investment.

It should be reaffirmed that, as follows from the analysis performed with respect to market definition and SMP assessment, it is unlikely that any deployment of resources in competition with the transport and access infrastructure belonging to PTC will be technically and economically viable on "Routes NC" and on terminating segments, prior to the next market analysis. This lack of viability prohibits the development of competition in the market supported by the development of alternative transport infrastructure.

As such, it is likely that a vertically integrated company with SMP in the wholesale market has an incentive to restrict access to its products and wholesale services given that new entrants into the retail market diminish their market power at retail level. Given the size of the PT network, refusal to supply leased lines at a wholesale level, or their supply on unreasonable terms, would severely restrict competition in downstream markets, whereby the SMP operator will be able to

charge excessive prices in these retail markets[283] - Given that wholesale leased lines are a key component of networks supporting various types of retail services. This issue also covers situations of absolute refusal to negotiate and the offer of products or services on terms that are unreasonable.

ICP-ANACOM therefore considers that any withdrawal of the obligation to provide access to and use of specific network resources would be inappropriate and could bring adverse consequences to the market. In particular, the view is taken that if the obligation in question was withdrawn, Grupo PT would have an incentive not to grant such access, or at least, not to supply such access according to more suitable conditions.

The existence of competition in the wholesale market could mitigate these problems. However, even while it is possible for competing operators to invest in their own networks - and they have done so, notably on "Routes C" - it is unlikely that they will replicate the metallic[284] and optical fibre access network at local level[285], i.e., at the level of the terminating segments of leased lines. The available information and analysis performed by ICP-ANACOM leads to the conclusion that this economic rationale remains, notwithstanding that in some specific situations, this replication may exist (e.g. COLT, in some limited areas in Lisbon and Porto, or Sonaecom, particularly for the connection of Optimus base stations via SHDSL and using the RUO, or FTTH projects that it is developing in some areas of the territory).

There is a similar situation with the deployment of alternative networks involving exchanges not covered by the market of trunk segments on "Routes C".

The technical and economic feasibility of imposing an access obligation is demonstrated by the fact that currently, this access already exists. Likewise, no questions remain regarding any risks in terms of the investment made for the provision of wholesale offer in question (already made through the LLRO). To the contrary, as already mentioned, all investments made by the SMP operator and operators who have invested in solutions based on this offer must be taken into consideration, safeguarding their maintenance and the defence of competition over the long term.

With respect to the need to safeguard competition over the long term, it appears that, since PTC possesses a significant part of end-customer accesses, access to the terminating segments (and also to the trunk segments on "Routes NC"), this constitutes an essential service to enable companies to compete with PTC, including but not limited to, in offers of leased line retail services.

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[283] This undertaking with SMP, in order to leverage its market power into related markets, will have a significant incentive to refuse access to its transmission system or to negotiate on reasonable terms with companies that operate (or wish to provide services) in retail markets that are adjacent and who are its competitors in these markets.

[284] It should be noted that a high percentage of trunk segments of analogue and digital lines of up to 2 Mbps (inclusive), especially between local exchanges located in major urban areas, are supported over the metallic pair access network.

[285] This is without prejudice to the announcement of investment in own infrastructure, particularly in NGA, made by one of the main beneficiaries of PTC's wholesale offers - Sonaecom. These investment plans are, however, limited to certain geographical areas, not covering the entire national territory (covering 25% of the Portuguese population), and in a period of three years, which is longer than the period until the next likely market analysis, in which the impact of such investments can be analyzed.

ICP-ANACOM therefore considers that, given the nature of the problem identified, it is proportionate and justified to maintain the requirement for wholesale supply of (all types of) leased lines and related facilities, including the co-location service or interconnection service between operators co-located in PTC's local exchanges. Such services must be provided in a form which is sufficiently unbundled to ensure that there is no requirement to acquire products/services that are not strictly necessary for the requested service.

Article no 72 off the ECL provides for the imposition of various types of access obligations. In particular, ICP-ANACOM considers that access obligations set out in the previous analysis should be maintained, including obligation to:

- respond to reasonable requests for access, according to transparent, fair and non-discriminatory conditions, ensuring, in addition, that the processes of ordering, fault repair and migration of lines (e.g., between two distinct operators or between two distinct technologies, including from traditional technologies to Ethernet) are efficient[286];

- provide beneficiaries with equivalent resources to those provided to its own services and to companies with which it is associated, supplying them according to the same conditions and within the same time periods.

- to make provision for co-location in its installations, without prejudice to the existence of technical impediments where duly justified on a case-by-case basis, particularly in the context of leased line part circuits and interconnection between operators.

These obligations correspond to conditions which are already offered by PTC under the LLRO, which ICP-ANACOM considers should be maintained and, in the short term, extended to the wholesale Ethernet offers of Grupo PT[287]. Indeed, it was found that Ethernet circuits are substitutes for traditional circuits, offered pursuant to the LLRO, and since the wholesale markets for terminating segments throughout the entire national territory and on "Routes NC" are defined as technologically neutral, the scope of the reference offer must naturally be broadened to encompass the offer of access to lines supported using Ethernet technologies.

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[286] This position is also advocated by the ERG in the document "Common Position on Best Practice in Remedies Imposed as a Consequence of a Position of Significant Market Power in the Relevant Markets for Wholesale Leased Lines", available at: http://erg.eu.int/doc/publications/erg_07_54_wll_cp_final_080331.pdf. In this document it is stated that "*A requirement to provide a suitable network migration process (between different wholesale customers using the same access product - and between different wholesale access products) is likely to be necessary in practice*".

[287] Note is made of the position taken by ICP-ANACOM, set out in the recent decision on wholesale markets 4 and 5: "*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. This is the case of broadband access offers based on Ethernet technologies, an option that has been recently introduced into the offer and which should be provided on a non-discriminatory basis".*

Indeed, and in keeping with the above, the ERG upholds 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, Ethernet"".

Also taking into account that the service should be as disaggregated as possible so that the beneficiaries are not required to acquire services that they do not need, and in order to increase competition in the backhaul service, an analysis will be conducted pursuant to a separate whether as to whether to impose access (co-location) to submarine cable stations.

According to the ERG, the reference offer for leased access should be "*updated as necessary to reflect service developments in line with market and technology evolution.*"[288]

Furthermore, according to the ERG common position referred to above, " *an obligation to supply wholesale Ethernet leased lines, as well as traditional leased lines, is likely to be necessary so as to satisfy demand* "[289]. Furthermore, also according to the ERG, the following limitations in the provision of this wholesale service should be prohibited: (a) limitations of the technical parameters to whatever suits the SMP provider's own business or to forms which are over specified for certain applications (b) geographical limitations (c) limitations of use to which services can be put should be prohibited unless they are objectively justifiable.

Considering the analysis made in this document, it is deemed that the provision of access to a wholesale offer of Ethernet lines (under the LLRO), and on reasonable terms, should be constituted as a specific obligation related to wholesale markets under analysis. As such, as downstream markets are developed, alternative operators should be able to have timely access to wholesale offers which are appropriate for the development of their own offers so that they can compete with the dominant operator in these markets. Alternative operators should be able to compete efficiently in retail markets - at both an economic and technical level - based on wholesale products provided by the SMP operator. It is noted that PT Prime, a company of Grupo PT, has a very diverse retail offer, which includes services based on Ethernet solutions and lines (*see* Chapter 3).

The deadline for updating the LLRO to include Ethernet lines should not be excessively long, whereas PTC may chose, as an alternative, to have two distinct offers: the LLRO and a (new) offer of Ethernet-supported leased lines.

Given the increased complexity of the Ethernet offer and also the fact that it is an offer which is already commercially available, ICP-ANACOM considers that this update should be concluded within a maximum period of not more than two months following the final decision on the present analysis. That is, no later than two months following the final decision, PTC shall publish an updated version of the LLRO with the inclusion of Ethernet lines or publish a specific offer of Ethernet-supported leased lines. Furthermore, PTC shall previously submit to ICP-ANACOM - not later than 1 month prior to this publication - the reasoned basis for its various components, especially pricing, SLA and delivery and fault repair procedures, taking particular account of the principles of cost orientation of prices and non-discrimination. Obviously, this Ethernet offer

[288] *See* "Common Position on Best Practice in Remedies Imposed as a Consequence of a Position of Significant Market Power in the Relevant Markets for Wholesale Leased Lines", available at: http://erg.eu.int/doc/publications/erg_07_54_wll_cp_final_080331.pdf.
[289] Idem.

only applies by obligation, from the outset, to terminating segments throughout the entire national territory and to trunk segments comprising "Routes NC", including all types of circuits and associated facilities currently provided under the LLRO.

In preparing the Ethernet reference offer, Grupo PT shall take into account the needs of operators already advanced before APRITEL in the formulation of the offer, giving justification for the possible options which differ from the proposals advanced.

The wholesale offer of Ethernet-based lines should be provided, at a minimum, in the areas and routes where Grupo PT provides this type of line at retail, whereas any expansion (including in terms of geographical coverage) of the offer must be communicated to its beneficiaries no less than two months prior to its entry into force. In any case, subsequent to the entry into force of the wholesale Ethernet reference offer, Grupo PT may not offer Ethernet lines unless this provision is also available at wholesale level in the same areas and according to conditions which allow replication of the retail offer.

In conclusion, PTC is responsible for the formulation and publication of the Ethernet reference offer in general terms and according to the deadlines specified above, although this obviously does not bring a close to the process. As such, the beneficiaries can then state their positions, while ICP-ANACOM will examine the terms and conditions of the offer and may intervene pursuant to separate decision subject to a prior hearing and to the general consulting procedure (where operators will be able to comment again).

ICP-ANACOM also takes the view that the definition of an appropriate price for access to wholesale lines (including Ethernet lines) allows competitors to evolve in terms of investment in operators' own transport infrastructure, while enabling the offer of competitive services at retail, with clear benefits for the end-user. This has been proved by the developments which have occurred in wholesale markets in question, particularly with the recent evolution of optical fibre transport networks. This matter is better detailed in section **6.4.2.4**.

Additionally, since there are already retail offers supported by the LLRO and some accumulated experience, there are some aspects of this offer, apart from the inclusion of Ethernet circuits, which warrant a revision or update, in order to better align them with the interests of the market, with particular attention to access to CAM lines[290].

Regarding access to CAM lines, and in the light of events occurring in 2007 and 2008, primarily related to delays in increasing transmission capacity between the mainland and the Autonomous Regions of Azores and Madeira, several alternative operators were prevented from ordering new CAM lines for several months (with the capacity which they considered necessary) and from expanding their capacity to route traffic over these connections. In this context, ICP-ANACOM deems it necessary to impose conditions which are more precise and appropriate, especially in

[290] Other matters such as operator interconnection, levels of quality of service (time limits for supply of lines or *Premium* levels) or compensation for failures to comply with levels of quality of service will be covered in later sections and detailed under a specific determination which will be submitted to public consultation.

terms of delivery times and quality of service in this specific segment, where, as evidenced above, competitive conditions are particularly restrictive.

In this case, the obligation to respond to reasonable requests for access to capacity supported over submarine cable in particular appears especially relevant, since this is a scarce resource and there is no alternative to CAM lines on routes between the mainland and the Islands.

Indeed, the complete lack of any alternative to PTC's CAM lines for alternative operators to be able to establish connections between their networks on the mainland and on the Azores and Madeira, has had and will continue to have a heavy impact on their ability to compete at the level of retail services in these Autonomous Regions.

Given this fact and the above analysis, and since CAM lines are included in "Routes NC", it is reasonable to impose a change with respect to indicators of quality of service in the leased lines offer, in particular regarding the effective separation of the quality of service indicators for lines between the different types of services provided, the provision of terminating segments and trunk segments on “Routes NC" on the one hand, and on the other, CAM, which could include inter-island communications in each Autonomous Region. This will be decided by separate determination.

With this segmentation, there will be less chance of a situation occurring where there are (systematic or prolonged) failures in the supply of lines in one area of national territory (in this case, the links between the mainland and the autonomous regions) while, at the same time, national global objectives (with reference to 95% of occurrences) are accomplished, such as occurred in practice during the period of the previous analysis.

Accordingly, given the above, this Authority considers that all obligations in the context of access to and use of specific network resources, imposed by decision of 8 July 2005, remain reasonable, appropriate, proportionate and justified. As a consequence, all such obligations should be maintained and will be specified as appropriate in a specific determination, with particular regard to the various aspects mentioned above, notwithstanding immediate implementation, under the above terms, of the inclusion of Ethernet lines in the wholesale offer.

Finally, ICP-ANACOM takes the position that the access obligation is not in itself sufficient and it is necessary to maintain additional obligations so that it is possible to continue to prevent potential competition problems such as excessive pricing or discriminatory practices by the company with SMP on these markets. These issues are addressed further in this chapter.

6.4.2.2. Non-discrimination

When an obligation of access is imposed on a company with SMP there remains an incentive for this company to engage in discrimination regarding the conditions under 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 the SMP company is vertically integrated or has retail operations, which is the case in this situation. This competition problem, as previously

referenced, includes the discriminatory use or withholding of information, discrimination by quality, delaying tactics and undue demands, as well as the possibility of discrimination in terms of pricing.

In most cases, following these actions, the retail activities of competitors are harmed, which may result in a decline in the quality of the services which they provide or an increase in the costs of these operators compared to the costs of the retail activity of the SMP operator[291]. Consequently, the competitiveness of alternative operators at retail is reduced substantially, constituting a form of leverage of market power by the operator with SMP at wholesale level into the retail market(s).

In this respect, the obligation of non-discrimination is mainly designed to prevent Grupo PT - a vertically integrated entity - from discriminating in favour of its own retail activities and to ensure that competitors who use wholesale PTC lines are in a position which is equivalent to Grupo PT at retail. It aims to prevent undue discrimination among the various competitors of Grupo PT.

In accordance with the provisions of art. 66 and 70[292] of the ECL, ICP-ANACOM takes the position that it is objectively justified, appropriate and proportionate to maintain the obligation of non-discrimination to which Grupo PT is subject in respect of the offer of leased lines to wholesale customers, in order to prevent the same Group from being able, in equivalent circumstances, to discriminate in favour of its own departments or subsidiaries or associated companies[293].

According to European Commission Recommendation 2005/57/EC of 21 January on the provision of leased lines in the European Union[294], the principle of non-discrimination applies to all relevant aspects of the services provided such as ordering, migration, delivery, quality, repair time, reporting and penalties;

The ERG has also affirmed that there are various possible means of placing competitors at a disadvantage through discrimination in the quality of wholesale services provided by an operator with SMP[295]. To prevent this, the ERG supports the imposition of an obligation of non-

[291] As an example, a situation is cited where an operator with SMP in the market of wholesale supply of leased lines discriminates against alternative operators and in favour of their own internal division with operations in the leased lines retail market. A quality of service inferior to that provided to the retail divisions of the SMP operator would mean that alternative operators will not be able to provide a new access in a comparable period of time or they will not be able to guarantee a time for the repair of faults equivalent to that provided by the retail division of the SMP operator. This corresponds to a reduction in effective competition in the retail market, implying a clear negative impact on alternative operators and end-users.

[292] Art. 66 stipulates the powers of the NRA with regard to the imposition, amendment or withdrawal of obligations. Art. 70 describes, in particular, the obligation of non-discrimination.

[293] It is noted that the obligation of non-discrimination, and the existing specifications regarding compliance with this obligation, implies reduced costs and is proportionate, whereby it is adapted to ensure competitive conditions and conditions of equality, and so is fitting to maintain.

[294] *See* whereas (10) at Commission Recommendation 2005/57/EC, of 21.1.2005.

[295] "Revised ERG Common Position on the approach to appropriate remedies in the ECNS regulatory framework" ("Remedies" document).

discrimination which guarantees that, in equivalent conditions, the services and information provided by the SMP operator to competing operators has the same quality as that guaranteed to its own services and subsidiary companies. In particular, the extent to which information on changes in the network that may affect leased lines (e.g., remote enabling or discontinuation of AP which might affect this service) is provided in advance should be sufficient and non-discriminatory compared to the extent of advance notice with which the same information is provided to the retail department or companies of Grupo PT.

Additionally, the ERG considers that the imposition *per se* of this obligation may not be sufficient and regulators should consider additional measures for the effective accomplishment of the principle of non-discrimination, whereas usually there has been inadequate intervention on an *ad-hoc* basis with respect to each new problem.

ANACOM also takes the position that the specifications of the non-discrimination obligation remain appropriate, reasonable and proportionate.

In this context, ICP-ANACOM considers that the definition of SLA for all products (including Ethernet lines[296]) is necessary, whereas proportionate levels of compensation must be established for failures by PTC to comply with these levels in all aspects where levels of service apply.

In fact, many LLRO beneficiaries have already proposed to ICP-ANACOM that the levels of compensation provided for in this offer should be strengthened, considering them insufficient as a deterrent of non-compliance by PTC.

In particular, compensation for failures to comply with times taken to repair faults[297], which is equivalent to 3% of the monthly price of the leased line in question[298] and is not tied to the severity of the non-compliance, i.e., the amount of compensation is equal to a delay (compared to the target), for example, of 1 hour or 96 hours and corresponds, in practice, to a refund of less than one day of monthly charge, constitutes a manifestly insufficient incentive for PTC to fully comply with the quality of service objectives in terms of fault repair.

In this context and by separate determination, ICP-ANACOM will examine the level of compensation currently provided for in the LLRO. In the same determination, subject to prior consultation, ICP-ANACOM will also assess the current restrictions applicable to the payment of compensation for failure to comply with the established objectives[299].

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[296] With respect to the inclusion of Ethernet lines in the reference offer, the ERG considers it necessary to have, in a timely manner, an appropriate wholesale offer (non-discriminatory and reflecting technological developments, e.g. for Ethernet solutions), to enable alternative operators to enter the markets and develop offers which are competitive with the dominant operator.

[297] See Annex 4, paragraph 3, of the LLRO "QSP2 - TIME TAKEN TO REPAIR FAULTS": compensation of 3% x MLP, where MLP= Monthly Line Price.

[298] That is, the leased circuit that was not repaired within the period specified in Table 2.2 of the referenced Annex 4 of the LLRO.

[299] In accordance with Annex 6 of the LLRO, *"To ensure proper planning and optimisation of PTC's resources, necessary for the development of the LLRO, the OSP are bound to provide PTC, no later than 30 June of each year, with a* [quarterly] *forecast plan*

It is also essential to ensure that the deadlines applicable to delivery and repair of faults, applied contractually to the wholesale supply of leased lines do not prevent operators competing in the retail market from providing their customers with delivery and fault repair times which are in line with those of the companies of Grupo PT (operating at retail level).

In this respect it is reported that one of the beneficiaries of LLRO informed ICP-ANACOM that it had urged PTC to submit a proposal for more demanding levels of service than those defined in the reference offer, to which PTC responded that:

- to present the requested proposal required of a study that it estimated would cost 30 thousand euros;
- the deadline for submission of the proposal would be 30 working days from the acceptance of the indicated budget;
- carrying out the study does not guarantee that it will be possible to implement a Premium service, in the manner requested.

In this context, the operator in question considered that the conditions did not allow it to proceed with negotiations, informing PTC of such and seeking the intervention of ICP-ANACOM with a view to reviewing the levels of quality of service.

This matter will also be addressed in the separate decision referred to above.

It is also important to ensure that the information obtained by the SMP operator, as a result of its own provision of leased lines services to other operators, is not, under any circumstances, transmitted to or used by its retail division. The publication of quality of service indicators/parameters enable verification as to whether the wholesale service is provided to all operators in a non-discriminatory manner and, in particular, whether the service provided by PTC to the companies of Grupo PT is comparable to that provided to alternative operators.

In this respect, by determination of 11 March 2009 on performance levels regarding quality of service of the wholesale offers[300], ICP-ANACOM takes the position that "*regarding the information that must be provided* (...), *it should be in line with the quality of service parameters established in the LLRO. In this sense, information should be sent concerning the deadlines for installation, the malfunction repairs times and the circuits' degree of availability. It is recognized that the goal defined in the determination can be achieved by collecting information in a discriminated mode for the main operators using the offer (operators that fall into the typical*

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of their needs for the following year (...) *reviewed quarterly during year N+1*" and "*In the event that the required capacity exceeds that forecast by the OSP, PTC will endeavour to ensure the provision of excess capacity over the plan. In this case, the times taken for installation will be negotiated on a case-by-case basis*". The LLRO also sets out that PTC proceed with any settlement of accounts relating to compensation for failure to keep to deadlines, at latest, in the month following receipt of any notification addressed to it by the alternative operator, which must be submitted no later than three months subsequent to the occurrence.

[300] Available at Levels of performance in the quality of service of wholesale offers.

large circuit network), and in an aggregated mode for the remaining operators (integrated on a basic contract or in a circuit network contract). In any case, information should also be discriminated, whenever applicable, according to the quality of service parameters defined and to the type of circuit that the indicator refers to". This requirement is proportionate and key to compliance with the obligation of non-discrimination, whereby it is maintained on the terms already defined, adapting to the breakdown defined for the SLAs, with traditional lines differentiated from Ethernet-based lines.

Finally, taking into account the size of Grupo PT in the retail and wholesale markets and the principle of non-discrimination, Grupo PT is prohibited from engaging in the practice of loyalty and/or capacity discounts except where justified by the principle of cost orientation of prices (including any reflection of economies of scale), allowing that such discounts may be accepted in exceptional and specific circumstances. Any proposed change in this context has to submitted previously to ICP-ANACOM, containing detailed and justified reasoning in accordance with the principles of non discrimination and cost orientation.

Finally, ICP-ANACOM also takes the view that, in order to ensure compliance with the obligation of non-discrimination, it must be accompanied by the imposition of obligations of transparency and accounting separation.

6.4.2.3. Transparency

ICP-ANACOM deems that there are few situations related to the wholesale provision of leased lines in which the transparency obligation constitutes an obligation which is sufficient *per se* to counteract any possible anti-competitive practices. In any case, it could act as a limitation to anti-competitive behaviour, to the extent that pricing and conditions of supply are monitored both by this Authority and by the competitors of the SMP company, whereby it is more obvious when anti-competitive conditions are established.

Transparency is, moreover, a natural addition to the obligation of non-discrimination, since the ability to identify behaviours with possible adverse effects, through discriminatory practices, depends on the ability to detect such behaviour. Therefore, without the obligation of transparency, the ability to detect and demonstrate discriminatory behaviour would be significantly affected. This could compromise the effectiveness of the obligation of non-discrimination and, as a result, lead to a resurgence or an increase in the factors underlying dominance. Subsequently, the problems associated with such dominance may arise, with a negative impact on the markets.

Promoting the application of this obligation ensures:

- the timely provision of relevant information to stakeholders, providing enhanced predictability, security and certainty associated with the environment in which operators seeking access carry on their activities and facilitating efficient and informed entry into the market, which ultimately benefits competition and the end-user;

– mitigation of asymmetry of information between the regulated company and the regulator and better oversight of compliance with the obligation of non-discrimination.

Under art 67 of the ECL, the NRA may require the publication of appropriate information in respect of the provision of access and interconnection by an operator with SMP, including accounting information, technical specifications, network characteristics and terms and conditions for supply and use, including prices. Also in accordance with art. 68 of the same law, the NRA may, on a case by case basis and in particular to operators which have obligations of non-discrimination, determine that access reference offers be published, including the means of disclosure[301].

Having regard to the cited articles of the ECL, in its decision of 8 July 2005, ICP-ANACOM imposed the obligation to publish a reference offer, with two key objectives: (i) to support transparency in the oversight of potential anti-competitive behaviour and (ii) disclose the terms and conditions under which other operators may gain access to wholesale services. As such, this offer takes on an important role in heading off potential conflict and increases the confidence of acquirers of wholesale services, insofar as it helps them be fully informed of all the main conditions associated with the provision of the services, contributing to an assurance that they are supplied according to non-discriminatory conditions.

In this context it should be noted that the ERG argues that, since it is particularly complex for an NRA to control the quality of services provided when it imposes an obligation of non-discrimination, it may make sense to support this obligation using an obligation of transparency[302]. The ERG indicates, in particular, that the obligation of transparency could comprise the obligation to provide minimum levels of quality of wholesale services, and periodically report levels of performance in quality of service of the wholesale offers to the NRA and where appropriate to other operators.[303]. The ERG also argues that it is fitting to publish the accomplished performance levels, since this leads to increased confidence among market players with respect to the effectiveness of the obligation of non-discrimination.

ICP-ANACOM likewise considers that quality of service is an essential aspect in any wholesale reference offer, and that it is key to take into account how the various aspects related to this feature of the offer function to ensure the existence of appropriate competitive conditions and also to ensure the provision of wholesale and retail services which meet the needs of end-users. For this purpose, the reference offer must be clear with respect to the set of indicators on quality

[301] The same article of the ECL sets out that the NRA require operators with SMP to present an offer which is sufficiently unbundled to ensure that operators are not required to acquire products/services which are not necessary for the service requested;

[302] "Revised ERG Common Position on the approach to appropriate remedies in the ECNS regulatory framework" ("*Remedies document*").

[303] The ERG also considers that the performance levels reported must include the services provided to alternative operators and the services provided by the SMP operator to its own companies, in order to monitor compliance with the obligation of non-discrimination.

of service, establishing the minimum level for each of these indicators and the compensation to be incurred in case of non-compliance[304].

In this respect, it is considered that the way in which the performance levels of quality of service of the wholesale offers are submitted to the NRA, to operators and to end-users is very important to the effectiveness of the transparency obligation.

ICP-ANACOM therefore takes the view that the principle of transparency can also be ensured through the requirement to publish the LLRO and keep the publication current[305], to enhance the predictability of the conditions specified therein, which shall contain a description of the relevant offers separated into several components according to market needs, as well as the associated terms and conditions, including prices, key technical information, including levels of quality of service (which must include SLAs and adequate compensation in case of non-compliance with established levels).

The reference offer should continue to establish the conditions mentioned above for analogue and digital lines up to (and including) 155 Mbps (i.e., including speeds of 64 kbps, n×64 kbps, 2 Mbps, 34 Mbps and 155 Mbps) - and will now include Ethernet lines[306], in the LLRO or in a specific reference offer - as well as the specific conditions associated with the service of leased line part circuits (and components supporting interconnection) and the service of access to submarine cable or CAM lines. It should also include the offer of symmetric xDSL technologies, if and when made available at retail or to the companies of Grupo PT.

Additionally, to ensure predictability and ease of reference with regard to this offer, it is considered that it remains necessary to properly identify the changes made thereto[307]. To ensure the objectives mentioned, it is considered that notice of the amendments made to the reference offer on the initiative of PTC must be given one month prior to the time they are due to take effect. Only in this way is it possible to ensure that operators have time to take decisions and carry out operational activities or activities related to strategic changes resulting from any amendments made to the offer, when these amendments are instigated on the initiative of PTC.

ICP-ANACOM considers that the publication of performance levels, discriminated according to the determination of 11 March 2009, is proportionate and must be maintained under the general obligations of transparency and non discrimination, contributing in particular to incentivising the accomplishment of the established objectives in terms of quality of service and deter any discriminatory practices.

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[304] This compensation should be high enough to create an effective and appropriate incentive for the SMP operator to meet the established levels of service.

[305] On its website.

[306] Including, in particular, those of standard capacity, i.e., 10 Mbps (E), 100 Mbps (FE) and 1 Gbps (GE).

[307] Especially in the Annex to the LLRO.

Finally, ICP-ANACOM should be sent any information regarding pricing and any quantity discounts, "custom" offers and/or temporary promotions/offers which PTC may use to attract and capture specific customer segments and/or in specific geographical areas .

In conclusion, following the imposition of the obligations of access and non-discrimination, and given the evident importance of maintaining, in association with the transparency obligation, the existence of a reference offer which is appropriate and accessible and which contains all the information required so that alternative operators that use or plan to use the wholesale services in question are able to do so in a predictable and efficient manner, ICP-ANACOM deems maintenance of the requirement of transparency a proportional measure which is justified and necessary in order to verify the principle of non-discrimination. ICP-ANACOM also considers that the costs of implementing this requirement are low, since the requirement consists of updating the information which is necessary to ensure that there are no conditions which are adverse to competition.

6.4.2.4. Price control and cost accounting

Pursuant to the ECL, ICP-ANACOM is bound to ensure that mechanisms of cost recovery and the methodologies establishing pricing promote efficiency and sustainable competition and maximize consumer benefits, whereas account may be taken of the prices available in comparable competitive markets.

Art 74 of the same law allows the NRA to impose obligations in respect of cost recovery and price controls, where, as a result of a lack of effective competition, the operator concerned might sustain prices at an excessively high level or apply a price squeeze to the detriment of end-users[308].

The access and transport networks used for the provision of terminating segments throughout the entire national territory and transit segments on "Routes NC" are characterized by a lack of effective competition, indicating high entry barriers and little likelihood of future competition. In the absence of effective competition, the SMP operator in these wholesale markets has little incentive to reduce costs and operate efficiently, since through excessive prices these higher costs can be transferred to wholesale customers and, ultimately, corporate end-customers and consumers, who have no alternative choice.

Indeed, in the case of wholesale markets where: (i) there is no effective competition, (ii) there are important barriers to entry, (iii) the development of competition is unlikely and (iv) in which the SMP operator may act independently with respect to other market players, it is deemed likely

[308] Including obligations for cost orientation of prices and obligations concerning cost accounting systems for the provision of specific types of access or interconnection.

that this operator has every incentive to set prices for wholesale offers at a level significantly higher than the costs incurred in providing the services[309].

However, a key aspect in the offer in question is therefore the possibility that operators are able to provide retail services (leased lines and, indirectly, other services) without facing situations of margin squeeze.

In this regard, the ERG argues that NRA may adopt measures to prevent margin squeeze. However, it argues that in cases where an obligation of cost orientation of prices is imposed, concerns about a situation of a margin squeeze will be alleviated[310].

The importance of a leased lines wholesale offer, as a means of enabling alternative operators to build out their own networks and provide retail offers of electronic communications services (including resale of leased circuits) with broad geographical coverage, justifies the guarantee of minimum conditions which enable these operators to compete in the market and develop truly competitive services, ultimately benefiting end-users.

The price of leased lines wholesale service should, meanwhile, provide incentives which are appropriate so that both the operator providing access and the operator granted access invest in their own infrastructures in an efficient manner, in order to ensure sustainable competition[311].

In this context, the obligation to control prices and cost accounting promotes and ensures sustainable and efficient competition, since it establishes the prices of wholesale services at a level which allows operators to compete in downstream retail markets. Without the existence of this obligation of control, ICP-ANACOM will encounter a lot of difficulties in verifying whether the established wholesale prices are based on the costs incurred by the operator with SMP. This difficulty occurs not only with regard to the appropriateness of the level of pricing established, but also with regard to the structure and composition of the wholesale tariff based on the costing model[312].

In terms of putting this obligation into operation, it is important to take into account that:

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[309] It is noted that, as mentioned in the analysis made over the course of the document, transport networks (supporting the wholesale leased lines service) are characterized, in the relevant markets under analysis, by a lack of effective competition, indicating high barriers to entry, with little likelihood of future competition. In the absence of effective competition, the company with SMP has little incentive to reduce costs and operate efficiently, since through excessive prices these higher costs can be transferred to wholesale customers and, ultimately, corporate end-customers and consumers, who have no alternative choice.

[310] *See* "Common Position on Best Practice in Remedies Imposed as a Consequence of a Position of Significant Market Power in the Relevant Markets for Wholesale Leased Lines", available at: http://erg.eu.int/doc/publications/erg_07_54_wll_cp_final_080331.pdf.

[311] With effective control of these issues it is likely that the SMP operator also has a real incentive to achieve increases in efficiency and cost savings.

[312] Notwithstanding the need anticipated by ICP-ANACOM for the costing model to be revisited in order to examine its conformity with the technological, regulatory and market evolution which has already taken place.

- The majority of lines offered commercially in the market are made up of traditional lines and have been offered for various years, whereby their costs are relatively stable (as is the entire set) and should be shown separately in PTC's accounting system;

- The prices of PTC's (traditional) wholesale leased lines offer have been regulated according to the principle of cost orientation of prices. In applying this principle, ICP-ANACOM has based its cost estimates on PTC's accounting system, audited annually, and also, additionally, by referring to current practices in the European Union. In assessing the prices, criteria of economic efficiency are also taken into account;

- The obligation of cost orientation of prices has objective justification, insofar as it provides for the establishment of prices based on costs, preventing situations of excessive pricing and enabling the development of competition, while promoting, *ceteris paribus*, the application of reasonable prices in comparable competitive markets, thereby contributing to the protection of consumer interests[313];

- Ethernet lines have recently been introduced into the market, and are still a relatively limited part (but with important growth) of the total number of leased lines, whereas the costs involved have not yet fully stabilized for purposes of regulatory action;

- Ethernet lines will come to assume increasing importance in relation to traditional circuits, both due to migration from traditional lines to Ethernet lines and due to the choice of this type of circuits in the act of new leases;

- The establishment of price caps, oriented to cost, avoiding excessive pricing, will not entirely prevent, *per se*, the establishment of retail prices by the dominant firm which are (excessively) low - predatory pricing - and the consequent margin squeeze (i.e. a disparity between the wholesale and retail prices charged by Grupo PT, forcing competitors to incur losses on their retail offers).

As such, while it is appropriate to maintain the obligation of cost orientation of prices with respect to traditional lines, with respect to Ethernet lines, the specification of this obligation is not deemed the most appropriate form of price control. This is especially the case since, as noted above, the total number of Ethernet lines (albeit relatively small compared to the total number of leased lines) is experiencing significant growth and costs are not fully stabilized for purposes of regulatory action.

The imposition of a "retail-minus" obligation, which prevents margin squeeze and can also induce cuts in wholesale prices - as occurred, for example in the case of the "Rede ADSL PT"

[313] Any withdrawal of the obligation to control prices and of cost accounting could lead to significant damage in the wholesale markets - terminating segments throughout the national territory and trunk segments on "Routes NC"- and in associated retail markets, particularly, in the leased lines retail market. The identified damages have significant and broad influence, affecting alternative wholesale operators and companies (end-users) and leading to incentives to investment and inappropriate efficiency. It is noted that for the majority of alternative operators, the costs of leasing lines from PTC (particularly in the case of terminating segment) represents a relatively significant costs in terms of overall costs.

offer - is deemed an appropriate and proportional obligation in the context of Ethernet circuits, which, as mentioned, are likely to assume increasing importance in relation to traditional circuits. At a crucial stage in the development of this service, this requirement will prevent anti-competitive practices that might cause irreversible harm to electronic communications markets.

Whereas, at present, this Authority does not have the cost and price elements of this wholesale (and correspondent retail) offer, the basis by which it is shown that there is no margin squeeze in the Ethernet offer will initially be demonstrated Grupo PT, which basis shall include the costs of commercialising the offer and will be analyzed by ICP-ANACOM.

Subsequently, after monitoring and evaluating the correct application of this rule, it will be possible for ICP-ANACOM to establish a more detailed specification of the "retail-minus rule, including the level of effective margin to be guaranteed, which specification shall always be the object of separate determination.

For this purpose, however, it will be necessary that Grupo PT provides ICP-ANACOM with details of the condition of all and any retail Ethernet offers. In this context it is important to note that the "retail-minus" rule focuses only on the regulated wholesale leased lines (trunk segments on "Routes C" and all types of traditional lines are excluded) and on the directly corresponding retail lines (i.e., consisting only of terminating segments and/or trunk segments in transit on "Routes NC").

In the case of traditional circuits, in its decision of 8 July 2005, ICP-ANACOM imposed a minimum margin of 26% between the wholesale price of the companies of Grupo PT and the corresponding analogue and digital leased lines up to 2 Mbps (inclusive) at retail level. Since the greatest competitive dynamics will come from alternative technologies - including Ethernet, a trend which, as identified in previous sections, is already in place - ICP-ANACOM considers that maintaining the "retail-minus" obligation with respect to traditional circuits is no longer justified nor proportionate, and as such, with effect from the date of publication of the final decision, this obligation is withdrawn, while the obligation of cost orientation of prices is maintained.

This decision is in line with the position of the ERG, as cited above, that any perpetration of margin squeeze will be kept limited in number (or at zero) through maintenance of the obligation of cost orientation of prices.

Furthermore, ICP-ANACOM has not recently received complaints about possible restrictive practices of this nature, except in one particular case, where it was concluded that there was no evidence of margin squeeze[314].

Nevertheless, this Authority will continue to monitor the evolution of the offers of the dominant operator and the market to ensure its healthy functioning, analyzing anticipated situations of possible margin squeeze and situations reported by stakeholders on a case-by-case basis.

[314] The complaints specifically related to problems of capacity on CAM lines are analyzed separately.

In conclusion, given the current lack of current and likely future competition, in the period under analysis, the objective of price regulation should be to make access to leased lines services available to competing operator at prices that would be charged if the market were competitive, while allowing the SMP operator to obtain a reasonable rate of return on its investments.

In conclusion, the prices for terminating segments of leased lines throughout the entire national territory and trunk segments of leased lines on "Routes NC" (including CAM):

- using traditional technologies, shall be oriented to costs;
- using alternative technologies, should be subject to a rule of "retail-minus" under terms to be established.

This approach was also, for example, adopted by CMT in its latest market analysis[315].

Finally, the latest data on the costing of leased lines[316] shows that there is scope to reduce the prices of traditional leased lines, especially with regard to lines with capacity equal to or exceeding 2 Mbps and CAM lines, which decision will be the object of separate determination and subject to prior consultation.

In addition to the specific case of CAM lines, analysis will also be made in this determination of the prices of leased lines between the islands of the Autonomous Regions of the Azores and Madeira ("Inter-island lines"), given that these currently have prices which are similar to the CAM lines, when the distances involved are much lower. It should again be noted that alternative operators are obliged to resort to the CAM and Inter-Island leased lines of PTC to offer their services in the Autonomous Regions. And since these lines have prices which are substantially higher (even if due to the greater distances) than those of lines with the same speed on the mainland territory, they have an added weight in their business plans, with heavy impact in terms of profitability and the viability of their offer to retail customers.

6.4.2.5. Separation of accounts

As in the case of the obligation of transparency, the obligation of accounting separation is essential to ensure compliance and effectiveness of the obligations of non-discrimination and of price control and cost accounting, enabling ICP-ANACOM to properly monitor compliance with the obligations associated with the pricing and costs of the SMP company.

This measure is objectively justified, given the need to ensure non-discrimination (allowing the analysis of wholesale prices and internal transfer pricing) and to prevent cross subsidization, and

[315] *See* http://circa.europa.eu/Public/irc/infso/ecctf/library?l=/espaa/adopted_measures/es20090930-0931/market_and_ex-7/resolucin_2008-1944pdf/_ES_1.0_&a=d.
[316] Cost Accounting System of PTC, accounting values, with reference to 2008.

is a proportionate measure, since it only involves the provision of information with a level of detail which makes it possible to verify other obligations.

In particular, it is deemed that the lack of an obligation of accounting separation would make it difficult for this Authority to properly monitor compliance with the obligations associated with the SMP company's costs and pricing and thereby make it significantly more difficult to identify situations of cross-subsidisation[317].

It is concluded that the obligation of accounting separation should be maintained to ensure that there is effective oversight of the obligations of non-discrimination and of price control and cost accounting. The format and accounting methodology must meet the requirements that have been conveyed to PTC by ICP-ANACOM in a separate process, whereas this Authority shall conduct periodic reviews of these requirements with a view to improving the costing system and provided information, subject to the rules which may be defined in the future.

6.4.2.6. Financial Reporting

So that ICP-ANACOM is able to verify compliance with the obligations referred to above, and in accordance with paragraph 3 of art 71 of the ECL, the SMP operator shall provide their own accounting records including data on revenues from third parties. Otherwise, the effectiveness of these obligations will be compromised, leading to significant damage to the leased lines wholesale markets and associated markets.

The position is taken, in line with the analysis performed in 2005, that these records constitute the cost accounting system, which must be sent as defined separately from this process.

The position is also maintained that maintaining the obligation of financial reporting is necessary, proportionate and appropriate.

6.5. Conclusion

For the purposes of *ex ante* regulation and in accordance with the principles of competition law, the following wholesale markets are identified:

- Terminating segments of leased lines, irrespective of capacity and technology, covering the entire national territory;
- Trunk segments of leased lines, irrespective of capacity and technology, consisting of "Routes NC".

[317] Any removal of the obligation of accounting separation could imply that the damages identified above (when considering the obligations of non-discrimination and price control and cost accounting) would impact the relevant markets.

Having carried out an analysis of the above markets and taking utmost account of the Guidelines, ICP-ANACOM has concluded that Grupo PT has SMP in the identified relevant markets and, as a consequence, that all *ex ante* obligations set out in **Table 7**. In the case of the market of trunk segments of "Routes C", all obligations imposed in 2005 shall be maintained for a period of six months following the final decision, except for the obligation regarding the 26% differential between wholesale prices on "Routes C" and the corresponding retail prices, which rule is immediately withdrawn. All obligations have basis in article 66 of the ECL, given that there is a lack of effective competition in these markets:

Table 7 - Obligations to be imposed on undertakings identified as having SMP on the relevant markets

Obligations	Wholesale markets of terminating segments and trunk segments on "Routes NC"
Access to and use of specific network resources	▪ Respond to reasonable requests for access, according to transparent, fair and non-discriminatory conditions, irrespective of the technology used[318]. ▪ Provide for co-location on the undertaking's premises[319,320]. ▪ Ensure interconnection between operators co-located in the local exchanges of PTC ▪ Negotiate in good faith with undertakings seeking access. ▪ Refrain from withdrawing access which has already been granted to determined resources. ▪ Guarantee expansion of capacity on CAM lines.
Non-discrimination in the offer of access and interconnection and in the respective provision of information	▪ Provide, to alternative operators, information, resources and services according to deadlines, on a basis and with levels of quality which are not inferior to those offered to the retail departments and companies of Grupo PT. ▪ Implement contractual deadlines applicable to delivery and repair of faults at wholesale level which are shorter than the deadlines practised in the retail markets. ▪ Refrain from the practice, where there is no reasoned basis, of any loyalty discounts and/or quantity and/or capacity discounts ▪ Guarantee specific objectives of quality of service for CAM lines. ▪ Ensure there is no transmission, to the retail department or companies the Group, of information regarding the service of lines leased to other operators. ▪ Publish performance levels, with specific detail, as defined in determination of 11 March 2009 and according to developments that may occur in this context by determination of ICP-ANACOM.

[318] Including SHDSL and Ethernet technologies (made available at retail level by Grupo PT or offered to the Group's own services or companies).

[319] At a minimum, in the same form as in the current RUO and RIO wholesale offers.

[320] Possibility of imposing co-location in submarine cable stations, by means of through specific decision.

Obligations	Wholesale markets of terminating segments and trunk segments on "Routes NC"
Transparency in the disclosure of information, including reference offers	▪ Publish (and maintain on the website) a reference offer for analogue and digital leased lines- including Ethernet lines[321] - to wholesale customers, including: (a) the technical characteristics and performance characteristics of the different types of leased lines segments; (b) the prices, appropriately separated by component; (c) binding SLA, including the conditions governing delivery and migration, notification and repair of faults, and the respective compensation due in the event of non-compliance; (d) specific conditions associated with CAM lines, the service of leased lines part circuits (and support components for interconnection), the service of submarine cable access and the offer of symmetric xDSL technologies (if and when made available at retail or to the companies of Grupo PT). ▪ Clearly identify the amendments made to the offer in each alteration thereof. ▪ Notify ICP-ANACOM with regard to pricing and any quantity discounts, "custom" offers and/or temporary promotions/offers which are used to attract and capture specific customer segments and/or customers in specific geographical areas. ▪ Give notice of 30 days in respect of amendments to the offer. ▪ Provide alternative operators with detailed and timely information on developments in the network supporting the service, giving two months prior notice with regard to expansion of Ethernet coverage.
Separation of accounts for specific activities related to access and/or interconnection	▪ Prepare cost accounting system and accounting separation.
Price control and cost accounting	▪ Establish cost-oriented prices in the case of traditional leased lines. ▪ Comply with the "retail-minus" rule in the case of leased lines supported on alternative technologies - Ethernet[322].
Financial Reporting	▪ Provide accounting records (AAS), including data on revenues from third parties.

ICP-ANACOM considers that the established obligations may require a greater level of detail,

[321] Ethernet circuits may be considered in a separate reference offer from the LLRO, whereas PTC, no later than two months following the final decision, shall publish an updated version of the LLRO with the inclusion of Ethernet lines or publish a specific offer of Ethernet-supported leased lines. Furthermore, PTC shall previously submit to ICP-ANACOM - not later than 1 month prior to this publication - the reasoned basis for its various components.

[322] For this purpose, o Grupo PT shall send ICP-ANACOM the tariffs prevailing for retail Ethernet lines.

specification or clarification regarding their implementation, which will be provided in separate documents.

Table 8 presents a comparison between the obligations imposed in the analysis conducted in 2005 and in the present analysis.

Table 8 - Comparison between the obligations imposed in 2005 and the obligations imposed pursuant to the present market analysis - terminating segments in the entire territory and trunk segments on "Routes NC"

Wholesale markets for leased lines - terminating segments in the entire territory and trunk segments on "Routes NC"[323]	**Decision of 8 July 2005**	**Present market analysis**
Scope of the geographic market defined	**National**	**National/Routes NC**
Obligations		
Access to and use of specific network resources	✓	✓
▪ Respond to reasonable requests for access, according to transparent, fair and non-discriminatory conditions	✓	✓
○ Including Ethernet lines	-	✓
▪ Provision for co-location on the undertaking's premises	✓	✓
▪ Possibility of imposing co-location in submarine cable stations, by means of specific decision.	-	✓
▪ Ensure interconnection between operators co-located in the local exchanges of PTC	✓	✓
▪ Negotiate in good faith with undertakings seeking access	✓	✓
▪ Do not withdraw access which has already been granted to determined resources.	✓	✓
▪ Ensure expansion of capacity in CAM lines	-	✓
Non-discrimination in the offer of access and interconnection and in the respective provision of information	✓	✓
▪ Provide, to alternative operators, information, resources and services according to deadlines, on a basis and with levels of quality which are not inferior to those offered to the retail departments and companies of Grupo PT.	✓	✓
▪ Implement contractual deadlines applicable to delivery and repair of faults at wholesale level which are shorter than the deadlines practised in the retail markets.	✓	✓
▪ Do not practice, without reasoned basis, any loyalty discounts and/or quantity and/or capacity discounts	✓	✓
▪ Guarantee specific objectives of quality of service for CAM lines.	-	✓
▪ Do not transmit, to the retail department or companies the Group, information regarding the service of lines leased to other operators	✓	✓
▪ Publish performance levels, with specific detail, as defined in determination of 11 March 2009 and developments that may occur in this context by determination of ICP-ANACOM	✓	✓

[323] The obligations and conditions of supply with respect to the trunk segments on "Routes C" are maintained for a period of 6 months following publication of the final decision.

Wholesale markets for leased lines - terminating segments in the entire territory and trunk segments on "Routes NC"	Decision of 8 July 2005	Present market analysis
Obligations		
Transparency in the publication of information, including reference proposals	✓	✓
▪ Publish (and maintain on the website) a reference offer for analogue and digital leased lines to wholesale customers ○ Including Ethernet lines[324]	✓ -	✓ ✓
▪ Clearly identify the changes made to the offer in each amendment thereto	✓	✓
▪ Give notice of 30 days in respect of amendments to the offer.	✓	✓
▪ Give notice with regard to pricing and any quantity discounts, "custom" offers and/or temporary promotions/offers which used to attract and capture specific customer segments and/or in specific geographical areas.	-	✓
▪ Provide alternative operators with detailed and timely information on developments in the network supporting the service, giving prior notice of two months with regard to expansion of Ethernet coverage.	-	✓
Separation of accounts for specific activities related to access and/or interconnection	✓	✓
▪ Prepare cost accounting system and accounting separation	✓	✓
Price control and cost accounting	✓	✓
▪ Establish cost-oriented prices, in the case of traditional leased lines	✓	✓
▪ Comply with the "retail-minus" rule in the case of leased lines supported on alternative technologies - Ethernet[325]	-	✓
▪ Minimum difference of 26% between the wholesale pricing of leased lines and the pricing of the relevant leased lines at retail level, as practiced by the companies of Grupo PT - "retail minus" rule	✓	(a)
Financial Reporting	✓	✓
▪ Provide accounting records (AAS), including data on revenues from third parties	✓	✓
✓ **- Appropriate obligation** (a) **Obligation withdrawn immediately after publication of the final decision.**		

[324] Ethernet circuits may be considered in a separate reference offer from the LLRO, whereas PTC, no later than two months following the final decision, shall publish an updated version of the LLRO with the inclusion of Ethernet lines or publish a specific offer of Ethernet-supported leased lines. Furthermore, PTC shall previously submit to ICP-ANACOM - not later than 1 month prior to this publication - the reasoned basis for its various components.

[325] For this purpose, Grupo PT shall send ICP-ANACOM the tariffs prevailing for retail Ethernet lines.

Compared to the analysis conducted in 2005, it is concluded that the following markets are no longer considered relevant for purposes of *ex ante regulation*:

- Retail market of leased lines;
- Trunk segments, irrespective of capacity and technology, comprising "Routes C",

whereby, all obligations that had been imposed in these markets are withdrawn, as presented in **Table 1** and in **Table 2**.

ANNEX I - LIST OF LOCAL EXCHANGES THAT CONSTITUTE THE EXTREMES OF "ROUTES C"

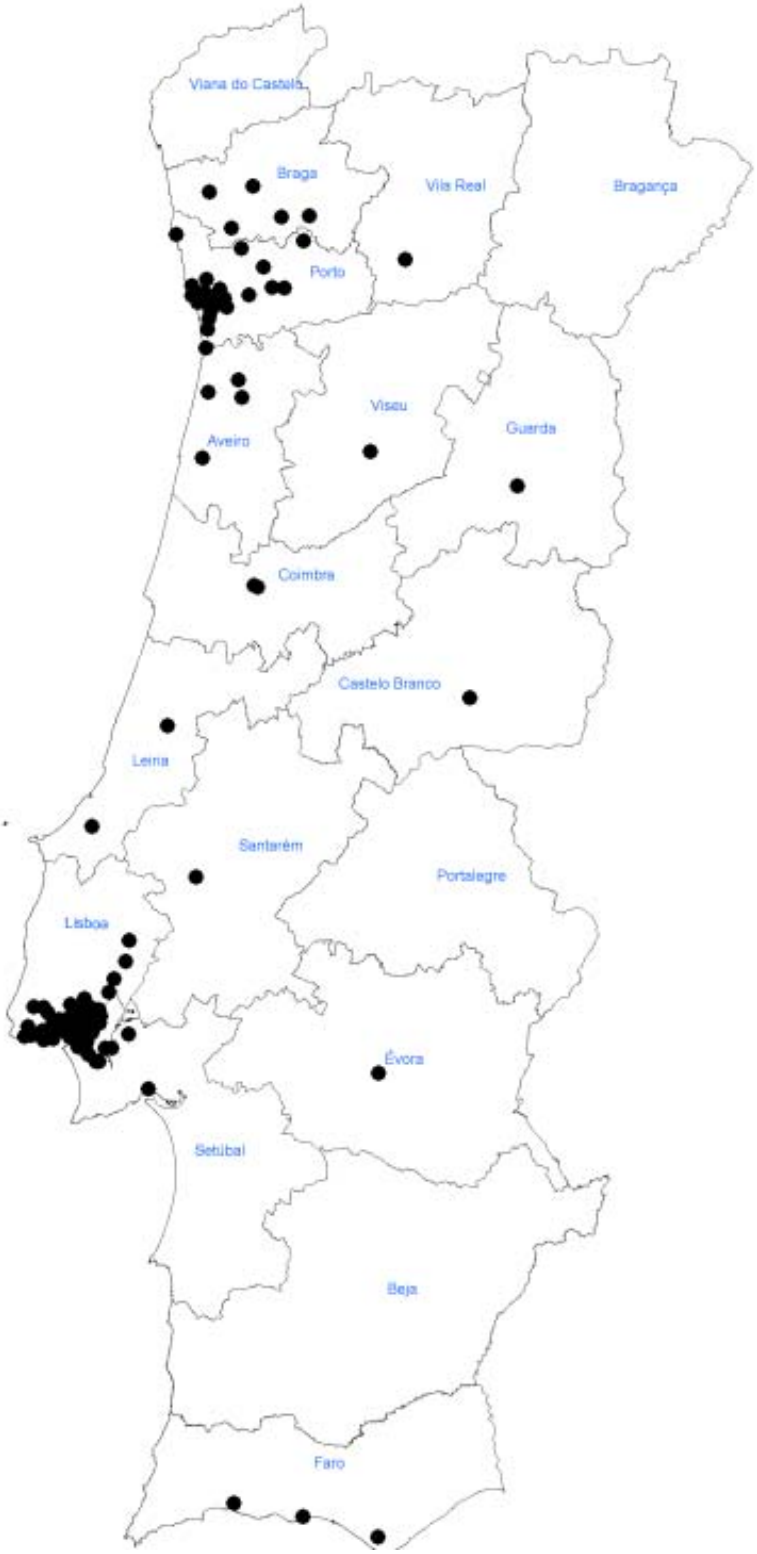
"Routes C" consist of trunk segments that connect the local exchanges of PTC where two or more alternative operators are co-located (and are active in the market) with optical fibre infrastructure:

Exchange Area	Code
Abóbada	01AB01
Albufeira	89AF01
Alcabideche	01AD01
Alfragide	01AF01
Algés	01AG01
Almada	01AA01
Alverca	01AV01
Amadora	01AM01
Amoreiras	01LX01
Arcozelo	02AC01
Areeiro	01LX10
Aveiro	34AV01
Baixa da Banheira	01BB01
Barcelos	53BL01
Barreiro	01BA01
Belém	01LX02
Benfica	01LX03
Boavista	02PT03
Bonfim	02PT04
Braga	53BG01
Caldas da Rainha	62CH01
Calhabé	39CO02
Camarate	01CM01
Campo Pequeno	01LX11
Canecas	01CN01
Caparica	01CA01
Carcavelos	01CV01
Carnaxide	01CX01
Carnide	01LX04
Carregado	63CG01
Carvalhido	02PT06
Cascais	01CS01

Castelo	01LX12
Castelo Branco	72CB01
Chelas	01LX13
Corroios	01CR01
Cruz de Pau	01CP01
Ermesinde	02EM01
Espinho	02EP01
Estoril	01ES01
Estrela	01LX05
Évora	66EV01
Fafe	53FF01
Faro	89FR01
Feijó	01FJ01
Felgueiras	55FG01
Foz	02PT07
Gaia	02GA01
Gondomar	02GO01
Graça	01LX14
Guarda	71GD01
Guimarães	53GM01
Lapa	02PT08
Laranjeiras	01LX06
Leça da Palmeira	02LC01
Leiria	44LR01
Linda-a-Velha	01LV01
Loures	01LU01
Lumiar	01LX15
Maia	02MA01
Massamá	01MS01
Matosinhos	02MT01
Mem Martins	01MM01
Mercado	39CO01
Miraflores	01MF01
Montijo	01MN01
Norte	01LX07
Odivelas	01OD01
Oeiras	01OE01
Olivais	01LX16
Oliveira de Azeméis	56AZ01
Oriente	01LX20
Ovar	56OV01
Paços de Ferreira	55PR01

Paredes	55PS01
Pedrouços	01LX08
Penafiel	55PF01
Picaria	02PT09
Poço do Bispo	01LX17
Portas de Benfica	01LX09
Portela	01PT01
Portimão	82PM01
Porto Salvo	01PL01
Povoa de Santa Iria	01PV01
Povoa de Santo Adrião	01PA01
Povoa de Varzim	52PZ01
Queluz	01QE01
Reboleira	01RB01
Rio de Mouro	01RM01
Rio Tinto	02RT01
Sacavém	01SC01
Santarém	43ST01
Santo Antonio dos Cavaleiros	01SA01
Santo Ovídio	02SO01
Santo Tirso	52SS01
São Marcos	01SM01
São João da Madeira	56SM01
Senhora da Hora	02SH01
Setúbal	65SB01
Sintra	01SN01
Torre da Marinha	01TM01
Trindade	01LX18
Valongo	02VL01
Venda Nova	01VN01
Vila Franca de Xira	63VX01
Vila Nova de Famalicão	52FL01
Vila Real	59VR01
Viseu	32VZ01
Batalha (Porto)	
Picoas (Lisboa)	

ANNEX II - MAP OF LOCAL EXCHANGES THAT CONSTITUTE THE EXTREMES OF "ROUTES C"



APPENDIX I - LIST OF ACRONYMS AND ABBREVIATIONS

ADSL ..... Asymmetric Digital Subscriber Line

ATM..... Asynchronous Transfer Mode (traditional packet switching technology)

BWA..... Broadband Wireless Access

CAM..... Leased line between the mainland and the Autonomous Regions of the Azores and Madeira

xDSL ..... Digital Subscriber Line (e.g. ADSL, SHDSL, HDSL)

DWDM..... Dense Wavelength Division Multiplexing

DTM..... Dynamic synchronous Transfer Mode traditional switching technology

E ..... Ethernet (10 Mbps)

EC ..... European Commission

ECJ ..... Court of Justice of the European Communities

ECL ..... Electronic Communications Law, Law No. 5/2004 of 10 February

ECS..... Submarine Cable Station

ERG..... European Regulators Group

ETSI ..... European Telecommunications Standards Institute

Explanatory Note..... Annex to the EC Recommendation on relevant markets

FE ..... Fast Ethernet (100 Mbps)

FR..... Frame Relay (traditional packet switching technology)

FWA..... Fixed Wireless Access

GE..... Gigabit Ethernet (1 Gbps)

Gbps ..... Gigabit per second (Billions of bits per second)

Guidelines..... EC Guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services

HDSL ..... High-bitrate DSL

IP ..... Internet Protocol

Kbps ..... Kilobits per second (thousands of bits per second)

Km.par..... Kilometres of optical fibre (fibre pair)

LAN..... Local Access Network

LE..... Local extension (terminating segment)

LLRO ..... Leased lines Reference Offer

MS ..... Main Section (trunk segment)

NGN ..... Next Generation Networks

NGA ..... Next generation access networks (next generation optical fibre access networks)

NRA ..... National Regulatory Authority

Mbps..... Megabit per second (millions of bits per second)

NTP ..... Network Termination Point

OSP..... Operator and provider of electronic communications services

OSI ..... Open System Interconnection

PDH..... Plesiochronous Digital Hierarchy, technology preceding SDH (which has replaced it on transport networks), primarily used on access networks and lower speed lines (typically up to 2 Mbps)

POP..... Point Of Presence

RUO ..... Reference Unbundling Offer

SME..... Small or Medium Enterprise

SMP..... Significant Market Power

Recommendation..... Recommendation on Relevant Product and Service Markets, Electronic Communications, of the EC (2007)

SDH..... Synchronous Digital Hierarchy, technology mostly used on transport networks, as well as on high-speed access networks (typically at speeds exceeding 2 Mbps)

SDSL/SHDSL ..... Symmetric High-Bitrate Digital Subscriber Loop (xDSL technologies which enable symmetrical connection of speed equal to or exceeding 2 Mbps over the copper network)

SLA ..... Service Level Agreement

SoHo..... Small Office/Home Office.

STM1..... Synchronous Transfer Mode - Transporte SDH a 155 Mbps

SSNIP..... Small but Significant Non-transitory Increase in Price

TDM..... Time Division Multiplexing (traditional technology)

UMTS..... Universal Mobile Telecommunications System

VLAN..... Virtual Local Access Network

VPN..... Virtual Private Network

WLAN..... Wireless Local Area Network (may include FWA and BWA)

APPENDIX II – LIST OF OPERATORS AND OTHER ENTITIES

ARTelecom ..... AR Telecom - Acessos e Redes de Telecomunicações, S.A.

Brisa ..... Brisa – Auto-estradas de Portugal, S.A.

Cabovisão..... Cabovisão, Televisão por Cabo, S.A.

COLT ..... COLT TELECOM - Serviços de Telecomunicações, Unipessoal, Lda.

Novis ..... Novis Telecom, S.A.

OniTelecom..... OniTelecom – Infocomunicações, S.A.

Optimus..... Optimus Telecomunicações, S.A.

PTC ..... PT Comunicações, S.A.

PT Prime ..... PT PRIME – Soluções Empresariais de Telecomunicações e Sistemas, S.A.

ReferTelecom..... REFER TELECOM – Serviços de Telecomunicações, S.A.

REN ..... REN - Redes Energéticas Nacionais, SGPS, S.A.

TMN..... TMN – Telecomunicações Móveis Nacionais, S.A.

Sonaecom..... Sonaecom – SGPS, S.A.

Vodafone..... VODAFONE PORTUGAL – Comunicações Pessoais, S.A.

TV Cabo..... TV Cabo Portugal, S.A.

ZON ..... ZON TV CABO PORTUGAL, S.A.