

# SPECTRU

MONTHLY NEWSLETTER

115

MARCH 2011

More information at: [www.anacom.pt](http://www.anacom.pt)

## ANACOM LAUNCHES CONSUMER PORTAL

The *Autoridade Nacional de Comunicações* (ANACOM) is to launch on 15 March (World Consumer Rights Day) the Consumer Portal, at [www.anacom-consumidor.com](http://www.anacom-consumidor.com). The Portal can also be accessed via this Authority's website at [www.anacom.pt](http://www.anacom.pt). ANACOM aims with this initiative to strengthen its role in the protection of consumer rights, providing comprehensive aggregated information about electronic communication and postal services. Relevant information will specifically be provided on: existing market offers, including service packages; active operators;

what to bear in mind when choosing a service; what to know about service provision contracts; specific questions regarding rates, invoicing and cancellations; how to resolve problems with service providers; and the role of ANACOM and other relevant bodies in this context. The ANACOM RESPONDS interactive tool enables questions to be asked which can be responded to immediately - another major feature of the Consumer Portal. A form for submitting complaints to ANACOM is also provided.

## QUALITY OF SERVICES AND MOBILE NETWORKS - REPORT

ANACOM's most recent evaluation shows that the mobile communication systems show good levels of GSM radio coverage and good voice service performance in urban areas and along road arteries. These results are included in the latest report assessing the quality of mobile voice services, video-telephony

and GSM and WCDMA network coverage provided by the operators Optimus, TMN and Vodafone Portugal. The evaluation in question was based on analysis of six indicators: network coverage, service accessibility, call establishment times, call termination rate, call audio quality and call video quality. (+)

## DTT - INFORMATION CAMPAIGN

A digital terrestrial television (DTT) awareness-raising campaign was launched last 10 March at Lisbon's Palácio Foz by PT Comunicações (PTC) in the scope of ICP-ANACOM licence no. 6/2008. The ceremony was attended by the ministers of Public Works, Transport and Communications, António Mendonça, and Parliamentary Affairs, Jorge Lacão, as well as by ANACOM Chairman José Amado da Silva. This campaign was developed by MSTF Partners for PTC. It will have two phases and be carried in various media outlets - television, print, exterior and internet. The current analogue emissions will be gradually phased out, with the switch-off taking place in three pilot areas in 2011 - Alenquer, Cacém and Nazaré - whose relay stations will be closed on 12 May, 16 June and 13 October, respectively. In 2012 the switch-off plan envisages ending analogue

transmissions in three phases: on 12 January for transmitters and relays covering a coastal strip of mainland territory; on 22 March for transmitters and relays covering the autonomous island regions of the Azores and Madeira; and on 26 April for the rest. An estimated 1.5 million households will have to switch to DTT in order to continue watching television. The nearly 2.7 million remaining households subscribe to paid television and are not affected by this process. Besides the FAQs (frequently asked questions) and other information provided on the ANACOM website, interested parties should consult the information supplied by the DTT Forum at <http://tdt.telecom.pt/>. They may also use the call centre provided by PTC (800 200 838) per the terms of the aforementioned licence.

# COMMUNICATIONS IN PORTUGAL

## NEWS

### QUALITY OF FIXED TELEPHONY - 4<sup>TH</sup> QUARTER 2010

The *Autoridade Nacional de Comunicações* (ANACOM) recently released the fourth quarter 2010 report on the quality of service of access to the public telephone network at a fixed location and of telephone service accessible to the public at a fixed location. The document encompasses the following quality of service parameters (PSQs): time to supply an initial connection (PQS1); malfunction rate per access line (PSQ2) and malfunction repair rate (PQS3).

### ANACOM PUBLIC SPEECH

The presentation (in English) given by ANACOM board member Eduardo Cardadeiro at the workshop preceding the 8<sup>th</sup> FTTH Council Europe last 8 February in Milan has been posted online. (+)

### ANALOGUE TV SWITCH-OFF - STUDY

Most Portuguese (92.2 percent) have indicated that they do not know when the current analogue television transmissions will end and be replaced by the new digital terrestrial television (DTT). This result is reported in a survey carried out by the Centre for Investigation into Applied Communication, Culture and New Technologies (CICANT) of the Lusófona University of Humanities and Technologies, in partnership with the *Autoridade Nacional de Comunicações* (ANACOM) and Obercom, and financed by the Foundation for Science and Technology (FCT). (+)

### DTT - FAQs UPDATED

ANACOM has posted online an updated version of the frequently asked questions (FAQs) regarding digital terrestrial television (DTT). The aim is to provide information and explanations that answer eventual questions on the subject. (+)

### DTT - TRAINING ACTIONS

Working in partnership with the Consumer Directorate-General, ANACOM recently carried out two training actions on digital terrestrial television (DTT), one in Lisbon (17 February) and the other in Porto (28 February). They were addressed to officers from Local Authority Consumer Information Centres. The following topics were specifically considered: impacts of switching from the analogue system to the digital system;

and requirements and features of the new equipment consumers must acquire. Other consumer questions in the area of electronic communications were also dealt with, such as how to respond to and route consumers, unfair commercial practices in selling the equipment needed to switch systems, and alerting consumers.

### PORTABILITY

At the end of February, the total number of ported numbers stood at 1,729,899, of which 1,335,536 pertained to fixed telephone service (FTS), 392,856 to mobile telephone service (MTS) and 1,507 to other non-geographic services (NGS). In accumulated terms, from the time portability was introduced up to 28 February, some 2,574,584 numbers have been ported, broken down as follows: 1,982,063 in FTS, 590,672 MTS and 1,849 NGS. (+)

Meanwhile, the information posted on the ANACOM website concerning the numbers for accessing the service that provides information on the price of calls to ported numbers, the procedures for deactivating/reactivating the portability announcement and the prices operators (of fixed, mobile and nomad VoIP service) charge new customers who port numbers, has been updated. (+)

### NGNs ARRIVE IN RURAL AREAS

The arrival of next generation networks (NGNs) in rural areas was marked last 9 February by the connection of the Penacova Basic School. Information provided on the occasion indicates that 75 percent of Portugal's territory is currently covered by NGNs, for an access potential of 7 million people. The rural NGNs account for an investment of 182 million euros, backed by 106.2 million euros in support from the European Union, and cover 139 municipalities and more than 800,000 homes. (+)

### ANACOM WEBSITE - HOMEPAGE REWORKED

ANACOM recently reworked its website's homepage, with a view to making information content easier to read. The styles (CSS) were simplified, the colours changed and the size of some boxes increased. The central column's space was also enlarged. The 'toolbox' and 'share' options now expand when the cursor passes; you no longer have to click on the box.

## FWA - CONSULTATION ON CHANGED ONITELECOM RIGHTS

By determination dated 3 March, the *Autoridade Nacional de Comunicações* (ANACOM) approved the draft decision modifying the frequency usage right granted to Onitelem for operation of the fixed wireless access (FWA) system, regarding

the minimum number of central stations the company must maintain. This draft decision is under consultation until 6 April; interested parties are asked to submit comments, preferably by email to [consultafwa.oni@anacom.pt](mailto:consultafwa.oni@anacom.pt). (+)

## T-DAB - CONSULTATION ON REVOKING RTP'S RIGHT

ANACOM approved last 3 March the draft decision cancelling the act allocating the frequency usage right associated to terrestrial digital audio broadcasting (T-DAB) and consequently licence no. ICP-004/99-RPT, granted to RTP - Portuguese

Radio and Television. Interested parties are asked to state their positions by 7 April, submitting comments preferably by email to [consulta.tdab@anacom.pt](mailto:consulta.tdab@anacom.pt). (+)

## ELECTRONIC COMMUNICATIONS AND POSTAL SERVICES - 2011 QUESTIONNAIRES

The annual questionnaires on electronic communications and postal services are already available. The requested information should be sent within 30 consecutive days by post or email to [dee.stats@anacom.pt](mailto:dee.stats@anacom.pt), counting from the date they are received. The respective information will only be used internally by ANACOM to support its oversight of the communications

sector and help produce its annual publications. Information already provided to the public is nevertheless excluded. As in 2009, relevant data is expected to be included in the "Yearbook on the Communications Sector in Portugal", which includes information about bodies active in the sector. (+)

## NET COSTS OF UNIVERSAL SERVICE - NEW CONSULTATION DEADLINE

By determination dated 17 February, ANACOM decided to extend until 22 March the deadline for interested parties to state their positions on the draft decisions concerning the defini-

tion of excessive burden and the methodology for calculating the net costs of universal telecommunications service, approved by determination dated 27 January. (+)

## FIXED HIGH SPEED NETWORKS REACH 292,000 CUSTOMERS

The number of customers using services supported by high speed accesses (FTTH and EuroDOCSIS 3.0 or equivalent) rea-

ched 292,400 (278,000 residential and the other 14,400 non-residential) at the end of the fourth quarter of 2010 (4Q10). (+)

## NEWLY ENACTED LEGISLATION

**Administrative rule no. 88/2011** (Series I - Diário da República (official gazette) of 28 February) - Sets the amount to transfer to the ERC Media Regulatory Board per ANACOM's net results for budget year 2009 and delivered as general state revenue;

**Rectification declaration no. 323/2011** (Series II (Part E) - D.R. of 8 February) - Rectifies order no. 1338/2008 published on 14 January, concerning delegation of powers from the ANACOM vice president to the director of Litigation and Administrative Offences;

**Determination no. 387/2011** (Series II (Part E) - D.R. of 8 February) - Amends section 8 of determination no. 2429/2010 of 24 December, concerning delegation of powers from the ANACOM Management Board to its members;

**Order no. 3234/2011** (Series II (Part E) - D.R. of 17 February) - Delegation of powers to the director of ANACOM Board Support.

Meeting in Council of Ministers last 24 February, the government approved the decree-law establishing the National Network of Institutionalised Arbitration Centres (RNCAI) as well as the forms and criteria for financing and evaluating the respective centres.

# PENETRATION OF SUBSCRIPTION TV SERVICES



4th Quarter 2010

Unit: subscribers per 100 households  
 Source: ICP- ANACOM, INE

## EC CONSULTATIONS

### ELECTRONIC IDENTIFICATION AND SIGNATURES

The European Commission (EC) has launched a public consultation (under way until 15 April) on electronic authentication, identification and signatures. The aim is to obtain suggestions regarding how these resources can contribute to development of the European digital market. The consultation's results will be taken into account when the Commission revises the Electronic Signatures Directive and in preparations for an initiative on mutual recognition of electronic identification and authentication. This EC initiative is framed by the goals set out in the Digital Agenda for Europe, specifically to boost electronic commerce and streamline online administrative procedures in the European single market. The Digital Agenda also considers development of an initiative on mutual recognition of electronic identification and authentication. To that end, the EC has been backing a large-scale pilot project called STORK (Security idenTity acrOss boRders linKed) meant to enable trans-frontier recognition of electronic identification systems and facilitate access to public services in 18 European countries. (+)

### FINANCING OF INFRASTRUCTURES

A European Commission public consultation is under way until 2 May, on the Europe 2020 Project Bond Initiative meant to sti-

mulate financing for projects with long-term profit potential as framed in the Europe 2020 policy priorities. The EC estimates that in the next decade record amounts of investment will be needed for the areas of transportation, energy and communication networks - from 1.5 to 2 trillion euros. Given budget limits currently affecting governments, this means it is crucial to attract private sector financing for related infrastructure projects. The Europe 2020 Project Bond Initiative aims to support private bodies promoting those projects by issuing bonds meant to specifically finance infrastructure projects. The key role of the Commission and the European Investment Bank (EIB) will be to absorb part of a given project's associated risk. (+)

### COLLECTIVE REDRESS

The EC public consultation meant to identify common legal principles in collective redress ends on 30 April. The consultation should help examine how those common principles fit in the legal system of the European Union (EU) and the legal orders of the 27 EU member states. This EC initiative also looks into areas where the different types of collective action (injunctive and/or compensatory) may have added value for improving compliance with EC laws or ensuring better protection of victims' rights. (+)

# COMMUNICATIONS AROUND THE WORLD

## EUROPEAN UNION

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### **EUROBAROMETER - MOBILE COMMUNICATIONS IN ROAMING**

The most recent Eurobarometer special devoted to roaming indicates that nearly three out of every four European mobile phone users continue to limit voice mobile calls abroad for cost reasons. The study also shows that an average of 19 percent of Europeans do not even use their mobile phones abroad, a practice led by Portugal and Bulgaria at 32 percent, followed by Hungary (31 percent) and Germany (26 percent). According to Eurobarometer, the Portuguese are also the Europeans who have travelled the least in the last five years, as indicated by 72 percent of the responses, topped only by Greece (77 percent) and Bulgaria (82 percent). The results of this survey, as well as the public consultation on the future of the European roaming regulation (closed on 11 February), will serve as the basis for revision of the current EU rules which the EC must complete by June 2011. (+)

### **eGOVERNMENT - 9<sup>TH</sup> EC REPORT**

The European Commission has released the ninth benchmark report on e-government, which makes a comparative analysis of online public services in the European Union and reveals that Portugal, along with Austria, Ireland, Italy, Malta and Sweden, is one of the best-performing countries in this area. The EC report analyses the online availability of a set of 20 basic public services, such as, for example, automobile licences, tax returns or new company registration. It indicates that e-government services reached 82 percent in 2010, substantially more than the 69 percent in 2009. In Portugal's case, the Commission report highlights good practices such as the citizen's card, online company, electronic declarations for the Finance Ministry and online social security. (+)

### **EUROPEAN 112 DAY**

February 11 marked European 112 Day, which this year coincided with the 20<sup>th</sup> anniversary of creation of the single European emergency number (ambulance, fire and police) common to the European Union member states. On this occasion, Foundation 112 (set up to promote use of this emergency number) warned that three out of every four Europeans remained unaware of the existence of 112 as the European emergency number. (+)

### **MOBILE SATELLITE SERVICES - EC APPEAL**

The European Commission has through its vice president and commissioner for the Digital Agenda, Neelie Kroes, urged 21 EU member states, among them Portugal, to rapidly take the steps needed to develop pan-European mobile satellite service (MSS) systems which can be used for high-speed internet access, mobile television, radio and emergency communications. This appeal follows the May 2009 selection of Inmarsat Ventures Limited and Solaris Mobile Limited as MSS operators, as well as the 2008 approval by the European Parliament and by the EU Council of Ministers of the decision to the effect that MSS should be available in all member states by May 2011. (+)

### **SPORTS ON TV - STATES DETERMINE ACCESS**

The European Commission has welcomed the decision by the General Court of the European Union (EU) - formerly the Court of First Instance - which confirms that EU member states have discretionary power under European law to decide which sports events are of major importance for their respective publics and should thus be available on free-to-view television. At stake is article 14 of the Audiovisual Media Services Directive, whereby member states can draw up a list of major events for their population (such as the Olympic Games) and take steps to ensure that those events are accessible on free-to-view television. (+)

### **COMMISSIONER NEELIE KROES - SPEECHES**

Speeches on the following topics by the commissioner for the Digital Agenda, Neelie Kroes, have been posted online: "A European Strategy for Research and Innovation in Photonics", at the opening session of the Photonics21 Annual Meeting (Brussels, 24 February); "Delivering Solutions on Roaming and Radio Spectrum", at the 2011 Mobile World Congress (Barcelona, 14 February); "The Right Regulatory Environment for Rolling out Next Generation Networks", at the Fibre to the Home Council Europe Conference (Milan, 10 February); "Safer Internet Day 2011: protecting children online", at the Safer Internet Centre (Belgium, 8 February); and "Ending Fragmentation of the Digital Single Market", at a Business For New Europe event (London, 7 February). (+)

## ANACOM INTERNATIONAL ACTIVITY

The *Autoridade Nacional de Comunicações* (ANACOM) represents the Portuguese communications sector before international sector-related organisations and took part in a number of recent meetings in the scope of the European Conference of Postal and Telecommunications Administrations (CEPT), the Body of European Regulators for Electronic Communications (BEREC), the European Regulators Group for Postal Services (ERGP), the Independent Regulators Group (IRG), the International Telecommunication Union (ITU) and the Latin American Forum of Telecommunications Regulatory Authorities (Regulatel).

### CEPT

In the scope of the Electronic Communications Committee, Copenhagen hosted last 23-24 February a meeting of the project team on Technical Regulation and Interconnection Standards (TRIS) of the Numbering and Networks working group. (+)

### BEREC

The BEREC Contact Network met last 3-4 February in Skopje. (+) Meetings followed with the expert working group (EWG) on Remedies in Brussels on 18 February (+), and the Board of

Regulators (BoR) in Riga on 24-25 February. (+)

### ERGP

The first meeting of chairpersons of the ERGP working groups was held last 7 February in Paris (+). The same city hosted on 23 February a meeting of the subgroup on Regulatory Costing/Price Regulation.

### IRG

The IRG Contact Network met last 3 February in Skopje (+); the group's plenary meeting was held on 24 February in Riga. (+)

### ITU

Geneva hosted meetings of the following groups:

- ITU Council working group on Financial Regulations (FINREGS), on 16 February; (+)
- Telecommunications Standardisation Advisory Group (TSAG), on 8-11 February. (+)

### REGULATEL

The 10<sup>th</sup> Meeting of Regulatel Co-Directors was held last 4 February in San José, Costa Rica. (+)

## CO-OPERATION WITH GUINEA-BISSAU

The ceremony marking ANACOM's donation of 10 personal computers to the National Regulatory Authority of Guinea-Bissau (ARN), achieved diplomatically through Portugal's embassy in that country, took place on 8 February. The initiative's importance was underscored by Bissau's state secretary for telecommunications, infrastructures and transportation, José Carlos Esteves, who stressed that it would help build capacities for ongoing communications regulatory reform in the country. Portugal's ambassador in Bissau, António Ricoca Freire,

in turn emphasised the diversity of co-operation between the two countries and progress in the Indicative Co-operation Programme for 2011-2013, covering the areas of justice, security, health, education and social protection. The material was donated in the context of bilateral co-operation between the two regulators and in the framework of the 2010 Annual Co-operation Plan with the former Guinea-Bissau Communications Institute (ICGB), merged into the ARN in May 2010. (+)

## 2<sup>ND</sup> LUSOPHONE COMMUNICATIONS FORUM - 14-15 APRIL

The second Lusophone Communications Forum will be held on 14-15 April at the Olga Cadaval Cultural Centre in Sintra near Lisbon, organised by the Association of Communications and Telecommunications Regulators of the Portuguese Language Countries (ARCTEL-CPLP). The theme topic will be "Challenges

and Opportunities", with discussion to focus on major issues currently affecting the communications world. To that end, plans call for three panels: challenges of regional regulation; sectorial business organisations; and partnerships for development.

## ITU STUDY SHOWS THAT INTERNET REACHES 2 BILLION

The ITU recently revealed that the number of global internet users reached the figure of 2 billion last year. This follows a decade of tremendous growth, as in 2000 the respective

number was 400 million. The organisation's data also indicate high growth in mobile telephone service, where in the last ten years the number of users rose from 1 billion to 5 billion. (+)



# NEWS FROM OTHER COUNTRIES

## **AUSTRALIA – Australian Communications and Media Authority (ACMA)**

- The regulator has published the “Five-year Spectrum Outlook 2011-2015”, a document presenting its assessment of current and future spectrum needs, as well as the spectrum management plan for the 2011-2015 period. (+)

## **BELGIUM – Institut Belge des Services Postaux et des Télécommunications (IBPT)**

- The regulator has added to its website a page concerning the auction of licences to operate third generation (3G) and 4<sup>th</sup> generation (4G) mobile telephony, respectively scheduled for June 2011 and mid-October 2011. (+)

## **BRAZIL – Agência Nacional de Telecomunicações (ANATEL)**

- In January Brazil passed the figure of 205 million mobile telephone service (MTS) subscriptions, of which 168.9 million corresponded to prepaid modes (82.3 percent) and 36.3 million to postpaid services (17.7 percent). The MTS penetration rate rose to 105.74 accesses per 100 inhabitants.
- The proposed Basic Shortwave Audio Broadcasting Channel Distribution Plan (PBOC) for the 49m, 31m, 25m, 19m and 16m bands was placed in public consultation up to 17 March.
- Subscription television service recorded 155,000 new subscribers in January, raising to 9.9 million the total number of homes covered. The figure was up 1.6 percent over the previous month, while accumulated growth compared to January 2009 was 30.2 percent.

## **CANADA – Canadian Radio-television and Telecommunications Commission (CRTC)**

- The regulator has launched a consultation, under way until 18 April, on the loudness of television commercials, in which it asks for comments on possible technical and regulatory steps that can be taken to ensure that commercials are not perceived as being louder than the programmes they accompany. (+)

## **FRANCE – Autorité de Régulation des Communications Électroniques et des Postes (ARCEP)**

- The regulator has released fourth quarter 2010 statistics concerning broadband fixed services which specifically indicate the existence of 21.3 million connections at the end of the review period, for growth of 7 percent over the same quarter in 2009.
- In the scope of the third cycle (2011-2014) of fixed telephony market analysis, the regulator has placed in public consulta-

tion until 23 March the assessment and outlook document as well as the respective analysis. (+)

- ARCEP has published a number of proposals meant to improve offers made to consumers by internet access service suppliers, telecommunications operators (fixed and mobile) and postal operators. These proposals aim to help consumers make informed choices when buying a service, with respect to its nature and quality as well as its price. (+)

## **IRELAND – Commission for Communications Regulation (ComReg)**

- The regulator has published the “Wholesale Compliance Annual Report 2010”, concerning compliance by operators with regulatory obligations at wholesale level. It also provides information about litigation between companies. (+)
- The ComReg proposal to issue provisional licences for operating in the 900 MHz band, which takes into account that the current titles allocated to Vodafone and O2 expire in May 2011, has been placed in public consultation until 18 March. (+)
- ComReg has launched a new website on 112 at [www.112.ie](http://www.112.ie). The aim is to raise citizen awareness about the European single emergency number and appropriate use of this service. (+)
- The regulator has published responses to the consultation on principles and methodologies to use when determining the cost of universal telecommunications service obligations, as well as its proposed decision in this area, under consultation until 4 April. (+)

## **UNITED KINGDOM – Office of Communications (Ofcom)**

- The latest Ofcom study on broadband internet access speed, published on 2 March, shows that the average speed is around 6.2 Mbps, which is otherwise less than half (45 percent) the rates advertised (the average advertised speed is 13.8 Mbps). (+)
- The regulator has launched a public consultation on changes to general conditions and universal service conditions needed to implement the revision of the community framework for electronic communications. (+)
- The United Kingdom’s new broadcasting code took force on 28 February. (+)

## **SWEDEN – Post- och Telestyrelsen (PTS)**

- The regulator has completed the auction of licences for the 800 MHz band, collecting about 233 million euros. The winning bidders were the operators HI3G Access, Net4Mobility and TeliaSonera Mobile Networks. (+)

## 4<sup>TH</sup> QUARTER 2010 STATISTICS RELEASED

The *Autoridade Nacional de Comunicações* (ANACOM) recently published fourth quarter 2010 (4Q10) statistical information on electronic communication services and postal services.

### POSTAL SERVICES

In 4Q10 total postal service traffic was up 4.3 percent over the previous quarter, accounting for nearly 280 million objects. This is nevertheless the usual seasonal increase in that quarter. The figure was otherwise down 5 percent year-on-year, a trend in line with the traffic downturn in recent years.

### INTERNET ACCESS SERVICE

Broadband continues to dominate Portugal's internet panorama. At the end of 4Q10 there were about 2.6 million users who effectively used the internet in mobile broadband, 1.3 million of them via cards/modem, and about 2.1 million customers with fixed internet accesses, 2.08 million of them broadband.

### SUBSCRIPTION TELEVISION

Subscription TV service (STVS) saw a major boost in 4Q10 driven by FTTH/FTTB access and secondly by 'other' access

technologies (public telephone network (xDSL/IP) and FWA), which together account for nearly 97 percent of (net) new customers.

### FIXED TELEPHONE SERVICE

The number of main telephone accesses installed at customer request was about 4.4 million at the end of 4Q10, for a penetration rate of nearly 41.3 accesses per 100 inhabitants. Compared to the previous quarter, the number of accesses was up 0.4 percent; it was up even more on annual terms, by around 4 percent.

### MOBILE TELEPHONE SERVICE

At the end of 4Q10 there were 16.47 million active mobile stations associated to postpaid, prepaid and combined/hybrid plans, 2.1 percent more than in the previous quarter. Of these, 81.9 percent (about 13.5 million) were effectively used in the last month of the quarter, 0.1 percent less than in the third quarter of 2010.

## 29<sup>TH</sup> ANACOM SEMINAR - 21 MARCH

The next encounter in the ANACOM Seminars series will be held in Lisbon on 21 March at 11 a.m. This 29<sup>th</sup> seminar will include the presentation on "Regulatory Remedies to Mitigate Asymmetric VAT-Exemptions" by Urs Trinkner, senior associate

researcher and teacher at the School of Economics of Zurich University. Participation in the event is free, though subject to prior registration via the email address [seminarios@anacom.pt](mailto:seminarios@anacom.pt).

VERSÃO TEXTO    VERSÃO MÓVEL    VISUALIZAÇÃO ALTO-CONTRASTE

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**BEM-VINDO!**  
SAIBA COMO E QUANDO A ANACOM O PODE AJUDAR.

**A ANACOM RESPONDE**  
Coloque aqui a sua questão que nós respondemos.  
Restam-lhe 100 caracteres.    **PERGUNTE**

▶ Top Perguntas Frequentes  
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# SPECTRU

**PUBLISHER AND OWNER:**  
ICP – Autoridade Nacional de Comunicações

**HEADQUARTERS:**  
Av. José Malhoa, 12  
1099-017 Lisboa  
[info@anacom.pt](mailto:info@anacom.pt)  
[www.anacom.pt](http://www.anacom.pt)

**DIRECTOR:**  
Fátima A. Botelho

**PRODUCTION:**  
companhia dos riscos,  
design lda