

Global Communications Newsletter

July 2011

4G Mobile Licenses Under Auction in Spain

By F. Falcone Lanas and Paula Pérez Gómez, Public University of Navarra and University of Vigo, Spain

The Ministry of Industry announced in February 2010 [1] a plan to collect between €1500 and €2000 million with the auction of new frequency bands for mobile telephony. The bid for a total of 310 MHz in different frequency bands will be done by a mixed formula: 90 percent through auctions and 10 percent by competition.

The available spectrum space is free as a result of the rearrangement of the frequency portion related to the previous generation of mobile telephony (GSM) and the spectrum vacated by the switch-off of analog TV services. Of the amount raised, €800 million will go to arrange the frequencies now occupied by digital terrestrial television (DTT), the so-called digital dividend in the range from 470 to 862 MHz.

Several management approaches toward spectrum allocation are possible, the auction being among the preferred ones [2]. The Minister Miguel Sebastian pointed out that the decision of a mixed procedure has the desire to add transparency to the process as well as the tax collection increase. The Telecommunications Market Commission (TMC) noted in his report on the rearrangement of the spectrum that this auction system is more transparent than the tender-based one used in 2000 and 2005.

The bid for 310 MHz is the most important spectrum restructuring undertaken in Spain and thus facing similar processes in Europe. The Ministry of Industry explained that the system wants to prioritize the investment of operators in the sector for the benefit of citizens and society with a large and direct impact on employment and productivity. Thanks to this formula, it is expected to mobilize an investment of €1200 million and create 40,000 jobs.

The Ministry of Industry already has the Electronic Auction Platform (EAP) software to be used by interested parties to bid in a process expected to begin by July 2010 and to last as long as bids continue to rise.

Government has limited the access to frequencies by traditional mobile operators (Movistar, Vodafone, and Orange) by establishing an upper limit for any operator to grab a majority of the spectrum, according to the TMC indications, so as not to harm competition or lock out new entry rivals. More than 30 companies have shown interest in the consultation regarding the process, far more than telecommunications operators in the country.

The use of this bidding system is being pioneered in Spain, although some companies have experience in auctions held in other countries, such as Telefonica, which participated in the auction held in Germany in 2010 via its filial O2 and paid €1380 million for a set of frequency blocks: two in 800 MHz, one in 2 GHz, and four in 2.6 GHz.

With the allocation of additional spectrum to be held in the second quarter of 2011, the government follows the exam-

ple of other countries to promote competition and enable new services for fourth-generation mobile radio by increasing the space available by 70 percent.

In this rearrangement the band of 800 MHz would be bid on in auction; in the 900 MHz band, the block of 5 MHz will be awarded by competition and with availability last year, whereas the two blocks of 5 and 4.8 MHz was to be auctioned this year but will be available in 2015. The band of 1800 MHz would also be awarded by competition to be available in 2011, while the new 2.6 GHz band would be bid at auction and also available last year.

The industry spent months awaiting the completion of the process to undertake the reorganization of the radio spectrum that would allow telecom operators to have more resources to grow, mainly in mobile broadband services.

With this spectral reorganization, the regulation that allows the use of these frequency bands for mobile operators is put in practice, so the band of 900 MHz which has been only available to GSM may be used for broadband services; and also incorporated new frequency bands, such as 800 MHz and 2.6GHz. These frequencies will allow better coverage with less investment, but would not be available until 2015. They will also ensure coverage for ultra-fast mobile broadband to 98 percent of the population, thus facilitating the achievement of the objectives of the Digital Agenda for Europe [3] by 2020 and so strongly contribute to reducing the digital divide.

In 2010 in Spain radio frequencies generated a business of €22,000 million, and will go further to meet the demand for mobile broadband. In Spain there are 54.3 million mobile lines (116.3 lines per 100 inhabitants), 92.5 percent owned by Telefonica (TEF.MC), Vodafone (VOD.L), and Orange (FTE.PA).

Telstra (TLSN.ST) has a market share of 3.9 percent, and 3.5 percent is held by a dozen mobile virtual network operators (who have no network).

The explosion of data services via mobile phones due to the proliferation of new devices like smart phones, laptops, and tablets, which require mobile Internet connection, has made those frequencies the desired target for all companies who fear the collapse of their networks. These indicators turned the Spanish auction into a promising business for international investors.

Telecommunications operators interested in radio frequency bands of 800 MHz, 900 MHz, and 2.6 GHz had until 7 June to submit applications and participate in the auction process, which began before 30 June 2011.

Orange is committed to invest a total of €433 million in the competition for frequencies of 900 MHz, while Telstra has offered a total of €300 million for the bands of 900 and 1800

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Fourth IEEE Lebanon Communications Workshop (IEEE LCW '10) Attracts More than 250 Participants

By Zaher Dawy, IEEE ComSoc Lebanon Chapter Chair

The IEEE Communications Society Lebanon Chapter organized the Fourth IEEE Lebanon Communications Workshop 2010 (IEEE LCW '10) on 18 December at the Faculty of Engineering, Lebanese University (LU). The general theme of the workshop was Communications Security with focus on state-of-the-art topics related to network and wireless security. The IEEE LCW workshop is the biggest telecom event that is organized at the national level on an annual basis. This year, it attracted around 275 participants including telecom engineers, telecom executives, university professors, and engineering students. The program started with an opening session, followed by two technical sessions.

The IEEE Communications Society Lebanon Chapter chair, Dr. Zaher Dawy (Professor, American University of Beirut), opened with a welcoming speech, thankful for the strong participation and distinguished speakers from Lebanon and abroad. He pointed out that IEEE LCW '10 is instrumental in achieving the IEEE ComSoc Lebanon Chapter's objectives: to contribute to telecom advancement on a national level, to add to telecom awareness, and to strengthen ties between the academic and industrial worlds. He concluded by thanking the Workshop's corporate supporters for their generous contributions: National Instruments Arabia, MTC Touch, Mada Communications, Data Consult, Alfa managed by Orascom Telecom, and Terranet.

The opening session included a presentation by Dr. Imad Elhadj (Professor, American University of Beirut) about the IEEE Lebanon Section activities highlighting the professional



Attendees at IEEE LCW '10.

benefits of IEEE membership, a speech by Dr. Imad Hoballah (Acting Chairman and CEO, Lebanese Telecom Regulatory Authority) on the importance of cyber security awareness at the national level, and a welcome speech by Dr. Mohamed Zoater (Dean of the Faculty of Engineering, LU).

The technical program included featured presentations by distinguished invited speakers from the United Nations Inter-regional Crime and Justice Institute (UNICRI) on Cyberwar and Information Warfare by Mr. Raoul Chiesa (Senior Advisor, Strategic Alliances and Cybercrime Issues); Cisco on Borderless Network Security by Mr. Joseph Hanna (Business
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New European Research Initiative on Techno-Economic Regulatory Framework for Cognitive Radio/Software Defined Radio

By Arturas Medeisis, Chair of COST-TERRA, Vilnius Gediminas Technical University, Lithuania

A new joint research initiative has recently been set up in Europe within the framework of the European Cooperation for Science and Technology (COST) to address the issue of a techno-economic regulatory framework for cognitive radio/software defined radio (CR/SDR). The initiative, formally known as COST Action IC0905 TERRA (COST-TERRA), is organized as a kind of "think tank" with regular networking meetings. Its planned activities span to May 2014.

At the time of writing, the COST-TERRA network included researchers from 19 European countries representing academia, industry and regulators. Recently, members from other parts of the world have started joining the action. The first non-European membership was by Communications Research Centre of Canada, now being followed by the Mera-ka institute of CSIR South Africa and a couple of US institutions that are considering joining as well. COST-TERRA also established institutional liaison with bodies like CEPT (association of European regulators), European Telecommunications Standards Institute (ETSI), IEEE DySPAN (former SCC41) and the Wireless Innovation Forum (former SDR Forum).

The meetings of COST-TERRA present an excellent opportunity for researchers as well as various players in the field to come for lively brainstorming sessions on the subject of developing regulatory policies for cognitive radio. The most recent meeting took place in Lisbon, Portugal, on 19–21 January 2011, and was hosted by the Instituto de Telecomuni- ções.

The meeting was attended by 38 participants, and consisted



Participants of the COST-TERRA meeting in Lisbon.

of both regular sessions to present the latest research in the field as well as panel discussions dedicated to hot issues such as regulatory policy for TV white space devices and developments with the CR/SDR-related agenda item for the ITU World Radiocommunications Conference of 2012.

The next meeting of COST-TERRA will take place 20–22 June 2011 in Brussels, and, in addition to regular sessions, will feature a public workshop on the afternoon of 22 June. It is to be noted that COST-TERRA meetings have an open participation policy; therefore, any researchers from around the world who work on developments of regulatory policies for
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Report on the 12th International Conference on Communication Systems (ICCS 2010)

By Michael Ong, Institute for Infocomm Research, Singapore

The 12th International Conference on Communication Systems (ICCS 2010) was held at the Furama Riverfront Hotel, Singapore from 17–19 November 2010.

This is a biennial series of conferences co-organized by the National University of Singapore (NUS) and the Institute for Infocomm Research (I2R), Singapore, and technically sponsored by IEEE Communications Society, IEEE Singapore Communications Chapter, and IEEE Singapore Vehicular Technology Chapter.

ICCS 2010 was a three-day event comprising a keynote speech by a leading academic researcher, technical oral and poster presentations, and tutorials by industrial experts. This event continues to provide opportunities for researchers and practitioners to share their experience and ideas in the field of communications engineering and systems.

The conference showcased a technical program consisting of 10 oral sessions, two poster sessions, five special sessions, and three tutorials covering many exciting aspects of wireless communications, optical communications, devices, and new emerging technologies. In particular, the five special sessions consisted of 25 invited papers, addressing the latest developments in the fields of broadband mobile communications, cognitive and cooperative communications, energy harvesting and sustainable communications, optical communica-

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Clockwise from upper left: General Co-Chair Dr. Liang Yingchang at the opening ceremony, 18 November 2010; delegates touring the Singapore River on the way to the banquet dinner at the Asian Civilisation Museum; Dr. Sun Sumei, TPC Chair, introduced Prof. Fumiyuki Adachi for the keynote speech; local Arrangement Chair Dr Manjeet Singh toasting during the banquet dinner at the Asian Civilisation Museum.

Highlights from the World Telecommunications Congress

By Kohei Shimoto, NTT, Japan

The World Telecommunications Congress (WTC) builds on the traditions of quality, timeliness, and open interaction originating in the International Switching Symposium (ISS) and International Symposium on Subscriber Loops and Services (ISSLS). WTC brings together leading experts from industry, academia, and government to present the latest advances in technology and to exchange views on the future of telecommunications. After the merger of ISS and ISSLS, WTC has been held every two years: WTC 2006 and 2008 were held in Budapest, Hungary, and New Orleans, Louisiana (WTC 2008 was held in conjunction with IEEE GLOBECOM 2008).

The last WTC was held in Vienna, Austria, on 13–14 September, 2010. In keynote sessions, six talks were presented by high-profile speakers from Europe, the United States, and Japan. The Congress was opened by Dr. Rüdiger Köster (T-Mobile Austria GmbH) with a presentation entitled “Telecommunications: The Infrastructure for the 21st Century.” Mag. Dr. August Reschreiter (Austrian Federal Ministry of Transport, Innovation and Technology) presented the talk “The Governmental Challenges in Light of Next Generation Networks.” And Ruprecht Niepold (European Commission, DG INFSO) presented his views on “The Digital Agenda for Europe — The



Opening session of WTC 2010.

Policy and Regulatory Perspective.”

On day two, Prof. Dale Hatfield (University of Colorado) presented “The Role of Self-Regulation in the Next Generation Network.” Dr. Kou Miyake (NTT, Japan) presented the talk “FTTH/NGN Service Deployment Strategy in NTT.” And Prof. Dr.-Ing. habil. Jörg Lange (Nokia Siemens Networks, Ger-

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tions, and Underwater Communications. The conference also featured a keynote speech by IEEE Fellow Prof Fumiyuki Adachi from Tohoku University, Japan, titled "Challenges for Gigabit Wireless Pipe." There were close to 300 submissions from more than 40 countries to the open call for papers, and 152 papers were accepted for presentation at the conference after a rigorous and challenging technical review process.

For more information, please refer to iccs-2010.org/index.htm or Dr Michael Ong at ongmichael@i2r.a-star.edu.sg

HIGHLIGHTS FROM WTC 2010/continued from page 3

many) gave a presentation entitled "Convergent Charging, Billing and Care – The Increasing Importance of Online Cost Control for Post-Paid Subscribers."

The regular technical sessions encompassed a wide variety of timely topics in telecommunications: Future Mobile, Network & Service Management, NGN, Mobile Ad Hoc, QoS, Ambient Assisted Living, Optical Networks, Mobile Access and PANs, Future Internet, Regulatory and Policy Issues, Service and Applications, and Security. Among quality papers, the best paper award and the best presentation award were selected. Dr. Florian Winkler (NEC Europe Ltd., Germany) received the best paper award for his paper entitled "Driving Mobile eCommerce Services Using Identity Management." Dr. Erwin P. Rathgeb (Universität Duisburg-Essen, Germany) received the best presentation award for his lecture on "Security in the Net – Why Everything Used to Be Better, Bad Things Happen

Today and the Future Looks Bright."

WTC 2010 presented 54 talks in 12 sessions and was very successful, attracting participants from Germany, Austria, Japan, Italy, Poland, Hungary, Saudi Arabia, the United States, France, Spain, Turkey, Korea, Australia, the United Kingdom, Belgium, and Taiwan.

The next WTC will be held in Miyazaki, Japan, on 5–6 March, 2012. WTC 2012 is sponsored by the IEICE and is technically co-sponsored by the VDE/ITG and the IEEE Communications Society. Please visit <http://www.wtc2012.jp> for details. See you in Japan!

LEBANON WORKSHOP/continued from page 2

Development Manager); Secunet/ISN-Technologies on Highly Secure Ethernet Encryption Concepts by Mr. Michael Frings (Regional Sales Director); Bank of America on Open Trust Frameworks for Online Security by Dr. Abbie Barbir (VP, Senior Security Architect); UN-ESCWA on Cyber Security Awareness by Dr. Nibal Idlebi (Chief of the ICT Applications Section); LU Faculty of Law on Regulatory Aspects of Cyber Security by Prof. Mona Al-Achkar; and Alfa on GSM Security Challenges by Mr. Issam El-Hajal (Head of Release and Portfolio Management Unit).

The workshop activities included two coffee breaks and a lunch break which provided participants with the opportunity to network among each other and to follow up on the discussions with the specialist invited speakers. The IEEE Communications Society Lebanon Chapter Executive Committee has initiated planning activities for IEEE LCW '11, which will take place in November 2011 with a focus on emergency communications.

For more information about IEEE ComSoc Lebanon Chapter activities, check <http://ewh.ieee.org/r8/lebanon/com>

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MHz. Some virtual operators will create alliances to avoid losing this opportunity and thus address the investment power of the big operators.

Further Readings

- [1] <http://www.mityc.es>
- [2] M. Cave, C. Doyle, W. Webb, "Essentials of Modern Spectrum Management", Cambridge Press, 2007
- [3] http://ec.europa.eu/information_society/digital-agenda

EUROPEAN RESEARCH/continued from page 2

CR/SDR technologies are welcome to come and present their research or simply listen in and join in the debates.

Early research directions within COST-TERRA focused around the analysis and categorization of known CR/SDR use scenarios and business cases. Three parallel threads will be pursued for the time being:

- CR/SDR deployment scenarios
- CR/SDR coexistence studies
- Economic aspects of CR/SDR regulation

Later, the fourth research area will be activated to deal with the impact assessment of CR/SDR regulation.

For more information on the aims, work programme, and ongoing results of COST-TERRA, please visit the action's website at <http://www.cost-terra.org/>.

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www.comsoc.org/pubs/gcn

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