

SPECTRUM CAPS IN THE AMERICAS DELAY MOBILE BROADBAND SERVICES

1. INTRODUCTION

3G Americas LLC is a wireless industry organization dedicated to promoting, facilitating and advocating for the deployment of the GSM family of technologies including LTE throughout the Americas. Its Board members include AT&T (USA), Alcatel-Lucent, America Movil, Cable and Wireless (West Indies), Ericsson, Gemalto, Huawei, HP, Motorola, Nokia Siemens Networks, Nortel Networks, Openwave Systems, Rogers Wireless (Canada), Research In Motion (RIM), T-Mobile USA and Telefonica.

Spectrum caps can distort competition to the detriment of consumer welfare and economic efficiency. In order to facilitate the deployment of mobile broadband services throughout the Americas, 3G Americas proposes that regulators review spectrum aggregation on a case-by-case basis. Market-specific review provides more flexibility to regulators than caps, and will not deprive consumers of the benefits of increased efficiencies and economies of scale that are necessary to deploy advanced services.

Different industry sources forecast that by end of 2010 mobile broadband penetration will surpass fixed broadband penetration globally, which implies that users will prefer mobility as a means to access the Internet (See Fig. 1). During the recent G-20 world leaders meeting in London, in a letter signed by 25 CEOs of the leading global telecom operators and vendors, the 20 world leaders were asked to endorse an ambitious private sector initiative to build new infrastructure for the digital economy, which will bring measurable benefits to societies across the world. In particular, the deployment of mobile broadband could create 25 million jobs around the globe and be financed by private capital. In addition to boosting the global economy at this critical time, new broadband infrastructure would also enable widespread Internet access, stimulating productivity and social benefits. In emerging economies, a 10% increase in mobile penetration boosts annual GDP growth by 1.2%; as mobile broadband repeats the productivity revolution of mobile phones, the global GDP impact could be a boost of 3-4%.

The technologies that are being developed to support higher data rates and to fulfill the future market demands will require wider channels; it is estimated that they will require at least 20 MHz per channel and each operator will require a minimum of two paired channels to support the higher data rates that will be demanded.

Mobile broadband can also revolutionize health care via remote diagnostics and treatments; education by linking globally dispersed students to each other and to fixed centers of academic

excellence; and civil society by enabling e-government services to reach critical mass and to bridge the digital divide. The top 25 industry leaders essentially sought a commitment from the governments for two enabling actions:

1. Allocate to the mobile industry the radio spectrum it needs over time to build these new networks.
2. Deliver a stable, predictable and minimally intrusive regulatory environment.

The 25 companies CEO that made this formal request through the GSM Association to the G-20 leaders were: Alcatel-Lucent, America Movil, AT&T Mobile, Bharti Enterprises, Deutsche Telekom, Ericsson, GSM Association, MTN Group, NTT DoCoMo, Nokia, Nokia Siemens Networks, Orange Group, Orascom, SKT Group, Softbank Mobile, Telecom Italia Group, Telefonica Group, Telekom Austria Group, Telenor Group, Teliasonera, Telstra, TM International (TMI) Group, Vimpelcom, Vodafone Group and Zain Group.

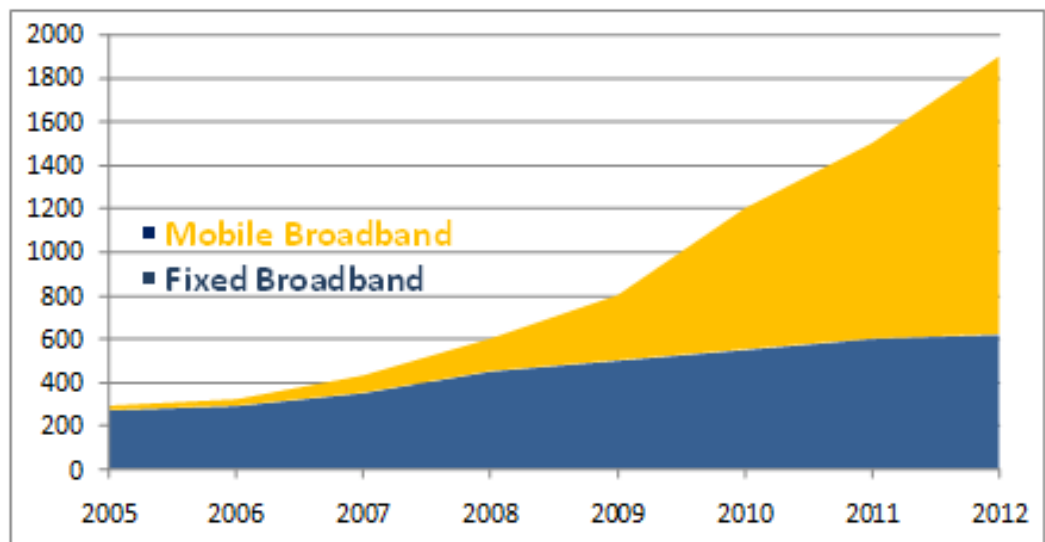


Fig.1 Projected Broadband Growth

2. BACKGROUND

Since 1998, spectrum caps – the amount of spectrum that any one operator could own in a particular band – have been applied by Latin regulators in an attempt to stimulate competition through limiting the power of any one operator, fueling new entrants to enter the market and discouraging mergers. The majority of countries in the region has three or four mobile operators competing in the market and striving themselves to offer better and new services to attend the market demand. With mobile penetration in Latin America above 80%, the region is ripe for the deployment of mobile broadband wireless services. However, such deployment is

being delayed by spectrum caps, which creates diseconomies every time new auctions are planned. Existing operators with cost-efficient access to capital and operational knowledge are often prohibited from participating. Given the degree of competition in the countries applying the caps, they may not be necessary to ensure a competitive market, and may actually undermine those countries' goals of deploying spectrum-intensive broadband technologies. Caps may discourage operator investment in both urban and rural areas.

As the mobile wireless industry moves in to the next generation of technologies and services, the spectrum caps of the 1990s seem antiquated and built upon a long-ago era of low penetration voice services. In many countries the old spectrum cap rules are becoming limiting factors to bringing to market new broadband services and applications that would benefit society. As spectrum regulators review their countries' specific cap or threshold, they should consider a few key concepts:

1. Is there significant and measurable operator competition in the marketplace?
2. Is there enough spectrum for operators to commercially deploy mobile broadband data technologies such as Evolved HSPA, LTE and LTE-Advanced today in the next few years?
3. Is the country proactively aligning with International Telecommunication Union (ITU) spectrum guidelines for the amount of spectrum required to bring out the next generation of wireless technologies?

The following table shows the current spectrum caps applied in large markets such as Argentina, Brazil, Chile, Colombia and Mexico and Peru.

Country	Spectrum Cap, MHz	Comments
Argentina	50	Effective since 1998. SECOM recently announced the planning of a 3G auction in 1.7/2.1 GHz band. Wireless penetration surpassed 100%; 4 mobile networks
Brazil	80	In 2008 ANATEL increased cap from 50 to 80 MHz for the 3G auction in 1.9/2.1 GHz. Discussions on 850MHz, 1.8, 1.9 and 2.1 GHz (leftovers) and 2.5 GHz and 3.5 GHz attribution (expected auction in 2H 2009); 450 MHz and 700 MHz . Wireless penetration: 83% ; 4 large mobile networks
Chile	60	January 2009 Supreme Court decision of 60 MHz cap limits existing operators with 60 and 55 MHz from new 3G 1.7/2.1 GHz spectrum auction in July 2009. Discussions on 700 MHz and 2.5 GHz bands. Wireless penetration: 97% ; 3 mobile networks

Colombia	40	Effective since 2004. The 1.7/2.1 GHz band has been reserved for IMT (3G) services. Wireless penetration: 92% ; 3 mobile networks
Mexico	65 -> 35	In 2005 Cofetel created a 65 MHz cap on 850/1.9 GHz bands; superseded later on by CFC (Competition Commission) 35 MHz cap on 1.9 GHz band. 1.9 GHz leftovers, 3G (1.7/2.1 GHz) and 3.5 GHz auctions delayed. Wireless penetration: 74%; 4 mobile networks
Peru	60	In 2005 The Ministry of Transport and Communications (MTC) defined a 60 MHz spectrum cap per mobile operator. Wireless Penetration : 69% ; 3 mobile networks

3. ITU-R ESTIMATED SPECTRUM BANDWIDTH REQUIREMENTS FOR THE FUTURE DEVELOPMENT OF IMT-2000 AND IMT-ADVANCED (REPORT ITU-R M.2078)

User expectations are continually increasing with regard to the variety of mobile services and applications. In particular, users will expect a dynamic, continuing stream of new applications, capabilities and services that are ubiquitous and available across a range of devices using a single subscription and a single identity (number or address).

Multimedia traffic is growing far more rapidly than voice, and will increasingly dominate traffic flows. There will be a corresponding change from predominantly circuit-switched to packet-based delivery, which will deliver multimedia services, including e-mail, file transfers, messaging, remittances, mobile banking and distribution services, more efficiently. These services can be symmetrical or asymmetrical, and real-time or non-real-time. Multimedia services consume substantial bandwidth, resulting in higher data rate requirements than first or second generation voice services.

As the integration and convergence of information technology (IT), telecommunications and content accelerate, bandwidth requirements will only increase. If spectrum is available to operators in sufficient amounts to offer multimedia advanced services, users will benefit from faster service delivery dynamics and new value-added services, such as those which are location dependent.

The table below from ITU-R Report M.2078 shows the spectrum requirements for the average market for the different Radio Access Technologies Group (RATG). There are expected to be regional differences in market development, and in some parts of the world a particular level of market development may be reached earlier or later than in the average “global common market.”

Predicted spectrum requirements for both RATG 1 and RATG 2 (MHz)

Market setting	Spectrum requirement for RATG 1			Spectrum requirement for RATG 2			Total spectrum requirement		
	2010	2015	2020	2010	2015	2020	2010	2015	2020
Higher market setting	840	880	880	0	420	840	840	1 300	1 720
Lower market setting	760	800	800	0	500	480	760	1 300	1 280

This Report calculates spectrum requirements for the Radio Access Technique Group (RATG) 1 (i.e. pre-IMT, IMT-2000, and its enhancements) and RATG 2 (i.e. IMT-Advanced) in 2010, 2015 and 2020.

The deployment scenarios reflect the differences in the quantitative market development and RAT deployment status in different parts of the world. The results show that additional spectrum is needed, beyond that identified for IMT-2000 at WARC-92 and WRC-2000.

4. BEST PRACTICES IN SPECTRUM MANAGEMENT

U.S.

In 2001, the Federal Communications Commission (FCC) decided to eliminate spectrum caps of 55 MHz (in all geographic service areas) and replace them with a case-by-case competitive review to ensure competition. A screening guideline of up to 145 MHz was adopted, at which level an operator's spectrum holdings and situation could be reviewed for potential anti-competitive effects. Since the elimination of spectrum caps, the U.S. has led the world in mobile broadband deployment. With the AWS-3 auction of 700 MHz in 2008, the FCC defined a "loose cap," or screening guideline, currently set at 95 MHz across all bands.

CANADA

The use of spectrum set-asides was employed recently by Industry Canada (IC) in an attempt to sustain and increase competition in the mobile market. There are currently no plans articulated to continue to use a set-aside in any future auction, and the policy surrounding future auctions will be determined at a later date. In 2004, IC removed the spectrum caps after finding that the policy to oversee spectrum concentration had become less relevant. In 2008, IC held an AWS (1.7 GHz / 2.1 GHz) spectrum auction; a total of 105 MHz was on offer, in 5+5 and 10+10 MHz

blocks, of which B, C and D (40 MHz) were set aside for new entrants. New entrants were defined as having a national wireless market share of less than 10%.

U.K.

Competition in the U.K. mobile market has been enabled by the issuance of separate licenses rather than by the imposition of spectrum caps. The sector regulator Ofcom has pronounced in favor of applying general competition policy and relaxing restrictions on spectrum use to resolve or preempt potential competition problems, accompanied by band-specific spectrum caps that are loose and flexible. Ofcom is planning an auction of the 2.6 GHz band with the following conditions attached:

- Technology – and service – neutrality
- A “loose” or “safeguard” band-specific spectrum cap of 80 MHz (out of 190 MHz)
- No rollout or coverage obligations
- Acquired spectrum will be tradable

GERMANY

In 2000, Germany auctioned 65 MHz for 3G networks. Now with the need of more spectrum for advanced wireless services as recommended by the ITU, the German regulator Bundesnetzagentur (BNetzA) is planning to auction 340 MHz that can be used for 4G Long-Term Evolution (LTE). However, the blocks of spectrum are not going to be available in the same frequency bands; the regulator plans to auction spectrum in 1.8 GHz, 2 GHz and 2.6 GHz bands as well as 72 MHz of the so-called digital dividend spectrum in the 790 MHz – 862 MHz band; for the digital dividend spectrum, the regulator is considering offering blocks of 2x20 MHz or 2x30 MHz. The date of the auction has not been set yet but the regulator will issue a public consultation in the summer of 2009.

SCANDINAVIA

European operators are eagerly anticipating the 2.5-2.6 GHz auctions planned for the next two years. The refarmed band covers nearly 200 MHz of valuable real estate.

In May 2008, the Swedish regulator, Swedish Post and Telecom Agency, awarded a total of 190 MHz of spectrum in the 2.6 GHz band. Five companies were awarded licenses – H3G, Intel Capital Corp., Tele2 Sverige, Telenor Sverige and TeliaSonera – for a term of 15 years and they are technology neutral. In Finland, the Ministry of Communications awarded new spectrum in April 2009 to the three existing mobile operators – TeliaSonera, Elisa and DNA –

in the 1.8 GHz band for 4G LTE technology. In the case of Norway and Sweden, the mobile operators will be using 2.6 GHz band for 4G LTE technology.

Finland will also launch a license tender for the 2500-2690 MHz frequency range in November 2009. The 2.6 GHz spectrum can be used for wireless broadband services provision. Licenses will cover a maximum period of 20 years. Licensees will also be able to sell or lease the user rights granted in the auction to a third party, with government approval. A total of 14 2 x 5 MHz bandwidth pairs in the 2500-2570 and 2620-2690 MHz are expected to be auctioned. Norway completed its 2.5 GHz auction in November 2007.

The Norwegian Post and Telecommunications Authority (NPT) issued licenses to five companies, including: Arctic Wireless AS, Craig Wireless Systems Ltd, Hafslund Telekom AS, NetCom AS, a subsidiary of TeliaSonera AB; and Telenor ASA.

5. CONCLUSIONS

Spectrum caps as are in place in some countries in Latin America will inhibit and delay the deployment of mobile broadband services. Caps can actually limit competition by restricting output and preventing mobile operators from growing and innovating. Punishing operator success can harm consumers. Mobile Broadband services require more spectrum than 2G voice. Spectrum caps can therefore undermine the deployment of these beneficial services. Several more flexible regulatory alternatives have been implemented by other countries to address potential lack of competition and to achieve universal service goals without having to depend upon distortive spectrum caps.

Mobile broadband services bring not only convenience to day life of people, but increase the personal quality of life, the professional productivity and the whole economy.

3G Americas would like to suggest to the CITEL Administration a review of spectrum cap policies in the Americas and adoption of best practices that will foster the continuous and timely offering of mobile broadband services. Case-by-case review of a market's competitiveness, as reflected by the absence of any single provider being able to control price or restrict output, is a preferable tool. Such an approach will better allow for broadband to be deployed to consumers throughout the Americas.