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Global Symposium for Regulators 2005 Best Practice Guidelines for Spectrum Management to Promote Broadband Access

Introduction

Wireless broadband technologies hold promise for all countries seeking to ensure the availability of access to information communication technologies (ICT) and the creation of the Information Society. The ICT sector can improve standards of living and quality of life and boost productivity and competitiveness in the global and national economies. Broadband is an essential component of ICT. It is bringing new multimedia services to consumers for work and leisure, making them better-informed and more involved citizens and promoting economic and societal progress. With the advent of digital convergence and the Internet, wireless broadband offers the prospect of faster rollout of services, portability and mobility, making a reality of the vision of 'any content, any time, any place, anywhere' in the global information society. Wireless broadband technologies are set to close the broadband divide that exists between developing and developed countries. Wireless broadband, of course, will also require more spectrum.

Spectrum is a scarce resource that needs to be managed effectively and efficiently in order to derive maximum economic and social benefit, including encouraging growth and rapid deployment of infrastructure and services for consumers. This requires innovative approaches to managing the spectrum dynamically to succeed in making spectrum available for broadband and other new services. As recognized by the 2004 Global Symposium for Regulators (GSR), within the spirit of transparency, objectivity, non-discrimination, and with the goal of the most efficient spectrum use, the onus is on legislators and regulators to adjust, alter or reform their regulatory codes, wherever possible, to dismantle unnecessary rules which today may adversely affect the operation of wireless technologies and systems. A new set of spectrum management principles and practices, within regulators' respective mandate, will enable countries to harness the full potential of wireless broadband technologies. However, this cannot be done in isolation. A broad approach, including other regulatory instruments, as outlined in the GSR 2003 and 2004 Best Practice Guidelines to promote universal access, and low cost broadband, are necessary.¹

¹ See <http://www.itu.int/ITU-D/treg/Events/Seminars/2003/GSR/WSIS-Statement.html> and

We, the regulators participating in the 2005 Global Symposium for Regulators, have identified the following set of best practice guidelines for spectrum management to promote broadband access:

1. **Facilitate deployment of innovative broadband technologies.** Regulators are encouraged to adopt policies to promote innovative services and technologies. Such policies may include:
 - Managing spectrum in the public interest.
 - Promoting innovation and the introduction of new radio applications and technologies.
 - Reducing or removing unnecessary restrictions on spectrum use.
 - Adopting harmonized frequency plans defined by ITU-R recommendation in order to facilitate the implementation of competition.
 - Embracing the principle of minimum necessary regulation, where possible, to reduce or eliminate regulatory barriers to spectrum access, including simplified licence and authorization procedures for the use of spectrum resources
 - Allocating frequencies in a manner to facilitate entry into the market of new competitors.
 - Ensuring that broadband wireless operators have as wide a choice as possible of the spectrum they may access, and releasing spectrum to the market as soon as possible.

2. **Promote transparency:** Regulators are encouraged to adopt transparent and non-discriminatory spectrum management policies to ensure adequate availability of spectrum, provide regulatory certainty and to promote investment. These policies may include:
 - Carrying out public consultations on spectrum management policies and procedures to allow interested parties to participate in the decision-making process, such as:
 - public consultations before changing national frequency allocation plans; and
 - public consultations on spectrum management decisions likely to affect service providers.
 - Implementing a stable decision-making process that provides certainty that the grant of radio spectrum is done in accordance with principles of openness, transparency, objectivity--based on a clear and publicly available set of criterion which is published on the regulator's website--and non-discrimination and that such grants will not be changed by the regulator without good cause.
 - Publication of forecasts of spectrum usage and allocation needs, in particular on the regulator's website.
 - Publication of frequency allocation plans, including frequencies available for wireless broadband access, in particular on the regulator's website.

<http://www.itu.int/ITU-D/treg/Events/Seminars/2004/GSR04/consultation.html>

- Publication of a web-based register that gives an overview of assigned spectrum rights, vacant spectrum, and licence-free spectrum, balancing any concerns for confidential business information or public security.
 - Clearly defining and publishing radio frequency spectrum users' rights and obligations, including on the regulator's website.
 - Clearly defining and publishing licensing and authorization rules and procedures, including on the regulator's website.
 - Publication of legal requirements for imported equipment and foreign investment, in particular on the relevant government agency website.
3. **Embrace technology neutrality.** To maximize innovation, create conditions for the development of broadband services, reduce investment risks and stimulate competition among different technologies, regulators can give industry the freedom and flexibility to deploy their choice of technologies and decide on the most appropriate technology in their commercial interest rather than regulators specifying the types of technologies to be deployed, or making spectrum available for a preferred broadband application, taking into consideration the need for and cost of interoperable platforms.
- Regulators can take into consideration technological convergence, facilitating spectrum use for both fixed and mobile services, ensuring that similar services are not subject to disparate regulatory treatment.
 - Regulators can provide technical guidelines on ways to mitigate inter-operator interference.
 - Regulators can ensure that bands are not allocated for the exclusive use of particular services and that spectrum allocations are free of technology and service constraints as far as possible.
4. **Adopt flexible use measures:** Regulators are encouraged to adopt flexible measures for the use of spectrum for wireless broadband services. Such measures may include:
- Minimizing barriers to entry and providing incentives for small market players by allowing broadband suppliers to begin operations on a small scale at very low cost, without imposing onerous rollout and coverage conditions, to enable small market players to gain experience in broadband provision and to test market demand for various broadband services.
 - Recognizing that wireless broadband services may be used for both commercial and non-commercial uses (e.g., for community initiatives or public and social purposes) and that broadband wireless spectrum can be allocated for non-commercial uses with lower regulatory burdens, such as reduced, minimal or no spectrum fees; regulators can also allocate and assign spectrum for community or non-commercial use of broadband wireless services.
 - Recognizing through flexible licensing mechanisms that wireless broadband technologies can provide a full range of converged services.
 - Adopting lighter regulatory approaches in rural and less congested areas, such as flexible regulation of power levels, the use of specialized antennas, the use of simple authorizations, the use of geographic licensing areas, lower spectrum fees and secondary markets in rural areas.

- Recognizing that in markets where spectrum scarcity is an issue, the introduction of mechanisms such as secondary markets can in some cases foster innovation and free-up spectrum for broadband use.
 - Recognizing the role that both non-licensed (or licence-exempt) and licensed spectrum can play in the promotion of broadband services, balancing the desire to foster innovation with the need to control congestion and interference. One measure that could be envisaged is, for example, to allow small operators to start operations using licence-exempt spectrum, and then moved to licensed spectrum when the business case is proved.
 - The promotion of shared-use bands, as long as interference is controlled. Spectrum sharing can be implemented on the basis of geography, time or frequency separation.
 - Developing strategies and implement mechanisms for clearing bands for new services as appropriate.
 - Recognizing the need for cost-effective backhaul infrastructure from rural and semi-rural areas, regulators can consider the use of point-to-point links within other bands, in line with national frequency plans, including any bands for broadband wireless access.
5. **Ensure affordability.** Regulators can apply reasonable spectrum fees for wireless broadband technologies to foster the provision of innovative broadband services at affordable prices, and minimize unreasonable costs that are barriers to entry. Higher costs of access to spectrum further reduces the economic viability in rural and under-served areas. Auctions and tender processes can also be managed to meet these goals.
 6. **Optimize spectrum availability on a timely basis.** Regulators are encouraged to provide effective and timely spectrum use and equipment authorizations to facilitate the deployment and interoperability of infrastructure for wireless broadband networks. Regulators are also encouraged to make all available spectrum bands for offer, subject to overall national ICT master-plans, in order that prices are not pushed up due to restrictive supply and limited amount of spectrum made available and so that opportunities to use new and emerging technologies can be accommodated in a timely manner. In addition, special research or test authorizations could be issued to promote the development of innovative wireless technologies.
 7. **Manage spectrum efficiently.** Spectrum planning is necessary to achieve efficient and effective spectrum management on both a short-term and long-term basis. Spectrum can be allocated in an economic and efficient manner, and by relying on market forces, economic incentives and technical innovations. Regulators can promote advanced spectrum efficient technologies that allow co-existence with other radio communications services, using interference mitigation techniques, for example, dynamic frequency selection. Regulators can provide swift and effective enforcement of spectrum management policies and regulations.
 8. **Ensure a level playing field.** To prevent spectrum hoarding, especially by incumbents, regulators can set a limit on the maximum amount of spectrum that each operator can obtain.
 9. **Harmonize international and regional practices and standards.** Regulators can, as far as practicable, harmonize effective domestic and international spectrum practices and utilize regional and international standards whenever possible, and where appropriate, reflect them

in national standards, balancing harmonization goals with flexibility measures. This could include harmonization of spectrum for broadband wireless access that could generate economies of scale in the production and manufacture of equipment and network infrastructure. Likewise, global harmonization of standards to ensure interoperability between different vendor's user terminals and network equipment can be promoted. The use of open, interoperable, non-discriminatory and demand-driven standards meets the needs of users and consumers. Coordination agreements with neighbors, either on a bilateral or multilateral basis, can hasten licensing and facilitate network planning.

10. **Adopt a broad approach to promote broadband access.** Spectrum management alone is inadequate to promote wireless broadband access. A broad approach, including other regulatory instruments; such as effective competitive safeguards, open access to infrastructure, universal access/service measures, the promotion of supply and demand, licensing, roll-out and market entry measures; the introduction of data security and users' rights, where appropriate; encouraging the lowering or removal of import duties on wireless broadband equipment; as well as development of backbone and distribution networks is necessary.