PRESENTATION TO THE 1ST ANNUAL CONFERENCE OF THE ORGANIZATION OF CARIBBEAN UTILITY REGULATORS

"The Challenge for Utility Regulators in the Caribbean"

RADIO REGULATION FRAMEWORK

By

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Introduction:

The radio spectrum is a limited but an important resource and should be well managed to full national benefit. In doing so one must also take into consideration regional and international requirements and harmonization. Radio spectrum management is a complex process. However the key objective is simple, namely, to ensure orderly and timely access to this valuable resource by various radio service users, on an equitable basis,.

Over the last number of years there has been an increasing demand on the use of the radio spectrum with overwhelming requirements in the use of wireless access systems and applications. The International Telecommunication Union (ITU) projects that by the year 2005 more than 50% of all calls will be wireless, and yet a greater expectation by the telecommunication industry is reflected for the future. These market developments are mostly as a result of the significant advancement in technology driven by large R & D investments. The key driving force behind wireless access, is its ability to provide fast and cost-effective means of deploying telecommunication services.

International and Regional Process

The need for a good spectrum management scheme is critical to ensure effective and efficient use of the radio spectrum resource. However, this process cannot be carried out without taking in consideration bordering countries as well as agreements and regulations established within recognized regional and international bodies. The International Telecommunication Union is the internationally recognized body responsible for the development and setting of the required radio regulations governing the use and application of systems operating within radio spectrum bands. These radio regulations are established as part of the activities within the various bodies of the ITU. National regulatory bodies, co-signatories of ITU Radio Regulations, must ensure that systems deployed within their jurisdiction comply with these rules. The ITU Radio Regulations specify; the allocation of frequency bands to the various radiocommunication services, and the conditions and rules under which equipment and systems can be deployed and operated.

The technical rules governing the deployment and operation of equipment and systems include among others, interference and sharing criteria and are developed through the various study programs established within the ITU-R Study Groups. Frequency and band allocations are established during the various World Radio Conferences held periodically by the ITU.

National Systems

To maximize the use of the radio spectrum, an effective spectrum management regime needs to be established to meet the national requirements. Spectrum management process includes three functions; Spectrum Planning and Engineering, Authorization, and Spectrum Control. The key objective of a well balanced spectrum management scheme is to ensure equitable access to the radio spectrum by the various radio services. In addition, Spectrum Management schemes must also provide a timely and orderly availability of radio spectrum to new users and systems.

Spectrum Engineering and Planning is the first important step in the regulatory process. Its major purpose is to effectively plan and engineer the national radio spectrum to ensure timely and orderly access to the spectrum. In doing so the regulator should take in consideration a number of factors such as:

- User and service requirements
- Orderly and timely deployment of systems
- Type and volume of information traffic carried over the radio channels
- Environment and radio coverage " urban , suburban, rural
- Indoor/outdoor
- One way or two communication, broadcast, etc
- Platform being used. satellite, mobile, broadcasting, etc.
- The technology itself
- Flexibility to evolve utilizing more spectrally efficient and effective technologies
- Provision for future growth
- Regional and International agreements and obligations
- All the above have to be weighed against National value/benefits

All these factors are to be taken into consideration when developing appropriate technical rules to access the spectrum. These rules include, amount of spectrum, technical standards, and sharing conditions and are used to develop appropriate channeling plans. This, however, cannot be done in a vacuum. Regional and international agreements and obligations must be taken into consideration throughout this process. It is for this reason that active participation in the various regional and international bodies is essential to ensure that national requirements are considered and reflected in the various regional and international decisions and agreements.

To carry out an effective spectrum management process, appropriate tools, such as computer models and systems as well as monitoring systems, need to be developed.

The second step in the spectrum management process is the Authorization to deploy and operate radiocommunication equipment and systems. To do so, all necessary standards, procedures, policies and regulations have to be developed to facilitate the licensing and deployment of systems. Included in this process, among others, is eligibility list, licensing process and conditions. The licensing process could be based on "First come first serve", competition (Beauty contest or auction), or license exempt. The authorization process also involves establishing appropriate communication dialogue with neighboring countries, regional and international organizations to ensure that effective coordination is carried out. The Authorization process also involves the certification of equipment to ensure compliance with the standards. A fee structure needs to be developed.

The last step in the process of spectrum management is Spectrum Control. This involves the development of the appropriate monitoring and control mechanisms to ensure that spectrum is being used in accordance with the policies, standards, specifications and conditions of the license. Appropriate legislation needs to be set to provide the legal power to the spectrum managers and regulators to enforce the regulations and to carry out this task. This includes prosecution of violators and the type of penalties to be imposed. To facilitate the control process, appropriate monitoring facilitates need to be selected and deployed. Procedures also need to be set to insure that interference investigation is carried out effectively. In dealing with other countries as well as regional and international organizations, all agreement, rules and obligations need to be well documented and understood.

Regulatory Bodies Key Objectives

Given the enormous developments in technology and services, regulatory bodies around the world are faced with many challenges. In addition, many changes in the philosophy of regulation have been taking place. As a result, the present objectives for developing the necessary policies and regulations can be

summaries as follows:

a) Provides an important stimulant to users and service providers for increased access to telecommunication services. The regulators must become facilitators and not obstacle makers.

b) With the increase in wireless access, market opportunities are increasing and now onus is on the regulators and policy makers to ensure that the doors for competition are open. This is very important for stimulating the economy and reducing costs to the user of the telecommunication services.

c) Regulation must not impose unnecessary limits on stimulating market opportunity on the national and, more importantly, the international arena.

d) Regulations and policy result in the simplification of the process of regulations and thus open the door for fast and easy methods of deploying new telecommunication services accessing a greater percentage of the population.

e) Finally one must not forget a key and important objective of effective regulation is "fair and equitable access to the radio spectrum".

Example of band allocation : Advanced land mobile applications/IMT-2000 and PCS

An example of the process that took place in Canada for the allocation of frequency bands to new service/application was the introduction of advanced land mobile application (PCS/3G) in the 1900 MHz band. This necessitated the reallocation of an existing Radio Service (FS) to other bands.

In the late 80's and based on ITU-R work on IMT-2000, Industry Canada, in consultation with the telecommunication industry established the requirements for additional spectrum to meet projected market demand for advanced land mobile applications. Through active Canadian participation in the ITU-R activities, a number of contributions were submitted to the ITU-R reflecting these requirements. The WARC 92, considered this issue and agreed to identify a number of bands for IMT-2000. As a result of this move, a national process was initiated within Canada which led in 1995 to the release of a new spectrum policy for PCS.
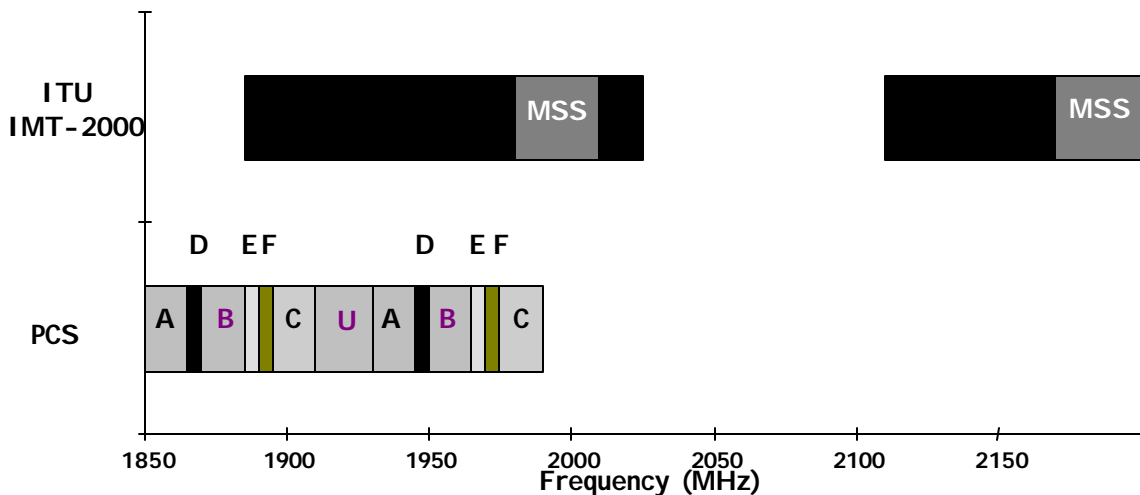
This new policy allocated three 30 MHz blocks and three 10 MHz blocks (paired) for licensed operation and 20 MHz unpaired for licensed exempt operation, see Figure 1. As part of the policy, present cellular operators were permitted to compete for licenses only in three 10 MHz PCS blocks. In addition, the telecommunication industry was permitted to develop and establish voluntary interoperability standards. Seven radio interface standards were developed by the industry (only three are presently used). The

standard technical/operational assessment process (beauty contest) was used for awarding licenses. Licensees were allowed to select the standard they prefered. The allocation of this band for PCS resulted in the reallocation of systems operating in the Fixed Service to other bands. All this work was carried out in consultation with our neighbor the USA as well as in consultation with other countries within region 2 through the CITEL activities.

Conclusions

In conclusion, radio spectrum is a limited resource that must be planned and managed very effectively, efficiently and wisely within the National, Regional and International Rules and Regulations for the Benefit of Humanity

 ITU believes very strongly that telecommunications is the backbone of every nation. Availability and accessibility to it will have a dramatic impact on the welfare of each nation.

Accordingly, it is our strong belief that spectrum must be considered as a national resource to be used wisely in enhancing economic, education, health, and welfare of the nation being served.
Thank you for your attention**.**

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