

**INTEGRATING SPECTRUM POLICIES FOR CARIBBEAN ICT
DEVELOPMENT
The Case of Digital Audio Broadcasting**

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Introduction

As our region moves towards a CARICOM Single Market and Economy, it should be evident that Information, Communication Technologies, ICTs will play a significant role in its economic success. Therefore, in order to accelerate the progress to be achieved, as in other areas such as Standards and Legislation, it is of paramount importance that we as a region examine and work towards a common or harmonized framework for the development of ICTs.

Within the sphere of ICTs, it has been demonstrated globally that wireless technologies have had a major impact in creating ubiquitous access to primarily voice services; case in point is Jamaica, with an estimated number of 2.2 million cellular subscribers in a population of just over 2.6 million. The next major policy objective of the Government of Jamaica is to have the wide-scale deployment of broadband services, that is, access to not only voice but also access to data (Internet) and video services. Again, wireless technologies are expected to play a fundamental role in this initiative.

No doubt, other countries throughout the Caribbean region have similar objectives and expect wireless technologies to play a dominant role, for example, Trinidad and Tobago with its national strategy, Vision 2020. Therefore, it is imperative that we develop an appropriate harmonized spectrum policy framework for the Caribbean in order to facilitate the development and growth of a knowledge-based society.

It is against this background, ladies and gentlemen, that I will recommend an approach for creating an Integrated Spectrum Policy Framework for the Caribbean; this will be illustrated using the case of Digital Audio Broadcasting.

Integrated Spectrum Policy Framework

At the Global Regulators Symposium 2005 held in Tunisia, one of the ten (10) best practice guidelines for spectrum management identified by regulators was the need to as far as practicable “harmonize international and regional practices and standards” because of the various benefits which may be derived.

Harmonization implies co-ordination or co-operation for the achievement of similar goals. This level of collaboration among countries of a given region is not a new phenomenon; indeed, there are regional telecommunications organizations such as the European Conference of Postal and Telecommunications Administrations (CEPT) and CITELE, the Inter-American Telecommunications Commission. In fact, within CITELE, there is a specific group, the Permanent Consultative Committee II on Radiocommunication and Broadcasting which is a Technical Advisory Body within CITELE, established to address issues dealing with the co-ordination and harmonization of standards related to the efficient use of spectrum. And, there are others such as the Asia Pacific Telecommunity (APT) and the Pan African Telecommunication Union (PATU).

The case for a harmonized spectrum policy framework can be made on three counts:

- **The Need to Make Markets Work:** Countries in the region are at varying stages of liberalization and moving closer and closer to a market-based communications industry, including a new approach to spectrum management. This translates into balancing efficiency with equity whilst recognizing stakeholder interests:
 - *Industry* demands transparency and a stable regulatory environment
 - *Investors* are focused on a return on their investment hence the need for regulatory certainty.
 - *Consumers* require value for money and have a growing appetite for more sophisticated services, whilst,

- *Government/Regulators* are working to achieve national goals and policy objectives.
- **The need to anticipate market convergence and licensing spectrum users within a common market for the region.**
- **Thirdly, the need to anticipate and develop appropriate strategies to combat future challenges.**

Benefits of an Integrated Spectrum Policy Framework

There are tremendous benefits to be derived from operating within a harmonized spectrum policy framework; some of these include:

- The inter-operability of communication systems, making the same or similar services available throughout the region without subscribers having to purchase new equipment in each territory. This is particularly important for services such as broadcasting and extremely useful in emergency and disaster management exercises.
- A larger market created by the CSME lends itself for subscribers of wireless services to benefit from the economies of scale to be derived by any Pan-Caribbean operator. If such an operator has a harmonized spectrum policy framework throughout the region then this could translate into a faster time to market for services, reduced regulatory costs, and generally, a more efficient operation; all of which should lead to lower prices for consumers.

Recommended Approach Towards Harmonization

Firstly, the intent of developing a harmonized spectrum policy framework for the region is not to prescribe detailed national spectrum management practices and procedures. Instead, harmonized policies must be based on high-level general principles or standards which themselves should be based on international best practices and/or international standards. Such harmonized policies then provide an operating framework for individual territories to use as a guide in their respective communications reform process, always keeping focused on doing what is in the public's interest.

Having said that, the approach being recommended is to:

1. Establish, as a Technical Advisory Body to the CTU, a Working Group or Committee with the specific mandate to study the spectrum issues identified and to recommend for adoption by member states the specific harmonized policies.
2. Determine the high-level policies and standards which will have value and practical benefits to the entire region – each member state must be able to identify the benefits to be derived by that country and its population.
3. Essential activities of the Working Group will include:
 - i. Researching best practices, identifying the benefits to be derived from establishing a harmonized policy framework around the spectrum issue and then develop the implementation strategies to be recommended.
 - ii. The working Group to carry out extensive consultation throughout the region, utilizing various working methods such as on-line discussion boards, in order to gain feedback and garner consensus.
 - iii. The Working group to present its policy recommendations at the CTU Policy Seminars and Workshops.
4. Formalize the recommended high-level policies and issue them as guidelines for countries to utilize in their communications reform process.
5. In order to preserve the relevance of such a harmonized policy framework, the Working Group is to monitor global trends with respect to best practices and changes in technology in order to amend or modify the recommended policies based on future events.

The Case of Digital Audio Broadcasting

While we acknowledge the significant gains made by mobile cellular service globally, radio broadcasting remains one of the most ubiquitous forms of communication services in the world today. It has experienced certain transformations over time, with the quantum leap from AM radio to FM stereo, and now, the advent of Digital Audio Broadcasting, DAB, which itself is another paradigm shift in broadcasting technology.

In some countries DAB is seen as the technology to rescue sound broadcasting from its current saturated state at FM stereo. For example in Jamaica, with 19 FM stations, the Spectrum Management Authority has had to suspend the authorization of new FM frequency assignments due to the fact that the demand for the remaining two (2) FM bands is so great. The Ministry of Information which licences broadcasters is currently developing specific policy criteria which will be used to evaluate the applications for remaining bands. The situation in Trinidad and Tobago is also quite similar; they too have had to suspend the licensing of new radio broadcasters.

In applying the recommended approach, the Technical Advisory Working Group would have identified, as a high-level policy issue, the introduction of Digital Audio Broadcasting to the Caribbean Region.

The Group would conduct research of the international best practices, looking at the various technologies and standards being used for both terrestrial and satellite DAB. These are shown in Table 1.0 below.

Table 1.0

Spectrum Use by Technology		
Technology	Service Requirements	Preferred Band
Eureka 147	Wideband – multiplexed 1.5 MHz channel per ensemble	VHF – Band III, L – Band
DRM	Narrowband 9 – 18 KHz per channel	MF, HF
IBOC - AM - FM	Narrowband 20 KHz per channel 200 KHz per channel	MF VHF Band II
ISDB - TSB	Wideband – multiplexed 0.4 or 1.3 MHz per channel	VHF Bands II and III, UHF
DVB - T	Wideband – multiplexed 7 MHz per channel	VHF Band III, UHF
World Space Satellite	Wideband – multiplexed 6 MHz Satellite/6 MHz terrestrial	L – Band
US S DARS	Wideband – Multiplexed 12.5 MHz	S – Band

Source: Report of the Digital radio Group, March 2004, page 34, Department of Communications Information Technology and the Arts, Australian Government

For terrestrial DAB, it is very likely that the two standards of interest to us within the Caribbean region are:

- Eureka 147 - this is the name given to the standard endorsed by the ITU in December 1994 as a world standard for terrestrial DAB. It utilizes spectrum in the L-Band, that is 1452 – 1492 MHz as well as VHF Band III, which is, 174 – 230 MHz. It is currently being used by most countries in Europe, Asia and also in use in Canada.
- IBOC or In-Band On-Channel DAB technology was developed by iBiquity Digital Corporation. This is the standard adopted as the national standard for the United States of America by the Federal Communications Commission, FCC in October 2002.

So, there are primarily two competing standards to be evaluated on their own merits, with very careful note being given to the benefits of DAB and the advantages and disadvantages of each technology. One significant advantage of the IBOC standard is that it utilizes the same frequency bands as analogue FM, hence no new spectrum is required. On the other hand, the Eureka-147 standard is a more mature technology and more widely used, hence prices for broadcasting infrastructure and receivers are much lower than those for the IBOC standard.

The Working Group would look at the benefits of DAB systems which provide improved reception, are less susceptible to interference, provide CD audio quality which is an enhancement over FM stereo. Listeners also benefit from what is referred to as “digital-only services” such as streaming text to identify the artist, album and name of the song playing. DAB also provides broadcasters with new areas of businesses and hence new sources of revenue.

In addition to the selection of the most appropriate standard, the Working Group would also consider the various licensing practices for DAB services,

such as the two-stage approach used by the Canadians, an initial transitional or experimental stage followed by a longer-term approach.

The activities of the group could be guided by certain overarching policy objectives such as:

- The overall development and implementation must be done in the public's interest.
- DAB must provide enhanced services, over and beyond those provided by analogue radio.
- The introduction of DAB services must be done without undue disruption to broadcasters and listeners.
- The transmission and delivery of DAB services must be spectrum efficient.

Having developed the recommended policy framework for the introduction of DAB to the Caribbean, the Group must conduct extensive consultation to gain feedback and input before finalizing the recommended spectrum policies.

It is anticipated that the region as a whole would benefit significantly if there is a harmonized approach to the introduction of DAB.

Conclusion

In closing, I would like to emphasise the following:

- The intent of a harmonized spectrum policy framework is to develop high-level general principles or standards which would guide the communications reform process of individual territories.

- The recommended approach is to establish a Technical Advisory Body or Working Group to the CTU to manage the activities associated with the development of the harmonized policy framework.
- There are tremendous benefits to be derived from operating within a harmonized spectrum policy framework such as inter-operability of devices and equipment as well as economies of scale.
- The introduction of Digital Audio Broadcasting to the Caribbean is definitely one area where subscribers to communication services in the region could benefit from a harmonized approach.

Ladies and gentlemen, I thank you.

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