



Public Consultation

On

A Policy for Assignment of 700 MHz Spectrum

Publication 18th April 2011

Introduction

Pursuant to the Telecommunications Ordinance 2004 Section 4 (1) and Section 30 and the Frequency Management Regulations 2005 sub-sections 4(6), (7) and (8), the Turks and Caicos Islands Telecommunications Commission hereby gives notice of the proposed allocations of the 700 MHz band.

On 25th September 2008, the Commission published a Public Notice 2008-4 for comments on an application received from Cable and Wireless (TCI) Ltd., now LIME, for approval of a spectrum licence in the 700 MHz band. During the consultation period no comments were received, and the Commission deferred its decision due to the uncertainty of the approach in the region for the allocation of the 700MHz band.

In February, 2011 as part of an annual initiative, the Commission met with each Carrier to hear their concerns, and discuss important matters affecting them that they would like the Commission to address. During the meetings, the Carriers expressed great interest in the 700 MHz band and the need to rollout new services. Accordingly, in order to fulfill its mandate, and in keeping with the principle of technology neutrality, the Commission is now initiating a second consultation process seeking comments on this policy for the allocation of 700MHz for wireless applications.

Consultation

This consultation is being conducted to examine the modalities of allocation and assignment of frequencies in the above mentioned band. It is consistent with internationally accepted approaches for the allocation, use and pricing of the 700 MHz Band.

The Commission invites comments from interested parties on this proposed policy for assignment of the 700 MHz Spectrum. Comments should be submitted to the Commission within 3 weeks of the publication of this document, and should reach the Commission by Friday, May 6, 2011, at their office at Business Solution Complex, Leeward Highway, Providenciales, Turks and Caicos Islands, or by mail to P.O. Box 203, Providenciales, Turks and Caicos Islands, or electronically via email at consultation@tcitelecommission.tc. All submissions should be filed electronically even if also filed in paper form.

This consultation process also permits any party to submit comments in reply to any matters contained in another party's comments filed with the Commission by the stipulated deadline of May 6, 2011. Any such reply comments must be filed with the Commission in the same manner as described above and must be received by the Commission on or before 3:30 p.m. Friday, May 13, 2011.

Based on the results of this consultative process a policy for the allocation and assignment of frequencies in the 700 MHz band will be developed and adopted.

Overview

Previously 700MHz Spectrum was used globally for analog television broadcasting, specifically UHF channels 52 through 69. Due to the recent evolutions of digital broadcast to improved spectral efficiency, in North America; the Television Broadcasting industries has decided to allocate the 700MHz band from analog television broadcasting to new broadband wireless applications and public safety uses.

The 700 MHz spectrum is considered valuable due to its propagation characteristics, which enables radio communication systems operating in this band to cover wide geographical areas and achieve high levels of indoor penetration with relatively few base stations. These characteristics are particularly desirable for broadband communications and public-safety uses. Further, the cost of building a network using 700 MHz is substantially less than the cost of building a similar network using higher frequencies.

The Turks and Caicos Islands Table of Frequency Allocations published March 21, 2011, has allocated in the 700 MHz band, broadcasting and mobile services on a primary basis and fixed on a secondary basis. This approach was recommended by the 2007 World Radio Conference (WRC) convened by the International Telecommunication Union (“ITU”) for Region 2, which includes the TCI, for use by administrations wishing to implement International Mobile Telecommunication (IMT).

Channelization of the 700 MHz Spectrum

The 700 MHz band (698-806 MHz) is a band of 108 MHz that is typically divided into 18 channels of 6MHz each. This channelization was due to the fact that the 700 MHz spectrum was primarily used for analog television broadcasting (where each analog television channel required 6 MHz). However, due to the process of reallocating the 700MHz spectrum to new broadband wireless application and public safety uses; the FCC approach has become increasingly recognized and accepted in many regions, that there is no longer a requirement to channelize this spectrum on the basis of 18 channels of 6 MHz each.

The Commission notes that, in contrast to the FCC approach, some of the Caribbean jurisdictions have decided to retain the traditional channelization of the 700 MHz band into 18 channels of 6MHz.

In determining how much spectrum each potential service provider requires to provide quality service in environments like the Turks and Caicos Islands, the Commission examined other countries and considered two models as follows:-

Model 1: United States / FCC Model for 700 MHz

In 2007-2008, the Federal Communication Commission (FCC) issued a notice to auction spectrum in the 700MHz band for nationwide public-private radio network and public safety agencies; and requested that the television broadcasters using the 700MHz spectrum cease transmission on June 12, 2009.

As a result of the auctions, FCC chose to divide the 700MHz spectrum on the basis of two separate bands, the Lower 700MHz band (698MHz-746MHz) or channels (52-59) and the Upper band 700MHz band (746MHz -806MHz) or channels (59-69). Each of these two bands is subdivided by the FCC into “blocks”, with letters from “A” to “D” (e.g. Lower block A, Upper block C, etc). Some of these blocks are paired (specifically the Lower A, B and C blocks, and the Upper A, B, C and D blocks), meaning that it includes two distinct and equal frequency bands, one assigned to “downlink” from the towers to the mobile devices, and the other to “uplink” as depicted in table 1.

Table 1

REVISED 700 MHz BAND PLAN FOR COMMERCIAL SERVICES

										757	775	787	793	805				
A	B	C	D	E	A	B	C	C	A	D	Public Safety	B	C	A	D	Public Safety	B	
CH. 52	CH. 53	CH. 54	CH. 55	CH. 56	CH. 57	CH. 58	CH. 59	CH. 60	CH. 61	CH. 62	CH. 63	CH. 64	CH. 65	CH. 66	CH. 67	CH. 68	CH. 69	
698	704	710	716	722	728	734	740	746	752	758	764	770	776	782	788	794	800	806
LOWER 700 MHz BAND (CHANNELS 52-59)									UPPER 700 MHz BAND (CHANNELS 60-69)									

Block	Frequencies	Bandwidth	Pairing	Area Type	Licenses
A	698-704, 728-734	12 MHz	2 x 6 MHz	EA	176
B	704-710, 734-740	12 MHz	2 x 6 MHz	CMA	734
C	710-716, 740-746	12 MHz	2 x 6 MHz	CMA	734*
D	716-722	6 MHz	unpaired	EAG	6*
E	722-728	6 MHz	unpaired	EA	176
C	746-757, 776-787	22 MHz	2 x 11 MHz	REAG	12
D	758-763, 788-793	10 MHz	2 x 5 MHz	Nationwide	1**
A	757-758, 787-788	2 MHz	2 x 1 MHz	MEA	52***
B	775-776, 805-806	2 MHz	2 x 1 MHz	MEA	52***

*Blocks have been auctioned.

**Block is associated with the 700 MHz Public/Private Partnership.

***Guard Bands blocks have been auctioned, but are being relocated.

Model 2: ECTEL Model for 700 MHz

In April 2009, the Eastern Caribbean Telecommunications Authority (ECTEL) issued a policy to maintain the subdivision of the 108 MHz space in the 700 MHz band into eighteen channels of 6 MHz each, as depicted in table 2.

The subdivision of the band shall be allocated as follows:

- Six paired blocks with a total bandwidth of 12 MHz each (6 MHz up-link and 6 MHz down-link with guard band included) assignable to service providers.
- Two blocks for Public and Private Safety Network (emergency, police etc) – 6 MHz each for a total of 12MHz.
- Four reserved blocks of 6 MHz each (totaling of 24 MHz) for future use.

Table 2

BLOCK	BANDWIDTH	FREQUENCY AND PAIRING	TOTAL BANDWIDTH
A	12 MHz	(698-704 MHz and 728-734 MHz)	12 MHz
A'	12 MHz	(704-710 MHz and 734-740 MHz)	12 MHz
*B	6 MHz	(710-716 MHz)	6 MHz
*B'	6 MHz	(716-722 MHz)	6 MHz
*E	6 MHz	(722-728 MHz)	6 MHz
*E'	6 MHz	(800-806 MHz)	6 MHz
C	12 MHz	(740-746 MHz and 770-776 MHz)	12 MHz
C'	12 MHz	(746-752 MHz and 776-782 MHz)	12 MHz
D	12 MHz	(752-758 MHz and 782-788 MHz)	12 MHz
D'	12 MHz	(758-764 MHz and 788-794 MHz)	12 MHz
**PS	6 MHz	(764-770 MHz)	6 MHz
**PS'	6 MHz	(794-800 MHz)	6 MHz

* Reserved for future use

** Public and Private Safety Network (emergency, police etc)

The Commission considers that both approaches have advantages and disadvantages. Clearly, given the recent assignments of 700 MHz spectrum in the United States, it is possible, and perhaps likely, that, over the coming years, large telecommunications providers such as Verizon (and their equipment vendors) will develop and deploy new equipment designed to operate within the channelization set by the FCC. If that is the case, it is possible that the cost of deploying this equipment in the Turks and Caicos Islands will be lower if the local telecommunications industry operates within the same parameters.

On the other hand, the Commission also recognizes that the traditional channelization of the 700 MHz band is well entrenched in the telecommunications industry and therefore the new equipment designed to operate in this spectrum is likely to be usable within the parameters of the traditional channelization. The Commission also notes that the 700 MHz equipment developed by the international telecommunications industry is likely to be digital and incorporate internet protocols that can easily be adjusted for minor variations in frequencies and bandwidth. (See appendix for a comparison of both ECTEL and FCC 700 MHz channelization plan).

The Commission considers that the ECTEL approach may provide greater flexibility from a regulatory perspective because it does not include large spectrum blocks of up to 22 MHz (as is the case in the U.S.).

1. The Commission proposes to divide the 700 MHz spectrum in the Turks and Caicos Islands based on 18 channels of 6 MHz each, rather than follow the FCC approach.

Question 1:

Do you agree that the 700 MHz spectrum should be channelized in the Turks and Caicos Islands based on 18 channels of 6 MHz each or should we adopt the approach taken by the FCC?

2. The Commission further proposes that one or more 6 MHz RF channels in the lower band be split into 1 MHz, 1.5 MHz and/or 2 MHz sub-blocks for the award of spectrum licences with smaller bandwidths to operators.

Question 2:

Do you agree with the proposal to split one or more of the 6 MHz blocks into smaller sub-blocks to offers licences with smaller bandwidths? If not, please propose another structure for consideration.

3. The Commission proposes that the band should be used for broadband wireless service with a portion being designated for Public Health and Safety Services. Applying the principle of technology neutrality providers can deliver any service on the band with any technology of their choosing after they have obtained a licence for the service and obtained requisite frequency authorizations.

Question 3:

Do you agree with the proposal that the service provider can use any technology of its choosing within the band? If not, why?

4. The Commission is seeking specific spectrum usage information from current commercial mobile licensees and entities interested in acquiring commercial mobile spectrum:

Question 4:

Indicate your need for additional spectrum for commercial mobile service applications and how much spectrum is required.

- (a) ***What deployment timelines are being considered?***
 - (b) ***What types of applications/uses are envisioned?***
 - (c) ***To what degree will your business anticipated spectrum needs be addressed by having access to the 700 MHz spectrum?***
5. Operators have in the past made requests and inquiries for the Commission to award them the entire capacity of an un-opened spectrum band. The Commission proposes not to award an entire spectrum band to a single operator; the Commission therefore will seek to award an optimum amount of spectrum to each licensee to provide the allocated services.

Question 5:

Do you agree with the Commission's proposal that licensees should only be awarded an optimum amount of spectrum licences for services to be provided in a territory? If you disagree, please provide a framework for the Commission to consider when determining the amount of spectrum bandwidth to award each potential licensee.

6. The estimated demand for this band, based on applications received and expressions of interest, exceeds the amount of available spectrum especially when one considers reserving for future expansion while catering for Public Health and Safety Services. It is further expected that demand for the band will continue to increase. The Commission proposes that 12 MHz of spectrum per operator would be sufficient.

Question 6:

Do you consider 12MHz of spectrum per operator to be sufficient considering the Commission's conditions of bandwidth requirements and customer base? If not, what bandwidth would you recommend and for what reasons?

7. The Commission has reserved the bands 163-173 MHz, 453-458 MHz, 3 480-3 500 MHz and 3580-3600 MHz for Public Safety and Government use and agreed that additional bands may be included on an as needed basis.

The Commission invites all respondents, in particular the public safety and commercial stakeholders, to provide comments to the following questions.

Question 7:

Do public safety agencies need spectrum for broadband applications? If so:

(a) How much and for which type of applications?

(b) What are the anticipated deployment plans and the possible constraints, if any, in implementing these plans?

(c) Is there suitable alternate spectrum to the 700 MHz to meet these broadband requirements?

8. The Commission notes that, traditionally, spectrum has been assigned on a first come first-served basis in the Turks and Caicos Islands. An alternative method of assignment would be a comparative selection method.

Question 8:

Do you agree that the traditional first-come, first-served method of assigning spectrum in the Turks and Caicos Islands is appropriate in the case of the 700 MHz spectrum, or would it be preferable to use a comparative selection method?

9. Given the particular characteristics of the 700 MHz spectrum, and the interest expressed by several operators in obtaining a portion of this spectrum, the Commission considers that it may be appropriate to use another methodology in this case. The Commission considers, in particular, two allocation methodologies; auctions or administrative pricing.

Auction is a process of buying spectrum offered for sale and assigning to the winning bidder. Auctions come in many forms and it is considered that they are best applied when determining the true market value of the resource. Auctions would require technical expertise to set pre-qualifying prices and managing the bidding and schedule of payments.

There are four primary types of auction:

- (1) The English auction or open ascending price auction,
- (2) The Dutch auction or open descending price auction,
- (3) The sealed first price auction, and
- (4) The Vickrey auction.

Question 9:

Would you consider auction as an appropriate method for awarding Licences/frequencies in the 700 MHz band? What type of auction would you consider best if auctions were to be used?

10. Administrative pricing seeks to recover the cost of regulation from the regulated enterprises/companies. In applying administrative pricing for the 700 MHz band the Turks and Caicos Islands Commission would need to set the 700 MHz fees as part of the revision of all Spectrum fees. The Commission proposes that the price of the 700 MHz band be set above the price of the 850MHz spectrum.

Question 10:

Would you consider administrative pricing as an appropriate method for awarding Licences/frequencies in the 700 MHz Band? What costs would you include for consideration in determining the regulatory costs?

11. The Commission proposes to reserve some additional spectrum in the 700MHz band in response to future technology development.

Question 11:

Do you consider that it is appropriate to reserve any channels of the 700 MHz band for future use?

Appendix

Channelization of 700 MHz Spectrum in the United States and ECTEL

