CONCLUSIONS AND RECOMMENDATIONS

OF THE WORKSHOP AND FREQUENCY COORDINATION MEETING

TRANSITION TO DIGITAL TERRESTRIAL TELEVISION AND DIGITAL DIVIDEND

BRIDGETOWN, BARBADOS, 21-25 MAY 2012

1. General

The workshop and frequency coordination meeting on transition to digital television and digital dividend was held from 21 to 25 May 2012 in Bridgetown, Barbados, at the kind invitation of the Government of Barbados, the Caribbean Telecommunications Union (CTU), the Caribbean Broadcasting Union (CBU) and the International Telecommunications Union (ITU).

This event aimed to promote the cooperation and exchange of experience within Caribbean countries on spectrum issues relating to the transition to digital terrestrial television and the digital dividend. In line with the resolution adopted by the 14th General Conference of Ministers of the CTU, this event was also intended to coordinate the use of the UHF spectrum in order to maximize the benefits of the transition to digital TV broadcasting and the digital dividend[1] and minimize interference.

[1] The digital dividend is the amount of spectrum made available by the transition of terrestrial broadcasting from analogue to digital.

The workshop gave emphasis to regulatory issues and practical cases on spectrum issues related to the transition to digital terrestrial television and to the digital dividend. The frequency coordination meeting focused on satisfying the spectrum requirements of all countries in the region for digital terrestrial television broadcasting and mobile services in the UHF spectrum and taking the necessary consequential actions to secure their international rights to use that spectrum, in particular in respect of the ITU.

Concerning the broadcasting service, the objective was to identify compatible frequency assignments (sites, power, antenna characteristics and frequency channels) that may be used by each country for digital television without harmful interference and a procedure through which these assignments may be brought in service. For the mobile service, the objective was to assess possible arrangements by which the higher part of the UHF band (i.e. above 698 MHz) may be used without harmful interference. The results obtained during this event are not binding, but may be used hereafter as a basis for formal agreements between the concerned countries.

This event was open to all relevant stakeholders (governments, regulators, broadcasters, mobile operators, etc…). It was attended by 48 participants representing 16 Caribbean administrations, and by 29 participants from 4 international organizations (ITU, CTU, CBU and ECTEL).

2. Presentations made

The meeting was opened by Hon. Darcy BOYCE, Minister responsible for telecommunications in the Government of Barbados. The opening ceremony was also addressed by Mr Nigel CASSIMIRE, on behalf of the CTU Secretary General, Mr Patrick COZIER, Secretary General of the CBU, Mr. François RANCY, Director of the ITU Radiocommunication Bureau and Mr. Cleveland Thomas, ITU's Caribbean Area Representative, who served as Master of Ceremonies. In their opening speeches, all speakers underlined the importance of the workshop and frequency coordination meeting to ensure that Caribbean Countries jointly and successfully carry out the transition to digital television and the allocation of the digital dividend, which represent two major milestones in the advent of the information society.

2.1 Exchange of experience on the transition to digital TV and digital dividend

The first two days permitted a rich exchange of experience driven by presentations by representatives of the ITU, Barbados, Belize, British Virgin Islands, Dominica, French Caribbean Islands, Guyana, Haiti, Jamaica, Saint Lucia, Saint Vincent and the Grenadines, Suriname, and Trinidad & Tobago. The Table below provides a summary of the situations in

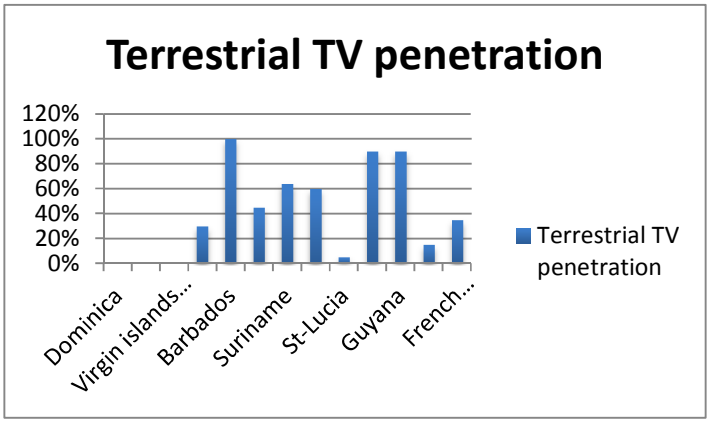
the Caribbean countries for which responses could be obtained at this stage, regarding the penetration[2] of terrestrial television and current plans to transition to digital TV and to allocate the digital dividend.

COUNTRY	POPULATION	% terrestrial TV**	% CABLE	% SAT	Public BCs	Private BCs	No TV channels	Plans to migrate	standard DTT	Channel BW DTT
Dominica	71'000	0%	95%	0%	1	2		no	n\a	n\a
Anguilla	15'000	0	99%	0	0	1		yes	undecided	n\a
Virgin islands (UK)	29'000	0%	99%	2%	0	4		yes	undecided	n\a
Jamaica	2'800'000	30%	65%	less than 1%	0	3		yes	undecided	n\a
Barbados	284'000	100%	35%	40%	1	0		yes	ATSC	6 MHz
Trinidad & Tobago	1'320'000	45%	48%	7%	3	6		yes	undecided	n\a
Suriname	492'829	64%	0.50%	3%	1	30		under develop.	undecided	n\a
Haiti	9'500'000	60%	15%	2%	1	71		yes	ATSC	6 MHz
St-Lucia	173'765	5%	90%	5%	2	2		no	n\a	n\a
St Vincent and the Grenadines	106'000	90%	45%	1%	0	2		no	undecided	n\a
Guyana	750'000	90%	3%	2%	2	18	26	under develop.	undecided	n\a
Belize	350'000	15%	80%	2%	0	7		no	n\a	n\a
French islands & French Guyana	1'068'938	*35%	10%	60%	0	1	8 to 10	migration completed	DVB-T MPEG 4	8 MHz

* digital terrestrial
** penetration

COUNTRY	digital channels to use	UHF analogue used	VHF analogue used	Channel BW	ASO date	DD band requests	DD band plan to be used	Incumbents in DD bands
Dominica	n\a	none	none	6 MHz	n\a	Yes, 700 MHz	US	none
Anguilla	n\a	n\a	n\a	n\a	undecided	Yes, 700 & 800 MHz	US	GSM 850
Virgin islands (UK)	n\a	none	5		undecided	Yes, 700 MHz	US	GSM & CDMA 850
Jamaica	n\a	14-51 free for dtv	4,6,7,8,9,10,11,12,13	6 MHz	undecided	Yes, 700 MHz	US	none
Barbados		none	channel 8 only	6 MHz	undecided	Yes, 700 MHz	US	Fixed wireless access in 700 MHz & PPDR 800 MHz
Trinidad & Tobago	UHF - 15, 17, 21, 24, 26-30, 32, 34-36, 38, 40-45	14, 16, 18, 19, 20, 22, 23, 25, 31, 33, 37, 39	4, 6, 7, 9, 11, 12, 13	6 MHz	undecided	Yes, 700 MHz	US	GSM 850
Suriname	n\a	14,17,20,23,26,28, 30,32,38,41,44,45, 47,50	2,4,5,8,10,12	6 MHz	undecided	Yes, 700 & 800 MHz	undecided	none
Haiti	15-17-19-21-23-27-29-31-33-35-39, 41,43,45,47,49 (16 UHF channels)	14 to 68	2 to 13	6 MHz	2015	Yes, 700 & 800 MHz	undecided	none
St-Lucia	n\a	none	2,9,4,6	6 MHz	n\a	No	undecided	none
St Vincent and the Grenadines	n\a	22 & 29	4, 7, 9, 11, 12 & 13	6 MHz	undecided	Yes, 700 MHz	US	none
Grenada								none
Guyana	n\a	14,15,16,17,18,19, 21,23,24,25,29,38, 42,46	2,3,5,6,7,8,9,10,11, 12,13,0	6 MHz	undecided	Yes, 700 & 800 MHz	undecided	Trunked radio used above 806 MHz
Belize	n\a	15,17,19, 21 & 23	2,3,5,7, 10,12 & 13	6 MHz	undecided	Yes, 700 MHz	review by US consultant	GSM & CDMA 850
French islands & French Guiana	8 to 10 programs in 470-694 MHz		n\a	n\a	n\a	700 & 800 MHz alloc. Mobile	EU	none

[2] I.e. the percentage of population viewing terrestrial TV brodcast over the air.



Terrestrial TV situation: 5 administrations in the Caribbean have 50% or higher percentage of analogue terrestrial TV penetration. In these countries, transition to digital terrestrial TV should be considered, and the appropriate spectrum planning and coordination activities started in order to make this transition possible.

Standards: So far, 3 administrations have adopted a standard (1 for DVB-T and 2 for ATSC). Most administrations have not decided or are in testing phase.

Plans to migrate: 4 administrations have no plans to migrate due to high penetration of cable TV. One administration (France, for the French Caribbean Islands and French Guyana) has already completed transition to digital and analogue switch-off (ASO).

Analogue TV use: VHF and UHF used by a significant number of administrations. The switch over phase will require compatibility measures for smooth transition until ASO is completed.

ASO dates: only one administration has identified a target date for ASO. There is a need to coordinate ASO dates to avoid interference constraints during interim periods.

Digital dividend: almost all administrations are considering the possibility of using the 700 MHz band (698-806 MHz) and/or 800 MHz band (790-862 MHz), pursuant to the WRC-07 and WRC-12 decisions to allocate these bands worldwide and identify them for international mobile telecommunications (IMT).

In all above Caribbean countries except one, no frequencies are currently assigned to broadcasting in the 700 MHz and 800 MHz.

In one country (Haiti), the 700 MHz band is still used by analog television, but there are plans to migrate this use below 698 MHz.

In two countries, the 800 MHz band is still used by CDMA 850. In one country, the 700 MHz is already assigned to one operator for BWA. In four countries, GSM 850 MHz is also used.

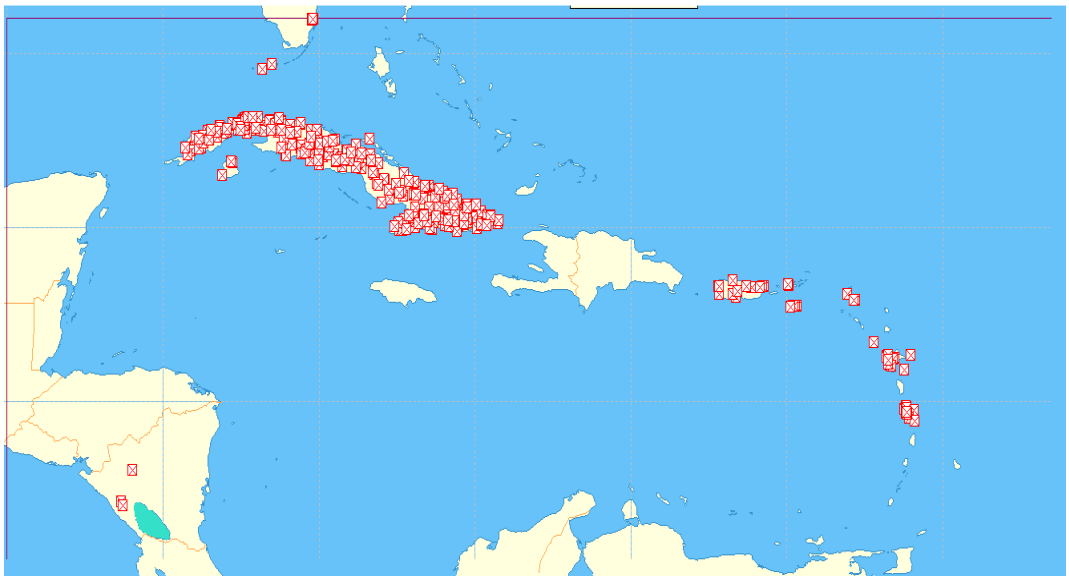
Trunk radio is also in use in several countries in the 800 MHz:

- 816-821 and 861-866 MHz in Guyana,
- 806-886 MHz in Barbados,
- 806-821 and 847-866 MHz in Jamaica,
- 813-818 MHz and 858-863 MHz in Belize

With some refarming efforts in a few countries, there would therefore be room to achieve a common use of the 700 and 800 MHz by the mobile service in the Caribbean countries within the next five years.

2.2 Recording of frequency assignments in the ITU Master Register

The meeting noted that only a few countries in the Caribbean region (USA, Cuba and France) have notified to the ITU Radiocommunication Bureau (BR) their current use of the UHF band by the broadcasting service, as highlighted by the Figure below. A presentation made by the Bureau recalled the details of the notification procedure, which is made mandatory by the Radio Regulations to ensure both the international recognition of the corresponding frequency assignment and the avoidance of interference between assignments.



A training session was also conducted to make participants more familiar with the details of the notification process, in particular to fill the notification forms. Administrations were encouraged to undertake this process as soon as possible to regularize the situation of their assignments currently in use.

3. Conclusions and recommendations of the workshop and frequency coordination meeting in respect of the broadcasting service in the UHF band

The CTU General Conference of Ministers is invited to endorse the following conclusions and recommendations.

3.1 The meeting noted that the Caribbean countries were at various stages of deployment of digital terrestrial television, with

a) several countries having no terrestrial television broadcasting in analog or digital form and no plan to deploy any such service,
b) several countries having completed analogue switchoff, with one or several digital multiplexes already in service and plans for more,
c) several countries having a very large penetration of analogue terrestrial television, hence the need to consider its migration to digital television in the future, but no specific plans adopted at this stage.

3.2 Given this situation, the meeting considered that the current international framework, by which spectrum resources of ITU Member States for the broadcasting service in the UHF band are secured on the basis of the first-come-first served principle, and the possibility of interference situations between Caribbean countries may render it impossible for some countries to access these resources at the time in the future when they will need them. Hence, specific bilateral or multilateral arrangements may need to be taken to avoid this situation.

3.3 In this context, the meeting considered that the aspirations of the Caribbean countries could be satisfied by a coordinated approach of the use of the UHF band by broadcasting as follows:

a) The spectrum requirements of the broadcasting service in the UHF band may be satisfied in the band 470-698 MHz
b) The frequency assignments currently in service should be protected
c) A minimum set of frequency assignments necessary to enable full national coverage (e.g. two to three digital multiplexes) free of interference, should be identified for each Caribbean country,
d) Caribbean countries should, as far as possible, use for digital television broadcasting the set of frequency assignments referred to in c) above
e) If additional frequency assignments are needed that may cause interference to the assignments referred to in c) above, affected countries should give their agreement before such frequency assignments are brought in service.

3.4 In order to develop the minimum set of frequency assignments referred to in 3.3 c) above, the following steps were considered, and may be used as part of an iterative process:

a) By end-June 2012, Caribbean Administrations to provide to the ITU Radiocommunication Bureau (BR) the characteristics of their existing or planned transmit broadcasting stations (latitude, longitude, antenna height, TV system, maximum erp and antenna pattern),
b) By end-August 2012, the BR to communicate to the Caribbean Administrations the matrix of incompatibilities between the above stations when using the same frequencies
c) By end-September 2012, the BR to communicate to the Caribbean Administrations a first set of compatible assignments meeting the conditions in 3.3 a), b) and c) above
d) In parallel with this activity, Caribbean Administrations, through bilateral and multilateral discussions, to resolve any compatibility problems and coordinate further iterations of the above set of assignments.

4. Conclusions and recommendations of the workshop and frequency coordination meeting in respect of the mobile service in the UHF band

The CTU General Conference of Ministers is invited to endorse the following conclusions and recommendations.

4.1 WRC-07 and WRC-12 have taken essential decisions to allocate to the mobile service on a global basis the 700 MHz band (698-806 MHz) and the 800 MHz band (790 – 862 MHz) and to identify these bands for IMT worldwide.

4.2 Worldwide harmonization of these bands, in particular by globally harmonized band plans, is well under way[3] and expected to be completed within a short period of time.

4.3 This will open the way for the availability, within the next 3 to 5 years, of affordable broadband mobile terminals (like smartphones) developed for the worldwide market and providing worldwide roaming capability and interoperability.

4.4 All efforts should therefore be made to ensure that these bands can be made available in the Caribbean region in a way that permits it to benefit from worldwide harmonization.

4.5 Both the 700 MHz and the 800 MHz bands are largely available in the Caribbean region for use by the mobile service and, with only some refarming efforts in a few countries, there would be room for a common use of these bands by the mobile service in the Caribbean countries within the next five years.

4.6 Caribbean Administrations are therefore urged to take the necessary steps to enable the use of the 700 and 800 MHz bands by the mobile service alongside with international harmonization.

[3] See Annex 2 for more details.

Regional Workshop and Frequency Coordination Meeting on the Transition to Digital Terrestrial Television and the Digital Dividend

The Savannah Beach Hotel
Barbados, 21-25 May 2012

ANNEX 1

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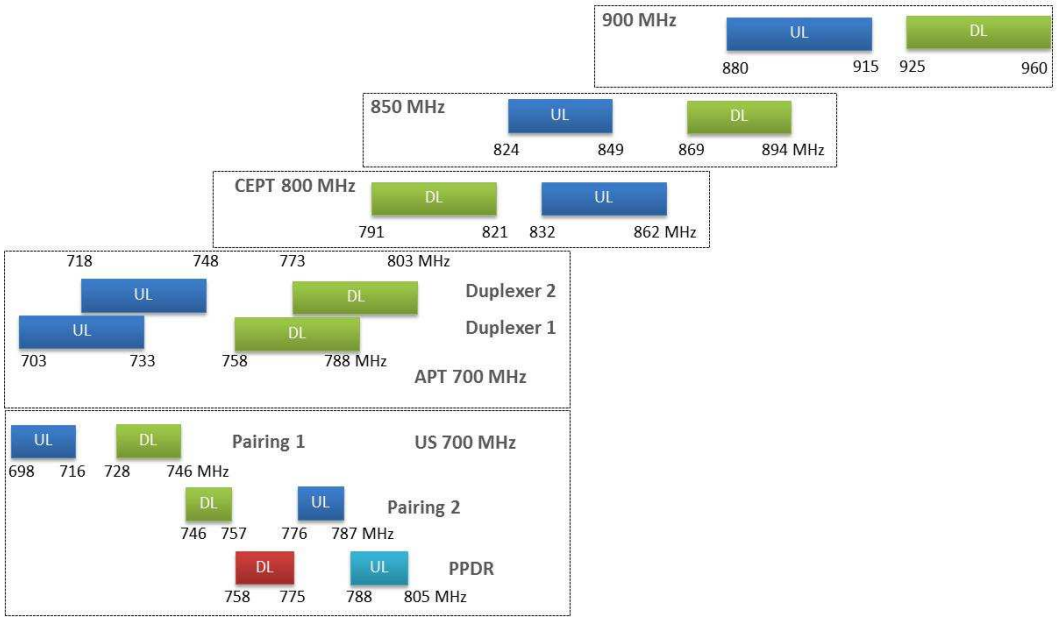
ANNEX 2

PROGRESS OF INTERNATIONAL HARMONISATION OF BAND PLANS

FOR THE 700 MHz and 800 MHz BANDS

Since 2007, the standardization efforts carried out in ITU and regional bodies have paved the way for the possibility of an early implementation of mobile broadband services in the digital dividend bands (700 and 800 MHz). As a result of the non-uniform allocations by WRC-07 and the constraints arising from incumbent mobile usage (Trunk radio at 800 MHz, CDMA and GSM at 850 MHz and GSM at 900 MHz), these efforts have produced non-uniform solutions across the world (See Figure below):

- In 2007, the USA adopted a 700 MHz band plan, which led to two paired arrangements of 2x 18 MHz and 2 x 11 MHz for commercial services and 2 x 17 MHz for Public Safety services (PPDR). Following auction, AT&T and Verizon have already launched mobile broadband service respectively in parts of the paired arrangements, using LTE technology. Steps are being taken to create a public/private partnership for the development of a unified PPDR network. Complexity of the plan has resulted in fragmentation of the market into two sets of incompatible equipment. Canada has announced its intention to follow this plan. The market is 330 million people.
- In 2009, European countries (CEPT) adopted a harmonized band plan for mobile broadband at 800 MHz, with a 2 x 30 MHz paired arrangement. In the 27 countries of the European Union, this band plan is mandatory for the use of the 800 MHz band. Germany, Sweden, Spain, Switzerland, Italy and France have already auctioned that spectrum and service rollout has started, using LTE technology. The United Kingdom is expected to do the same in 2012. The market is 500 million people.
- In 2010, the Asia Pacific Telecommunity (APT) adopted a paired arrangement of 2 x 45 MHz based on a dual duplexer implementation for the 700 MHz band, and a TDD arrangement covering the entire 703-803 MHz band. Several countries in Asia have announced their intention to follow this plan. The market is 4 billion people.



In February 2012, at WRC-12, the international community affirmed its commitment to work towards maximizing harmonization of the digital dividend spectrum for the mobile service, in deciding to allocate the 700 MHz band to the mobile service worldwide and identify it for IMT, in addition to the 800 MHz band, with a date of entry into force of end-2015.

This has prompted significant activity to take this opportunity to reconcile the various options taken since 2007 and to address the future of the 700 MHz, 800 MHz and 900 MHz bands jointly, with a view to achieve worldwide harmonization of IMT frequency plans in these bands, while providing incumbent services with incentives to refarm their activities into this future. The Figure below provides an example of current scenarios being brought forward as a result of this activity.