

Telecommunications Authority of Trinidad and Tobago



Regional Forum for Americas Region: IMT Systems -  
Technology, Evolution and Implementation

# **An Approach to 700 MHz Band Planning and Further Bands for IMT**

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# Overview

- ⌘ Chronological Use of the 700MHz band in Trinidad & Tobago.
- ⌘ Derivation of the most appropriate 700 MHz Band Plan.
- ⌘ Allocation of Further IMT Bands to Public Mobile Telecommunications Services.
- ⌘ Expected Benefits

*Chronological Use of the 700MHz band  
in Trinidad & Tobago*



# In the Beginning

- ∞ 700 MHz Band (i.e. 698 – 806 MHz) originally unused by the Broadcasting Sector.
  
- ∞ In 2006, the Telecommunications Authority of Trinidad and Tobago (TATT) began assessing various frequency bands that can be made available for Broadband Wireless Access (BWA) services.
  
- ∞ Motivation:
  - To support the Government's connectivity agenda.
  - To promote alternative “last mile” (wireless) infrastructure development for the rapid deployment of broadband Internet access.
  - To introduce competition in the Cable TV market.

# The First use of the 700 MHz band

- ∞ At the end of 2006, the Spectrum Plan for the Accommodation of BWA Services was published, after two (2) rounds of public consultation.
  - The Lower 700 MHz Band (i.e. 698 – 746 MHz) was included in this Spectrum Plan.
- ∞ An Auction was held in 2007 and some of the Lower 700 MHz spectrum was licensed:
  - The Licensee utilized this spectrum for the provision of Wireless Cable TV services.
- ∞ A second BWA auction was held in 2009, in which the remaining Lower 700 MHz spectrum was licensed and again utilised for the provision of Wireless Cable TV services.

# Re-Classification of the 700 MHz Band

- ∞ In 2012, TATT considered re-allocating the 700 MHz Band for the provision of Public Mobile Telecommunications Service (PMTS).
- ∞ Motivation:
  - To leverage new mobile technologies, such as Long Term Evolution (LTE), in support of the Government's Broadband Strategy, objectives and access targets.
  - Spectrum under 1 GHz was preferred for LTE deployment and enhanced PMTS services.
  - Availability of the 700 MHz Band for PMTS would serve as an incentive to deepen competition in the Mobile Sector (i.e. introduce a third mobile operator to the market).

# The Current State

- ∞ The 700MHz US Band Plan was adopted and the incumbent BWA Operator was migrated into spectrum below 698 MHz.
- ∞ In August 2013, a tender was issued for the provision of enhanced mobile broadband services using the 700 MHz band, including the authorisation of a third mobile operator.
- ∞ Bids have been received and are in the final stages of evaluation. The award of 700 MHz spectrum is imminent.

# *Derivation of the most appropriate 700 MHz Band Plan*





# The 700 MHz Band Plans Considered

## Available 700/800 MHz Band Plans



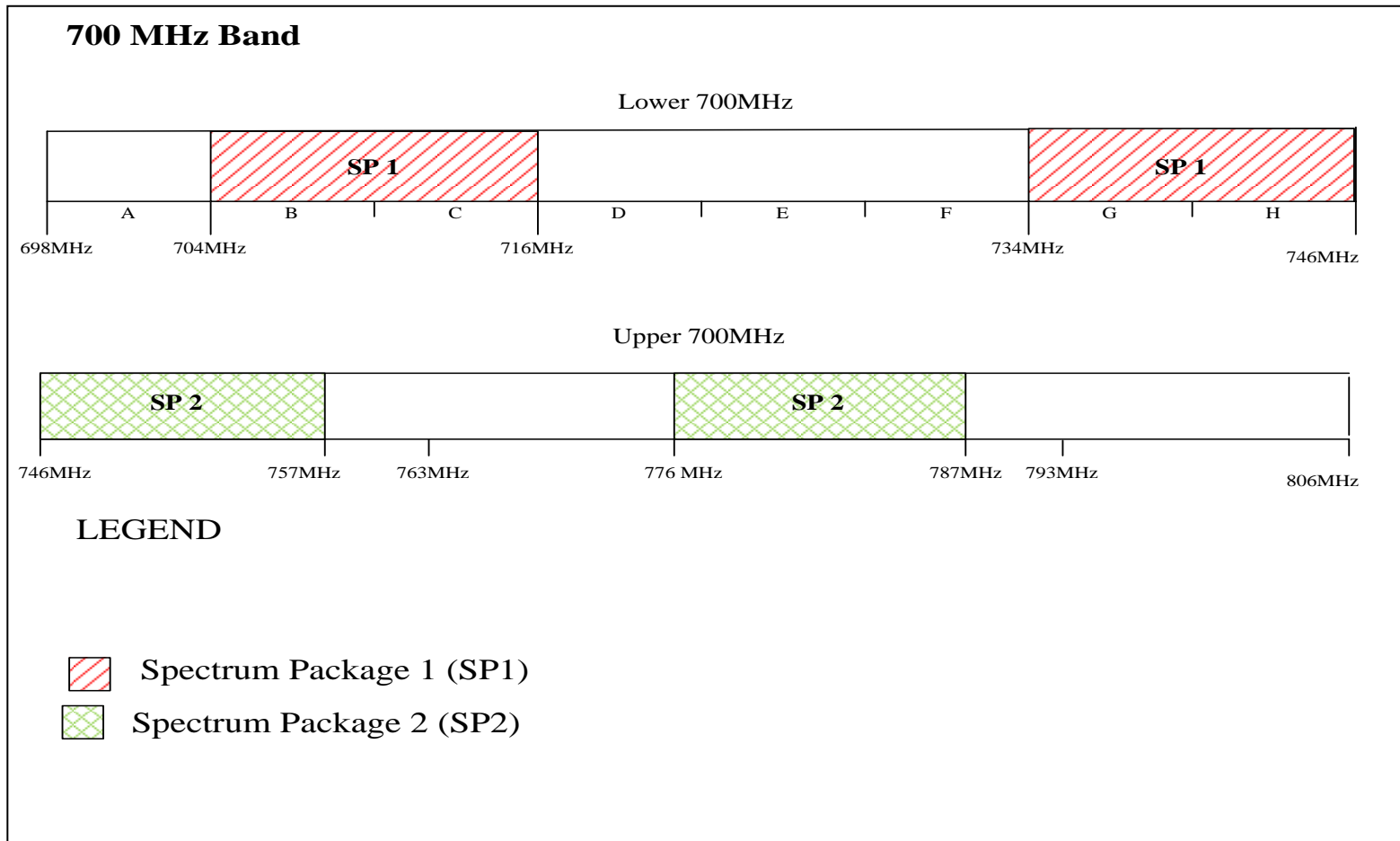
Source: GSMA

# The Criteria for Selection

- ∞ The following criteria was used to inform the decision-making process on the preferred 700 MHz Band Plan:
  - The National ICT (*smarTT*) Plan (2014 – 2018):
    - Broadband objectives and access targets (i.e. 5 Mbps by 2015).
  - The current spectrum road map for PMTS:
    - 850 MHz/1900 MHz.
  - Spectrum availability.
  - Equipment availability (to support rapid build-out and launch of services).
  - Handset Ecosystem (economies of scale).

# The Outcome

## New Spectrum Packages in 700 MHz Band



# *Allocation of Further IMT Bands to Public Mobile Telecommunications Services*



# The Allocation of more IMT Bands to PMTS

- ∞ As part of the continuing effort to make more spectrum available for PMTS, the allocation of 700 MHz spectrum was followed by consideration of additional spectrum.
- ∞ A Technical Working Group was established comprise representatives from TATT and relevant stakeholders (i.e. Cellular Mobile Operators and BWA Operators).
- ∞ The main objective of this Working Group was to consider the Advanced Wireless Services (AWS) and other IMT bands and make recommendations to TATT for the allocation to PMTS.

# Frequency Bands under Consideration

**Table 1: Frequency Bands Identified for IMT**

<b>Table 1 — Frequency bands identified for IMT</b>	
<b>Band (MHz)</b>	<b>Radio Regulations footnotes identifying the band for IMT</b>
450–470	5.286AA
698–960	5.313A, 5.317A
1 710–2 025	5.384A, 5.388
2 110–2 200	5.388
2 300–2 400	5.384A
2 500–2 690	5.384A
3 400–3 600	5.430A, 5.432A, 5.432B, 5.433A

# The Outcome

- ∞ The Working Group focused on the AWS Band as it was currently unassigned, whereas the other IMT bands were currently in use by BWA Operators.
- ∞ A Report has been produced by the Working Group for consideration by TATT.
- ∞ Subject to the approval of the recommendations, TATT will once again revise its Spectrum Plan for PMTS to include additional IMT bands (e.g. AWS band).

# *Expected Benefits*





# The Expectation

- ∞ This Authorisation process is akin to a reverse auction, whereby applicants would compete on the following criteria:
  - Best Coverage of Trinidad and Tobago.
  - Speed of Network Roll-out / Launch of Service.
  - Offered access speeds (i.e. 2Mbps, 5 Mbps, 10 Mbps, etc).
  - Indicative pricing of basic service offering (2 Mbps).
  
- ∞ The expected benefits will materialize from these four (4) criteria.

# The Benefits

- ∞ Further reduction of the broadband access gap.
- ∞ Higher mobile broadband speeds.
- ∞ More affordable services.
- ∞ Meeting the growing demand for mobile broadband capacity.

*Thank You*

