Digital Switchover in Chinese Taipei

Dr. Kai-Sheng Kao
National Communications Commission
Chinese Taipei at
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Outline

◆ Digital Switchover
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  ➤ Other factors for success to Digital Switchover

◆ Digital dividend
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  ➤ Current TV Channels
  ➤ Digital Terrestrial TV Channels
  ➤ Digital Dividend
  ➤ Potential uses of Digital Dividend
  ➤ Proposed approach to release spectrum
Why digital television?

- Digital television offers **new possibilities** to the viewers and broadcasters
  - Improved quality of video and audio
  - Additional programs
  - New types of services: HDTV, EPG, interactivity, multi-channel,...
  - Portable and mobile terminal equipments
  - Cost optimization

- **Spectrum efficiency → Digital Dividend**
  - In the use of spectrum, digital television is much more efficient than analogue one
  - Switch to all-digital television will create significant spectrum ‘dividend’
Digital Dividend

resource : The Mobile Provide(2007)
The related between Transmit distance and Spectrum physical characteristic

resource : BBC R&D(2009/03)
**DTV Promotion Milestone**

- **July 1997**  Selected 6 MHz bandwidth for terrestrial and cable DTV
- **Dec 1997**  Implemented field trial of terrestrial DTV
- **March 1998**  Announced terrestrial DTV transmission standards
- **July 1998**  Completed terrestrial DTV channels allocation
- **June 2001**  Remain technology neutral for terrestrial DTV
- **May 2002**  Began western region terrestrial DTV trial broadcasting
- **April 2003**  Began island-wide terrestrial DTV trial broadcasting
- **2007**  Began field testing for Mobile TV (DVB-H & Media FLO)
- **May~Sep. 2007**  Launched commercial operations of terrestrial DTV
- **May 2008**  Began HDTV field testing
- **Dec. 2012**  Plan to complete Digital Switchover

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Proposed Measures for Digital Switchover

- **Goal:** Analogue Switch-Off (ASO) by December, 2012
- **Proposed Measures**
  - **Digital Terrestrial Television (DTT) Coverage**
    - The coverage should at least match the analogue one
    - Accelerate the construction of gap-filler to improve the coverage of the DTT
  - **Sufficient penetration of digital receivers**
    - TV Converter Box Coupon Program for the low-income (government funding around $260M NTD be required)
    - Manufacture certification
  - **Well informed and prepared Viewers**
    - Public awareness and education
    - Digital Switchover Hot Line / Call Center / Technical support
Other factors for success to Digital Switchover

- **Put in place the necessary legislative framework**
  - For example, accelerate amendments to the CATV Act to solve must-carry problem (airplay DTV or RTV signal)

- **Quality of the digital offer**
  - The service offer must be **attractive**
  - The service offer must be of **high quality**

- **Ensure cooperation of all involved parties**
  - Governments and regulators
  - Public Service Broadcasters and commercial broadcasters
  - Cable and satellite platforms
  - Manufacturers
  - Retailers and installers
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Government Agencies for Spectrum (Double track)

- **Spectrum Policy Maker**
  - MOTC (Ministry of Transportation and Communications)
  - Planning Allocation

- **Spectrum Administrator**
  - NCC (National Communications Commission)
  - Administration Assignment
The objectives and duties of MOTC and NCC

Public interests
To protect the public interests of citizens in relation to communications matters

Consumer rights
To further the interests of consumers in relevant markets, where appropriate by promoting competition

Effective use of the spectrum
To secure the optimal use of the frequency spectrum

Technology Neutral
To work on the principle of technology neutral framework

Spectrum Management
### Spectrum planning of MOTC between 530MHz and 890 MHz

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<th>ITU</th>
<th>Spectrum planning of MOTC between 530MHz and 890 MHz</th>
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<td>*585-610 MHz for Aeronautical radionavigation service as well</td>
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# Current TV Channels

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Common Analogue Repeater (Gap Filler)
Digital Terrestrial TV Channels

◆ MOTC divided the UHF band into frequency channels of 6MHz; there are 30 channels between 530 – 710 MHZ.

◆ All future terrestrial digital TV services would be located in the spectrum at UHF channels 24-53 (530-710 MHz).

◆ Initial eligibility for DTV licenses - limited to existing Analog TV stations

◆ 5 DTV licenses (ch.25, 27, 29, 31, 33) and 2 Mobile TV licenses (ch.35, 36) to be awarded in the 2nd phase release in near future(2011)
**Digital Dividend (1/2)**

- **Digital Dividend**: the spectrum bands that will be released by Digital Switchover for new use
- **22 channels, 132MHz spectrum bands totally, will be released**
  - Channels 5 - 12 in the VHF band
  - Channels 37 - 48, 50, 52 in the UHF band

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**National Communications Commission**
Digital Dividend (2/2)

◆ Lower costs compare to higher frequencies
  ➝ Transmissions in these frequencies cover large geographical areas with relatively few base stations, offering network rollout at lower costs when compared to higher frequencies.

◆ High social value and commercial value
  ➝ A range of potentially new and innovative services, including broadcasting, communications, education, transport, emergency services and healthcare, to benefit millions of people in Chinese Taipie.

◆ Demand is likely to exceed supply
  ➝ Although the amount of spectrum released through digital switchover will be one of the largest in Chinese Taipie for many years.
Potential uses of Digital Dividend (1/2)

International Trends

Bandwidth (MHz)

Frequency

700MHz 800MHz 900MHz 1800MHz 1900MHz 2100MHz 2500MHz 2600MHz 2700MHz 3400MHz 3700MHz

WiMAX, Mobile TV, DTV, ITS

LTE, UMB, WiMAX

GSM/GPRS

CDMA2000

RFID

PHS

WCDMA, HSPA

CDMA2000

WBA, WiMAX, LTE

WiMAX, WBA

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Potential uses of Digital Dividend (2/2)

◆ Commercial uses
  ➔ new DTT channels;
  ➔ mobile television and multimedia;
  ➔ extending existing DTT coverage;
  ➔ broadband wireless applications;
  ➔ community radio or digital radio;
  ➔ Intelligent Transportation Systems (ITS);
  ➔ wireless microphones; and
  ➔ other low power applications, like hubs to distribute content around the home or using ultra wideband (UWB) technologies.

◆ Social uses
  ➔ emergency and public safety services;
  ➔ Healthcare and government services;
  ➔ communication with educational institutions;
  ➔ amateur or university use; and
  ➔ international emergency channel.

◆ The above list is not exhaustive
  ➔ new uses of digital dividend will continue to emerge owing to the rapid changes in technologies, services and applications in the communications sector.
Proposed approach to release spectrum (1/2)

- **Market-led basis approach**
  - Spectrum use has historically been dictated by a command-and-control approach by the regulator, which set down precise rules as to what spectrum could be used for, and by whom.
  - The most effective way to ensure that spectrum is used for the greatest benefit for Chinese Taipei is to allocate spectrum to those who value it most highly.
  - **Auctions: Fast, Efficient, and Transparent**

- **Technology-neutral basis approach**
  - To allow spectrum users to adapt technology and innovate with flexibility as markets evolve over time.
  - To set out a new deregulatory approach under which the market, not the regulator, would determine the most appropriate use of spectrum.
Proposed approach to release spectrum (2/2)

◆ **market targeting:**
  - According to Wendell Smith; Mass Marketing → Product Differential Marketing → Target Marketing
  - **Choice of the Target Marketing:**
  - The single district separates the focus
  - Specialization: Alternative/Product/market
  - Full coverage: difference/indifference market

◆ **Establish Contestable Market in Chinese Taipei:**
  - Analogue Terrestrial Television (ATT) revenue is poor
  - Digital Terrestrial Television (DTT) program is few
  - Under digital convergence trend Broadcaster operator need to cooperate with Telecommunications operator
Thank You for Your Attention