

Digital Dividend

Cordel Green

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World Radio Communications Conference WRC-07

- Region 1 allocation in the band 790 - 862 MHz to the Mobile Service
- Co-primary status with the broadcasting service to be effective June 2015 - allowing mobile transmissions in broadcast band.

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What does the DD mean?

DTV uses less spectrum than analogue television for roof-top reception

Any released spectrum after the analogue TV services have been closed down is known as the "digital dividend" (DD)

Released spectrum is valuable

- ✓ Lies in the band which allows for broad territorial coverage and good reception inside buildings.

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What does the DD mean?

The technology which enables digital Terrestrial television enables the same piece of spectrum to carry a wider range of more, and better quality services.

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What does the DD mean?





The “digital dividend” is the opportunity to improve and expand services, promote better digital coverage and improve access to electronic communication networks

- ✓ with much of the interest in the spectrum focused on providing wireless internet access.

What does the DD mean?



- Estimated that Digitalisation reduces spectrum required for *today's TV services* by around 50 – 70%
- *But*, any spectrum dividend depends on factors such as:
 - The number of TV channels
 - Picture definition and quality
 - Coding technology
 - Coverage and reception mode

Potential uses of the DD (1)

DTTV	SD and/or HD TV; 3D coming	
Mobile TV broadcast		
Cellular networks (3G/4G)	Spectrum suited to covering rural areas (longer range at lower cost - fewer base stations)	 
Broadband wireless access (WIMAX)	Ibid	

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Potential uses of the DD (2)

SAB/SAP (e.g. radio microphones)	A variety of users currently use the band for wide range of applications	
Public Service-national security and emergencies	Wireless broadband communication for security forces, emergency services and like operations	
Cognitive technologies	A family of technologies, now under development that will be able to assess whether frequencies are in use, and if not, transmit on a licence-exempt basis.	
Testing and Innovation reserve	Either reserving spectrum specifically for experimental purposes, or not making it available until a later date	

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How to use the released spectrum?

Choices have to be made as to how to use the available capacity: more television services, high-definition, mobile television, electronic programme guides, subtitling, additional language services, or other data applications.

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How to use the released spectrum?

- Give traditional TV breathing space to counter erosion of market share by multichannel providers
 - Launch new channels and offer packages similar to cable and satellite providers
 - Level quality playing field by broadcasting in HD

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How to use the released spectrum?

- Example in the UK BBC added 5 new channels BBC 3, BBC 4, BBC 24, BBC Parliament, Cbeebies and CBBC for children, as well as BBC HD.

How to use the released spectrum?

- A pro-mobile TV approach?
 - mobile TV is the favourite use for freed spectrum in many parts of the world.
 - Reflects growing demand for mobile multimedia content

How to use the released spectrum?

- Mobile TV exemplifies multimedia convergence:
 - personalized, convenience and mobility
 - spawns opportunities for content creation
 - enables business synergy eg. In relation to content produced for traditional transmission platforms

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How to use the released spectrum?

- Mobile TV exemplifies multimedia convergence
 - a new business sector of tailor made content production for mobile TV
 - generate other value-added activities, e.g. a new sector of mobile TV advertising targeting a specific market

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How to use the released spectrum?

- The main challenge is valuing the additional TV and/or other new services
 - Consumer experience or understanding of future services is limited
 - Individual versus societal values
 - Will consumers (who are not clamouring for switch-over) be rewarded with just more services and content or improved and different service offerings, including PSB and community services?

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Who Should Decide?

- Broadcasters?
 - *It is broadcast spectrum so should they decide its future?*
- Regulators?
 - *Generally responsible for spectrum allocation and assignment decisions*
- The Market?
 - *market based assignment and allocation methods increasingly being used around the world*

AGEIS IDATE Final Report on Spectrum Management in the Field of Broadcasting

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The Public Interest is Paramount

- Objective should be maximum social and economic benefit to society:
 - Achieved by widest, fair and rational allocation between mobile broadband, digital TV and ICTs generally
 - Determined by local realities
 - And the need to facilitate innovation

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People, Consumers and Citizens are at the centre

- Pace, direction and success will depend on consumer preferences
- People's demands and behaviour will influence regulatory approach.
- Consumers want information faster, digitized, personalized, on demand, and accessible across all platforms and devices (broadcast media, fixed telephony, internet and mobile).

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Response to Digital Dividend

Response of countries vary

- UK proposes auction, based on a market-led approach to spectrum
- France considering priority for broadband mobile services rather than exclusive allocation to digital television services.

Response to Digital Dividend

Response of countries vary

- Japan focusing on mobile broadcasting and other portable devices
- US using "white spaces" between broadcast television Channels for "Super WIFI" use
 - ✓ opportunity for stronger longer range wireless network communications, capable of travelling several kilometres and at speeds of 15 to 20 megabits per second.

Challenges with Reallocation

- Allocation of 790 - 862 MHz for mobile communications means broadcasters must vacate the band and relocate to band below 790 MHz.

This will require:

- minimum disruption for the viewers
- Probably compensation for costs incurred (technical and public communications)

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Challenges with Reallocation

- Allocation of 790 - 862 MHz for mobile communications means the 800 MHz band will no longer be available for Programme Making and Special Event (PMSE) production equipment, in particular wireless microphone.
- Alternative spectrum must be found for affected services.

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Challenges with Reallocation

- Conflicts and competition for spectrum allocation among mobile TV services
- Conflicts between mobile TV and other digital broadcasting and telecommunications services (such as datacasting, broadband wireless access, wireless camera equipment, etc) when they operate in the same frequency bands.

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Challenges

Ensuring no interference with

- Television channels
- Other equipment in the same spectrum range e.g. wireless microphones
- LTE
- Cognitive Radio / White Spaces
- Power Line Telecommunications
- Portable DVB-T reception
- Cable TV receivers

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Thank you for your attention

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