Singapore Perspectives on TV White Space
Increasing the capacity to meet demand
Spectrum Projections and Demands

Mobile-cellular subscriptions, total and per 100 inhabitants, 2005-2014*, and by region, 2014*

Note: * Estimate
Source: ITU World Telecommunication/ICT Indicators database
New Approaches to Spectrum Usage

Dynamic Spectrum Access
Optimise and enable access to under-utilised spectrum

**Utilisation**
- Exclusive
  ↓
- Shared (temporal & spatial)

**Regulation**
- Licensed
  ↓
- Unlicensed

**Allocation**
- Static
  ↓
- Dynamic
TVWS Spectrum Bands

**IDA’s Position:** 24 channels in the TV broadcast bands will be made available for TVWS operations in Singapore (~180MHz of spectrum)

**Where is the TVWS Spectrum?**
IDA will make available parts of spectrum between 174 MHz and 230 MHz band, and between 470 MHz and 806 MHz band for TVWS operations.

These two spectrum bands are not fully utilised at all times and in all locations.

As such these unused spectrum could potentially be re-deployed for other wireless services.
Geo-location Database

- Geo-location database approach will be adopted
- A licensing approach so as to maintain greater regulatory control of the database operation.

High-Priority Channels

- Designate two High-Priority Channels ("HPC") within the TVWS spectrum, to cater for TVWS users that requires higher level of spectrum certainty.
Licence Exemption- Lowering cost barrier

- Three categories of WSDs, ranging from low to high-powered and fixed to portable devices.
- Operation of WSDs are exempted from licensing, provided that the WSD conforms to IDA’s technical specification

Benefits for the Industry

- A licence-exempt approach will allow users to explore a range of business models, lower cost for users and enable innovative services to flourish

Examples of wireless services that are currently operating on a licence exempt basis:

Communications & Broadband Access

- WiFi
- ZigBee
- Bluetooth

Wireless Microphones
Singapore TVWS Regulations

Business Freedom and Opportunities
• Businesses are able to deploy their own wireless networks without the need for costly spectrum licences

Encourage Innovative Solutions
• Potential deluge of new technological and business model innovation that will benefit both industry and consumers

Technology Start-ups
• Creating opportunities for small medium enterprises (SMEs) and start-ups
Thank You