Asia-Pacific Broadcasting Union

総務省 MIC Ministry of Internal Affairs and Communications

ITU

AIBD

Session 1

Digital Terrestrial Television Broadcasting Implementation in Asia and the Pacific

2015

Kuala Lumpur, Malaysia

Dr AMAL Punchihewa

Director ABU Technology

Asia-Pacific Broadcasting Union

A Vice Chair of World Broadcasting Union Technical Committee (WBU-TC)

New Zealand Experience

Dr Amal Punchihewa

PhD, MEEng, BSC(Eng)Hons, CEng, FIET, FIPENZ, SMIEEE, MSLAAS, MCS

Postgraduate Studies in Business Administration

Director ABU Technology

Asia-Pacific Broadcasting Union

Kuala Lumpur, Malaysia

A Vice-Chair World Broadcasting Unions Technical Committee (WBU-TC)

Digital Terrestrial Television Broadcasting Implementation:

New Zealand Case Study

Case Study Outline

- TV Structure in NZ
  - Relationships, Freeview Stakeholders
- Timeline – Analogue to Digital
  - DVB-T, DVB-T2
  - Adding a 4th Multiplex
- Analogue Switch Off Process & Challenges
- Digital Dividend – Restack – Spectrum Released
- Key Learning Relevant to the Pacific
  - Receivers
  - Support of equipment
  - Working together

Television in NZ - Platforms

- National free to air analogue network – switched off in 2013
- Digital Satellite, Subscription
  - 100+ channels
- Digital Satellite, free to air
  - Freeview - 13 channels, 4 radio stations
- Digital Terrestrial, free to air
  - Freeview HD - 24 national channels, 8 regional only, 3 radio stations
- Digital Terrestrial, subscription
  - Igloo - 13 channels
- Digital Broadband/Cable in main centres
  - 100+ channels

Television in NZ - Digital Free to Air TV

- Freeview – Terrestrial and Satellite
  - Terrestrial, 31 sites – 87% population – HD content – Four Multiplexes
  - Satellite for remaining infill – all SD content
- Owned and managed by commercial and public broadcasters
- Considered as one network
  - Common Transmission Parameters
  - Common Reception Equipment Standards
  - Common Brand, User Experience
  - Common SI (Service Information)
- Designed as 'Green Field'
  - No incumbent STBs
  - Able to set Certification Standards – Code of Practice
  - Including Consistent Look and Feel using EPG over Interactive Application (MHEG)
- Freeview DTT Parameters
  - H.264 / AVC from outset
  - DVB-T, 8k, 64QAM, FEC3/4, 8-day EPG => 26 Mb/s

Television in NZ - Other Digital TV Platforms

- Subscription Satellite
- Cable broadband TV
- Subscription DTT – DVB-T2
  - Joint Venture between Public broadcaster and PayTV operator
  - Single DVB-T2 multiplex: 32k, 256QAM, FEC2/3 => 38Mb/s
  - Single STB controlled by PayTV operator (not Freeview Approved)
  - STB also receives Freeview channels

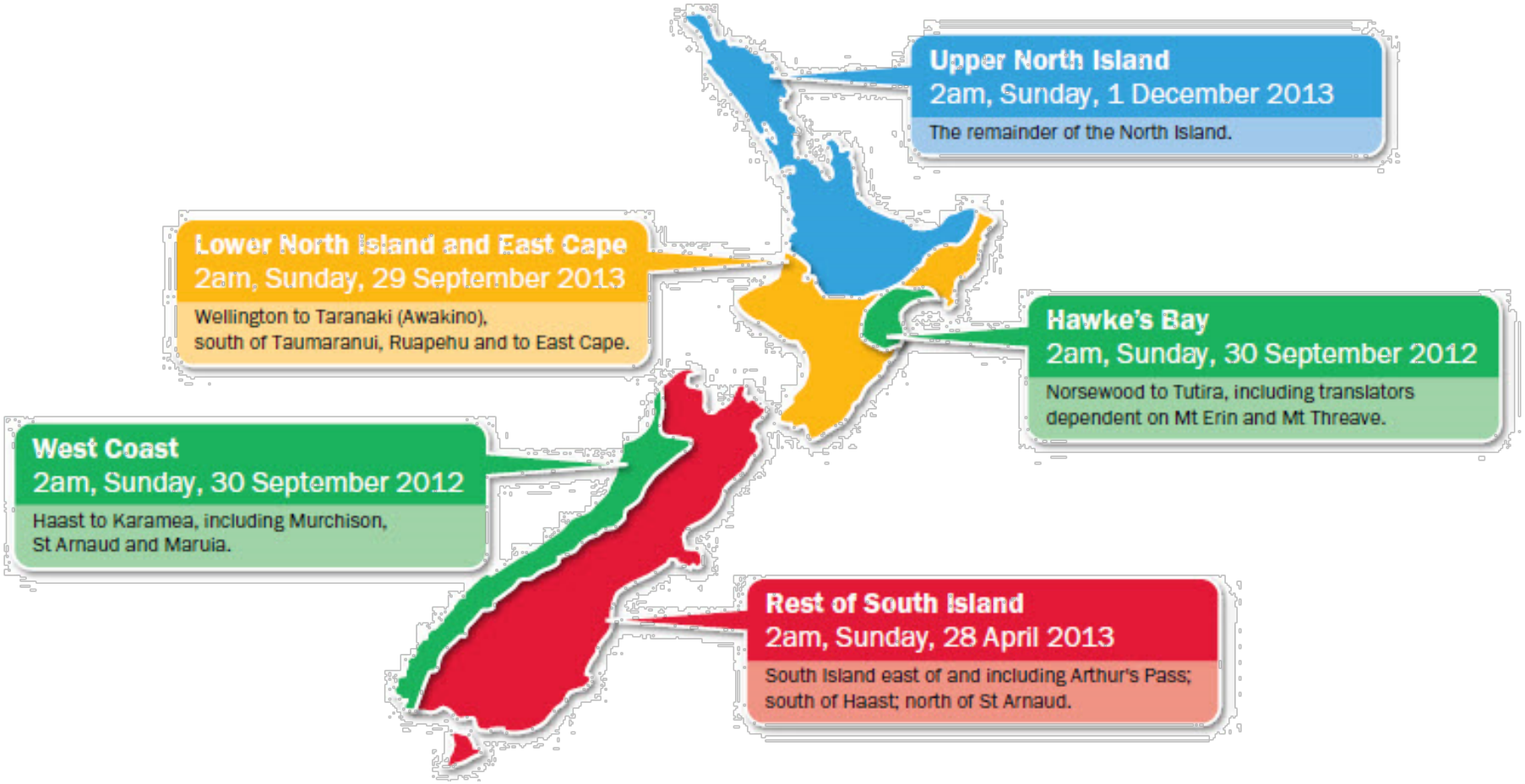
Analogue to Digital Timeline

1960	2007	2008	2010	2011	2011 - 2012	2012	Sep 2012 -Dec 2013	2014
Analogue FTA and PayTV	Freeview Satellite	Freeview DTT 75% pop	Govt Announces ASO Date	Freeview Expands to 87% pop	Restack DTT channels	DVB-T2 mux launched PayTV	Analogue Switch Off	4th DTT mux launched at 19 sites

Analogue Switch Off Process

- Timescale
  - Process around 14 months from Sept 2012 ended Dec 2013
  - Date announced by Govt in 2010: "…*when some form of Digital TV is available to more than 75% of NZ households*"
  - Announced 2 years earlier than expected
- Design
  - 4 Regional Dates
  - Low Risk - DTT was already at Full Power while Analogue on air
  - Few Spectrum Constraints
  - Reused DTT antennas, very few required upgrading
  - GoingDigital.co.nz

Analogue Switch Off Process



Analogue Switch Off Process

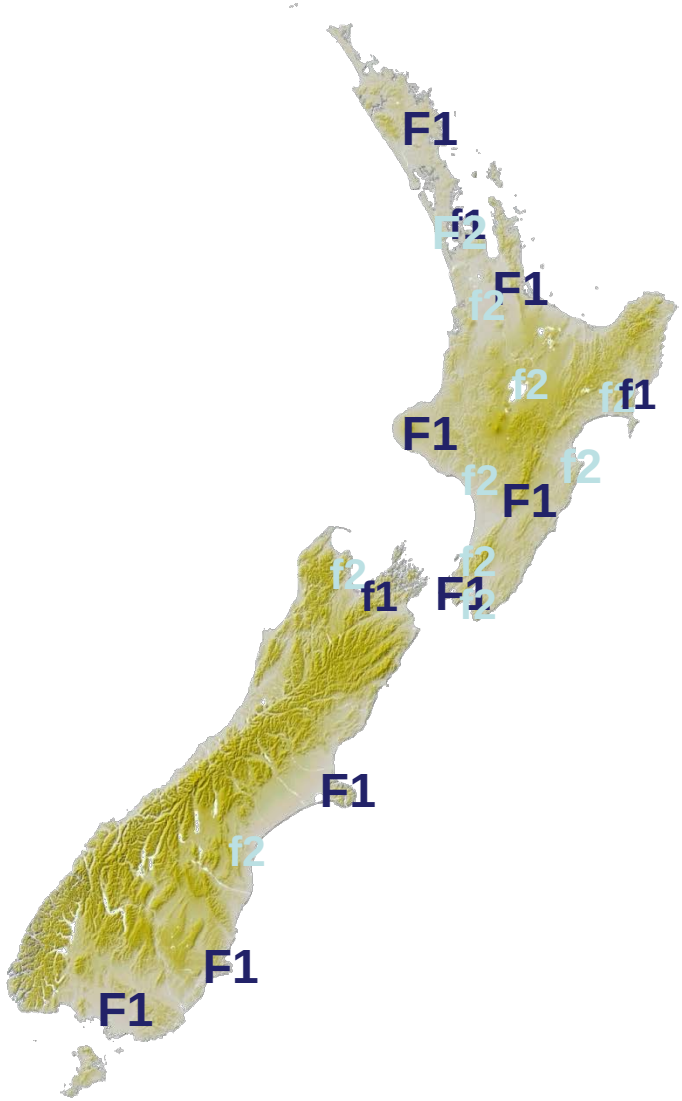
- Challenges
  - Communicating to viewers – edge of Switchover Regions
  - Some viewers not sure of which Region applies
  - Attention to areas where terrestrial signal is not replaced by DTT
  - Inter-regional anomalies
  - Network Alarms to disable/ignore
  - Targeted Assistance Package
  - Some VHF Regional broadcasters forced to UHF allocation poorer coverage than before (opting to new system, perhaps satellite)
- Manageable
  - STBs and TVs already well established in market
  - Retailers & installers well supported, websites, coverage check online
  - Digital transmissions already at full power
  - Minimal spectrum constraints, existing analogue on other bands

Digital Dividend Spectrum - *Retuning*

- Restacking DTT for Digital Dividend
  - Site by site, planning ahead
  - Low risk, saved transmitter pre-tuned configuration
  - Swapped out a pre-tuned combiner
  - Majority of UHF analogue already vacated, available for DTT
  - Onscreen messages, localised in your area + call centre
  - Most boxes auto retuned, aware of SI change, first country to do it.
  - Would normally need to Switch Off Analogue before Restacking (PayTV already switched off 5 UHF)

- New Frequency plan
  - 14 channels reduced to 5 Multiplexes
  - Odd + Even channels
  - Shared Frequencies Nationally, cross-polar
  - 510 to 586MHz (1 ch ea guard band)
  - Minimal spectrum constraints, existing analogue in other bands

Digital Dividend Spectrum - *Retuning*



Spectrum Released

- Analogue and Digital Assigned:
  - VHF Band I 44 – 68 MHz
  - VHF Band III 174 – 230 MHz
  - UHF Band IV & V 510 – 806 MHz
- Total Broadcasting 376 MHz

- **Spectrum Released:**
  - **VHF Band I 44 – 68 MHz**
  - **VHF Band III 174 – 230 MHz**
  - **UHF Band IV & V 702 – 806 MHz**
- **Total Released 184 MHz (104 MHz in UHF)**

Key Learning for the Pacific & Asia

- Driven by Government
- Investigate the STB marketplace
- Involve many types of stakeholders – radio, satellite, PayTV, cable
- Ensure Broadcasters work together, plan ahead
  - Common Standards/Parameters
  - Equal Coverage
  - Share Content within Multiplex
  - Enables shared distribution costs
  - Single message for viewers
- Work with neighbouring countries systems (Aus, NZ, Pacific)

Acknowledgement

- Jason Hill and Kordia in New Zealand