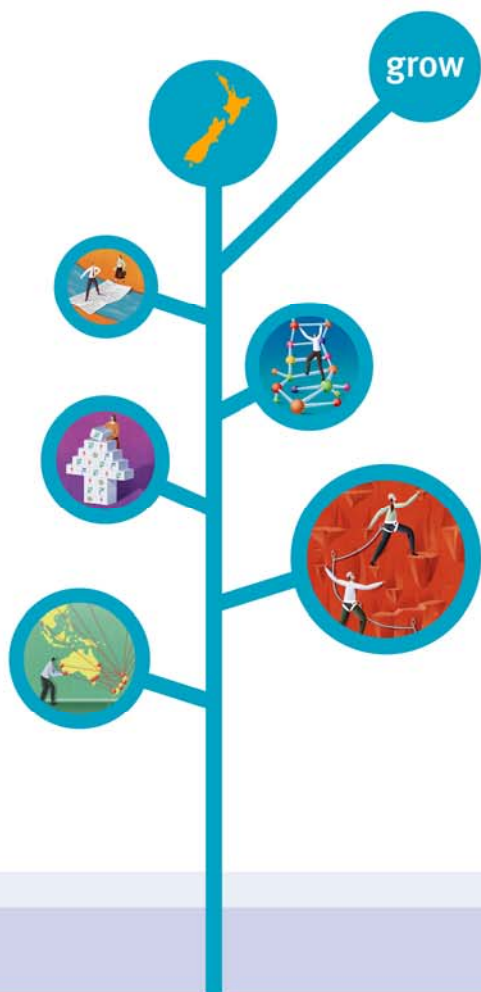


# DIGITAL FUTURES

**Kirsty Johnston and Ian Hutchings**  
Radio Spectrum Policy & Planning

**Ingrid Ward**  
Ministry for Culture and Heritage  
September 2009



# Introduction

- **Purpose of the seminars**
  - Facilitate informed submissions
  - Explain future process
  - Not to debate issues
- **Three presentation segments**
  - Overview of the proposals
  - Details of Television and “Dividend” proposals
  - Regional Television

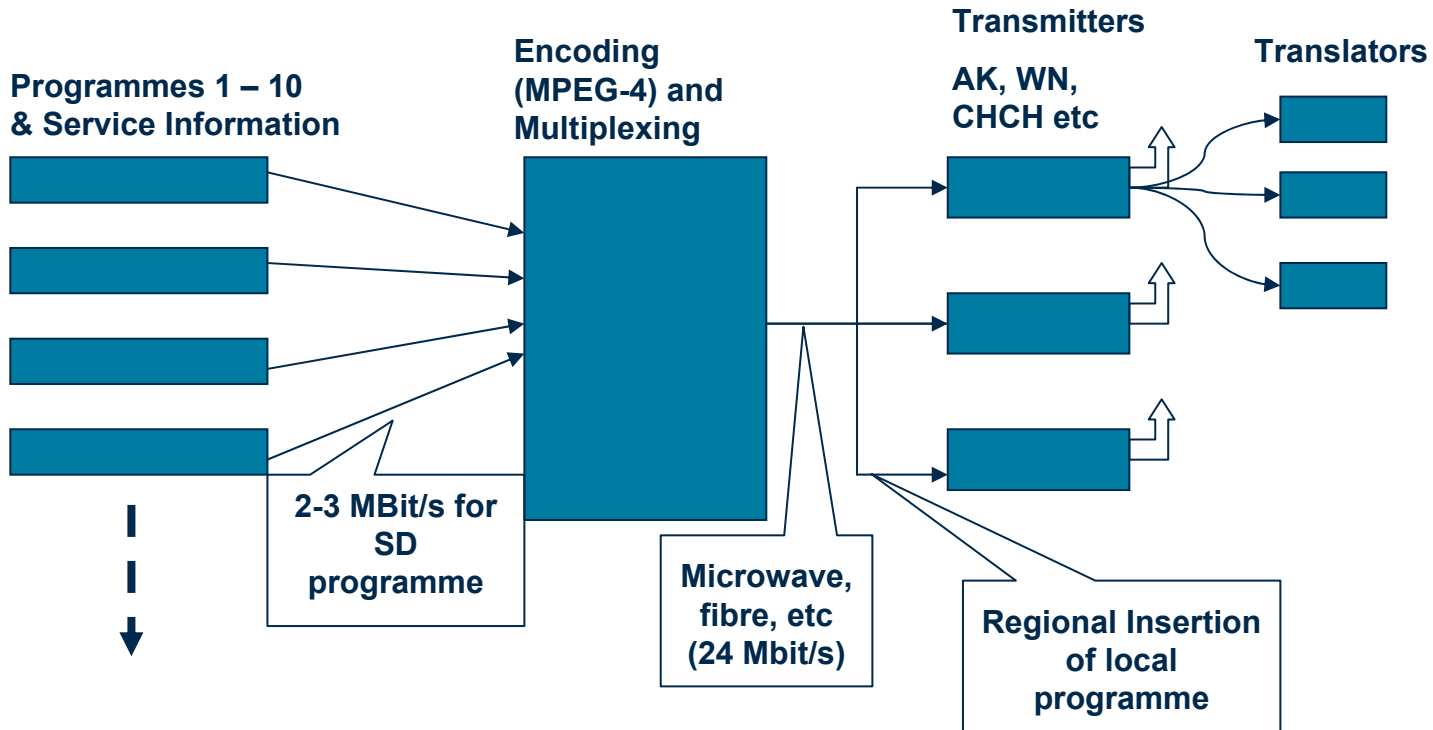


# Introduction

- **The overall process of transition**
- **The big spectrum picture**
- **The details**
  - DTT Band planning
  - Planning for the released spectrum
  - Allocation process



# DTT Refresher

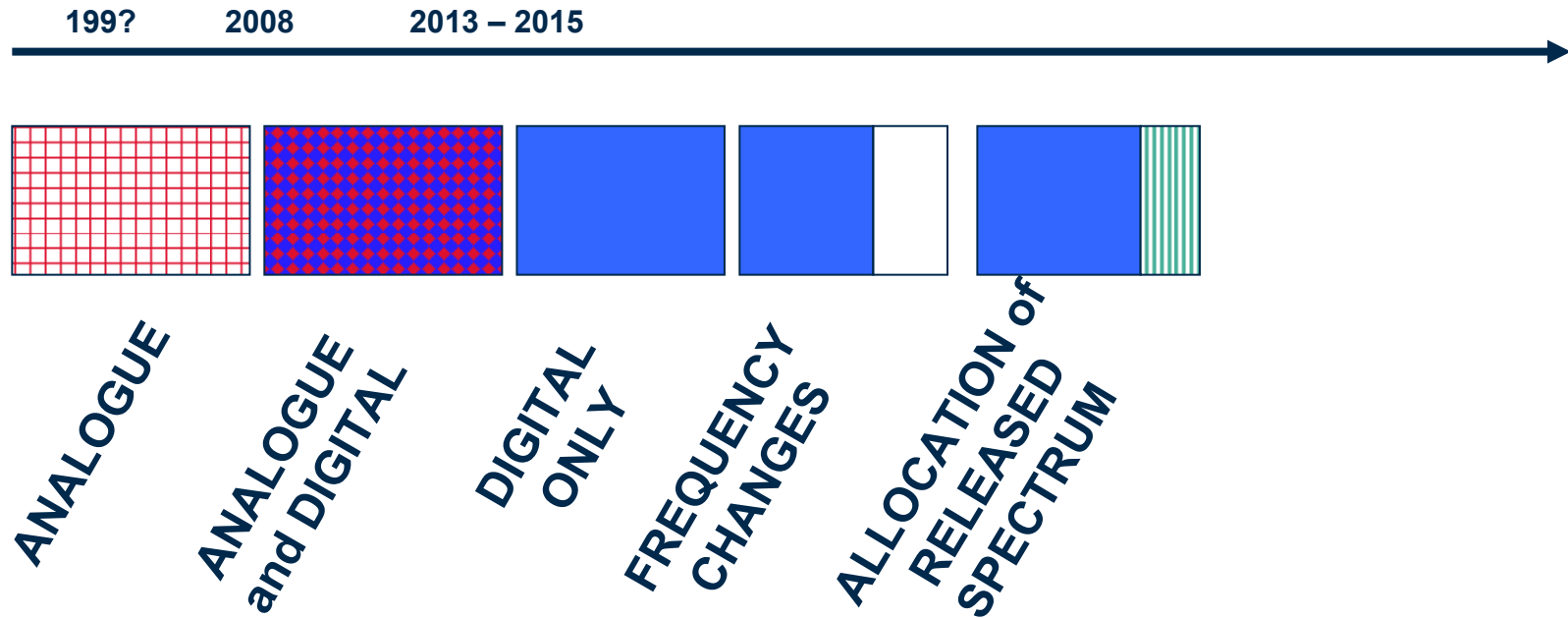


TVNZ, TvWorks & Kordia operate this form of network

Kordia have regional insertion capability



# The transition process



# Where are we in transition?

- **Who has digital equipment?**
  - Sky viewers
  - Freeview satellite and terrestrial viewers
  - Cable TV viewers
- **Over 60% no longer rely on ATT**
- **Less than 40% yet to adopt digital**
- **So there is no time like the present to plan for the future!**

Transition to Kirsty!



# Overview

- **Digital Television after DSO**
- **UHF Band plan**
- **Digital dividend**
- **Other issues**



# Principles

- **Maximise the benefit to New Zealand;**
- **Technically efficient band plan;**
- **Economically efficient allocation of released spectrum**



# Television Spectrum Needs

Question 5

100%  
population  
coverage



502 MHz

806 MHz

- 22 digital licences in some areas
- Core nationwide digital television block, approx 100 MHz



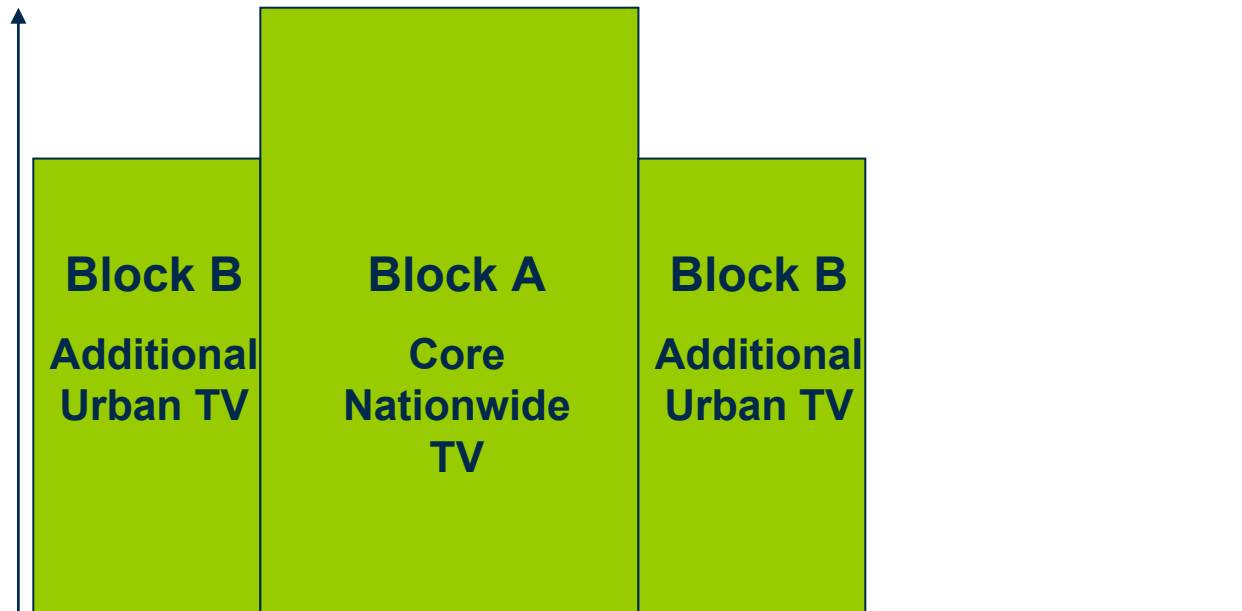
Ministry of Economic  
Development



Manatū Ōhanga

# Television Spectrum Needs

100%  
population  
coverage



502 MHz

806 MHz

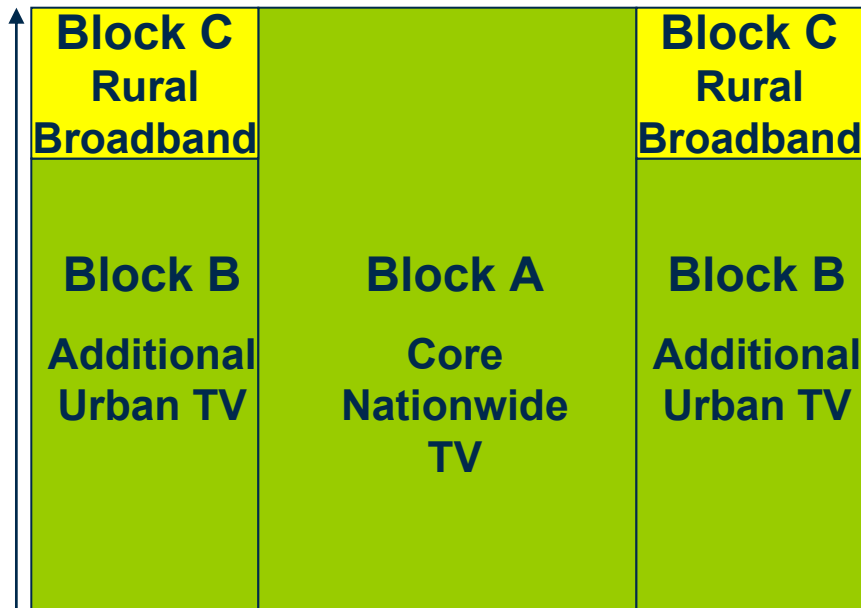
- Additional spectrum not required for TV in rural areas (25% of population)



# Geographic Mixed Use

Question 6

100%  
population  
coverage



502 MHz

806 MHz

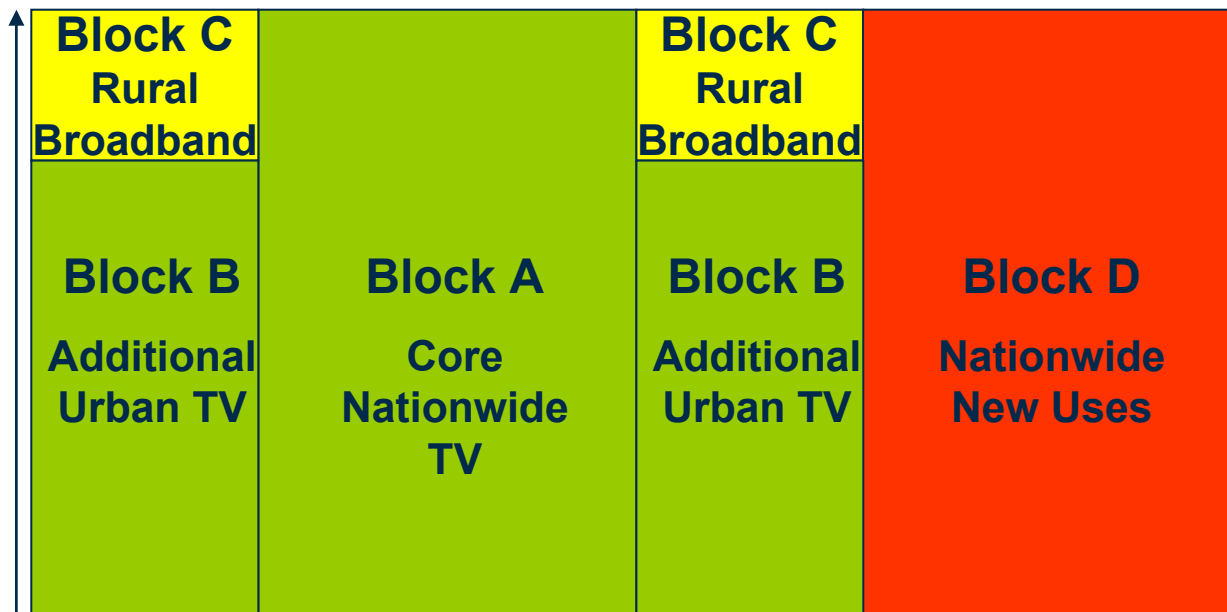
- Spectrum available for new uses in rural areas – possibly Rural Broadband



# Nationwide New Uses

(Block D)

100%  
population  
coverage



502 MHz

694 MHz?

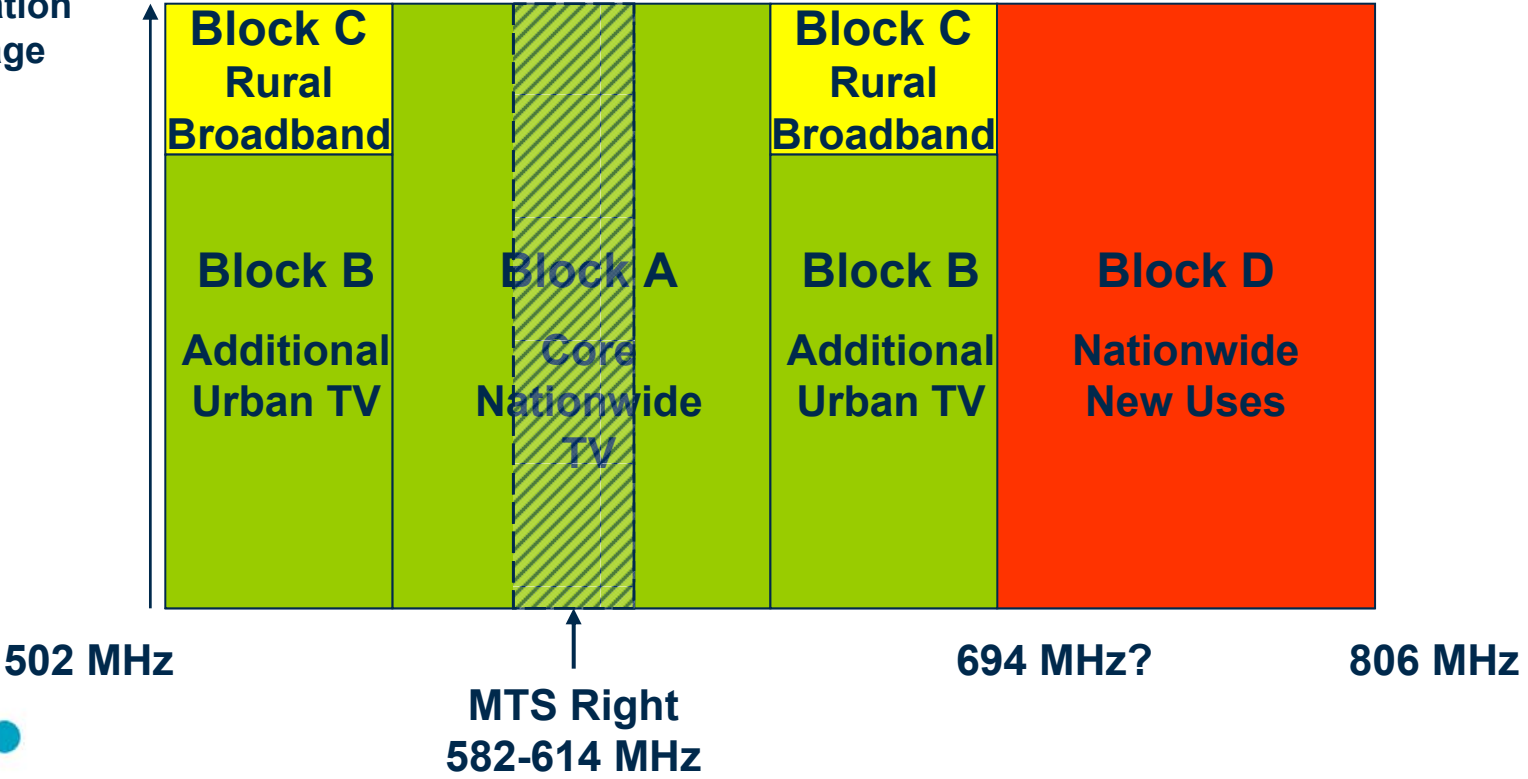
806 MHz

- Approximately 100 MHz
- Possible use for 4G/LTE mobile broadband



# Māori Interests – MTS Act Review

100%  
population  
coverage



# Māori Interests – MTS Act Review

- Coordination of Act review and digital planning
- Extension of MTS right beyond 2013 requires either:
  - reducing new allocation for Block D, and/or
  - renegotiating commitments to TV right-holders to reduce allocations
  - It also complicates planning of other DTV licences to fit around the MTS right



- **Potential Māori interests**
  - Rural Broadband (geographic use?)
  - Mobile Broadband (nationwide use?)
    - Costs
    - Number of operators



- **Radio Microphones**
  - Currently 518-582 & 614-806 MHz
  - Future general licence in “whitespace”
  - 5 year transition where necessary
  
- **Radio Amateurs**
  - Currently TV Channel 39 (614-622 MHz)
  - No UHF allocation proposed (efficiency)
  - Are other options necessary?



# Summary of Band Plan

- **1/3 (approx 100 MHz)**
  - Core Television
- **1/3 (approx 100 MHz)**
  - Additional TV in urban areas
  - Broadband in rural areas?
- **1/3 (approx 100 MHz)**
  - Nationwide new uses
- **Accommodating radio microphones**

Transition to lan



# Television details

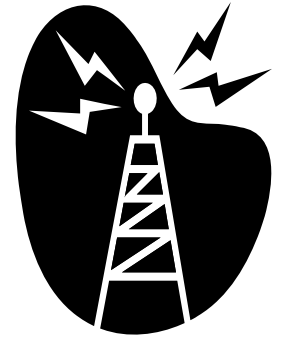
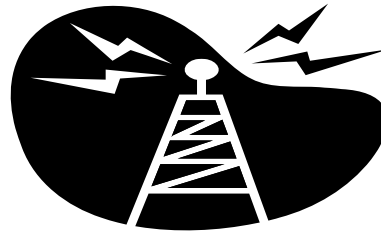
- **Based on**
  - Channel allocations  $n + 2$  for same site
  - Use of  $n + 1$  for adjacent area and SFN infill
  - Three band plan concepts identified
- **Differences are in**
  - Edge of band usage
  - Extent of  $n + 1$  use at same site
- **All meet TV licence commitments**



# Digital coverage planning



**MAIN  
TRANSMITTER  
FREQUENCY A**



**INFILL TRANSMITTERS - ALL ON  
FREQUENCY B**

**UP TO 10 PROGRAMMES FOR EACH FREQUENCY SET**



# Television details

- **Licences to meet commitments**
  - 3 digital network sets
  - 6 analogue/digital network sets
  - Local licences
  - Crown interests (1 network set)
- **Allocation/naming is indicative only**
- **Licence renewals being confirmed**
- **Transition plan required**



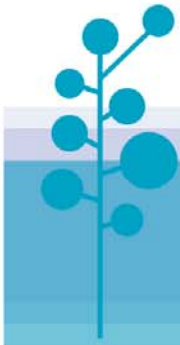
# Crown licence set

Question 13, 14

- **Crown has various interests**
  - Regional services
  - Maori Language and Culture
  - Additional commercial services pre DSO
  - Other?
- **Licence set preserves options**
- **Actual needs not finalised**
- **Usage and allocation not yet final**



Index	Ch	Auckland	(Set A)	Waikato / BOP (Set B)				
"3"		WTA	In-fills	TEA	HNT	KPU	PPO	TMA
1	25							
2	26	Sky 1				Sky 1	Sky 1	
3	27		Sky 1	Sky 1				
4	28	Sky 2				Sky 2	Sky 2	
5	29		Sky 2	Sky 2				
6	30	Sky 3				Sky 3	Sky 3	
7	31		Sky 3	Sky 3				
8	32	FV 1			FV 1	FV 1	FV 1	FV 1
9	33		FV 1	FV 1				
10	34	FV 2			FV 2	FV 2	FV 2	FV 2
11	35		FV 2	FV 2				
12	36	FV 3			FV 3	FV 3	FV 3	FV 3
13	37		FV 3	FV 3				
14	38	Kordia-57					Geyser	
15	39	Kordia-62						
16	40	Crown 1				Crown 1	Crown 1	Crown 1
17	41		Crown 1	Crown 1				
18	42	Sky 4				Sky 4	Sky 4	
19	43		Sky 4	Sky 4				
20	44	NZRB				NZRB	NZRB	
21	45		NZRB	NZRB				
22	46	Sky Prime				Sky Prime	Sky Prime	
23	47		Sky Prime	Sky Prime				
24	48							



# Television Details

- **Lower adjacent frequency use**
  - Interference to Mobile services below 502 MHz
  - Interference from Mobile services below 502 MHz
  - Power level differences require either
    - Frequency separation, or
    - Geographic separation...or both!



# Television Details

- **Upper adjacent frequency use**
  - Nationwide deployment expected
  - Exact utilisation not yet defined
  - Technology capability not defined
  - Prudent to engineer significant protection margins
  - Concepts provide 12 MHz guard band



# VHF Spectrum

Questions 1, 2 & 3

- **No strong current demand**
- **Proposed to defer re-allocation**
- **Resolve “non-standard use”**
  - Amateur 50-51 MHz (non television)
  - Changes to ITU Frequency Table (2012)



# Nationwide Spectrum

Question 17

- **Expected use is for**
  - LTE or “4G” mobile services
  - Commercial and potentially public safety?
- **No international consensus**
- **Europe 790 - 862 MHz**
- **Americas 698 – 806 MHz**
- **Asia Pacific – work in progress**



# Nationwide Spectrum (UHF)

- **Availability of mobiles is critical**
- **Existing networks**
  - GSM at 900 MHz, 1.8 GHz, 1.9 GHz
  - WCDMA (850, 900 MHz, 2.1 GHz)
- **New LTE bands**
  - 700 MHz Americas
  - 800 MHz Europe



# Nationwide Spectrum

Question 18

- **Americas appears best option**
  - Lower 2 x 18 MHz pairs
  - Lower 1 x 6 MHz unpaired
  - Upper 2 x 17 MHz pairs
  - Upper 2 x 12 MHz pairs Public Safety
- **Not based on 5 MHz blocks**
- **Some international work in progress**
- **Sounder decisions in 2010/2011?**



# Spectrum Allocation

- **Finalise band plan**
- **Subdivision into lots**
  - Crown Reservations ?
- **Auction rules**
  - Competition issues
- **Government approval**
- **Implementation (2011?)**

Transition to Ingrid



# Regional Television

Questions 23 to 39



# Information Workshops

**Wellington 15 September 2009**

Ministry for Culture and Heritage

Regional Television Services

Discussion Paper Section 6

# Digital Switchover Internationally



## International trend

- completed e.g. Netherlands, Sweden, USA
- in transition e.g. UK, Australia, Canada

# Digital Switchover in NZ



- Govt decisions on DSO in 2006 & 2007
- DSO date not yet determined
- Date will be set either when 75% households have digital TV or in 2012 – whichever happens first
- About 60% households now have digital TV
- This take-up suggests likely timeframe of 2013-2015
- Report-back to Cabinet in December on regional TV moving to digital transmission

2009



MCH is gathering information including :

- Workshops & consultation
- Updating 2003 research on audience awareness & appreciation. Preliminary findings:
  - same % of households watching regional TV as in 2003 (20%)
  - those that do watch are doing so more, and for more reasons than in 2003.
- Survey of regional broadcasters on current situation & plans
- International approaches

# Digital Terrestrial Transmission DTT

Covers 75% population

8 centres



DTT extension depends on business case for national licence holders

Broadcasters' transmission costs generally lower than satellite transmission

# Non-commercial TV Licences



MCH revising allocation criteria for UHF TV licences

Draft for comment shortly

Existing licence holders will be offered renewal for up to 10 years –  
but cancelled at DSO

# Satellite Transmission – direct to home (DTH)



Nationwide reach

Costs generally higher than DTT

Transponder capacity

## Content Aggregation

- National aggregator
- Group of regional broadcasters
- Co-operative scheduling

## Stand-alone Transmission

- Significant technical and cost issues particularly outside DTT coverage
- Viewers need to find you on their EPG

## Other Possibilities

- Freeview is an open platform
- SKY negotiated access
- Web-based content
- IPTV

## Simulcast and Timing Issues

- How many analogue households
- Versus costs of simulcast

## Next Steps

- Analyse submissions
- Complete analysis of regionals survey
- Completion of audience research
- Policy proposals developed over Oct/Nov
- Cabinet consideration of proposals in December

# Where to from here?

- **Submissions by 30 September**
- **Summary published on web site**
- **Analysis**
- **Other related issues**
  - MTS Act review
  - International planning
- **Report & Decisions Dec 2009**
- **Further work?**



# Other related activities?

- **Digital Switch-Over**
  - Steering Group established
  - Consumer information
  - Monitoring of digital take up
  - DSO date recommendations
- **Digital services development**
  - Freeview and Sky
- **Are you tuned in?**
  - <http://news.business.govt.nz>
  - Subscribe – it costs nothing



# Thanks for attending

- **We hope we have answered any questions**
- **We understand that the answers are not necessarily solutions!**
- **The submissions are the next important step**
- **We look forward to your views**



# Terminology

- ATT – Analogue terrestrial television
- DTT – Digital terrestrial television
- SFN – Single Frequency Network
- RF channel – Radio Frequency (8 MHz wide)
- SD – Standard Definition
- SI – Service Information
- EPG – Electronic Programme Guide
- MR – Management Right
- MTS – Maori Television Service
- DSO – Digital Switch Over
- LTE – Long Term Evolution

