



# 806-960 MHz Band Replanning Options

Workshop, June 2009

# Outline

1:30 – 4:00 pm

- Background
  - Brian Miller
- Problem analysis, outline of proposals
  - Tracey Black
- Interference analysis
  - Ian Goodwin, Kordia



# Replanning background

- Sale of 800/900 MHz spectrum to 2degrees
- Proposal to rationalise cellular spectrum in the band
- Swap of two 4 MHz blocks between the Crown and 2degrees, January 2009
  - 841-845 MHz to Crown
  - 935-939 MHz to 2degrees
- Crown consolidated 841-849 MHz
  - New allocation opportunity



# Replanning objectives

- Increase technical efficiency
  - Introduce more efficient technologies
  - Reduce fragmentation of allocations and channelling
- Minimise unused or under-utilised spectrum
- Address cases where demand exceeds supply
- Harmonise with major ICT trading partners
- Ensure band is managed appropriately



# Cellular applications

- Cellular spectrum recently rationalised
- Two management rights (2degrees) used as guard band:
  - 840-841 MHz
  - 885-890 MHz
- Expiring in 2012
- Renewal offers to be developed in 2009
- Need further cellular spectrum rationalisation?



# Fixed links

- KK band – 806-812 MHz and 851-857 MHz
  - Bidirectional low capacity links
  - Allocation appears sufficient
- K band and other – 849-851 MHz, 915-921 MHz, 929-935 MHz
  - Studio-to-transmitter links (unidirectional)
  - Congested in Auckland, Wellington, Christchurch
  - 915-921 MHz – risk of interference increasing



# Land Mobile Radio

- TS band
  - 812-819 MHz and 857-864 MHz
  - Trunked services
  - Digital and analogue
  - Partially harmonised with US allocation
  - Allocation appears sufficient
- TX band
  - 868-869 MHz
  - Simplex
  - Analogue
  - Sits in European SRD band (862-870 MHz)



# Short-range Devices

- 819-824 MHz
  - Not harmonised
  - Little used? Wireless microphones
- 864-868 MHz
  - Partial harmonisation with European band
  - Further harmonisation prevented by LMR at 868-869 MHz
- 869.2-869.25 MHz medical telemetry
- 918-921 MHz
  - 3 mW devices
- 921-929 MHz
  - Partial harmonisation with US/Aust bands
  - Further harmonisation prevented by STLs at 915-921 MHz



# Summary of problems

- STLs
  - Spectrum congested
  - Increasing risk of interference in 915-921 MHz band
- SRDs
  - Lack of harmonisation with major trading partners
  - Discrepancies between power permitted in US and Australian bands and NZ band
  - Insufficient bandwidth for some devices
- LMR
  - No problems identified



# Proposed changes to allocations

- 841-849 MHz
  - *Current:* unused
  - *Proposed:* STLs
- 915-921 MHz
  - *Current:* STLs
  - *Proposed:* SRDs (extending current 921-929 MHz band) and STLs (co-secondary)
- 921-929 MHz
  - *Current:* SRD GURL specifies 1 W EIRP
  - *Proposed:* Permit 4 W EIRP in 920-926 MHz



# Additional options...1

- Greater harmonisation with European SRD band
  - Relocate simplex LMR from 868-869 MHz to 819-820 MHz
  - Extend SRD GURL – 864-870 MHz
  - But...no equipment for purely simplex LMR operation at 819-820 MHz
  - Seeking feedback on LMR usage of this band, and possible sharing of the band



# Additional options...2, 3

- 819-824 MHz
  - Not harmonised with major trading partners, possibly limited utility?
  - Alternative uses?
- “Orphan” cellular spectrum
  - 840-841 MHz, 885-890 MHz guard bands
  - Could this be utilised?



# 915-921 MHz licensing arrangements

- Two-phase arrangements to allow for transition
- Phase 1 (five-year period)
  - STLs primary, fully protected
  - SRDs may be licensed on co-ordinated, geographic basis, secondary to STLs
- Phase 2 (five-year period)
  - STLs have no receive protection
  - GURL for SRDs implemented
  - STLs and SRDs co-secondary



# Management of 841-849 MHz

- 841-845 MHz – Crown management right
- 845-849 MHz – currently under radio licensing regime
- Options:
  - Maintain this “mixed management”
  - Allow management right to expire, manage whole band under RLR
  - Put whole band into management rights



# Pros & cons of regimes

- Mixed management regime
  - Pros: ?
  - Cons: administratively complex, inequitable outcomes
- Radio licensing regime:
  - Pros: technical efficiency, allows reallocation
  - Cons: investor uncertainty, less flexible for new technologies, doesn't encourage allocative efficiency
- Management rights regime
  - Pros: encourages allocative efficiency, greater investor certainty
  - Cons: less technical efficiency



# Management rights design

- Crown and private rights – proposal:
  - Crown retain 2 MHz
  - Allocate 6 MHz to market
- Lot sizes and boundaries – proposal:
  - 0.5 MHz (12 management rights)
  - Enable contiguous acquisition
  - Boundaries suitable for digital STLs
- Competition safeguards - proposal:
  - Acquisition cap – 2.5 MHz
  - Retain cap for five years to discourage speculation



# Submissions

- Close 30 June
  - Email to [radiospectrum@med.govt.nz](mailto:radiospectrum@med.govt.nz) or
  - Mail to  
Radio Spectrum Policy & Planning  
Ministry of Economic Development  
PO Box 1473  
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