SUBMISSION

Spectrum Management in the Radio Licensing Regime

Discussion Document

Questions and

Answers from

2 Degrees Mobile Limited

15th May 2009

Summary

- The light handed and self regulatory approach to regulation in New Zealand is internationally regarded as a disaster. (*" New Zealand until recently adopted a unique strategy of eschewing sector specific regulation and relying instead on generic competition law and the courts to regulate the sector. This approach is widely regarded as having been a disaster "*. (Page 649 Walden and Angel "Telecommunications Law and Regulation)

- Because there is a market failure in wireless communications in NZ it is time for a wide ranging review of the regulatory environment .Market failure is illustrated by the following

    - No GSM competition until 2009 (15 years behind Europe)
    - High real prices
    - A splitting up of the market with 2 closed networks (Voda 96% mkt share in Auckland and Telecom 85% mkt share in Dunedin)

- For too long New Zealand has rested on the successes of the 1980s being the first country to auction raw spectrum. Failure to simultaneously address the other regulatory inputs in parallel process to selling spectrum, has meant new entrants have been drawn into a negotiation process with incumbents that has lasted almost decades.

- A failure for NZ to align with best international practice deferring to the higher standard to the international radio regulations has seen public safety in New Zealand compromised. The MED's failure to prevent interference by adopting international best practice could have seen lives lost , as the Vodafone network's reliability was damaged by a frivolous marketing stunt by Telecom NZ during the May 2009 interference problem .

- Failure by the MED to remedy abuses of Market power in the telecommunications industry – specifically the

    - Saturn pocket pricing dispute
    - The 0867 interconnection dispute

  Has meant that private capital has been un available to invest in spectrum (other than the incumbents) and it has meant that its only the NZ Government who will invest in the broadband deployment.

Introduction

This submission is from **2 Degrees Mobile Limited ('2DM') -** the company building New Zealand's third mobile phone network across the country.

2 Degrees Mobile Limited is an infrastructure-based telecommunications company which has built over 280 new cell sites in Auckland, Wellington and Christchurch and is committed to building another 200 sites before commencing commercial services. To complete the entire project over 1000 more cell sites will need to be built.

2 Degrees Mobile Limited is New Zealand's largest new private sector infrastructure project and is the only new entrant to commit over $250m investment into the industry since the 2006 Telecommunications Act was introduced. This Act signaled that there is government commitment for more competition in the telecommunications industry.

2 Degrees Mobile Limited has been a catalyst in Telecom and Vodafone, increasing their infrastructure build in response to our planned entry into the market. As a consequence, more cell sites have been built in New Zealand in the last 18 months than the previous 10 years.

The New Zealand mobile phone business is a NZD $2.5bn dollar business, which is continuing to expand at approximately 15% PA as a consequence of consumer preference to substitute fixed lines for mobile connections. The increase in the appetite for wireless broadband technologies has also grown as consumers demand more usage of handheld broadband devices such as video phones, 3G Media devices, Blackberry's and HSPDA broadband 3G dongles. This new technology means more vigilance must be maintained on spectrum related matters. Most recently the public fracas between Telecom and Vodafone illustrate the huge differences between international best practice and NZ regulations, which meant that Telecom's mischievous spectrum interference whilst illegal under the International Radio regulations was lawful in NZ.

Public safety must be the paramount consideration, in Spectrum use, and the Telecom and Vodafone dispute highlights the need for an urgent regulatory review of all spectrum and related competition matters by the MED, whereby focus must be on adopting international best practice,

NZC is 20% owned by the pan Maori Hautaki spectrum group and three specialist investment firms (GEMS, Trilogy, CVP and KLR) who have collectively built over 20 cellular networks around the world.

Tex Edwards

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Public Policy and Strategy

1. **Do you agree with these objectives? If not, how would you interpret the objectives of spectrum management policy?**

These objectives are admirable; unfortunately they have not been achieved because of the failure to

- Use international best practice on spectrum management
- Synchronize policy with other crucial inputs to spectrum use such as interconnection, termination, co location, and abuse of market power rules
- Control the market power of the incumbents
- Attract significant private sector investment to compete

New Zealand has been "wearing the emperor's clothes" on spectrum policy matters because of the failure to align competition rules and with spectrum. The thrust of this submission from 2 Degrees is to align with best practice. We are concerned that there has been no 3rd party empirical research by the MED on Real Investment per head of population on Wireless investment over the past ten years. For the MED to judge whether its policy is successful it needs to have a comparable investment metric.

2. **Do you agree with the Ministry's analysis of the problem above?**

We agree with the Ministry that there is a problem; however we feel it's understated and under researched in the paper. The barriers to entry have not been addressed by the MED in parallel processes to the spectrum sales or allocation. As a consequence for nearly a decade NZ consumers have been price gouged. The 1999 & 2000 ministerial review listed many barriers to entry, some of which are still not resolved a decade later.

Notably co-location of cell towers was not resolved until 8Th January 2009 some 9 years after it was first identified as a problem in the Ministerial Fletcher enquiry to telecommunications – Where else in the OECD has a government sold spectrum with the intention of creating competition and not fixed legislation pertaining to co-location and cellular tower deployments. As recent as 2007 the NZ government sold Wi Max spectrum- almost 2 years prior to fixing co- location of cell sites. These policy delays need to be related back to spectrum policy.

We don't believe the Ministry of Economic Development is being tough enough on resolving the barriers to entry in parallel to facilitating spectrum sales. The legacy of this lack of policy co-ordination has amplified the barriers to entry as closed networks develop and the problem of on net pricing and closed network pricing continues.

3. **Do you think the Radio Licensing Regime is meeting the objectives discussed previously? If not, what are the problems in your view?**

The government has failed to meet its policy of creating more competition in wireless networks for the last ten years all statistics prove this

1) pricing of mobile phone costs
2) pricing of wireless data plans in NZ
3) utilization of mobile phones in NZ
4) the death of the private funded broadband network (Saturn) in 1997 because of a failure to adopt normal OECD competition law into pocket pricing
5) the lack of cross network traffic

The problems are an inability for the MED to set synchronized policy attaching all network inputs into a policy. There needs to be simultaneous solutions to the following

- Termination
- Co- Location *(including RMA)
- Abusive market power rules (SMP)

Today's government intervention in broadband networks is a function of failed policy in the 1990s to create competition and fertilize a natural market structure.
Today New Zealand network companies think competition is an activity that must be stopped and all creative thinking is focused on stalling competition, confusing the regulator delaying new entrants and generally protracting vital network components and agreements for new players.

It's frustrating that the failed light handed regulation and self regulation have not formally ended with a closer adoption of international best practice policy

To date the current policy settings have built a new type of industry structure which we believe should be called "*Monopetition*" (which is a market structure that looks like competition but really is 2 monopolies) posing as competitors.

This is proved by the evidence that illustrates all the entry level customers in New Zealand are divided up into 2 closed networks by geographic region

1) Dunedin
2) Auckland

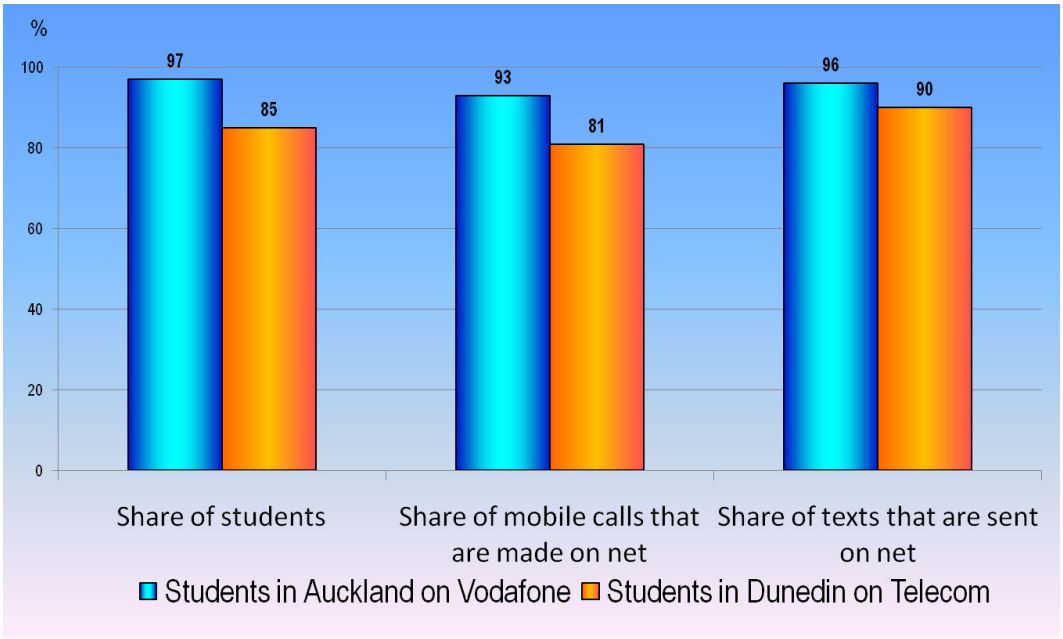
- Market Share
    - 97% of Auckland students covered by the survey are on the Vodafone network
    - 85% of Dunedin students covered by the survey are on the Telecom network

- Share of Mobile Traffic that is On Net

Of the mobile traffic generated by students to other mobile phones:

- For Auckland students on Vodafone:
    - 93% of their calls were made to another phone on the Vodafone network
    - 96% of their texts were sent to another phone on the Vodafone network
- For Dunedin students on Telecom:
    - 81% of their calls were made to another phone on the Telecom network
    - 90% of their texts were sent to another phone on the Telecom network

- Share of students is share of all students interviewed in each city
- Traffic share results (share of mobile calls made that are on net and share of texts that are sent on net) are based on total calls made/texts sent to other mobiles by students, where the prefix of the recipient was known or identifiable from the log on the phone
- Separate analysis has been done to examine the possible impacts of number portability, for the Auckland results only: this shows that taking account of number portability has almost no effect on the results quoted (the only change is that the result for on net calling by students on Vodafone goes up from 93% to 94%)



Are you aware of current or potential congestion problems in individual bands under the Radio Licensing Regime (including bands which are not covered by the technical study)?

No, we believe that the most compelling problem for the MED to resolve is the synchronization of the Spectrum management with competition rules.

4. Do you agree that further study is needed before any change is recommended? Which bands should be prioritized for review?

We believe that the NZ consumer will benefit best from a more thorough review of the Mobile phone spectrum bands. This need to be commenced urgently 2 Degrees believes that there evidence for further study should include the following

1) The recent spectrum interference dispute in the mobile 850- 900mhz spectrum which left the public at risk as interference damaged the reliability of safety calls

2) The expensive pricing of NZ mobile calling as a consequence of limited competition and the adoption of the usual suite of international competition rules

3) The full suite of normal competition rules that policy agencies set to foster competition in mobile networks as mentioned in the 2006 Mobile Market Review.

4) The Impact of a 3rd entrant being delayed to market entry by incumbent gaming and regulatory failure

We believe those 2 years after the Mobile Market review was first published by the Commission there has been no formal review by the MED on the policy problems that the report highlighted

5. Do you have any quantitative data around the cost of potential congestion (e.g. lost economic value as a result of inability to obtain licenses in congested bands)?

Our Economists Concept Economics show that there is an economic dead loss wait around a failed mobile market. There are several components that are destructive to the NZ economy as a consequence of policy failures which have damaged mobile competitiveness, they are

1) monopoly rent extraction

2) employment damage

3) productivity loss

What do you think the relationship should be between competition policies in the downstream service markets and spectrum use?

In all international spectrum markets there is linkage between spectrums polices and competition policies, in NZ we believe these 2 functions are not synchronized. There has been a terrific policy failure which has meant not only spectrum failures (900 MHz ownership by Vodafone and interference issue), but also a lack of co-ordination whereby the MED has failed to set policy that is synchronized with essential ingredients of competition, for example

- Spectrum was sold without co- location (co- location was gamed by the incumbents for 8 years)
- Spectrum was sold without co-coordinating termination policy simultaneously ; as a consequence competition is inhibited as closed networks can't be broken up
- The MED has failed to prevent 2 spectrum from being horded in the low penetration years (800mhz and 900mhz)

Because the MED failed to fix the 1997 pocket pricing attack by Telecom and synchronize this with spectrum sales, owners of spectrum have been unable to finance network deployments, Spectrum and competition rules , are integral parts to any new network financings Policy has not been completed or actively benchmarked with international best practice.

We urge the MED to conduct a series of investigative benchmarking policy examinations with other OECD regulators and participate in dialogue with these regulators as to the impact of breaking up un competitive closed networks – because of the difficulties of creating competition at 110 penetration compared to 50% penetration.

It has been proved that spectrum is a meaningless wasted resource without the effective interconnection capability and a substantial investment in network deployment.

6. **What do you think are the best ways to ensure smooth transition when policy changes are made?**

The MED needs to release a statement on international best practice and benchmarking; this will help the industry monitor international best practice and capture a vision for where how NZ should redevelop policy . Industry investors in Telecom for example where not frightened from ongoing participation with the Telecom investment after unbundling was announced , because it is something most international portfolio investors have experienced elsewhere in the world and had been expected to happen in NZ eventually.

7. Do you think the status quo is working satisfactorily?

No, NZ is a spectrum management debacle as illustrated by

1) the spectrum interference dispute- (highlights the poor regulatory environment)

2) poor mobile phone pricing and

3) Benign usage of Mobile

8) Do you agree with the Ministry's analysis of the costs and benefits of the status quo above? If not, then please explain why.

No we don't agree, because there is not enough focus on competition policy, and network input policy being synchronized with spectrum management. We believe there is an academic angle to spectrum management, but its lack of integration with competition inputs, means it's almost farcical and the policy outputs have not achieved their objectives.

The Competition policy settings and Spectrum management regime is best illustrated by the sale prices of the 900, 1800 and 2100 MHz spectrum in NZ. No new large scale international investors turned up to buy mobile phone spectrum because it was not simultaneously packaged with normal OECD style competition rules, the Ministry has was gamed by incumbents and caught "*wearing the emperors clothes"* on policy settings, - If they were such effective policies why did no large scale investors turn up to participate, what needs to be done to ensure policy settings that are aligned with international best practice?

2 Degrees believes the MED must travel more and tour markets that have the similar size geography, population and GDP to NZ. We believe that the current policy settings are a cocoon that differs greatly from OECD best practice.

8. What other benefits and costs associated with the status quo should be considered?

The MED has not considered the impact of competition policy in its spectrum setting, or the legacy impact of failed regulatory problems. The failure to introduce competition in the 1990s has created a further problem of closed networks which has added a barrier to entry.

- Benefits to NZ Inc
- More innovation in wireless communications
- Lower prices for Communications
- Increased employment opportunities
- Increase in NZ Inc Productivity

13. **Do you think the following measures will improve the Radio Licensing Regime and why?**

- **Devolution of licensing function**
- **Improved technical planning**
- **'Access' seeker regime**
- **Flexible license conditions**
-

NO , in the major $ 8 Bn communications market which will soon be dominated by spectrum usage the MED is missing the point by continuing to focus on incremental adjust to spectrum management when it is the order of magnitude issues such as competition settings which need to be resolved.

The MED is trying to use spectrum to open up competition into the communications markets, the problem is "closed networks" . It's frustrating as an investor in NZ communications industry to continue to hear rhetoric about open markets and transparent spectrum markets when the problem is closed networks with a perpetuation of closed network pricing.

For the MED to open up markets it needs to resolve the problem of closed network pricing.

15. **What do you think the impacts of status quo or any additional measures would be on your organization and other users?**

Failure to synchronize policy will mean continued monopoly rent extraction from incumbents, benign fixed to mobile substitution , high pricing and poor innovation .

18. **Do you agree with the Ministry's analysis of the costs and benefits associated with conversion of certain bands to the Management Rights Regime? If not, then please explain why.**

2 Degrees mobile believes that the regime highlighted in page 3 of the background discussion paper as the management rights regime has not served kiwis well

2 Degrees believes that the policy framework has hidden behind the initial successes of being the first country to auction spectrum and subsequent to this initial success their has been failure to synchronize competition policy, the impact of which has been to prevent access to the market by new spectrum holders. New Zealand has lost out in 2 ways

1) Spectrum was sold very cheaply

2) No competitive markets developed in NZ

27. Are there any other issues that you think the Ministry should consider?

We believe the MED should further review the 900 MHz allocations. The legacy of 100% of New Zealand's 900 MHz being owned by Vodafone has mean that a new rural 3 G 900 MHz strategy has not been formulated

We believe it's in the interests of like for like competition, that

There are two options for the MED to consider:

- Option 1 - Reduce the size of the Guard Band between Telecom and 2Degrees by 0.2 MHz
    - This would require Telecom's consent
    - Given that we're the most affected party by any potential interference, I think that any "issues" Telecom raises should be able to be resolved

- Option 2 - Shift Telecom 1 MHz sideways, creating an additional 1 MHz to be allocated between the mobile operators (of which we only need 0.2 MHz)
    - 824 and 869 are natural pairs for 850 MHz cellular systems.
    - Currently this 1 MHz pair is not allocated to cellular. 824 MHz is listed as being available for "Unrestricted" use by the MED and 869 MHz is available for "Telemetry / Telecomm and".
    - If this spectrum is re-allocated by the MED for cellular, then there will be affected parties, but it makes sense to move them because the highest value use of this spectrum is cellular
    - Telecom gets allocated the 824 / 869 MHz pair, in return Telecom makes available at least 0.2 MHz of the upper end of their spectrum which can be used by 2Degrees to complete our 10 MHz pair
    - This option sounds difficult, but it should actually be relatively easy to achieve.

- Currently 2Degrees has 9.8 MHz of paired 900 MHz spectrum
- This is sufficient to run both GSM and W-CDMA at 900
- W-CDMA requires 5 MHz channels
- In future, if 2Degrees migrates to W-CDMA only and switches off its GSM network (or if we simply want to increase the capacity of our W-CDMA network), then having 10 MHz of available spectrum would be of massive value to 2Degrees (as this enables two channels)
- Therefore, because of the future options that it'll enable, an additional 0.2 MHz of paired 900 MHz spectrum would be of massive value to 2Degrees

We can make very good efficiency, effectiveness and equity arguments for this to happen (which are the current objectives of spectrum management) we believe its in the interests of the NZ consumer to have a substantial existing infrastructure provider provide like for like 3 G competition ,We believe the MED should employ an international consultant from the EU, and engage with the EU commission for best practice bench marketing. This would force a first hand ambitious KPI for the MED to meet

28. Is there any other option that might improve spectrum allocation under the Radio Licensing Regime?

- Synchronize with Australian or OECD best practice

- Simultaneously fix the rules which govern behavior

- Fix the problem of closed networks

Summary

1. 2 Degrees mobile believe there is enough evidence to support a departure from the current regime this evidence is
    1) Spectrum interference problems
    2) Lack of competition in the mobile market
    3) Legacy of failed policy has created closed networks

2. Synchronisation with competition legislation needs to become theme of the new spectrum management

3. Opening up the telecommunications markets requires the MED to solve the problem of the closed networks (which has been proved by the Dunedin research)

Suggested action points worthy of more investigation

1. What is the benchmark that the MED spectrum management team should be working towards?

2. How can spectrum policies be integrated to the competition rules of the industry?

3. What is the appropriate level of wireless investment per head of population in NZ .

Appendix

1) Bird and Bird observations on NZ Spectrum
2) Prof. Reg Coutts observations on NZ spectrum management
3) Notes on the interference dispute

Bird & Bird LLP is an international law firm which has many years of experience advising clients in many different jurisdictions around the world in the mobile communications field.

"In *our experience, the recent dispute between NZ Comms and Telecom NZ demonstrates that the NZ regulatory system fails to give spectrum owners adequate means of redress if they suffer fringe interference from neighboring spectrum users. As was demonstrated in this case, this can act as a real barrier to market entry and competition. The ultimate risk of having a structure without adequate means of redress is that it can render significant investment in telecommunications in New Zealand worthless. Spectrum owners have been granted the right to use that portion of the spectrum by the Government. If they are not able effectively to protect use of that right from interference by others their position is equivalent to a property owner who has no power to prevent others interfering with their quiet use of their property. Although the International Telecommunications Radio Regulations were incorporated into Telecom NZ's license and this seems, on its face, to give spectrum owners an actionable cause of action, this is meaningless without an effective enforcement mechanism which allows amongst other things for emergency steps to be taken and is swiftly and impartially enforced by either the NZ Regulator or should they so wish by aggrieved corporations in the courts*."

David Kerr

Managing Partner

Bird & Bird LP
London

Regards

NZ Spectrum Management Regime – My View

By Professor Reg Coutts

Coutts Communications www.couttscommunications.com

COUTTS COMMUNICATIONS

Mobility Matters

Introduction

New Zealand was at the forefront in the introduction of Spectrum Auctions at the beginnings of the 1990's. Other countries like the US, UK and Australia followed in the mid 1990's and now the allocation of spectrum by auction of management rights is standard.

However, most other countries have been more in careful spectrum planning cognisant of potential complex interference problems due to mixing technologies in adjacent bands in the same location. In Australia and Hong Kong for example where AMPS and GSM were operated the interference management was deliberately incorporated into the spectrum marketing plan so the incumbent had to manage their own interference of adjacent use.

After trailing Vodafone by earlier choosing the CDMA evolution path rather than GSM the defacto world digital standard, TCNZs plans to launch 3G at 850MHz in 2009. This decision presumably follows the successful launch of Telstra's NextG™ network in 2005 (essentially 3G at 850MHz) that has widely acclaimed worldwide as highly commercially and technically successful. However, 3G at 850MHz is very different from CDMA at 850MHz from an interference perspective the subject of this short perspective.

To me the Spectrum Management Regime in New Zealand under the Ministry of Economic Development displays all the weaknesses of the "General Economic Policy" religion where the need for thorough technical regulation is seen as necessary rather than an after thought. I was

involved in 2008 in giving evidence before the Commerce Commission on Co-location interference and was struck by the same problem!

I consider the Vodafone TCNZ situation in particular.

Vodafone versus TCNZ

The recent publicity [1] over the interference from TCNZ's new 3G network at 850MHz causing wide spread interference into Vodafone's GSM network has caused me to look at the spectrum management regime in NZ in more detail.

Firstly, when one considers the bands in which TCNZ plan to operate their 3G at 850MHz initially in parallel with their CDMA network as they transition customers over time, it is apparent that they use spectrum adjacent to the GSM band used by Vodafone. In Australia for example, Telstra GSM allocation[1] was deliberately to its AMPS band which it subsequently won at auction 1999 for its CDMA network replacement for AMPS. This network was closed once the NextG™ was deemed by the Government to be equivalent to the CDMA coverage.

Thus Telstra had to manage its own interference which involved the installation of complex filters at the time. Hong Kong similarly managed this interference scenario by assuring the adjacent bands were held by the same operator.

The next observation is that there is minimal regulatory intervention by the regulator to assure that players sufficiently address foreseeable interference issues such as this without the affected party taking legal recourse under quite broad legal protections. [2]

Generalist Approach

To me the regime in New Zealand with respect to Spectrum Management does not get the balance right between support at the policy level for regulation of competition with the need for 'encouraged' industry collaboration through a transparent process (ie not collusive) such as the Communications Alliance in Australia.

The current regime creates the potential for 'regulatory gaming' which appears to have been the case in this instance.

[1] The GSM spectrum in Australia is covered by an Apparatus Licence and was not allocated by auction

In other words I would recommend that with respect to achieving a less fractious approach to spectrum management in the interests of all industry players and the most important new Zealand customers that the model in Australia of an industry co-regulator the Communications Alliance and the Australian Communications and Media Authority (ACMA).

The paper by Kordia [3] is an example of a competent discussion of the wrong questions asked by the Ministry because they lack the expertise and experience to ask the right questions.

My criticism of the New Zealand Regime is that it has the noble objective of 'light touch regulation' but then is put in the position of trying to fix the problem after the 'egg is scrabbled' so to speak. There is a need for some level of pre-emption of technical problems such as this interference issue which could be reasonably foreseen.

Observations

Other countries such as the US, Canada, UK and Hong Kong while embracing spectrum management rights as the effective way to allocate a scarce resource they recognise that Government (and the industry) need to collaborate in a transparent process to pre-empt foreseeable issues.

References

[1] New Zealand Herald article, May 4th 2009
http://www.nzherald.co.nz/business/news/%20/helen-twose/news/headlines.cfm?a_id=316

[2] Vodafone vs. Telecom Mobile Ltd, High-Count of New Zealand, 30th April 2009

[3] Interference Analysis: For the proposed re-planning of the band 806-960 MHz, Report to the Ministry of Economic Development, December 22nd 2008

Additional Comments on the 2009 Spectrum Interference dispute

1. 2Degrees notes as a background point the interference reports of 22 December 2008 and supplementary interference analysis of 30 March 2009, both prepared for the Ministry in relation to *"the proposed re-planning of the band 806-960 MHz"*. Clearly in light of recent interference issues suffered by Vodafone and 2Degrees respectively as a result of Telecom's broadcasting in the 825-840 and 870-885 MHz pair, there are major shortcomings in the operation of the current system which need to be formally visited by a separate report. (We note these issues have not been fully resolved and we do not consider it appropriate for the MED to cease its investigation, especially given the context of those 2 earlier reports and its current acknowledgment that the Management Rights *"...system, has evolved over time and there remain a number of issues, such as utilisation and competition safeguards, which may have room for improvement." (p8).* **[In fact we submit that it is inappropriate and an abrogation of the MED's role to do so...]**)
2. ?
3. Page 7 of the March 2009 discussion document describes features of the Management Rights Regime, including the technical parameters of upper and lower bands, emission limits and power floor; and defining management rights and technological neutral manner where possible. It goes on to note the assumption of a market based mechanism for competitive allocation and subsequent trading.

- This raises a number of points including:
    - whether or not the power floors are set at realistic levels (recent experience suggests that they may be set too high);
    - whether in fact technical neutrality has been achieved – in particular whether or not there should be a greater use of conditions clarifying expectations for harmful emissions and more explicitly the role of the IRR;
    - A market-based mechanism will only work properly when property rights are properly protected – if, as has recently been the case, a property holder's rights can be interfered with by another property holders rights then this undermines the integrity and valuation of the relevant assets.
    - ?
- Section 4 (objectives and spectrum management) begins with the words "*The real purpose of spectrum management is to minimise harmful interference between users*" - this begs the question as to whether or not the protections are sufficient to achieve this purpose. We suggest that recent experience suggest that this has not been the case.

- Paragraph 4.2 (effectiveness) provides that "*Spectrum management must provide for reliable means to minimise the likelihood of harmful interference and resolve interference problems that minimise transaction costs both within and outside New Zealand's legal jurisdiction*." Again the expectations should be clarified in relation to the installation of equipment, i.e. an upfront delineation of the expectations, rather than the potential for a slow, after-the-event arbitration process, with the real potential harm will continue in the meantime.