

Blue Reach Services

Response to

Radio Spectrum Management

Discussion Document

“Preparing for 5G in New Zealand”

Introduction

Blue Reach is reasonably well known in the industry and is currently the holder of certain spectrum management rights over which it currently operates various technologies. Blue Reach is in the process of developing an LTE network that can be readily converted, over time, to 5G. Blue Reach intends to be an early adopter of 5G; this will of course depend on the availability of adequate appropriate spectrum.

As a consequence of current resource and time constraints, Blue Reach proposes to limit its response to the discussion document to the specific questions posed.

Responses.

Q1. The uses for 5G are largely not yet known and network development is likely to follow usage rather than vice versa. If New Zealand is to be an early adopter of 5G the spectrum allocation must encourage innovation and not allow considerations of existing network investment to delay deployment.

Q2. The current Blue Reach business model is one that promotes infrastructure sharing and the aggregation of diverse network elements to deliver greater network coverage. Network duplication is wasteful of relatively scarce capital resources and inevitably slows comprehensive deployment with concentration in areas of high demand and hard to serve areas missing out (at least until there is regulatory intervention). The delivery of RBI 2 by the Rural Broadband Group shows what can be done and demonstrates a change in attitude on the part of the three MNOs.

If New Zealand wants the benefits of widespread early deployment of 5G, then competition at both the retail level and the infrastructure level should be fostered.

Q3. Regulatory issues to be considered from a 5G perspective include:

- Wide availability of suitable spectrum to as wide a range of potential users as possible
- Constraints on total spectrum allowed to be held by a single entity.
- A prohibition on spectrum hoarding coupled with an effective and enforceable “use-it-or-lose-it” requirement.
- Review of whether highest bid auction is the most efficient means of allocating scarce resources, particularly in the light of past behaviours.
- The role/barring of speculators in the spectrum allocation process.

Q4. All of them

Q5. Yes. At the end of the day the ITU and 3GPP will determine which bands will be developed. The ability to repurpose the 3.5 GHz band prior to 2022 is the other major consideration and parties using the 3.5 such as Compass, Bluereach and other WISPs need fair consideration/incentive .

Q6. General comments:

- Wide availability of suitable spectrum to as wide a range of potential users as possible
- Apply constraints on total spectrum allowed to be held by a single entity.
- A prohibition on spectrum hoarding coupled with an effective and enforceable “use-it-or-lose-it” requirement.
- Review of whether highest bid auction is the most efficient means of allocating scarce resources, particularly in the light of past behaviours.
- The role/barring of speculators in the spectrum allocation process.

Q7. We need enough spectrum made available to new parties, including regional players. The consideration of lower frequency bands, and resizing of some current bands should also have equal priority. A second consideration is the relative ease with which the band can be repurposed.

Q8. Not immediately but potentially at a future time.

Q9. Yes they are low priority at this stage.

Q10. Not investigated

Q11. No comment.

Q12. Not aware of any.

Q13. Demand will be driven by the development of standards around this band and the subsequent availability of equipment. This in turn will be driven by the perceived need for the band to be used. **Blureach will be watching this closely** as we have no access to lower frequencies with reasonable bandwidth below 2600MHz

Q14. Yes given the propagation advantages, and for parties who do not hold sub 2.1GHz bands.

Q15. Move to a new frequency with compensation provided out of the TDL

Q16. Sooner rather than later.

Q17. A modified auction approach is preferred whereby spectrum hoarding is discouraged and there are strict use it or lose it provisions, particularly for the MNOs. Acquiring spectrum for the primary objective of keeping it out of the hands of competitors should be prevented. We would urge you to follow the recent example set by Ofcom where the ability to bid and the amount that could be acquired was set based on the amount of existing spectrum held.

Whatever the method used, it needs to allow smaller players reasonable access to adequate spectrum if New Zealand is to get the benefits of early adoption and the innovation that drives. We would be interested to understand what an administrative allocation might look like.

Q18. The small regional players have been responsible for considerable innovation. For them to continue to innovate they need access to appropriate spectrum. Most have neither the need nor the financial strength to acquire national spectrum so there needs to be a mechanism by which they can readily acquire spectrum. The regional public park spectrum methodology has worked pretty well to date, however more emphasis on deployment is required, credibility/track record of applicants, and technologies deployed. Any guard band must sit within MSP so not to impact nationwide allocations if incompatible. We believe there is also scope to have pseudo nationwide MR, where larger players may prefer to deploy 5G spectrum in urban areas only and rural allocation could be made in the same band

Q19 There has always been a reluctance to pick technology winners and prescribe them for use with certain spectrum assets. This has been balanced by the regulator's desire to get the maximum benefit from a certain block of spectrum. Given the general absence of alternative uses for those bands being considered for 5G we believe that on balance there is no need to prescribe 5G as the sole use.

Q20. Strict time limits on commencement of network roll out. The more spectrum you acquire the more rapidly you must deploy. This needs to be coupled with a predetermined rate of progressive commercial network roll out. The only allowance prior to auction is **test spectrum** to allow potential bidders to prove their technology and any compatibility issues.

Q21. A use it or lose it approach is preferred. If you fail to meet your roll out obligations, you forfeit the spectrum. This should particularly apply to holders of large blocks of spectrum. The ability to buy more time by making a payment is appropriate for smaller regional players. The Crown may consider partial deployment acceptable with loss of spectrum in non-deployed regions.

Q22. To us it makes sense for the smaller regional providers to be treated differently from large national providers given the relative imbalance in resources between them. The conditions attaching to the spectrum blocks should be more onerous for national providers than for smaller regional players, however all must deploy commercial networks in a pre-agreed time frame.

Q23. Acquisition limits should be imposed on 5G bands to prevent one or more large player/s from foreclosing the market to other players. In addition total mobile spectrum holdings need to be taken into consideration such that providers with large existing holdings are constrained as to what they can further acquire and may be prohibited from further acquisition.

Q24. Regional providers are by their very nature less of a problem. They are less well-resourced and have less access to capital, and the current model of allowing negotiating/bid is not unreasonable, so long as all participants will deploy commercial network swiftly, again there should be no extensions and they should be allowed test licences prior. What does need to be considered is the role of speculators in the regional space as they potentially could foreclose this market.

Q25. The term for management rights need to balance two elements. It needs to be short enough to provide a strong incentive for a speedy deployment while at the same time allowing sufficient time to provide adequate return on investment. We consider a minimum term of 10 years and a maximum of 15 years to be appropriate. This must be linked to a fair renewal mechanism, the current stance on 3.5 is unreasonable for active spectrum users.

Q26. TDD is where the standards are going and the vendors will quickly follow so in order to maximise the available spectrum the 5G bands should be re-planned as TDD. The key driver is large global markets and the Crown must strive to be across this and allocate appropriately. We would expect the industry to define their preferences as bands become available.

Q27. Our base position is that it is preferable to have as much spectrum available for allocation as possible. We'd propose 10MHz for below 1 GHz and a minimum of 20 MHz above 1 GHz, and 50 MHz >24 GHz

Q28. Bluereach supports out of band emission limits for 5G being set at the maximum possible transmission bandwidth. This is the most efficient use of spectrum and compatibility issues can be resolved by negotiation.

Q29. Bluereach does not believe that out of band emission levels should be different if the band is technology neutral.

Q30. Bluereach does not support the use of guard bands due to their spectral inefficiency. Synchronisation is the most efficient if it can be achieved. Restricting transmission power is not favoured, particularly in lower bands.

Q31. First in time commercial deployment prevails, in a geographic area, not first licenced, subject to Crown review

Q32. Regional providers should be provided for in 3.5 GHz band plan. Regional providers are often the innovators that have provided hard to serve customers with effective broadband connections where the MNOs have failed to do so. The ability to continue to innovate may be stifled if a wholesale migration to a new band is mandated.

Q33. Unsure, and this requires more discussion; possibly a combination of measures to allow efficient use of the spectrum

Q34. No opinion as we already allow sharing of our spectrum

Q35. Given that most of the current standard setting relates to the 3.5 GHz band, most of the equipment vendors are developing in this band and most early available kit will be for this band. To delay the availability of the band will be to delay the availability of 5G in New Zealand. Early access to the band is therefore required.

Q36. Renewal of existing licences beginning now gives tenure certainty for current active licence holders. Early termination with compensation would free up the currently unused portion of the bands for auction. Existing licence holders who have yet to commence deployment are likely to be amenable to band width swapping if required.

Q37. If the repurposing of the band and the subsequent reallocation/auction is to be done in the required timeframes, government involvement is crucial.

Q38. Given the current focus on the 3.5GHz band and the likelihood that early developments will be in this band, the need for early access (pre 2022) to the 26GHz band does not appear as great at this time. However given the very different characteristics of the two bands, this may change rapidly and developments in the 26GHz band should be closely monitored.

Q39. See previous answers.

Q40 Not known

Q41. Depends on commercial availability of UE and take up of 3GPP defined bands by larger overseas operators. Bluereach would be interested in regional / shared nationwide allocation for broadband coverage requirements, and narrow band IoT.