Radio Frequency Users Association, New Zealand

Response

To

Fixed Services in New Zealand:

Discussion Document

March 2015

The Radio Frequency Users Association wish to thank the Ministry for the opportunity to respond to the Discussion Paper regarding Fixed Services in New Zealand.

Our Association represents those who are using landmobile and wireless broadband systems and services, and they operate in a wide variety of market segments including utilities, local bodies, communication providers, transport, emergency services.

Our members make extensive use of Fixed Services in a variety of frequency bands to support their landmobile and broadband systems. Therefore the conditions supporting fixed services are very important to them.

If you have any queries on our submission, please contact our secretary at;

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Answers to Questions

2.1. Digitisation
1. Should all or some sub 1 GHz fixed service bands be digital only? If so, are there particular bands that should be given priority to change to digital only services?

Response:
No band below 1GHz should designated as digital only apart from those already designated. While the trend will be toward digital, there will be some services presently using analogue that may need to expand and there should be allowances for that. In some cases performance and/or interfacing requirements may dictate the use of analogue.

2. Should any requirement for digital services apply to new licences only or should existing analogue services be required to transition to digital? If all licences are required to transition to digital services, over what time period should analogue licences be phased out?

Response:
Digital should not become mandatory. Many analogue systems provide robust, resilient, rugged and economical systems. For some applications they are a preferred technical solution over digital systems. An example is sites without mains power. As most digital systems require transmitters to be continuously on for end to end synchronisation there are often not suitable for use on these sites.

2.2. Spectral efficiency

3. Should the Ministry increase the minimum spectral efficiency of digital services from one bit to four bits per second per Hertz? If so, should this apply to some (please identify which ones) or all bands?

Response:
No, below 1GHz, maybe above 4GHz. But in planning links, ARE's need to consider fade margins and the length of a path as well as spectral efficiency. In some cases it is just not possible to obtain the suggested spectral efficiency over long paths while ensuring operation through a fade. The high modulation rates required for four bits per second per Hertz are not achievable by much equipment and some are limited to low spectral efficiency to achieve reliable operation over difficult paths E.g. Aviat Edge equipment has QPSK modulation only.

4. Should any requirement for increased spectral efficiency apply to new licences only or should existing licences be required to transition to this standard? If so, over what time period should the lower standard be phased out?

Response:
No.
Whilst analogue mobile radio services remain in service analogue linking must also be retained. Increased spectral efficiency should be required for new licences only, and only for wide bandwidth channels (e.g.56 MHz)

2.3. Metropolitan site congestion
5. Should further areas be added to the designated DMAs and if so which areas?

Response:
No.

6. Should further DMA rules be introduced? If so, what should the rules specify? Should these be tailored to each particular DMA?

Response:
Possibly the rules for Metropolitan Auckland could be strengthened, but others should be left as is.

7. Should any DMA specific rules be applied to new licences only or also apply to existing licences? If existing licences become subject to the new rules, how should the transition be managed?

Response:
New licences only.

2.4. Interference evaluation method for Digital Microwave Radio (DMR)
8. Should the current '1 dB interference threshold degradation' method prescribed in Section 4.3 'Co-channel interference threshold' of PIB 38 be retained or replaced with a carrier to interference method? Please provide information on why the method should be changed and the increased spectral efficiency over the current 1 dB threshold degradation method expected to result from the change.

Response:
Retain the 1dB interference threshold method.

9. If the method is changed to a carrier to interference method, how should this be implemented?

Response:
No. There is little information regarding carrier to interference methods for different models of radio available. It is different for different modulation and error correction schemes.

2.5. Adjacent channel interference criteria
10. Are the Frequency Dependent Rejection values in PIB 38 appropriate? If not, what should these values be? Should there be different values for different bands?

Response:
From our experience, the values mentioned PIB 38 are appropriate.

2.6. Equipment standards
11. Should the Ministry implement equipment standards for fixed services above 1 GHz? If so, what standard should be specified?

Response:
Yes, quality standards for equipment should be introduced so as to allow appropriate co-ordination between services. The suggested European standard EN 302 217-2 is probably suitable

2.7. Necessary bandwidth and channel widths for digital services
12. Should the Ministry adjust the general licencing conditions for digital services to ensure licences better reflect occupied bandwidth in the microwave bands?

Response:
Yes, adopt a standard, compliance with ITU-R F.1191 should be suitable as suggested.

2.8. Information on licence records

13. Is inaccurate information on licences a significant issue for AREs and ARCs and licensees? If so, how should the Ministry respond to the issue?

Response:
Inaccurate information on licences has not been a significant issue, but ARE/ARCs can only design with the information that is in the RSM database. They cannot be held liable for any adverse effects resulting from inaccurate information. ARE's/ARC's should be encouraged to complete required information and spot checks should be made to ensure this occurs. It should be an easy task for ARE's to establish the particular equipment proposed to be used for a service.

2.9. Transition of spectrum to the management rights regime

14. Should the Crown consider creating management rights for bands where there is predominantly a single licensee? If so, are there other criteria that should be met before a management right is created for fixed service bands?

Response:
No, they should remain in the Radio Licensing Regime. Over time technology changes and the fortunes and structure of companies change. In the example of the 5GHz band, Kordia, being an SOE, could have a change of structure or ownership. The channels should be available to others if they become vacant, not be locked up for a finite period. There is some evidence that at some sites companies have removed equipment but kept the licence, probably for possible future services not yet established. Many older broadband services have moved from microwave radio to fibre optic services. This practice of holding licences must be discouraged.

15. If spectrum is transferred into the management rights regime, should it be managed by the Crown or allocated to a private manager? If allocated to a private manager, should the allocation be by contestable means or to the predominant user?

Response:
It should not be transferred to a management Right, either Crown or privately managed.

2.10. Channel widths

16. Should the Ministry apply consistent channel sizes across specified frequency ranges in fixed service bands? If so, what should be the basis for these channel sizes? Should channel sizes be based on the preferred channel width shown in Table 3?

Response:
Yes and Yes

2.11. Band renaming

17. Should the Ministry rename bands that are currently prefixed with letters, by numbers representing their approximate frequency of operation?

Response:
Yes, a name associated with approximate frequency seems satisfactory.

3.1. ISTL, JKSTL, KL and K STL bands

18. Should digital services be permitted in STL bands? If so, should digital and analogue services be permitted or should all existing analogue services be required to transition to digital?

Response:
We suggest both digital and analogue services should be permitted in the same STL band, but the views of Broadcasters should be sought.

19. Should a minimum link distance be specified for STLs in some bands for current and / or future links? If so, which bands should have the minimum link distance specified?

Response:
Bands below 1GHz should not be used for distances less than 5km

20. Should no new dual mono STL services be allowed? If not, should the Ministry transition users from dual mono services to digital links?

Response:
Yes. Existing users should remain until they require any change to their licence.

21. If the Ministry allows digital licences in the STL bands, should any broadcaster that transmits more than 3 programmes between a studio and broadcasting site be required to use a 500 kHz channel digital STL and those broadcasting a single programme be required to use a 250 kHz channel digital STL?

Response:
Yes.

22. Should a limit of three STL licences (via a combination of analogue and digital transmissions) at any single location be introduced for any single licensee? If so, should this be limited to congested sites only? If so, which ones? Should these limits apply retrospectively to current licences or should they only apply for new licences. Should the limits apply once any licence holder applies to make a change to any one licence at a site?

Yes
Yes, apply to congested sites only, the ones already identified, i.e. Skytower etc.
Only new licences and those wanting to make a change.

23. How should the Ministry manage the timing and introduction of any changes to STL services? How should each of the five proposals above be managed?

Response:
This is outside our field of experience. There should be consultation with broadcasting associations.

3.2. EE Band

24. Are there any issues with the current band plan, use of, or future demands for the EE band?

Response:
We would recommend that fixed services be removed from this band to ensure additional capacity for landmobile services. They could be re-located to a new band in the region of 220 – 230MHz

3.3. I Band

25. Should the Ministry offer 100 kHz channels in the I band (Group G) which interleave with the current 50 kHz channel plan? If not, how should the channel plan be amended, if at all?

Response:

We recommend option 2, i.e. introduce 100kHz channels into the bandplan, but also retain the 50kHz channelling. We suggest that, over time, demand for 100kHz channelling will increase, while the demand for 50kHz channelling will decrease. We agree that this may not be the most efficient use of the band, but technology is gradually changing. We consider that there will remain a requirement for single channel services in remote rural areas for many years.

3.4. J Band

26. Should the Ministry offer 100 kHz channels in the J band (Group D) which interleave with the current 50 kHz channel plan? If not, how should the channel plan be amended, if at all?

Response:

We would suggest option 2, but due to the busy nature of the band, it may be difficult for ARE's to find suitable channels to support 100kHz operation. However, over time, we would expect this situation to change, as narrow band channels are naturally phased out.

3.5. JL band

27. Are there any issues with the current band plan, use of, or future demands for the JL band?

Response:

We are not aware of particular issues, but perhaps the lighter use may have been due to non-availability of suitable equipment, or perhaps some habits of tradition. Also at one end of a link, transmitters could be quite close to land mobile receiver frequencies creating some potential difficulty with effective filtering.

3.6. KK Band

28. Are there any issues with the current band plan, use of, or future demands for the KK band?

Response:

We are not aware of any issues and would recommend that the band remain as it is, including keeping the spectral efficiency as it is.

3.7. L Band

29. What services should L band be used for in the future? Why?

Response:

We consider this band to be ideal for long distance, point to point linking for landmobile. We would expect that spectrum should become available as the impact of the RBI are realised.

3.8. 5 GHz Band

30. Are there any issues with the current band plan, use of, or future demands for the 5 GHz band?

Response:

There are no issues that we are aware of, but the band should be kept in the Radio Licensing Regime to ensure flexibility with technology changes, company operations etc. If services are discontinued, then licences should be cancelled. As with the T band, the N+1 designation should be reviewed

3.9. P Band
31. Do you have comments on the current coordination process or possible future demands for services in the P band?

Response:
We have no particular comment.

3.10. R Band
32. Should the Ministry adopt 28 MHz channelling for the R band?

Response:
Yes, we believe so.

33. If the Ministry is to adopt 28 MHz channelling, should this be applied to new licences only or should all existing licences be required to transition to the new channelling? How long a timeframe should be allowed for the transition?

Response:
Initially new licences only, but with existing licences to change in 5 year's time.

3.11. T Band
34. Is the N+1 designation still required for efficient use of T band?

Response:
No, we don't believe so.

35. Should the redundant TA channels be removed from the channel plan for the T band?

Response:
Yes.

36. Should the Ministry consider rechanneling the T band to 14 MHz channel widths? If not, why not?

Response:
This should definitely be investigated

3.12. V Band
37. Should new 56 MHz channels V23A (7110.5 MHz) and V23A# (7341.5 MHz) be created? If so, could the new 56 MHz channels coexist with the TVOB channels currently in place? What would be an acceptable coordination policy if this were to occur? Should the new 56 MHz channels be available only on a non-interference basis?

Response:
Yes, it should be considered, if possible.
It should be on a non-interference basis and only licenced on areas outside the main centres. While we understand TVOB sometimes operates in the rural areas, they could use alternate channels at those few locations

38. Can existing demand for the TVOB channels in V band be accommodated on other TVOB channels?

Response:
We are not able to comment on this.

3.13. U, W and Y bands
39. Do you have comments on the current coordination process or possible future demands for services in the U band?

Response:
No, it seems satisfactory as is.

40. Should W band be rechanneled to enable either 28 MHz, 40 MHz, or 56 MHz channelling to enable new services? Which channel size is preferred? Why?

Response:
28MHz and 56MHz, 40MHz not required. Largely because of equipment availability, spectrum efficiency and capacity requirements.

41. Should the Yx channels be disestablished from the Y band channel plan, enabling the current dominant channel plan (YxA) to become the single channel plan for Y band?

Response:
Yes

42. Should the Y band have an additional 56 MHz allocation added to the current YxA 28 MHz channel plan?

Response:
Yes, if possible.

43. Should the band boundaries be realigned to match ITU-R F.386, by adjusting the U / W boundary at 7.730 GHz down to 7.725 GHz, and by adjusting the W / Y boundary from 8.290 GHz to 8.275 GHz?

Response:
Yes.

3.14. H band
44. Should the Ministry offer a 14 MHz channel plan for H band and migrate users away from 21 MHz channelling?

Response:
We would suggest that any future changes be left until the present users need to change/upgrade etc. That would be the most appropriate time to make any change

45. Should the band be reallocated to a different service or use? If so, what other services or uses should be allocated to the H band?

Response:
We are not aware of any alternative service that would readily use this band.

3.15. Z band
46. Should the Z band channel plan be changed to 28 MHz channels? If not, why not?

Response:
Preferably, but dependant on the responses from existing users.

47. If a 28 MHz channel is adopted, should the Ministry also adopt a 56 MHz channel plan?

Response:
If practical, yes

48. If the band is rechanneled, should incumbent licensees be required to transition to the new band plan?

Response:
We are very mindful of the impact on existing users to change something that is already working. Any required transition should be over a period of at least 5 years, maybe longer in some locations.

3.16. G band
49. Are there any issues with the current band plan, use of, or future demands for the G band?

Response:
Not that we are aware of.

3.17. X band
50. Should the Ministry introduce an additional 56 MHz channel to the X band, or should it remain unavailable for assignment?

Response:
It should be introduced if at all possible, but it may need to have some geographic limitations.

3.18. 18 and 23 GHz bands
51. Should the Ministry facilitate in any specific way the development of satellite services in the Ka band? For example, should the Ministry consider early clearances of some fixed services in either the 18 or 23 GHz bands?

Response:
No, we don't think there should be any significant changes until usage and requirements for satellite services is clearer. It is already difficult to get assignments in this band.

52. Should the Ministry remove the underutilised 3.5 and 7 MHz channels from the 23 GHz channel plan?

Response:
Yes, we think this is a sensible move.

3.19. 38 GHz band
53. Are there any issues with the current band plan, use of, or future demands for the 38 GHz band?

Response:
There are no issues that we are aware of.

3.20. 70 – 80 GHz band

54. Should the Ministry move the licencing regime for the 70 – 80 GHz band from administrative licencing to a New Zealand general user radio licence?

Response:

No, we are firmly opposed to further GURL schemes. It is important for radio transmissions to be licenced wherever possible so locations are known, systems can be planned with confidence, and contributions to the cost of managing spectrum are made. The band and technology are quite new, but as time passes they will tend to become more common. The band should be left as is.