

Introduction

This submission is made by TasmaNet Pty Ltd. The company is a Tasmanian owned medium size enterprise with 42 employees.

TasmaNet provides solutions and services that maximises the exploitation of technology for gain, through the synchronising of the following digital elements:

- Technology Services
- Network Communications
- Standards and Policies
- Work Practices and
- Regulatory Frameworks.

TasmaNet holds numerous point-to-multipoint licences in the 3.6 GHz band within Tasmania and considers itself a significant stakeholder within the Tasmanian Digital Communications market.

Primarily TasmaNet use 3.6Ghz spectrum to deliver many different types of high value network services to Government, Education & Private enterprise, with low or no oversubscription.

This document responds to only those questions relevant to TasmaNet. All questions posed by ACMA that have been omitted in this response are deemed outside of TasmaNet's scope.

Issues for comment

- | |
|---|
| 1. Should the 3.6 GHz band be progressed from the <i>preliminary replanning</i> stage to the <i>re-farming</i> stage in the ACMA's process for considering additional spectrum for MBB services? Why/Why not? |
|---|

It is in TasmaNet's view that re-farming 3.6Ghz spectrum will disadvantage our business and our ability to deliver specific products to the marketplace. We will no longer be able to offer a large range of products and services to a large number of clients, who in a lot of cases have no other option for service delivery. Some of the incumbent services could be migrated to NBN (national broadband network), but will no longer be possible to offer any guarantee of service level agreement or equivalent performance guarantee. Migrating these services over to the NBN will also incur a large ongoing cost to TasmaNet, which in turn will be passed onto the end user.

2. Do the areas identified in this analysis cover the likely areas of high demand for access to the 3.6 GHz band? Would smaller or larger areas be more appropriate? Why?

The demand for spectrum will obviously be in major metropolitan and major regional population centres. Our current apparatus allocation are almost exclusively in metropolitan and major regional areas around Tasmania. We can see the need for this spectrum in metropolitan areas, (as the nature of its use in “5G” will require small cell deployment) beyond major cities this becomes less viable to deploy for the MBB operators. Zones outside of major metropolitan areas should have mechanisms in place where this spectrum could continue to be used by the incumbents. The boundaries of these areas and protection zones would need to be defined by ACMA.

3. If any part of the 3.6 GHz band is re-allocated for the issue of spectrum licences is seven years a suitable re-allocation period? If not, what period of time would be appropriate?

We do not consider seven years to be enough time for Tasmanet to recoup our capital investment in infrastructure we currently have deployed or about to deploy. We would like to see this period increased to a minimum of ten to fifteen years.

4. Should different re-allocation periods be considered for different areas? For example, should a longer period be considered for services outside Area 1?

With the data provided by ACMA in the options paper (Table 2), there are only nineteen incumbent license holders in Area 1. This, in our opinion, would also be the most sought after area that MBB operators would want to deploy. Area 1 should be prioritised as it would have the most value for MBB operators with the highest population density, also the least amount of impact on the incumbent users.

Area 2 with 153 incumbent licensees to be considered next.

Area 3 with 359 incumbent licensees should not be considered. We would like to see the approach of option 3a or 3b tabled in the discussion paper.

5. Are these guidelines appropriate? Why?

Tasmanet does not agree with simultaneously granting spectrum licences across an entire area. This will have the biggest impact on incumbent users. As we stated in the answer to question 1, the nature of its use in “5G” will require small cell deployment.

Beyond major cities this becomes less viable to deploy for the MBB operators. We would like to see the approach discussed in Option(s) 3a,3b tabled in the discussion paper.

6. Are there any other issues that affect the usability of an area-wide licence that should be taken into account when defining the licence area?

No Comment

7. If point-to-point licences are affected by replanning activities in the 3.6 GHz band, are the options identified for point-to-point licences suitable? Are there any alternative options that should be considered?

No Comment

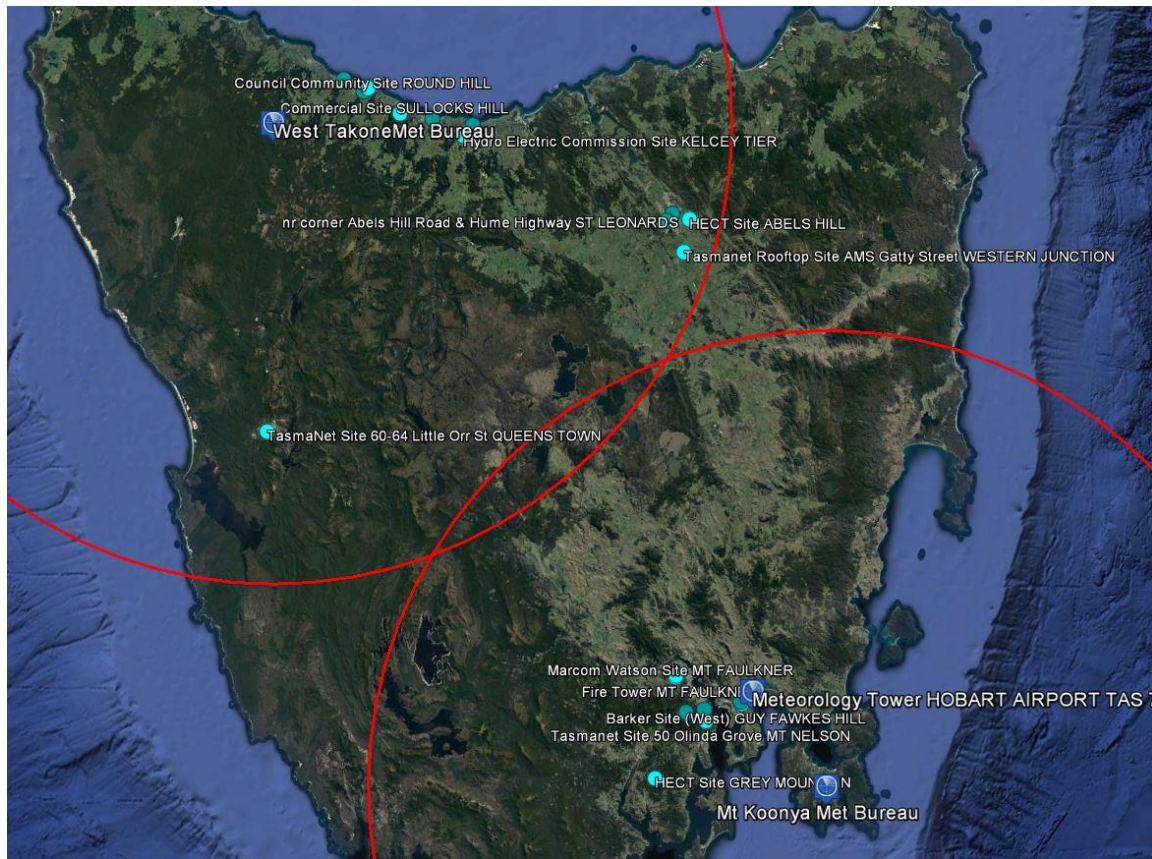
8. Is the 5.6 GHz band a viable option for wireless broadband systems?

In TasmaNet's opinion it is not a viable option, we would not be able to deliver carrier grade services in this band, for a number of reasons:

1. **Proximity to weather radar**, In TasmaNet's instance, Tasmania has two permanent observation stations and Hobart Airport performing wind doppler observations certain times of the day. Tasmanian radar stations operate on 5.610Ghz 5.625Ghz, using 1Mhz channels. Information I received from the BOM stated the radars receive 5 MHz either side of the carrier (10mhz receive). The BOM are already trying to mitigate heavy interference on this part of the band. They have an apparatus licence that allows them to transmit with an EIRP of 2,000,000,000 W Takone, EIRP 7,800,000,000 W Koonya, EIRP 3,300,000,000 W Hobart Airport.
 - a. Mt Koonya 50km ESE of Hobart (lat 43.1122° S, long 147.8061° E) Type: DWSR2502C C band radar (5.610GHz); 14ft dish; Peak Power out 300kW; Sensitivity-114dBm; Availability (Typical): 24 Hours per day
 - b. Hobart Airport (lat 42.83° S, long 147.51° E) Type: WF100 C-Band Radar (5.625GHz); 6ft Dish; Peak Power out 250Kw; Sensitivity -114Dbm; Windfinding and Weather Watch radar. Availability (Typical):: Midnight-0300; 0430—0900; 1030—1500; 1630—2100; 2230-midnight
 - c. Loones Hill, West Takone, 35 km WSW of Burnie and 27 km SW of Wynyard (lat 41.181° S, long 145.579° E) Height: 588m above sea level Type: DWSR 2502 C band Doppler (5.625 GHz) Peak Power out 300kW; Sensitivity-114dBm;

The three radar sites would contribute significant interference to any plan devices licenced in 5.6Ghz. Effectively, there would only be one channel available for licencing (5630-5650) in most, if not all, of Tasmania.

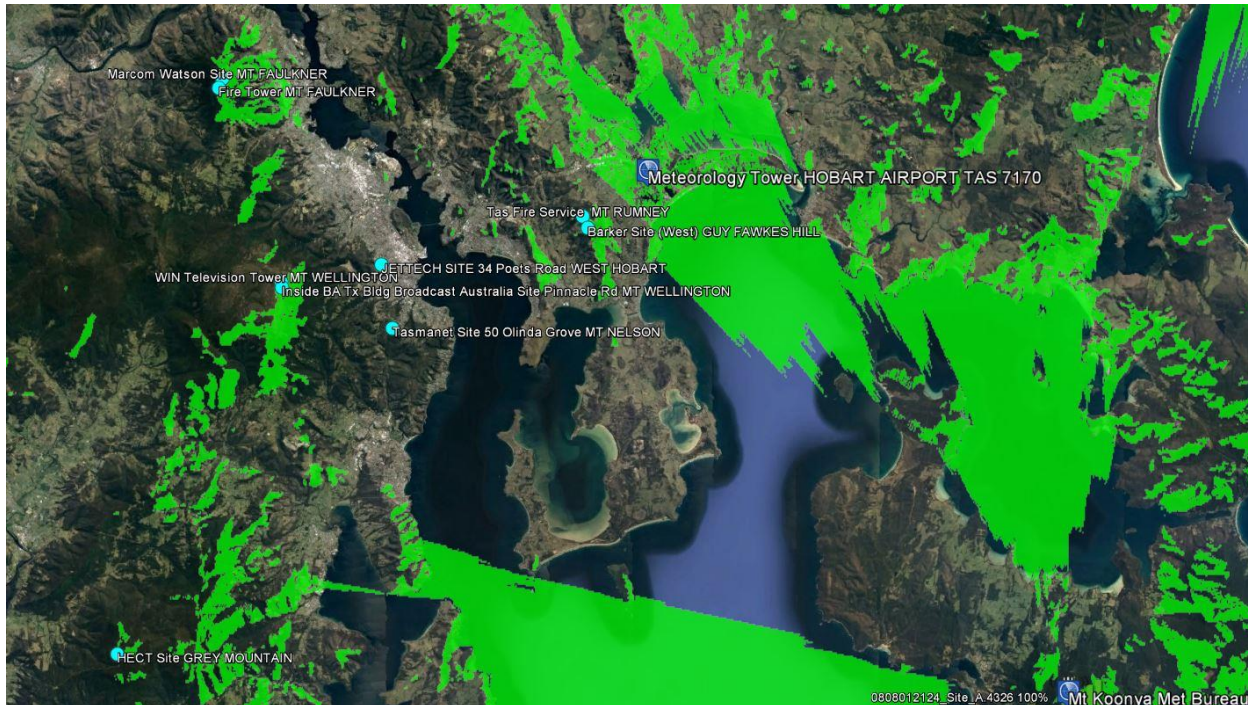
Fig.1 Three weather Radar sites in Tasmania with 150km operational zone drawn around them (only Koonya & Takone) also indicated are the locations of all the 3.6ghz apparatus licences currently active in Tasmania as of 8/8/2017. Rlan devices coexisting on the same band 200Km from a weather radar, could potentially cause interference to observational readings.



As can be seen in Fig.1, all current registered 3.6Ghz devices are within the bounds of operation of the two permanent weather radars in Tasmania. Apparatus licenses possibly not be granted to transmission sites located within 150-250Km of these BOM radar locations, with direct line of sight to the BOM sites. These transmission sites could potentially cause interference with observational weather readings. There will be opportunity to grant licences in areas we have sufficient shielding terrain where co-existence may occur. But in the south of Tasmania, this will be difficult due to outlook of the radar site at Mt Koonya. This will only allow the use of one of the proposed 5.6Ghz channels around the greater Hobart area.

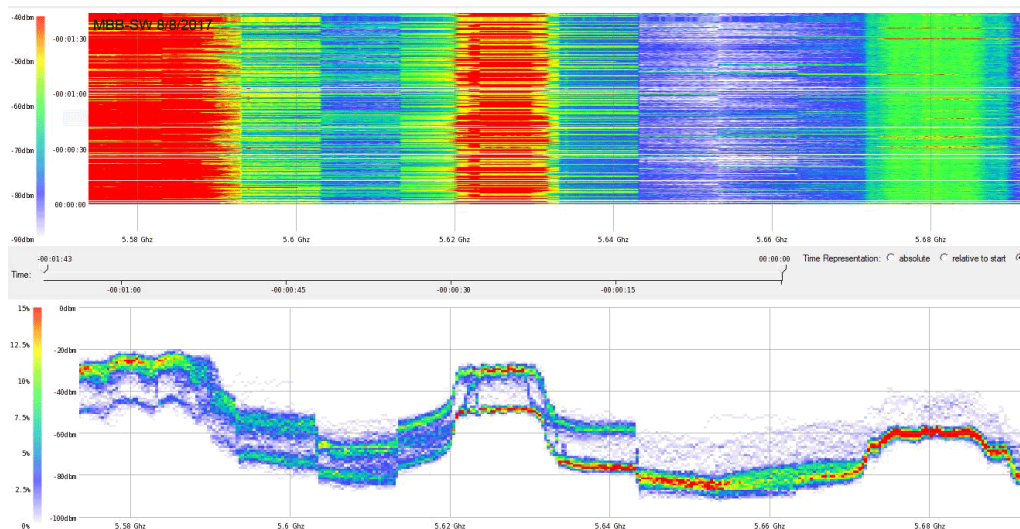
This will also be an issue in a number of locations around the country.

Fig.2 – Areas in green have line of sight to the weather radar located at Mt Koonya, I have not included the overlay for the radar at Hobart airport, this will also have line of site to a number of apparatus locations.



2. **No protection**, there are currently a large number of devices currently operating in this band that have no right to do so. Off-the-shelf consumer devices can easily be configured to operate in this part of the ISM band, also with the advent of multiple channel bonding (using IEEE 802.11ac) there is already a large number of plans encroaching into this spectrum space.

Fig.3 This is a spectral scan conducted from a Tasmanet point of presence in the Hobart CBD from one of our access points operating in the 5.8GHz ISM band. Clearly showing high power Rf already operating in this space.



I could provide numerous examples of devices already operating in 5610-5660MHz, we would be offered no protection from interference from such devices.

3. **Insufficient frequency allocation**, the two 20Mhz channels that are being offered, with multiple operators at a single transmission site, two assignments would be insufficient for multiple operators at one or nearby locations.
4. **No Guard band**, insufficient space between assignments to help manage adjacent channel interference between rans.
5. **DFS**, The requirement of DFS operation will not allow us to offer carrier grade services using 5.6ghz.

9. Under what circumstances should apparatus- and class-licensed arrangements be considered for the 5.6 GHz band?

Apparatus and class licence arrangements, should be limited to Carriage service providers in 5.6Ghz band, or whatever band we are granted to use. RALI guidelines for coordination and interference management should be implemented.

10. If apparatus licensing arrangements are developed for wireless broadband systems in the 5.6 GHz band, are the notional arrangements proposed in Appendix 3 suitable?

5625, 5610Mhz are currently used by weather radar in Tasmania, both in the south of the state. Effectively only giving one channel for use in the majority of the metropolitan areas in southern Tasmania and in the North West of Tasmania (areas with the highest demand of services for TasmaNet). We don't see this as suitable.

11. If point-to-multipoint licences are affected by replanning activities in the 3.6 GHz band, are the alternative options identified suitable? Are there any alternative options that should be considered?

5.6Ghz is not suitable due to our concerns previously discussed in question 8. There are other possibilities to potentially consider.

- 4000 – 4200 MHz
- Use of the public safety band 4940-4990Mhz
- 5091-5150Mhz
- 6000-6100Mhz

12. The ACMA seeks comment on the suitability of the current west coast earth station protection zone located near Mingenew, WA, for long-term satellite service use. Are the current regulatory arrangements effective?

No Comment

13. In the event FSS earth stations are affected by replanning activities in the 3.6 GHz band, the ACMA seeks comment on:

1. Any issues surrounding the development and establishment of an east coast earth station protection zone; particularly on what factors would be necessary to make it an attractive option for earth station operations.
2. Whether there are any views on potential candidate locations to consider.
3. Whether there should be more than one earth station protection zone on the east and west coasts of Australia.
4. If the identification of a central Australia earth station zone should be considered.

No comment

14. Are the approaches for amateurs, radiolocation services, class licensed devices and TVRO systems suitable?

Would work with a dynamic spectrum solution.

15. Are there any other options for incumbent services, not identified in this paper, which should be considered?

No Comment

16. Should any of the sharing arrangements discussed in this section be considered for implementation in the 3.6 GHz band? Why or why not?

This arrangement offers protection to the incumbent services, we would favour this approach but would not be beneficial for MBB providers seeking access to spectrum where the incumbents currently are operating.

17. Are there any other sharing arrangements that should be considered?

Dynamic Spectrum Licence Management arrangement as suggested by Wireless Internet Service Provider Association of Australia.

18. Are there any other replanning options that should be considered?

To be able to find a suitable solution for carriage service providers to continue to offer, fixed wireless carrier grade multipoint services.

19. Which replanning option should be implemented in the band? Why?

Option 1

- As an incumbent, we would agree with this.

Option 2

- We agree with option 2a,2b as incumbent users. Delivers spectrum to MBB operators in high demand areas and allows incumbent users to continue to service regional areas. But this is not our preferred option.

Option 3

- We agree and favour with option 3a or 3b.
- We do not agree with options 3c or 3d.

Option 4

- Do not agree with either of the options tabled here.

20. In the event an area-wide licensing option is implemented, in which of the defined areas (that is, Area 1, 2, 3 and Australia-wide as defined in Appendix 6) should these arrangements be implemented? Are the current area definitions appropriate? If not, what area should be defined?

TasmaNet would only like to see this approach in Areas 1, 2. It covers the most densely populated and high demand areas in the country, and effects the least amount of incumbent licence holders.

21. If Option 4a is implemented, what frequencies and areas should be re-allocated for the issue of spectrum licences? How much spectrum should remain subject to site-based apparatus licensing arrangements? Should different amounts be considered in different areas?

You could re-farm all of the 125Mhz spectrum in Area 1, a portion of it to Area 2 (60Mhz), leave Area 3, but TasmaNet does not agree with this option.

22. If Option 4b is implemented, what frequencies and areas (that is, incumbent apparatus licence services) should remain subject to site-based apparatus licensing arrangements?

TasmaNet would not want Area 3 re-allocated.

23. Comment is sought on the ACMA's preferred option (Option 3c) for the 3.6 GHz band.

- TasmaNet does not prefer this option.
- No other spectrum currently available to offer carrier grade multipoint services.
- 5.6Ghz spectrum proposal is not sufficient, nor fit for use.