

5 September 2022

Mr Mark Basile  
Acting Executive Director, Merger Investigations  
Australian Competition and Consumer Commission  
Level 17, 2 Lonsdale Street  
Melbourne VIC 3000

Via email: [mark.basile@accc.gov.au](mailto:mark.basile@accc.gov.au)

Dear Mr Basile

**ACMA supplementary response to ACCC request for information**

I refer to the email dated 16 August 2022, requesting supplementary advice from the Australian Communications and Media Authority (ACMA) to assist the Australian Competition and Consumer Commission's (ACCC) review of a merger authorisation application involving Telstra Corporation Limited (Telstra) and TPG Telecom Limited (TPG).

The ACMA has considered the additional information provided by the ACCC, and provides the attached response to questions 2 and 6 as requested by the ACCC. In addition, as agreed with ACCC staff, we are separately providing shapefiles via the ACCC's secure portal.

The ACMA notes that our response contains information that is confidential to one or both of Telstra and TPG. The ACMA does not request that any part of the response be kept confidential. However, the ACCC should consider whether any part of the response might disclose any information that is confidential to one or both of Telstra and TPG before publishing the response. The ACMA does not intend to publish the response independently.

If you have any further queries or wish to clarify the information provided, the contact for this matter is Rachel Blackwood ( [REDACTED] or [REDACTED] ).

Yours sincerely

[REDACTED]  
Linda Caruso  
General Manager, Communications Infrastructure Division

Phone: [REDACTED]  
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**Attachment A      ACMA response to questions 2 and 6**

## Attachment A

1. To assist with developing a response to questions 2 and 6, the ACCC provided the ACMA with shapefiles as detailed in its email dated 16 August 2022. These shapefiles contained the following information:
  - a) TPG site locations;
  - b) TPG's existing metropolitan and regional coverage on its own network;
  - c) the additional coverage under TPG's 3G roaming agreement with Optus; and
  - d) the additional regional coverage from the MOCN.
2. The information in datasets (a) and (d) was used in developing the ACMA's response to questions 2 and 6.
3. With regards to the datasets (b) and (c):
  - a) The ACMA understands that the information in dataset (b) is based on TPG's existing metropolitan and regional coverage and not the coverage that would be provided once the MOCN Service Agreement is in effect. Consequently, this dataset was not used in developing a response to questions 2 and 6.
  - b) The ACMA understands that the information in dataset (c) is based on the agreement for TPG to use Optus spectrum at specific sites for the purposes of 3G roaming. In responding to questions 2 and 6 we have focused on Telstra and TPG spectrum holdings, and therefore this dataset was not used to respond to those questions.
4. The assumptions and processes used by the ACMA to respond to questions 2 and 6, as well as the associated response for each are provided below.

**Question 2: Please identify spectrum holdings which geographically overlap both the Regional Coverage Zone specified by the MOCN Service Agreement and areas to be authorised to Telstra beyond the MOCN coverage zone.**

5. We have responded to this question by considering the spectrum holdings of Telstra and TPG only that are used for the delivery of wireless broadband services. We have not considered spectrum holdings used for the delivery of other services or those licensed to other entities.
6. Table 1 details those Telstra and TPG 900 MHz Public Mobile Telecommunications (PTS) apparatus licences and spectrum licences that have full or partial overlap with the Regional Coverage Zone specified by the MOCN Service Agreement. Also, provided separately to this letter is a spectrum overlap shapefile (called *Spectrum\_Licence\_HCIS\_additional\_coverage\_intersect*) viewable in GIS software such as ArcMap) that defines the extent of the geographical overlap for each of these spectrum licences as well as the associated quanta of spectrum.
7. In developing the spectrum overlap shapefile:
  - a) Telstra and TPG's existing spectrum licence holdings were considered. [The 2x10 MHz of 850 MHz expansion band spectrum that Telstra acquired at auction in 2021](#) was not included, as no licences have been yet issued, and are not expected to be issued until 2024. However, similar overlap

from Telstra's existing 800 MHz spectrum licences was applied in the analysis.

- b) Different entities in the Telstra and TPG corporate groups hold spectrum licences:
- Telstra: Telstra Corporation Limited, Telstra 3G Spectrum Holdings Pty Ltd
  - TPG: Vodafone Hutchison Australia Pty Limited, TPG Internet Pty Ltd, Vodafone Australia Pty Limited, Mobile JV Pty Ltd, Dense Air Australia Pty Ltd

Spectrum licences held by each of these entities were considered.

- c) Telstra and TPG's existing Australia-wide (PTS) apparatus licences in the 900 MHz band were considered. However, these licences will be surrendered or cancelled on or before 1 July 2024, at which point [900 MHz spectrum licences auctioned in 2021](#) will come into force. Neither Telstra nor TPG acquired 900 MHz spectrum in that auction.
- d) Each Hierarchical Cell Identification Scheme (HCIS) level 1 cell of the Telstra and TPG's 900 MHz PTS and spectrum licences that overlapped with the Regional Coverage Zone shapefile provided by the ACCC was identified in the ACMA's spectrum overlap shapefile, irrespective of whether the overlap was full or partial. A HCIS level 1 cell is the smallest area that a spectrum licence can be subdivided into for trade or allocation (see section 8 of the [Radiocommunications \(Trading Rules for Spectrum Licences\) Determination 2012](#)). One level 1 cell is in the order of 9 km x 9 km in size (though this does vary slightly for different longitudes).
- e) Other than their 900 MHz PTS licences, Telstra and TPG's apparatus licence holdings that are used for the delivery of wireless broadband services were not considered. The reason for this is that, except for 900 MHz PTS licences and area-wide apparatus licences (which currently only apply to the 26/28 GHz bands), information contained in the Register of Radiocommunications Licences (the RRL) for such licences only includes the location of the transmitter. The RRL does not include any information about the 'service coverage area' for these licences (ie, the area where the transmitter's transmissions might be strong enough for the reception of data by user terminals). However, the response to Question 6 does include the location of those transmitters that fall within the different geographical areas for Telstra and TPG's apparatus licences in the 1800 MHz and 2 GHz bands.
8. The Appendix to this attachment provides further details on the spectrum overlap shapefile including example images of the information contained within it.
9. It is noted that spectrum holdings that overlap with areas to be authorised to Telstra beyond the MOCN coverage zone have not been identified. In order to do this a shapefile (or some other file) containing a description of the areas where TPG will **not** share or authorise use of its spectrum to Telstra is needed.

**Table 1: Telstra and TPG's 900 MHz PTS and spectrum licences that have full or partial overlap with the Regional Coverage Zone**

Band	Telstra Licences	TPG Licences
700 MHz	<a href="#">9469862</a>	<a href="#">10391280</a> , <a href="#">10391286</a>
800 MHz	<a href="#">9263433</a>	<a href="#">9263429</a>
900 MHz	<a href="#">1136417/1</a>	<a href="#">1136355/1</a>
1800 MHz	<a href="#">10435053</a>	<a href="#">9263452</a> , <a href="#">9367136</a> , <a href="#">9619844</a> , <a href="#">10232073</a> , <a href="#">10235466</a> , <a href="#">10424434</a> , <a href="#">10427561</a>
2 GHz	<a href="#">10143466</a> , <a href="#">10388433</a>	<a href="#">10143110</a> , <a href="#">10143136</a> , <a href="#">10424436</a>
2.3 GHz	<a href="#">9599659</a> , <a href="#">10388332</a>	None
2.5 GHz	<a href="#">9469871</a> , <a href="#">9469878</a>	None
3.4 GHz	<a href="#">10388334</a> , <a href="#">10498938</a> , <a href="#">10914942</a>	<a href="#">10917463</a> , <a href="#">10917464</a>
26 GHz	<a href="#">11268278</a>	<a href="#">11275966</a>

**Question 6: Any information the ACMA has regarding the current utilisation of Telstra and TPG's spectrum, in particular in the geographic area covered by the MOCN service agreement.**

11. The ACMA maintains a register of radiocommunications licences referred to as the RRL. This register contains details of most devices authorised to operate under both apparatus and spectrum licences. As advised in the ACMA's letter to the ACCC of 25 July 2022, when looking at data in the RRL it is important to note the following:
12. Some devices, typically those that are mobile, nomadic or low powered in nature, are not required to have their details recorded on the RRL.
13. Except for those exempt from registration, devices are required to be licensed and registered before they are operated. There can be a lag time between these two events. There is also no requirement for a licensee to ever deploy an operational transmitter.
14. There is no requirement to surrender apparatus licences or remove from the RRL device registrations associated with devices that are no longer in use.
15. Subject to those limitations, RRL data can be used to provide a level of understanding for the current (or planned) utilisation of spectrum. If more detailed or accurate information than this is required, the ACCC should approach Telstra and TPG directly.
16. Within this context, the response to question 6 was developed on the basis of the following method:

Devices operating under spectrum licences

- a) Step 1 – All devices in the RRL, as of 1 September 2022, that were registered in relation to Telstra and TPG's spectrum licences specified in Table 1 were identified. To simplify the analysis, a transmitter and receiver pair (associated with a single base station) were considered as a single device. It is noted that there could be multiple devices per location, which

could, for example, represent different sectors of the base station (i.e. antenna that cover different directions on the same tower).

- b) Step 2 – Then, of the devices identified in Step 1, only those devices that fell within the HCIS cells for each licence, as identified in the response to question 2, have been included in our response to this question. These HCIS cells represent the areas of each Telstra and TPG spectrum licence that either fully or partially overlap with the geographical area covered by the MOCN service agreement.

#### Devices operating under apparatus licences

- c) Step 3 – All devices in the RRL, as of 1 September 2022, associated with Telstra and TPG's 900 MHz, 1800 MHz and 2 GHz PTS apparatus licences were identified. To simplify the analysis, a transmitter and receiver pair (associated with a single base station) were considered as a single device. It is noted that there could be multiple devices per location, which could, for example, represent different sectors of the base station (i.e. antenna that cover different directions on the same tower). These apparatus licences were chosen as they are used to provide wireless broadband services.
- d) Step 4 – Then, of the devices identified in Step 3 only those devices that are located within the HCIS level 1 cells that either fully or partially overlap the geographical area covered by the MOCN service agreement have been included in our response to this question.

#### TPG site location data provided by the ACCC

- e) Step 5 – Those sites contained with the TPG site locations data, as provided by the ACCC, that were located within the HCIS level 1 cells that either fully or partially overlap the geographical area covered by the MOCN service agreement have been included in our response to this question. It is noted that a single site could support multiple devices operating in different sectors of the base station. This data should duplicate data generated as a result of the steps taken in relation to spectrum licences and apparatus licences (under Steps 1-4). However, there may be differences if there are old registrations in the RRL that are no longer in use or there are sites that have not yet been registered.

17. The results of this analysis are contained in a Shapefile (called *TPG\_Telstra\_TX\_Devices\_HCIS\_additional\_coverage\_clip*) provided separately to this letter. The Appendix to this attachment provides further details on the shapefile including example images of the information contained within it. For information, Table 2 provides a summary of the number of devices identified from the RRL broken down by band and licensee.
18. The number and location of devices located in those metropolitan and regional/remote areas outside of the MOCN Service Agreement areas were not determined. To do this in a meaningful way, further information is required to identify areas to be authorised to Telstra beyond the MOCN regional coverage zone and areas Telstra and TPG will operate using their own spectrum holdings. If it is of interest to the ACCC, details on all devices registered for operation under Telstra and TPG's spectrum and apparatus licences are publicly available on the [RRL](#).

**Table 2: Number of devices in the RRL that are located within the HCIS level 1 cells that either fully or partially overlap the geographical area covered by the HCIS RCZ**

<b>Band</b>	<b>Telstra Licences</b>	<b>TPG Licences</b>
700 MHz spectrum licence (SL)	11,547	721
800 MHz SL	11,589	4,615
900 MHz PTS licence	123	2,213
1800 MHz SL	6,954	4,006
2 GHz SL	4,781	4,391
2.3 GHz SL	9	-
2.5 GHz SL	2,757	-
3.4 GHz SL	3,799	505
26 GHz SL	3	-
1800 MHz PTS licence	46	8
2 GHz PTS licence	1,282	713
<b>TOTAL</b>	<b>42,890</b>	<b>17,172</b>

## Appendix

1. This attachment provides example images of:
  - a) how the MOCN coverage areas provided by the ACCC were converted into Hierarchical Cell Identification Scheme (HCIS) level 1 cells.
  - b) the information contained in the following two shapefiles developed in response to the ACCC's questions 2 and 6:
    - *Spectrum\_Licence\_HCIS\_additional\_coverage\_intersect*
    - *TPG\_Telstra\_TX\_Devices\_HCIS\_additional\_coverage\_clip*

### Conversion of MOCN areas to HCIS level 1 cells

2. 
3. 

### Information contained in the two shapefiles

4. The HCIS level 1 cell of each Telstra and TPG 900 MHz PTS licence and spectrum licence that overlapped with the HCIS RCZ was identified as well as the associated quanta of spectrum. A HCIS level 1 cell is the smallest area that a spectrum licence can be subdivided into for trade or allocation (see section 8 of the [\*Radiocommunications \(Trading Rules for Spectrum Licences\) Determination 2012\*](#)). One level 1 cell is in the order of 9 km x 9 km in size (though this does vary slightly for different longitudes).
5. The output of this process was used to create the *Spectrum\_Licence\_HCIS\_additional\_coverage\_intersect* shapefile. The overlap of each individual 900 MHz PTS licence and spectrum licence is provided. Different licences have either full or partial overlap with the HCIS RCZ depending on the actual spectrum space covered by each licence. The *Spectrum\_Licence\_HCIS\_additional\_coverage\_intersect* shapefile may be queried to show the results of this on a licence-by-licence basis (or multiple licences at once). **Figure 2** provides an example of this for licence number 10435053 held by Telstra in the 1800 MHz band.
6. For the overlap areas of each Telstra and TPG 900 MHz PTS licence and spectrum licence contained in the *Spectrum\_Licence\_HCIS\_additional\_coverage\_intersect* shapefile, the number and location of devices within them was determined. This was based on the devices registered under each licence on the register of radiocommunications licences (RRL). The output of this process was used to create the *TPG\_Telstra\_TX\_Devices\_HCIS\_additional\_coverage\_clip* shapefile. This shapefile can be queried to show the location of devices on a licence-by-licence basis (or multiple licences at once). Also included in this shapefile is the overlap of the TPG sites provided by the ACCC with the HCIS RCZ.

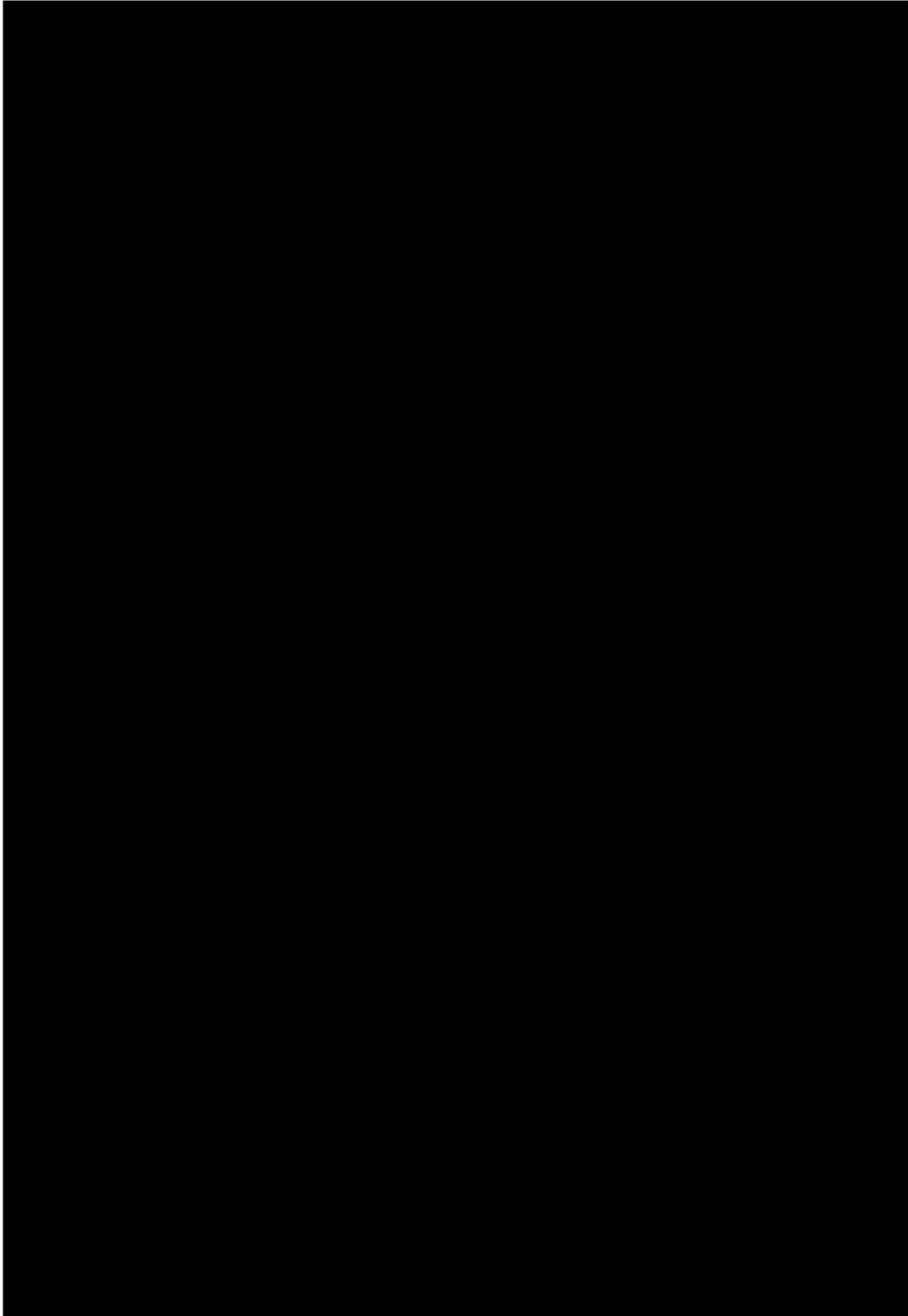
7. [Redacted]

8. [Redacted]

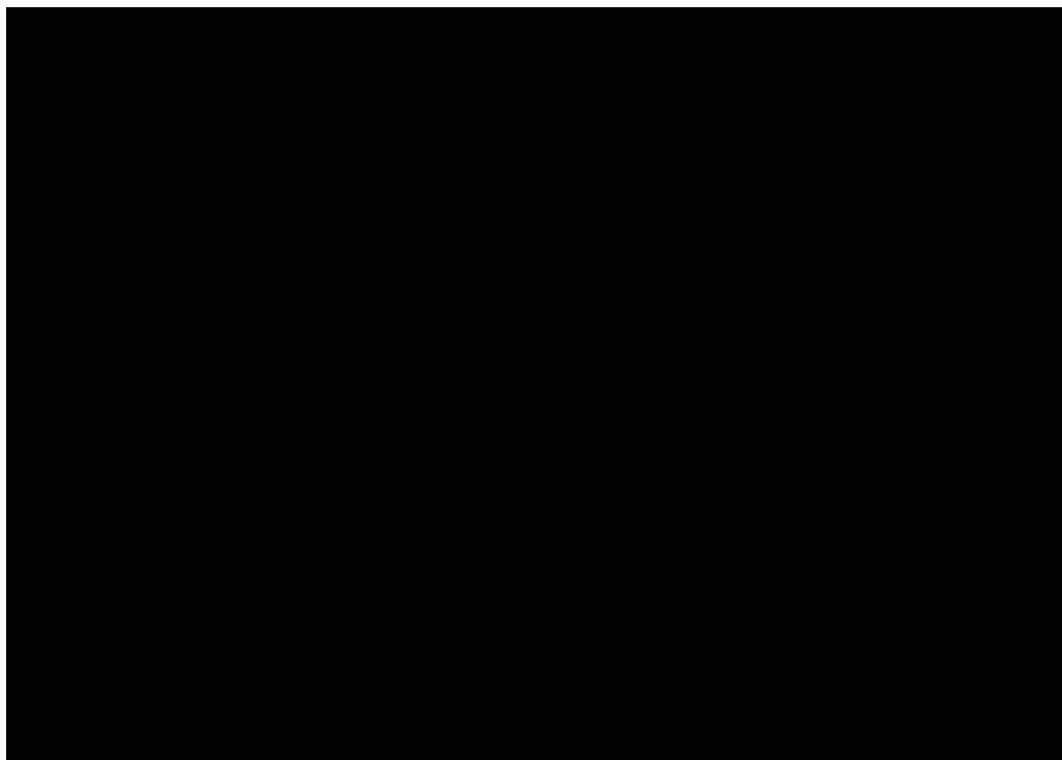
9. [Redacted]



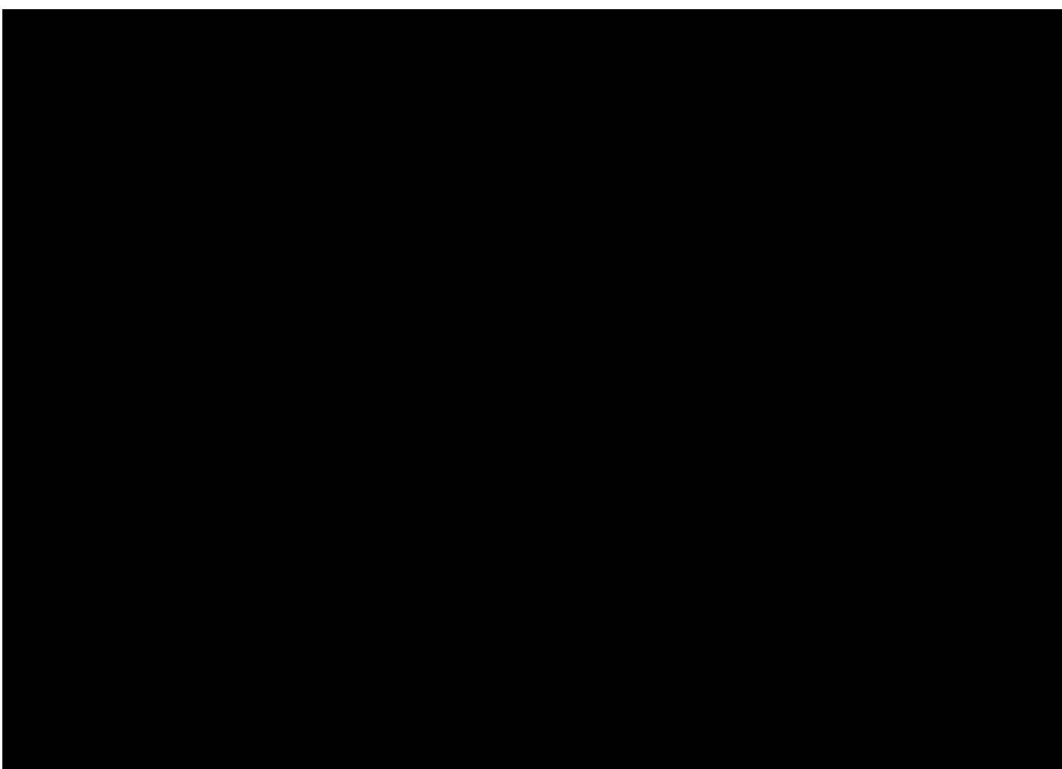
Figure 1: Overlay of ACCC provided MOCN coverage zones and HCIS RCZ, Australia-wide view (Top) and Alice Springs close up (bottom)



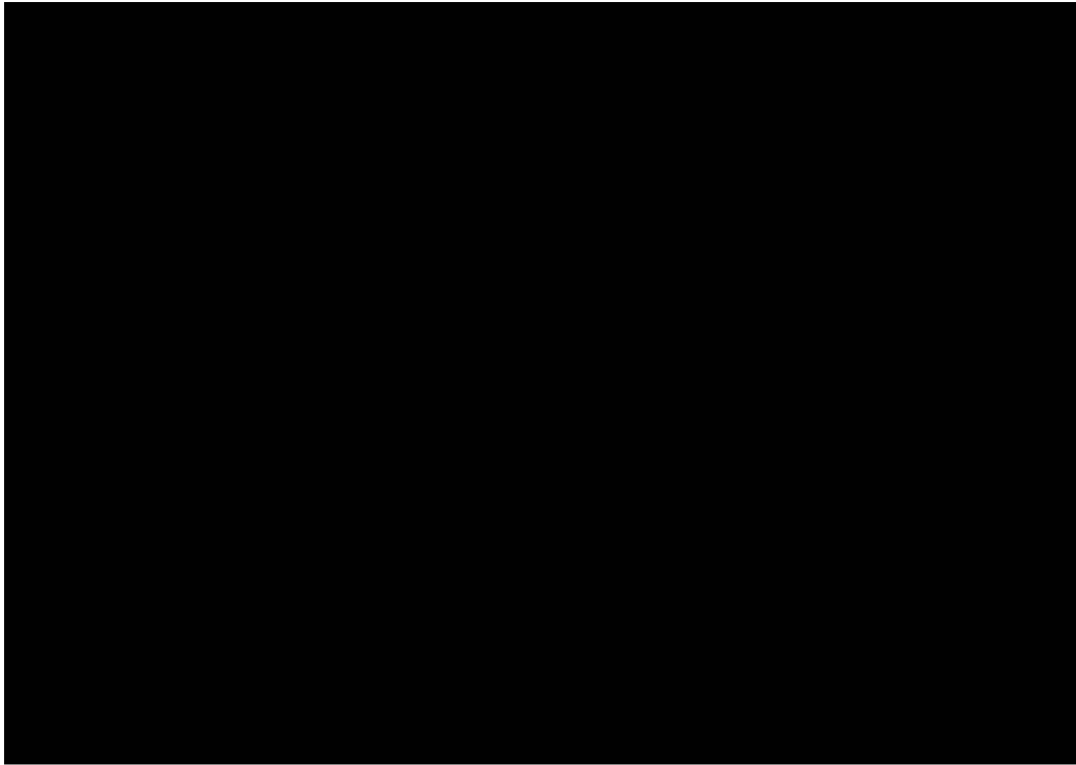
**Figure 2: Overlap of licence number 10435053 held by Telstra in the 1800 MHz band with the HCIS RCZ**



**Figure 3: Devices associated with licence number 10435053 held by Telstra in the 1800 MHz band that are within the HCIS RCZ**



**Figure 4: All Telstra and TPG devices on the RRL that are within the HCIS RCZ**



**Figure 5: Overlap of TPG sites (provided by ACCC) with the HCIS RCZ**

