

Spectrum for Wireless Broadband

Andrew May

www.spectrumeng.com.au



Spectrum for Wireless Broadband

- The Challenges
- Licence Types
- Update - 1.8 and 2 GHz
- Update - 3 GHz (Area Wide Licence)



Spectrum Challenges

Availability

- Costly auctions
- Contention
- Restrictions & Embargoes
- Band sharing

Complexity

- Different licence types
 - PROCESSES
 - RULES
 - FEES
 - AREAS
 - NAMING

Licence Types - Features

Apparatus Licence

- Over the counter
- Short term
- Specific purpose
- Per system

Spectrum Licence

- Auction
- Long term
- Tech neutral
- Per area and frequency block
- Sites require 'registration'

Class Licence

- Existing instrument permits 'all' to operate
- e.g. Wifi, ISM

Licence Types - Examples

Apparatus Licence

- ★ Public mobile telecoms service
- ★ Point to multipoint
- ★ Area wide licence
- Point to point
- Land mobile
- Ambulatory
- CB repeater
- Aeronautical
- Paging

Spectrum Licence

Mobile Network Operators

some rail,
defence, smaller operators

Class Licence

- Existing instrument permits 'all' to operate
- e.g. Wifi, ISM



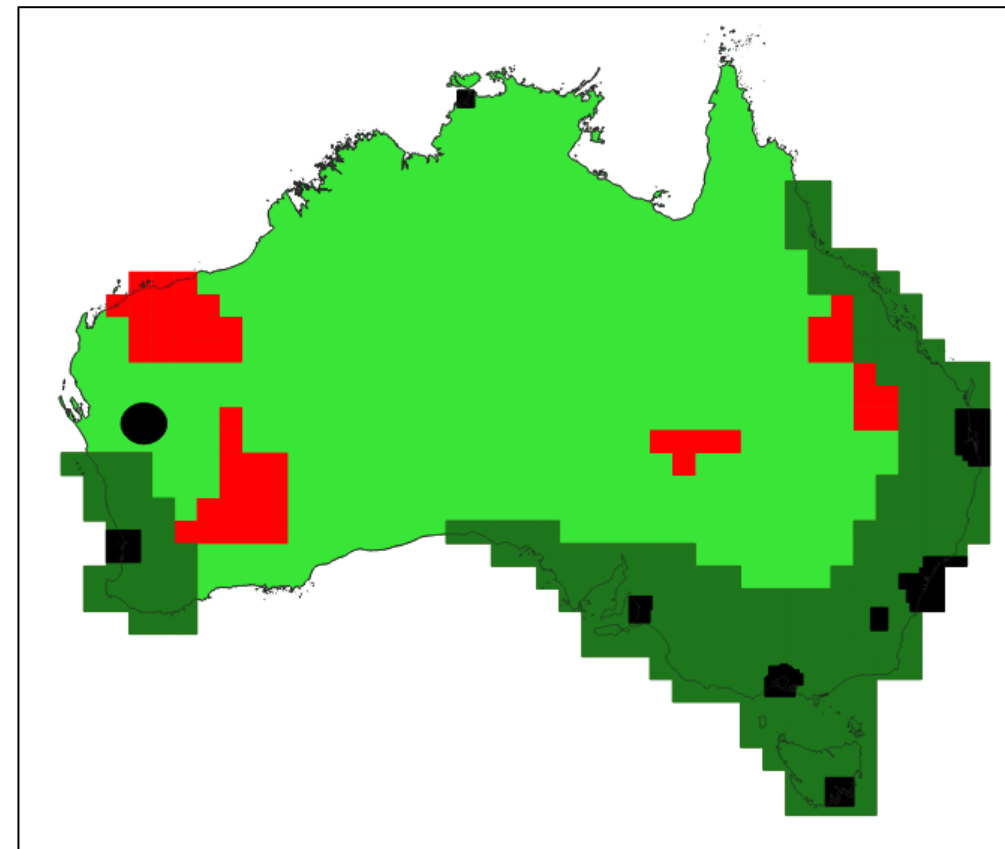
Licence Types

Apparatus Licence Types

- Public Telecommunications Service (PTS)
- Point to Multipoint (PMP)
- Area Wide Licence (AWL)

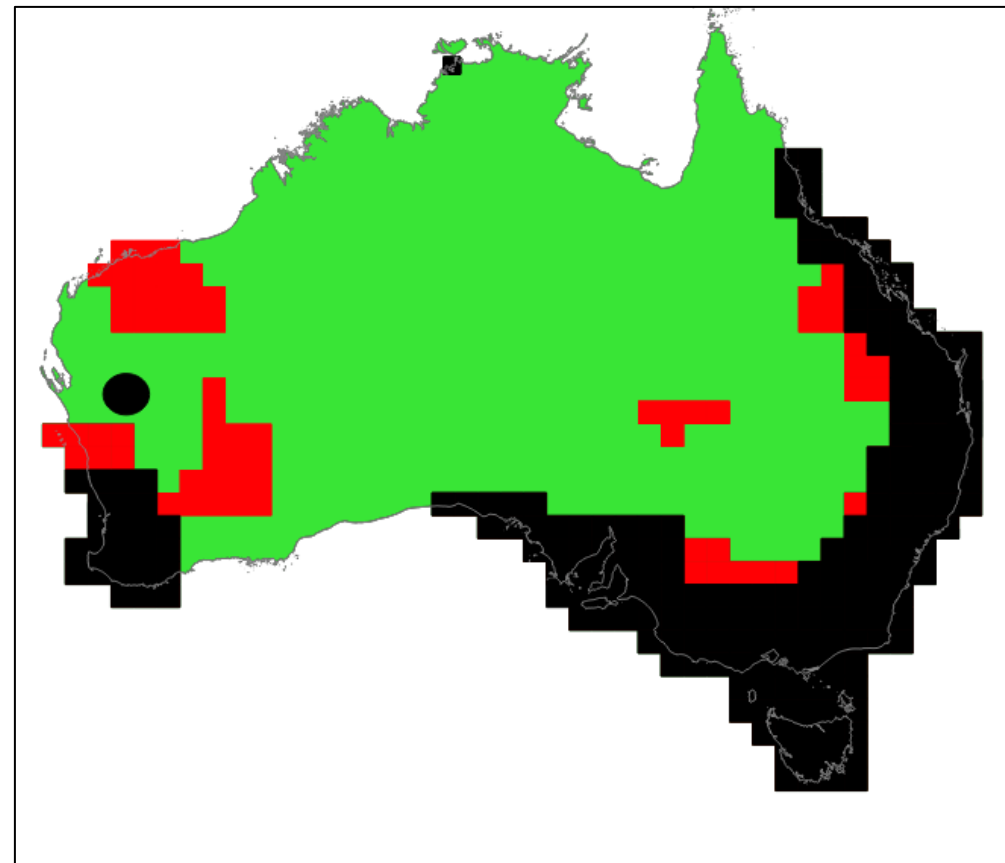
2 GHz

Channel priority (suggestion only)	Remote	Regional
Mobile Network Operator	10 MHz	10 MHz
	10 MHz	10 MHz
Industry (10 MHz)	10 MHz	10 MHz
Mobile Network Operator	10 MHz	10 MHz
	10 MHz	
	10 MHz	
	10 MHz	



1.8 GHz

Channel priority (Enforced)	Bandwidth
Mobile Network Operators (45 MHz)	15 MHz
	15 MHz
	15 MHz
Industry (30 MHz)	10 MHz
	10 MHz
	10 MHz



Apparatus Licence Restrictions

Spectrum Licences

- These typically prevent access to Apparatus Licensing
- Maps available from ACMA
 - RALI SM26
 - [acma.gov.au/publications/2021-05/instruction/rali-sm26-restrictions-apparatus-licensing-spectrum-licensed-spaces](https://www.acma.gov.au/publications/2021-05/instruction/rali-sm26-restrictions-apparatus-licensing-spectrum-licensed-spaces)

Embargoes

Map and explanations readily available from ACMA

- RALI MS03
- [acma.gov.au/publications/2019-10/rules/rali-ms03](https://www.acma.gov.au/publications/2019-10/rules/rali-ms03)

1.8/2 GHz Review

- Underutilised by mobile network operators
- Shortage of spectrum for others
- Spectrum denial causes



1.8/2 GHz Review - possibilities

- Increased channel size
- “Cross band” channel limits
- Increased channel limits
- Tighter channel reuse
- Relaxed channel priority



1.8/2 GHz Review - possibilities

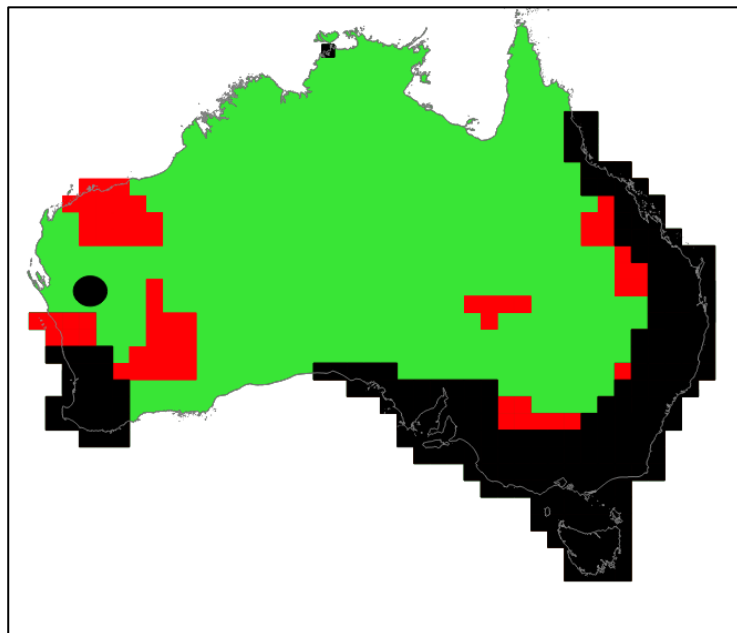
- Replan 1.8 GHz point to point
- Associates test
- 'Over the top' licensing

> Check ACMA's [consultations](#) page for progress

> <https://www.acma.gov.au/consultations/2024-06/1800-mhz-and-2-ghz-bands-outside-spectrum-licensed-areas-review-arrangements>



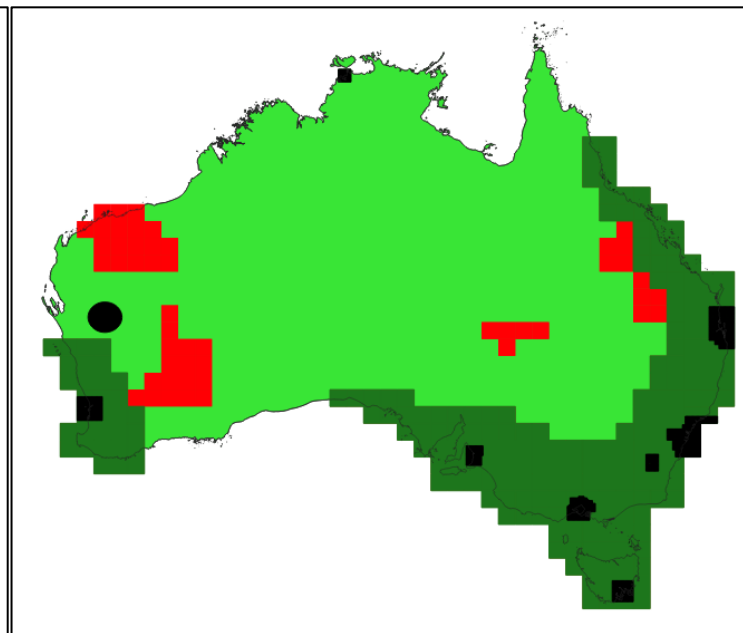
Apparatus Licence Bands



1.8 GHz

10 MHz channel

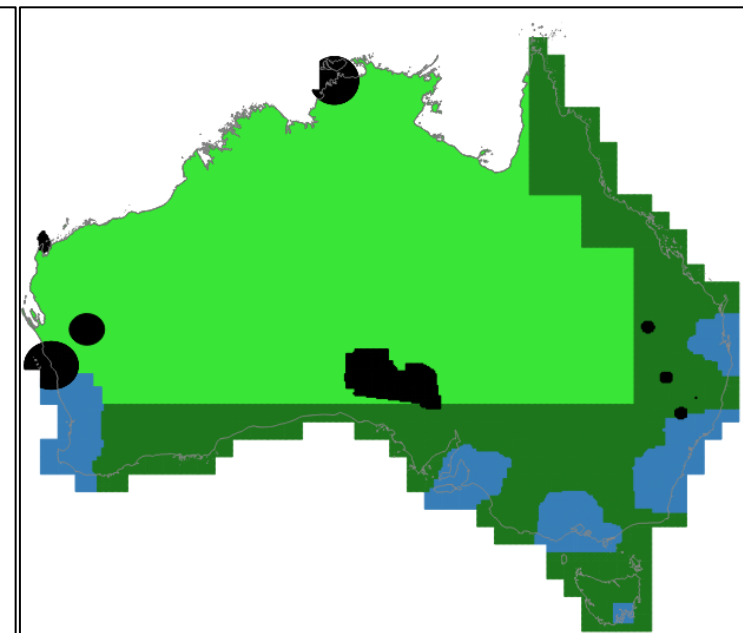
Embargo 77



2 GHz

10 MHz channel

Embargo 77

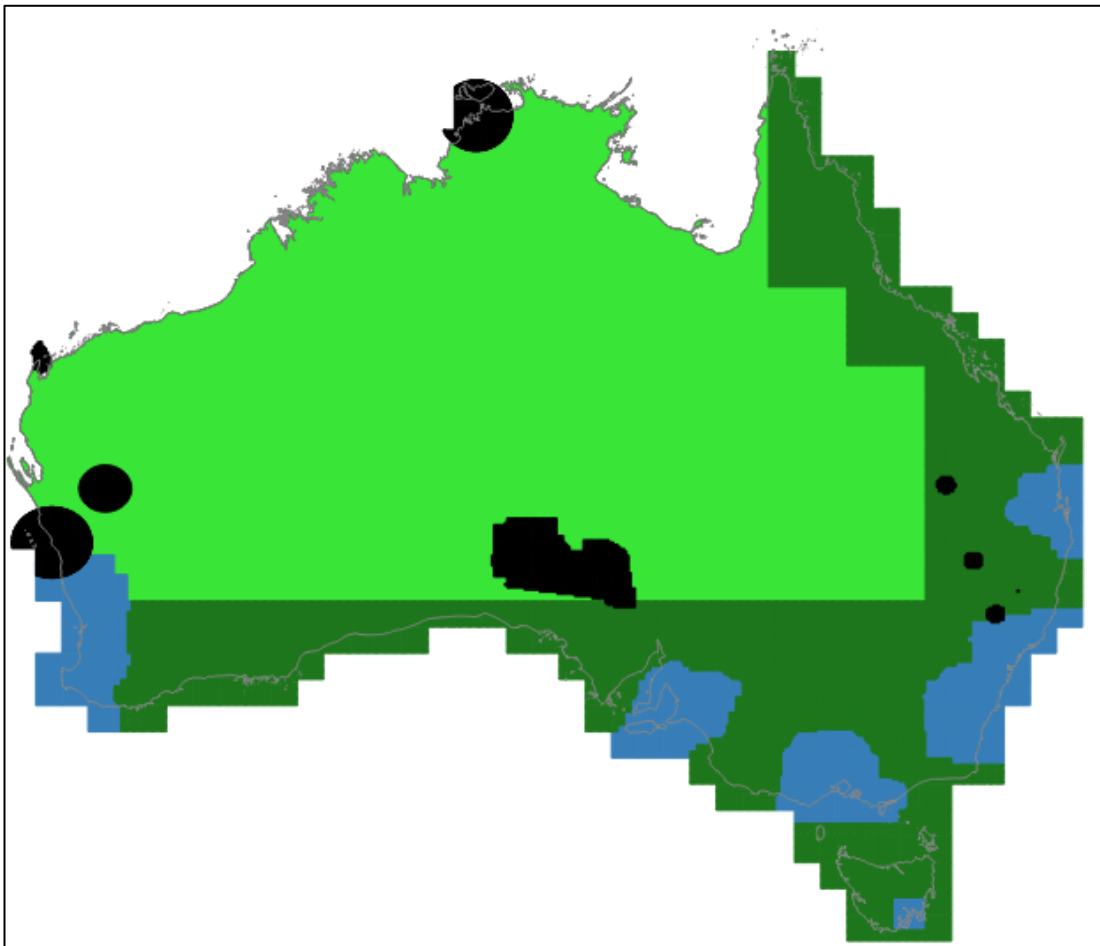


3 GHz

10-100 MHz channel



Apparatus Licence Bands



3 GHz Area Wide Licence

- Remote
3400-4000 MHz
- Rural
3750-3950 MHz
- Metro and Regional
3800-3950 MHz



Licence Types – Area Wide Licence

Apparatus Licence	Area Wide Licence ?	Spectrum Licence
<ul style="list-style-type: none">• Over the counter• Short term• Specific purpose• Per system	<ul style="list-style-type: none">• Over the counter• Short term• Tech neutral• Per area and frequency block• Sites require “registration”	<ul style="list-style-type: none">• Auction• Long term• Tech neutral• Per area and frequency block• Sites require ‘registration’

Licence Types – Area Wide Licence

Step 1

“Licensing”

Area

Frequency (range)

Step 2

“Device Registration”

Record details (location, power, antenna, frequency, emission, azimuth, height etc.)

Requires frequency coordination, device boundary, and other checks

or

if “Registration Exempt”

Operate without registration or device boundary check

Still must meet Licence Conditions

May even require “detailed coordination”

Area Wide Licence Documents

- The “LCD”

[Radiocommunications Licence Conditions \(Area-Wide Licence\) Determination 2020](#)

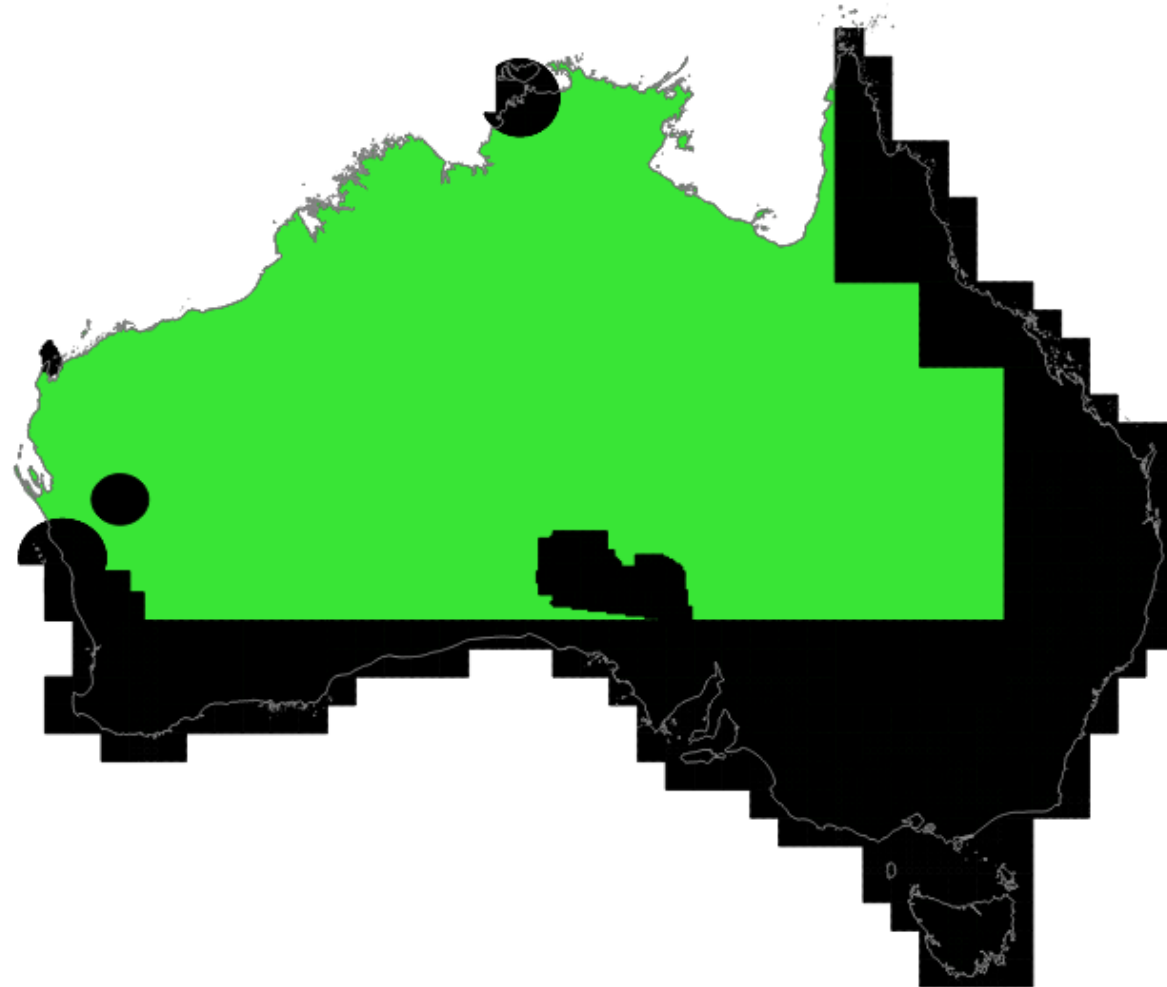
- RALIs called up by the LCD

[RALI MS 47](#)

The above are not simple documents to read and understand. But important to note that they apply irrespective of whether registration is needed or not.

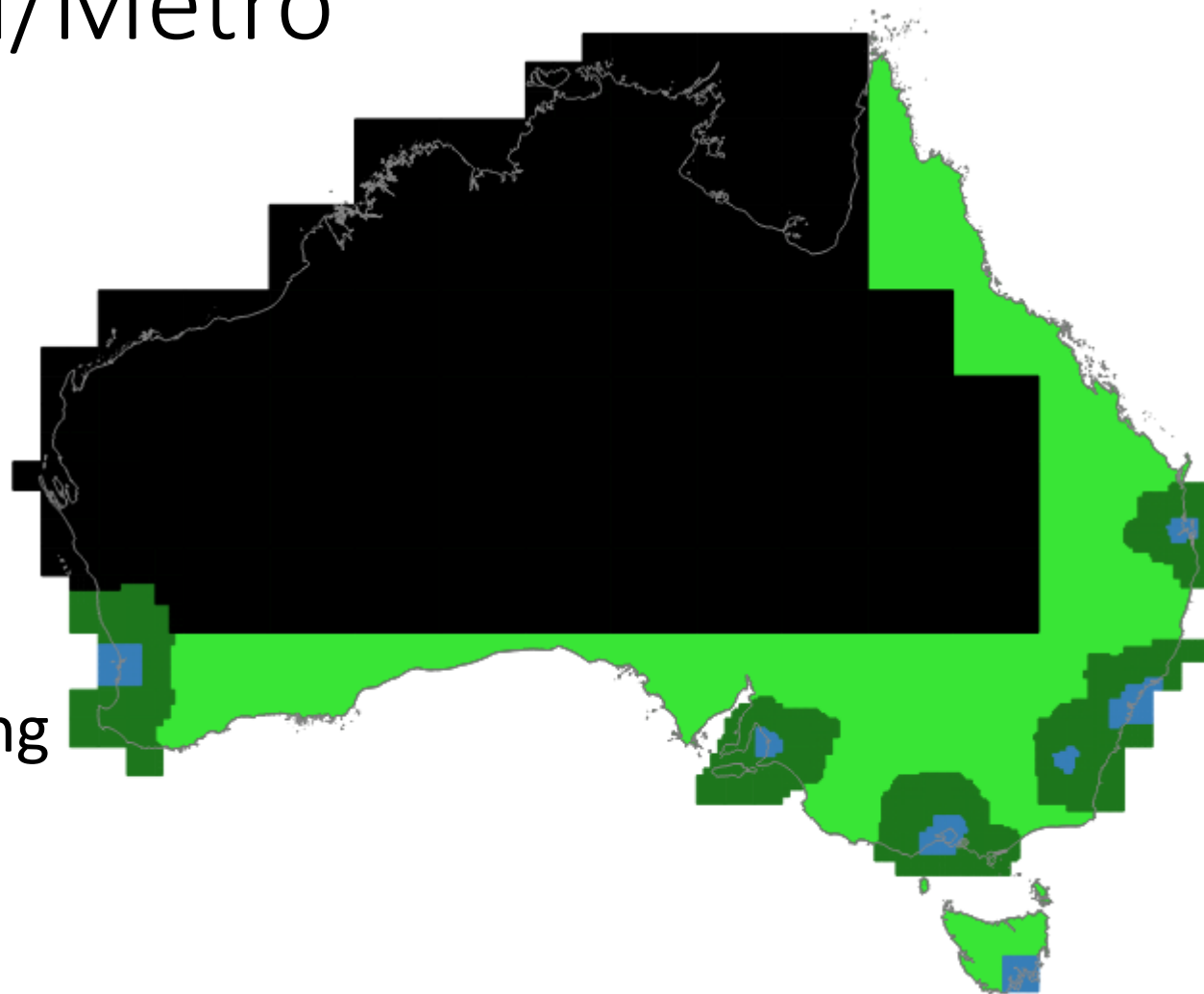
3 GHz Remote

- 3400 to 4000 MHz
- Some opportunities exist
- Over the counter applications open
- 20 MHz limit per application



3 GHz Rural/Regional/Metro

- 3750/3800 to 3950 MHz
- 50 MHz limit per applicant
- Over the counter applications now open
- Stage 1 applications still pending so availability is unknown



3 GHz Risks

An application does not guarantee AWL will be granted

A granted AWL doesn't guarantee right to transmit. Requires either;

A) Device Registration

- Subject to 'Device Boundary', frequency coordination etc.

B) An "exempt" transmitter

- May still require "detailed coordination" within 20 km of other services.

3 GHz coordination

- Incumbent Coordination
 - Point to Multipoint / Point to Point / Radioaltimeters / Earth Station
- Interference mitigation - Synchronisation
- Active Antenna Systems (AAS)
- Total Radiated Power (TRP)

Point to Multipoint

- Remote area PMP
 - Grandfathered operation only
 - No operational changes permitted
- Convert to AWL?
 - Might be possible

3 GHz takeaways

Initial “licensing” requires

- Frequency range
- Area

Later, “registration” requires more detailed information. Only possible if the area is appropriately sized.

Your licence area may need to be larger than your operational area!

More Info

- Main 3 GHz Page

<https://www.acma.gov.au/allocating-34-40-ghz-band>

- Remote 3.4 GHz

<https://www.acma.gov.au/area-wide-apparatus-licensing-34-40-ghz-band>

- Rural/Regional/Metro 3.8 GHz

<https://www.acma.gov.au/area-wide-licence-allocation-38-ghz-band>



COMMS CONNECT

www.comms-connect.com.au

ASSOCIATION PARTNER



MEDIA PARTNER



ORGANISED BY

