

RALI-AA1

Radiocommunications Assignment Licensing Instruction - Amateur (Assigned) 1

Amateur (Assigned) Beacon Station Frequency Assignment Requirements

EXPOSURE DRAFT Version 2.0

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1 Introduction

This document is to be used in conjunction with the Australian Amateur Radio band plan¹.

This document contains technical instructions to facilitate the selection of frequencies for the operation of amateur assigned beacon stations within the amateur service spectrum in Australia.

1.1 Basis for amateur service spectrum planning

The Amateur Radio Service band-plans plans are derived from international plans set down by the International Amateur Radio Union (IARU). Broad segment allocations, particularly for international activity relating to satellites and inter-continental communications, have been defined across all amateur service radio spectrum. The WIA, as the representative body of the IARU in Australia, is responsible for maintaining the amateur service band plans in Australia while ensuring they are always consistent with the Radiocommunications Licence Conditions (Amateur Licence) Determination 2015.

Australian Amateur Service Band plan information is available here:

- <https://www.wia.org.au/members/bandplans/data/>

For amateur assigned beacon stations, it is a requirement that an assignment first be attempted based on the instructions provided in this RALI. The channel plans in this RALI for assigned amateur beacon stations are derived from the Australian amateur radio band plans. They have been designed to minimise interference to both assigned and class licenced amateur radio stations. Where no assignment solution can be found or the proposed amateur assigned beacon station does not fit the service models described in this instruction, then the non-standard assignment process should be followed as described in Frequency assignment practice 'Guideline No. 10 — Application process for amateur beacons and repeaters'² (FAP 10).

Operators of amateur assigned stations should also recognise that class licenced amateur stations are not prevented from operating anywhere in the radio spectrum assigned to the amateur service (in accordance with their own licence conditions). However, class licenced amateur stations have been requested to voluntarily follow the defined amateur radio band plan to manage interference between different activities and in particular amateur assigned stations.

¹ <https://www.wia.org.au/members/bandplans/data/>

² Reference to be added once provided by ACMA

1.2 Grand-fathered frequency allocations

The Amateur band plans have evolved multiple times particularly over the past 30 years. This evolution has occurred in response to changing spectrum access conditions, particularly on spectrum bands where the amateur service has only secondary status in the Australian Radiofrequency Spectrum Plan (ARSP).

Due to the costs and disruption involved in making changes to established systems, the current amateur service practice is that those established legacy stations are not expected to change frequencies when the band plans are revised, unless they:

- a) Are required to due to changes in the Amateur Radio Apparatus LCD.
- b) Wish to take advantage of the improved arrangements offered by a later version of the amateur band plan.
- c) Are planning other changes to services co-located with the legacy service, in which case they are requested to migrate their existing systems to the new channel plan at the same time.

It must be noted that legacy band plans are not relevant when selecting frequencies for new or upgraded services. Should an assigned amateur service station operator seek to amend or change the nature of their service, they should at that time be requested to align their service frequencies with the band plan in force at the time of the change.

2 Amateur (Assigned) Beacon Station Assignment Policy

2.1 Overview

There are two principal types of amateur (assigned) beacon stations that are active within the amateur service. They are:

- Radio propagation warning systems designed to alert amateur radio operators to the presence of anomalous radio propagation conditions, which they can then take advantage of.
- Information beacons designed (typically) to help with training amateur radio operators to receive by ear morse code transmissions.

Where these stations transmit continuously from a fixed location, they are required by ACMA to hold assigned amateur licences.

Note that class licenced amateur stations can operate temporary “beacon like” stations under the automatic operation provisions³ of the amateur class licence, without requiring an amateur assigned beacon licence. Such experiments are conducted typically using narrowband MFSK transmission modes such as WSPR⁴. In these cases, the frequencies to be used should follow the appropriately identified segments as defined in the Australian Amateur Radio band plan.

2.2 LF/MF Propagation Monitoring Beacons 135.7 kHz – 1875 kHz

The amateur service international representative body (IARU) has requested that no continuous operation beacons should be licenced in any of the following amateur bands:

- 135.7 – 137.8 kHz.
- 472 – 479 kHz.
- 1800 – 1875 kHz.

The view of the representative bodies is that there is insufficient spectrum in these bands to support the reservation of a particular frequency for an assigned amateur beacon allocation in addition to the existing class licence use of these frequency bands.

Should an AP receive such an application, it should be referred to the ACMA for action under the non-standard frequency assignment process outlined in FAP 10.

³ <https://www.legislation.gov.au/F2023L01648/latest/text> Part 3 Section 13(4)

⁴ Provide a reference to WSPR here

2.3 HF Propagation Monitoring Beacons – 3.5 – 10.15 MHz

Due to the scarce amount of available spectrum in these bands, globally ⁵ the international amateur service representative body (IARU) has requested administrations to not establish propagation monitoring beacons on the 3.5 – 10.15 MHz bands.

Should an application be made, it should be first referred to the ACMA for consideration under the non-standard assignment process outlined in FAP 10.

2.4 HF Propagation Monitoring Beacons – 14.0 – 28.25 MHz

2.4.1 International Amateur Service HF Propagation Monitoring Beacon Network

Amateur radio HF propagation alert beacon networks are generally limited by the amount of available amateur radio spectrum in this frequency range. To manage this scarce resource, the IARU in conjunction with the Northern California DX Foundation (NCDXF) has led a global project to establish a single network of time-shared beacon stations, so that propagation warnings can be provided whilst only occupying a single 200 Hz morse code frequency in each of the monitored frequency bands.

The IARU-NCDXF beacon network operates on:

Time Shared HF NCDXF Beacon Network Operating Frequencies				
14.100 MHz	18.110 MHz	21.150 MHz	24.930 MHz	28.200 MHz

Each one of the 18 global beacons transmits once every 3 minutes. The beacons operate with variable transmitter power, varying from 100W, 10W, 1W and 0.1W during each transmit cycle. They use omnidirectional vertically polarised antennas.

Within Australia, there is only one beacon licensed as part of this time synchronised network, located in Perth (callsign VK6RBP). There are currently no other timeslots available to support the establishment of any further beacons in this network from Australia.

Given the IARU policy of supporting only one frequency assignment for a time-shared beacon network on these frequency bands, if an application is made then it should first be referred to the ACMA for consideration under the non-standard assignment process outlined in FAP 10.

2.4.2 Domestic Amateur Service HF Propagation Monitoring Beacons

Domestic full time propagation beacon stations outside of the agreed international HF beacon network are not supported by the IARU international planning arrangements.

⁵ Reference IARU policy on NCDXF beacon system

Applications for a new amateur assigned beacon licence in the HF spectrum should follow the non-standard application process outlined in FAP 10 and will be subject to consultation with the amateur radio international representative bodies.

2.5 HF Propagation Monitoring Beacons – 28.250 – 28.280 MHz

Australian amateur radio operators wishing to establish full time propagation warning beacons in the 28.250 – 28.280 MHz band can do so anywhere in Australia.

Allocation of beacon frequencies within this sub-band should consider international allocations. As such, applications for a beacon licence in this frequency band are always required to follow the non-standard application process outlined in FAP 10⁶.

When the IARU representative body is then approached as part of that process, existing allocations both within Australia and in neighbouring countries at least within ITU region 3 and western Region 2 would be considered.

Where practical, beacon frequency assignments should be made on an exclusive frequency basis for beacons operating within Australia, including Australian External Territories and Australian Antarctic territory, to maximise their ability to indicate specific anomalous propagation paths without causing mutual interference. However, exclusivity is not guaranteed for beacon frequency allocations verses existing internationally operating stations.

The following are the assumed typical operating conditions for a beacon in this segment:

Transmission Mode	Emission	Typical Tx Power	Typical Antenna Gain	Polarization
Morse Code	200HA1A	20 Watts Py	3 dBi	Vertical

2.6 HF Information & Training beacons below 30 MHz

Information and training purpose beacons are not normally proposed for operation below 29.700 MHz, for the same spectrum scarcity reasons that apply to propagation monitoring beacons. However, to date one exception has been permitted on the 3.5 MHz amateur band. This service is a low power morse code (CW) “practice beacon” operating on 3699 kHz from Sydney (station call sign VK2RWI). This service, which is audible Australia-wide during the nighttime hours, provides an opportunity for radio amateurs to practice on air CW reception and decoding. Considering the 3.5 MHz frequency range’s relatively poor

⁶ Reference to ACMA FAP to be added here.

long distance (i.e. inter-continental) propagation characteristics it has been able to operate with limited international impact (mostly confined to the South Pacific region).

Due to the nature of the service and the current Australia wide coverage, no other similar services are anticipated. Any new applications to establish a further station undertaking a similar function should follow the non-standard process outlined in FAP 10.

2.7 VHF/UHF/SHF Propagation Monitoring Beacon stations – 50 MHz – 24.25 GHz bands

Amateur beacon stations operating in this part of the radio spectrum are designed to facilitate detection of infrequent / rare anomalous propagation conditions which amateur operators seek to research and utilise for itinerant communications. These are (where possible) aligned with IARU recommendations and international operating convention, noting that the amateur spectrum in the VHF/UHF/SHF bands is not always globally harmonised.

Propagation research and investigation activities typically focus on transient propagation mechanisms such as ionospheric enhancement (both sporadic E as well as enhanced F layer), tropospheric refraction, air/space/man-made object enhancement (meteor, aircraft, and other atmospheric scatter modes) as well as other more predictable propagation mechanisms including Earth - Moon - Earth (moon bounce) communications.

Stations undertaking experiments using these different propagation modes are often working with signals that are below a signal level that supports guaranteed identification by modulation coding on a carrier. As a result, propagation beacons within Australia (on these frequency bands) are designed to operate on an *exclusive frequency* basis. Thus, simple time averaged signal detection becomes sufficient a mechanism to provide identification of which transmitter the signal originated from.

In support of these objectives, frequency assignments for amateur (assigned) propagation warning beacon stations in the 50 MHz -24.25 GHz bands should consider:

1. frequencies are allocated on an exclusive basis across all the Australian continent and external territories. Frequency re-use within amateur assigned beacon stations is therefore not supported within the amateur service.
2. where two beacon stations are within 100-200 km of each other, for them to be assigned alternately from the x.40-x.49 Block A channel range followed by the x.50-x.59 Block B channel range to limit receiver overload for the class licenced stations seeking to receive the beacon transmissions.

Note: Beacons typically operate with 10-20 watts Py and use horizontal polarisation. Should higher power/EIRP be requested then the application should follow the non-standard assignment process outlined in FAP 10.

The detailed typical operating characteristics for these beacons are:

Frequency Range	Transmission Mode	Emission	Typical Tx Power	Typical Antenna Gain	Typical Polarization / Pattern
50 – 1300 MHz	Either Morse Code or MFSK digital data	850HW9W	20 Watts Py	6 dBi	Horizontal Omni-directional
1300 – 24250 MHz	Either Morse Code or MFSK digital data	850HW9W	5 Watts Py	6 – 15 dBi	Horizontal (Omni or directional)

Note: the transmission mode may also use a time-shared mix of Morse Code and MFSK digital data. The MFSK signal may for example, be encoded using weak signal Q65 or JT65 transmission modes.⁷ The occupied bandwidth will depend on the selection of MSK operating modes. For the purposes of frequency assignment, a maximum bandwidth of 850 Hz is set to support a 2kHz channel raster for beacon stations.

2.8 Information Beacon stations – 145 – 146 MHz band

Information and training purpose beacons are envisioned to operate in small numbers in higher density population areas of Australia. These beacons are typically used to provide morse code (CW) training for amateur operators within the service area of the beacon.

They typically transmit a narrowband analogue FM emission (16K0F2A) with a modulated morse code (CW) 600-800Hz audio tone so that they can be received using standard analogue voice FM receiving equipment.

Unlike propagation monitoring beacons, information beacons have no need for frequency exclusivity. As a result, and due to the low demand for these types of services, only one frequency is currently listed in the band plan to support these services. Should there be an application for more than one within 150km of an existing station, it should be treated as non-standard application and be referred to ACMA for advice.

⁷ Q65 and JT65 are weak signal MFSK transmission modes developed by Joe Taylor K1JT

These stations typically use the following operating characteristics:

Transmission Mode	Emission	Typical Tx Power	Typical Antenna Gain	Polarization
Narrowband FM Modulated CW	16K0F2A	20 – 50 Watts Py	6 dBi	Vertical (typical)

2.9 Experimental Beacon Stations

Beacons can also be established for unique propagation studies that do not fit within the proposed beacon frequency allocation plan.

Applications for experimental beacons should follow the non-standard process outlined in FAP 10.

3 Frequency Coordination Procedure

3.1 Propagation Warning Beacon – 28.25 – 28.28 MHz Band

The following are the process steps to select a beacon frequency in this band.

1. It is recommended that the applicant should, prior to making the application to the AP, have first consulted with the IARU representative organisation in Australia to discuss international coordination aspects of the proposed service and seek advice on frequency options that could be considered.
2. The applicant can then provide the frequency recommendations to the AP who will then select a final frequency after considering the site compatibility checks with other services collocated with the proposed beacon service transmitter.
3. Proceed to submit the application for the new assigned amateur beacon station.

3.2 Propagation Warning Beacon – 50 MHz – 24048 MHz Bands

The allocation process within these frequency ranges is as follows:

1. Assemble a list from the ACMA Register of Radiocommunications Licences (RRL) of all existing Amateur Radio beacons located within the desired spectrum band
2. Note for each licence whether the existing service is in channel block A or channel block B from the respective channel list in section 4 of this document.
3. If there is another beacon <100 km away in the same state:
 - a. then select a channel for the new service that is (where possible) >4 kHz away from the existing service and within the same channel block.
 - b. If there are no channels available >4 kHz away in the same block, then select a channel from the alternate channel block.
4. If there is another beacon between 100-400 km away in the same or adjacent state (in the case of border regions between ACT, NSW, VIC or VIC/SA or QLD/NSW):
 - a. Determine which channel block that service is active within.
 - b. Select a channel where possible that is on the opposite channel block within the same state (to avoid as far as practical desensitisation of class licenced amateur receivers)
5. If no suitable channels can be identified in steps 3 or 4 then simply work to maximise the frequency separation between existing assignments within the state blocks and the new service.
6. Once a target frequency has been selected, the AP should determine if the new beacon transmitter will be co-sited with other amateur and non-amateur services and consider using best engineering practice any inter-modulation or harmonic relationship problems that could arise and either;
 - a. Confirm there are none, therefore allowing submission of the application, or
 - b. If a site management problem has been identified, work with the applicant within the available range of channels for a given state to identify if there is an alternate frequency available that would avoid the site coordination issue that has been identified.

- c. Where no options for a frequency allocation can be identified, then follow the non-standard process outlined in FAP 10.

3.3 Information / Training Beacon – 145 MHz Band

The allocation process for this service in this band is as follows:

1. Determine if there are any other assigned amateur stations allocated to the frequency 145.250 MHz within 300 km of the proposed site by consulting the ACMA RRL⁸
2. If there are no existing allocations, and where the beacon transmitter is to be collocated with other services, carry out an intermodulation assessment using best engineering practice. Reference should also be made to any conditions described for these services in RALI AA03 which deals specifically with the amateur 144-148 MHz band.
3. Should the intermodulation assessment or channel reuse assessment fail, the application should follow the non-standard process outlined in FAP 10.
4. Otherwise proceed to submit an application for the new amateur information / training beacon station.

⁸ ACMA Radiocommunications Register of Licences

4 APPENDIX A - Beacon Channel Plans

4.1 Propagation Warning Beacon Stations

Beacon frequencies below 50MHz are allocated on a 1kHz channel raster and use 200Hz wide modulation modes only.

Beacon frequencies above 50MHz are allocated geographically by state on 2kHz intervals starting from the lowest frequency defined for each state. (e.g., Antarctica’s first beacon would operate on XXX.400 MHz). The spacing is to assist the receiving stations improve their likelihood of being able to discriminate between signals of widely varying signal strength.

4.1.1 28 MHz Band Beacon Channel Plan

Australian beacon stations in this segment should be assigned one of the following possible channels.

28 MHz Beacon Channels		
28.250	28.260	28.270
28.251	28.261	28.271
28.252	28.262	28.272
28.253	28.263	28.273
28.254	28.264	28.274
28.255	28.265	28.275
28.256	28.266	28.276
28.257	28.267	28.277
28.258	28.268	28.278
28.259	28.269	28.279

4.1.2 50 MHz Band Beacon Channel Plan

Beacon frequency allocation plan:

50 MHz Beacon Channel Plan					
State	Channels (MHz)				
Antarctica	50.400	50.402	50.404	50.406	50.408
ACT	50.410	50.412	50.414	50.416	50.418
NSW	50.420	50.422	50.424	50.426	50.428
VIC	50.430	50.432	50.434	50.436	50.438
QLD	50.440	50.442	50.444	50.446	50.448
SA	50.450	50.452	50.454	50.456	50.458
WA	50.460	50.462	50.464	50.466	50.468
TAS	50.470	50.472	50.474	50.476	50.478
NT	50.480	50.482	50.484	50.486	50.488
Ext Territories	50.490	50.492	50.494	50.496	50.498

Note: The Amateur Service has previously allocated beacons on the following frequency segments:

- 50.280 - 50.320 MHz.
- 52.400 - 52.600 MHz.

The Amateur Service band plan no longer supports beacon operation in these segments. While existing stations can continue, the operators of those stations are encouraged to apply for a new frequency allocation.

Legacy beacons in the 52.4-52.5 MHz band (used prior to expansion of the 52-54 MHz amateur service allocation to 50-54 MHz) should also be re-tuned as and when the operators seek to upgrade their equipment. No new beacons should be assigned in this legacy sub-band.

4.1.3 144 MHz Band Beacon Channel Plan

144 MHz Beacon Channel Plan						
State	Channels (MHz) - Primary					
Antarctica	Beacon Block A	144.400	144.402	144.404	144.406	144.408
ACT		144.410	144.412	144.414	144.416	144.418
NSW		144.420	144.422	144.424	144.426	144.428
VIC		144.430	144.432	144.434	144.436	144.438
QLD		144.440	144.442	144.444	144.446	144.448
SA		144.450	144.452	144.454	144.456	144.458
WA		144.460	144.462	144.464	144.466	144.468
TAS		144.470	144.472	144.474	144.476	144.478
NT		144.480	144.482	144.484	144.486	
Ext Territories			144.492	144.494	144.496	144.498
Channels (MHz) - Secondary						
Antarctica	Beacon Block B	144.500	144.502	144.504	144.506	144.508
ACT		144.510	144.512	144.514	144.516	144.518
NSW		144.520	144.522	144.524	144.526	144.528
VIC		144.530	144.532	144.534	144.536	144.538
QLD		144.540	144.542	144.544	144.546	144.548
SA		144.550	144.552	144.554	144.556	144.558
WA		144.560	144.562	144.564	144.566	144.568
TAS		144.570	144.572	144.574	144.576	144.578
NT		144.580	144.582	144.584	144.586	144.588
Ext Territories		144.590	144.592	144.594	144.596	144.598

NOTE 1: The 144 MHz band beacon channel plan has specifically excluded the use of 144.488 and 144.490 MHz from the channel plan in support of existing global class licenced amateur service weak signal activity that is present on 144.489 MHz.

4.1.4 432 MHz Band Beacon Channel Plan

432 MHz Beacon Channel Plan						
State	Channels (MHz) - Primary					
Antarctica	Beacon Block A	432.400	432.402	432.404	432.406	432.408
ACT		432.410	432.412	432.414	432.416	432.418
NSW		432.420	432.422	432.424	432.426	432.428
VIC		432.430	432.432	432.434	432.436	432.438
QLD		432.440	432.442	432.444	432.446	432.448
SA		432.450	432.452	432.454	432.456	432.458
WA		432.460	432.462	432.464	432.466	432.468
TAS		432.470	432.472	432.474	432.476	432.478
NT		432.480	432.482	432.484	432.486	432.498
Ext Territories		432.580	432.492	432.494	432.496	432.498
Channels (MHz) - Secondary						
Antarctica	Beacon Block B	432.500	432.502	432.504	432.506	432.508
ACT		432.510	432.512	432.514	432.516	432.518
NSW		432.520	432.522	432.524	432.526	432.528
VIC		432.530	432.532	432.534	432.536	432.538
QLD		432.540	432.542	432.544	432.546	432.548
SA		432.550	432.552	432.554	432.556	432.558
WA		432.560	432.562	432.564	432.566	432.568
TAS		432.570	432.572	432.574	432.576	432.578
NT		432.580	432.582	432.584	432.586	432.588
Ext Territories		432.590	432.592	432.594	432.596	432.598

4.1.5 1296 MHz Band Beacon Channel Plan

1296 MHz Beacon Channel Plan						
State	Channels (MHz) - Primary					
Antarctica	Beacon Block A	1296.400	1296.402	1296.404	1296.406	1296.408
ACT		1296.410	1296.412	1296.414	1296.416	1296.418
NSW		1296.420	1296.422	1296.424	1296.426	1296.428
VIC		1296.430	1296.432	1296.434	1296.436	1296.438
QLD		1296.440	1296.442	1296.444	1296.446	1296.448
SA		1296.450	1296.452	1296.454	1296.456	1296.458
WA		1296.460	1296.462	1296.464	1296.466	1296.468
TAS		1296.470	1296.472	1296.474	1296.476	1296.478
NT		1296.480	1296.482	1296.484	1296.486	1296.498
Ext		1296.580	1296.492	1296.494	1296.496	1296.498
Channels (MHz) - Secondary						
Antarctica	Beacon Block B	1296.500	1296.502	1296.504	1296.506	1296.508
ACT		1296.510	1296.512	1296.514	1296.516	1296.518
NSW		1296.520	1296.522	1296.524	1296.526	1296.528
VIC		1296.530	1296.532	1296.534	1296.536	1296.538
QLD		1296.540	1296.542	1296.544	1296.546	1296.548
SA		1296.550	1296.552	1296.554	1296.556	1296.558
WA		1296.560	1296.562	1296.564	1296.566	1296.568
TAS		1296.570	1296.572	1296.574	1296.576	1296.578
NT		1296.580	1296.582	1296.584	1296.586	1296.588
Ext		1296.590	1296.592	1296.594	1296.596	1296.598

4.1.6 2403 MHz Band Beacon Channel Plan

2403 MHz Beacon Channel Plan						
State	Channels (MHz) - Primary					
Antarctica	Beacon Block A	2403.400	2403.402	2403.404	2403.406	2403.408
ACT		2403.410	2403.412	2403.414	2403.416	2403.418
NSW		2403.420	2403.422	2403.424	2403.426	2403.428
VIC		2403.430	2403.240	2403.434	2403.436	2403.438
QLD		2403.440	2403.442	2403.444	2403.446	2403.448
SA		2403.450	2403.452	2403.454	2403.456	2403.458
WA		2403.460	2403.462	2403.464	2403.466	2403.468
TAS		2403.470	2403.472	2403.474	2403.476	2403.478
NT		2403.480	2403.482	2403.484	2403.486	2403.498
Ext		2403.580	2403.492	2403.494	2403.496	2403.498
Channels (MHz) - Secondary						
Antarctica	Beacon Block B	2403.500	2403.502	2403.504	2403.506	2403.508
ACT		2403.510	2403.512	2403.514	2403.516	2403.518
NSW		2403.520	2403.522	2403.524	2403.526	2403.528
VIC		2403.530	2403.532	2403.534	2403.536	2403.538
QLD		2403.540	2403.542	2403.544	2403.546	2403.548
SA		2403.550	2403.552	2403.554	2403.556	2403.558
WA		2403.560	2403.562	2403.564	2403.566	2403.568
TAS		2403.570	2403.572	2403.574	2403.576	2403.578
NT		2403.580	2403.582	2403.584	2403.586	2403.588
Ext		2403.590	2403.592	2403.594	2403.596	2403.598

4.1.7 3398 MHz Band Beacon Channel Plan

3398 MHz Beacon Channel Plan						
State	Channels (MHz) - Primary					
Antarctica	Beacon Block A	3398.400	3398.402	3398.404	3398.406	3398.408
ACT		3398.410	3398.412	3398.414	3398.416	3398.418
NSW		3398.420	3398.422	3398.424	3398.426	3398.428
VIC		3398.430	3398.340	3398.434	3398.436	3398.438
QLD		3398.440	3398.442	3398.444	3398.446	3398.448
SA		3398.450	3398.452	3398.454	3398.456	3398.458
WA		3398.460	3398.462	3398.464	3398.466	3398.468
TAS		3398.470	3398.472	3398.474	3398.476	3398.478
NT		3398.480	3398.482	3398.484	3398.486	3398.498
Ext		3398.580	3398.492	3398.494	3398.496	3398.498
Channels (MHz) - Secondary						
Antarctica	Beacon Block B	3398.500	3398.502	3398.504	3398.506	3398.508
ACT		3398.510	3398.512	3398.514	3398.516	3398.518
NSW		3398.520	3398.522	3398.524	3398.526	3398.528
VIC		3398.530	3398.532	3398.534	3398.536	3398.538
QLD		3398.540	3398.542	3398.544	3398.546	3398.548
SA		3398.550	3398.552	3398.554	3398.556	3398.558
WA		3398.560	3398.562	3398.564	3398.566	3398.568
TAS		3398.570	3398.572	3398.574	3398.576	3398.578
NT		3398.580	3398.582	3398.584	3398.586	3398.588
Ext		3398.590	3398.592	3398.594	3398.596	3398.598

4.1.8 5760 MHz Band Beacon Channel Plan

5760 MHz Beacon Channel Plan						
State	Channels (MHz) - Primary					
Antarctica	Beacon Block A	5760.400	5760.402	5760.404	5760.406	5760.408
ACT		5760.410	5760.412	5760.414	5760.416	5760.418
NSW		5760.420	5760.422	5760.424	5760.426	5760.428
VIC		5760.430	5760.576	5760.434	5760.436	5760.438
QLD		5760.440	5760.442	5760.444	5760.446	5760.448
SA		5760.450	5760.452	5760.454	5760.456	5760.458
WA		5760.460	5760.462	5760.464	5760.466	5760.468
TAS		5760.470	5760.472	5760.474	5760.476	5760.478
NT		5760.480	5760.482	5760.484	5760.486	5760.498
Ext		5760.580	5760.492	5760.494	5760.496	5760.498
Channels (MHz) - Secondary						
Antarctica	Beacon Block B	5760.500	5760.502	5760.504	5760.506	5760.508
ACT		5760.510	5760.512	5760.514	5760.516	5760.518
NSW		5760.520	5760.522	5760.524	5760.526	5760.528
VIC		5760.530	5760.532	5760.534	5760.536	5760.538
QLD		5760.540	5760.542	5760.544	5760.546	5760.548
SA		5760.550	5760.552	5760.554	5760.556	5760.558
WA		5760.560	5760.562	5760.564	5760.566	5760.568
TAS		5760.570	5760.572	5760.574	5760.576	5760.578
NT		5760.580	5760.582	5760.584	5760.586	5760.588
Ext		5760.590	5760.592	5760.594	5760.596	5760.598

4.1.9 10368 MHz Band Beacon Channel Plan

10368 MHz Beacon Channel Plan						
State	Channels (MHz) - Primary					
Antarctica	Beacon Block A	10368.400	10368.402	10368.404	10368.406	10368.408
ACT		10368.410	10368.412	10368.414	10368.416	10368.418
NSW		10368.420	10368.422	10368.424	10368.426	10368.428
VIC		10368.430	10368.104	10368.434	10368.436	10368.438
QLD		10368.440	10368.442	10368.444	10368.446	10368.448
SA		10368.450	10368.452	10368.454	10368.456	10368.458
WA		10368.460	10368.462	10368.464	10368.466	10368.468
TAS		10368.470	10368.472	10368.474	10368.476	10368.478
NT		10368.480	10368.482	10368.484	10368.486	10368.498
Ext		10368.580	10368.492	10368.494	10368.496	10368.498
Channels (MHz) - Secondary						
Antarctica	Beacon Block B	10368.500	10368.502	10368.504	10368.506	10368.508
ACT		10368.510	10368.512	10368.514	10368.516	10368.518
NSW		10368.520	10368.522	10368.524	10368.526	10368.528
VIC		10368.530	10368.532	10368.534	10368.536	10368.538
QLD		10368.540	10368.542	10368.544	10368.546	10368.548
SA		10368.550	10368.552	10368.554	10368.556	10368.558
WA		10368.560	10368.562	10368.564	10368.566	10368.568
TAS		10368.570	10368.572	10368.574	10368.576	10368.578
NT		10368.580	10368.582	10368.584	10368.586	10368.588
Ext		10368.590	10368.592	10368.594	10368.596	10368.598

4.1.10 24048 MHz Band Beacon Channel Plan

24048 MHz Beacon Channel Plan						
State	Channels (MHz) - Primary					
Antarctica	Beacon Block A	24048.400	24048.402	24048.404	24048.406	24048.408
ACT		24048.410	24048.412	24048.414	24048.416	24048.418
NSW		24048.420	24048.422	24048.424	24048.426	24048.428
VIC		24048.430	24048.240	24048.434	24048.436	24048.438
QLD		24048.440	24048.442	24048.444	24048.446	24048.448
SA		24048.450	24048.452	24048.454	24048.456	24048.458
WA		24048.460	24048.462	24048.464	24048.466	24048.468
TAS		24048.470	24048.472	24048.474	24048.476	24048.478
NT		24048.480	24048.482	24048.484	24048.486	24048.498
Ext		24048.580	24048.492	24048.494	24048.496	24048.498
Channels (MHz) - Secondary						
Antarctica	Beacon Block B	24048.500	24048.502	24048.504	24048.506	24048.508
ACT		24048.510	24048.512	24048.514	24048.516	24048.518
NSW		24048.520	24048.522	24048.524	24048.526	24048.528
VIC		24048.530	24048.532	24048.534	24048.536	24048.538
QLD		24048.540	24048.542	24048.544	24048.546	24048.548
SA		24048.550	24048.552	24048.554	24048.556	24048.558
WA		24048.560	24048.562	24048.564	24048.566	24048.568
TAS		24048.570	24048.572	24048.574	24048.576	24048.578
NT		24048.580	24048.582	24048.584	24048.586	24048.588
Ext		24048.590	24048.592	24048.594	24048.596	24048.598

4.1.11 Amateur Spectrum Bands Above 24.25 GHz

Band plans and channel plans for the amateur radio spectrum available above 24.25GHz have not yet been defined.

Applications for beacons above 24.5 GHz should follow the non-standard process outlined in FAP 10.

4.2 Information / Training Beacon Stations

4.2.1 145 MHz Band Beacon Channel Plan

Only one frequency is made available in the Amateur Radio band plan for this type of service. It is rarely used and as such has not required further frequency capacity to be made available.

Mode	TX Frequency	Polarization
FM with audio tone Modulated Morse code (CW)	145.250 MHz	Vertical (typical)

Due to changes in the 144 – 148 MHz band plan in 2017, the above is the new frequency to be used for such services. Current services, however, remain on their legacy operating frequency and can do so until the owner/operator elects to vary the licence authorising operation of the station.

The following legacy frequencies remain in operation but are not to be assigned for new services.

- 145.650 MHz- Sydney, Melbourne, Adelaide.
- 145.575 MHz – Perth.

Should a new beacon be requested in an area already serviced, the non-standard frequency process outlined in FAP 10 should be followed.

5 APPENDIX B - Distribution Rights

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6 APPENDIX C - Document Control

Date	Version	Change Description
6-May 2023	0.1	First Draft Beacon only version
9-March-2024	1.0	EXPOSURE DRAFT prepared for public release

Feedback on this document can be made by contacting the WIA National Office via email with the subject "Attention Repeater Coordinator".

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