Frequency assignment practice

Guideline No. 9 – Assignment of frequencies for Citizens Band Radio Service (CBRS) repeaters

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# Assignment of frequencies for CBRS repeaters

## Purpose

This guideline provides information to assist with the assignment and licensing of frequencies for Citizens Band Radio Service (CBRS) repeaters. In addition to this guideline, reference should be made to the [Land mobile licence](https://www.acma.gov.au/licences/land-mobile-licence) webpage, which provides an overview of the licensing arrangements applicable to the land mobile service.

Requests for exemptions to the arrangements detailed in this document, or licence applications that appear to fall outside the framework, should be referred to the ACMA at [FACPolicyExemptions@acma.gov.au](mailto:FACPolicyExemptions@acma.gov.au).

## Background

A CBRS repeater is defined as a station operating at a fixed location for the reception and automatic re‑transmission of radio signals from CB stations on a channel mentioned in item 5 or 8 in Schedule 1 of the [Radiocommunications (Citizen Band Radio Stations) Class Licence 2015](https://www.legislation.gov.au/F2015L00876/latest/text) (the class licence) and is operated under an apparatus licence.

CBRS repeaters are generally operated from fixed locations but can also be operated on an area-wide basis subject to the conditions of the licence being met.

## Service model

The typical characteristics for a CBRS repeater are a 5 Watt transmitter into a collinear antenna with a maximum EIRP of 21 Watts. However, other configurations may be utilised provided that the maximum EIRP limit is not exceeded. CBRS repeaters may be assigned on either 12.5 or 25 kHz channels. Channel arrangements are specified in the class licence and in appendix 1 of this document.

## Coordination requirements

There are 2 coordination scenarios that need to be considered when deciding which frequency pair to assign for a repeater service. The first is the co-channel or ‘in band’ coordination and the second is the intermodulation check or ‘out of band’ analysis.

The requirements for in band coordination are:

Except in the case of channel 5/35 (the emergency channel), a minimum co channel reuse distance of 100 km applies to general purpose repeaters.

In the case of channel 5/35, a minimum co channel reuse distance of 75 km applies.

The co channel reuse distance applies whenever there is any co channel overlap.

There is no specified distance separation requirement for adjacent channel services. However, general purpose repeaters cannot be co-sited. General purpose repeaters should be located so that they serve a substantially different area (see Note 1).

An emergency channel repeater may be co-sited with a general purpose repeater.

The requirements for out of band coordination (intermodulation checks) are specified in section 6.5 of [RALI LM8](https://www.acma.gov.au/sites/default/files/2019-11/RALI%20LM8%20-%20Frequency%20Assignment%20Requirements%20for%20the%20Land%20Mobile%20Service%20-%202016_1.pdf).

### Note 1

A substantially different area is defined as:

where 2 general purpose repeaters have no coverage overlap, or

having some coverage overlap but are providing coverage to different population centres or townships.

## Licence conditions

General licence conditions applicable to CBRS repeater stations can be found in Part 6 of the [Radiocommunications Licence Conditions (Land Mobile Licence) Determination 2015](https://www.legislation.gov.au/F2015L00831/latest/text).

Specific conditions relating to individual licences will be attached to the licence record.

## Call signs

Call signs are a unique series of letters and numbers allocated to a radiocommunications licence to identify a station. The call sign for a CBRS repeater should follow the format detailed in Table 1 below. Applicants, or their accredited person, should search the [Register of Radiocommunications Licences](https://web.acma.gov.au/pls/radcom/register_search.main_page) (RRL) to check that the call sign that they wish to use is not already in use by a CBRS repeater.

Call signs should be used for all on-air communications, including testing.

The licensee of a land mobile station (CB repeater station) must use the call sign allocated to them by the ACMA.

CBRS repeater call sign template

|  |  |
| --- | --- |
| aaamm | CB repeater call sign template |
| aaa | The 3 characters should be chosen to be representative of the location or site of the repeater. |
| mm | The 2 digits must be the channel number of the repeater. |

## More information

Contact our Customer Service Centre on 1300 850 115 or [info@acma.gov.au](mailto:info@acma.gov.au) for further information.

# Appendix 1

Channel arrangements for CBRS repeaters

|  |  |  |  |
| --- | --- | --- | --- |
| Transmit frequency (MHz) | | Receive frequency (MHz) | |
| 476.425 – Channel 1 | 476.4375 – Channel 41 | 477.1 75 – Channel 31 | 477.1875 – Channel 71 |
| 476.450 – Channel 2 | 476.4625 – Channel 42 | 477.200 – Channel 32 | 477.2125 – Channel 72 |
| 476.475 – Channel 3 | 476.4875 – Channel 43 | 477.225 – Channel 33 | 477.2375 – Channel 73 |
| 476.500 – Channel 4 | 476.5125 – Channel 44 | 477.250 – Channel 34 | 477.2625 – Channel 74 |
| 476.525 – Channel 5\* | 476.5375 – Channel 45 | 477.275 – Channel 35\* | 477.2875 – Channel 75 |
| 476.550 – Channel 6 | 476.5625 – Channel 46 | 477.300 – Channel 36 | 477.3125 – Channel 76 |
| 476.575 – Channel 7 | 476.5875 – Channel 47 | 477.325 – Channel 37 | 477.3375 – Channel 77 |
| 476.600 – Channel 8 | 476.6125 – Channel 48 | 477.350 – Channel 38 | 477.3625 – Channel 78 |

\* Emergency channel pair – these channels are for emergency communications use only. For further information, refer to the [Radiocommunications (Citizen Band Radio Stations) Class Licence 2015](https://www.legislation.gov.au/F2015L00876/latest/text).