

UHF CB

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UHF CB is a class-licensed citizen's band radio service authorised by the governments of Australia, New Zealand, Vanuatu, and Malaysia in the UHF 477 MHz band.^[1] UHF CB provides 77 channels, including 32 channels (16 output, 16 input) allocated to repeater stations. It is similar in concept to 27 MHz CB Radio in the United States, Australia, and New Zealand.

Class licensing means that users do not have to apply for a licence or pay a licence fee however they must comply with the regulations of the class licence.^[2]

User equipment designs are similar to commercial land mobile two-way radio except the maximum legal output power is 5 Watts. External antennas are permitted and commercially manufactured antennas have gains as high as 12 dB. Handheld transceivers (walkie talkies) are permitted and have transmit power from 500 mW to 5 W (full legal power) and are relatively cheap compared to full-sized transceivers.

It is illegal to use non-standard radios purchased from overseas because they interfere with licensed land-mobile services. This includes overseas personal radio service devices because they do not share the same band plan, power output and channels as UHF CB. Care must be taken when importing radios from overseas to ensure they comply with local regulations. Approved radios are identified by an Australian standards C Tick usually found on the tag or sticker of the radio.

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Scan

Many UHF CB radios allow the user to scan channels to find a conversation. Several different scan modes may be provided:

Open Scan scans all 80 channels to find an active conversation. Some radios allow skipping selected channels when scanning.

Group Scan scans a small number of selected channels. For example, a caravanner travelling around the country may choose to group scan Channel 40 (Road Channel), 18 (Caravan Channel) and 5 (Emergency Channel) so they will hear any conversations relating to their travels.

Priority Scan allows selection of a "priority" channel whilst scanning a handful of selected channels. This could be useful in a convoy of cars where vehicles can set their own convoy channel as a priority channel whilst scanning the designated road channel for traffic updates, if a member from their convoy speaks, the radio will always switch back to the priority channel even if someone is speaking on another channel.

Selcall

Selective calling (Selcall) allows a radio to call another radio using a sequence of tones, usually presented to the user as a series of 5 numbers. UHF CB radios can be set to be completely silent until they receive a series of tones matching a pre-programmed sequence. Radios which have this feature usually indicate that a call has been received by emitting a number of beeps and by opening the squelch. The popularity of selcall has dropped since the introduction of CTCSS.

CTCSS

Continuous tone coded squelch system (CTCSS) allows a group of radios set with the same tone to converse on a channel without hearing other radios using that channel. CTCSS can be used to silence a radio until another radio with the same tone transmits. This allows monitoring of a channel for transmissions from radios set with the same tone without hearing other conversations that use different or even no tone.

The use of CTCSS is not permitted on UHF CB repeaters or the designated emergency channels.

Repeaters

Repeaters extend the range of transmission by receiving and automatically rebroadcasting a transmission using an antenna located in a high location, normally the top of a mountain, tall building or radio tower. Sometimes a transmission range of over 100 kilometres (60 miles) can be achieved through the use of a repeater. Repeaters are on channels 1–8 and 41–48 and the duplex button should be pressed to access the repeater.^[3]

Signage

It is common practice to install signs at the rear of camper vans and caravans, worksites, roadworks, regional highways, national parks and heavy vehicle checking stations to advertise a UHF channel to communicate on. For example, during the widening of the M1 Pacific Motorway between Sydney and Newcastle, contractors installed "UHF 29" signs at the entry point to each worksite.

Channel use

Legally restricted channels

The following channels are legislated as a part of the ACMA UHF CB Class Licence.^[4]

- Channel 5 and 35 are the designated emergency channels, and are not to be used except in an emergency. To make an emergency call, switch your radio to Channel 5 with duplex on, if there is no response, try again with duplex off.
- Channel 11 is the 'call channel' and is only to be used for initiating calls with another person, who should quickly organise another vacant channel to continue their discussion on.
- Channel 22 and 23 are only to be used for telemetry and telecommand, packet data and voice transmission are not allowed.
- Channel 61, 62 and 63 are reserved for future allocation and transmission on these channels is not allowed.

Channels used by consensus

The following channels are not legislated as a part of the class licence however are used for the following purposes by consensus.

- Channel 10 is typically used by 4WD clubs when in a convoy and in national parks. This channel is used to avoid interfering with road safety communications on channel 29 or 40. If you are not in a convoy it is recommended you use 29 or 40 depending on the road you are using.
- Channel 18 is the campers and caravan convoy channel typically used by travellers.
- Channel 29 is the road safety channel on the M1 Pacific Motorway and Highway between Tweed Heads and Newcastle in NSW. It is used due to one transport company who traveled this road who always used this channel. Other drivers switched from 40 to 29 to talk to them and it became a custom. This custom prevails even though the original transport company no longer exists.
- Channel 40 is the primary road safety channel Australia-wide, most commonly used by trucks including pilot/escort vehicles for oversized loads.^{[5][6]}

Users should be aware that UHF CB channels 31 to 38 and 71 to 78 are the 'input' channels for repeaters. Users should avoid using these channels to avoid interfering with repeaters. If you wish to use a repeater, switch to 1–8 or 41–48 and press the duplex button.

UHF CB band plan

Expansion to 80 channels

On 27 May 2011 the channel spacing on UHF CB was changed, allowing the band to expand from 40 channels to 80 channels.^[7] Due to data channels 22 and 23 occupying 25 kHz bandwidth, the expansion effectively allows the use of 77 channels, as channels 61, 62 and 63 are reserved.

Current UHF CB band plan (80 Channels)

General chat channels are used in simplex mode, repeater channels must be used in duplex mode. If you are not using a repeater it is recommended to choose a "general chat" channel.

Channel Name:	Frequency:	Purpose:	Frequency Spacing:
Channel 1	476.4250	Repeater Channel	12.5 kHz
Channel 2	476.4500	Repeater Channel	12.5 kHz
Channel 3	476.4750	Repeater Channel	12.5 kHz
Channel 4	476.5000	Repeater Channel	12.5 kHz
Channel 5	476.5250	Emergency Repeater Output	12.5 kHz
Channel 6	476.5500	Repeater Channel	12.5 kHz
Channel 7	476.5750	Repeater Channel	12.5 kHz
Channel 8	476.6000	Repeater Channel	12.5 kHz
Channel 9	476.6250	General Chat Channel	12.5 kHz
Channel 10	476.6500	4WD Clubs or Convoys and National Parks.	12.5 kHz
Channel 11	476.6750	Call Channel	12.5 kHz
Channel 12	476.7000	General Chat Channel	12.5 kHz
Channel 13	476.7250	General Chat Channel	12.5 kHz
Channel 14	476.7500	General Chat Channel	12.5 kHz
Channel 15	476.7750	General Chat Channel	12.5 kHz
Channel 16	476.8000	General Chat Channel	12.5 kHz
Channel 17	476.8250	General Chat Channel	12.5 kHz
Channel 18	476.8500	Caravanners and Campers Convoy Channel	12.5 kHz
Channel 19	476.8750	General Chat Channel	12.5 kHz
Channel 20	476.9000	General Chat Channel	12.5 kHz
Channel 21	476.9250	General Chat Channel	12.5 kHz
Channel 22	476.9500	Telemetry and Telecommand Only (No Voice or Data)	25 kHz
Channel 23	476.9750	Telemetry and Telecommand Only (No Voice or Data)	25 kHz
Channel 24	477.0000	General Chat Channel	12.5 kHz
Channel 25	477.0250	General Chat Channel	12.5 kHz
Channel 26	477.0500	General Chat Channel	12.5 kHz
Channel 27	477.0750	General Chat Channel	12.5 kHz
Channel 28	477.1000	General Chat Channel	12.5 kHz
Channel 29	477.1250	Road safety channel Pacific Hwy/Mwy between Brisbane (QLD) and Sydney (NSW)	12.5 kHz
Channel 30	477.1500	General Chat Channel	12.5 kHz
Channel 31	477.1750	Repeater Input	12.5 kHz

Channel Name:	Frequency:	Purpose:	Frequency Spacing:
Channel 32	477.2000	Repeater Input	12.5 kHz
Channel 33	477.2250	Repeater Input	12.5 kHz
Channel 34	477.2500	Repeater Input	12.5 kHz
Channel 35	477.2750	Emergency repeater input	12.5 kHz
Channel 36	477.3000	Repeater Input	12.5 kHz
Channel 37	477.3250	Repeater Input	12.5 kHz
Channel 38	477.3500	Repeater Input	12.5 kHz
Channel 39	477.3750	General Chat Channel	12.5 kHz
Channel 40	477.4000	Road safety channel Australia Wide	12.5 kHz
Channel 41	476.4375	Repeater Channel	12.5 kHz
Channel 42	476.4625	Repeater Channel	12.5 kHz
Channel 43	476.4875	Repeater Channel	12.5 kHz
Channel 44	476.5125	Repeater Channel	12.5 kHz
Channel 45	476.5375	Repeater Channel	12.5 kHz
Channel 46	476.5625	Repeater Channel	12.5 kHz
Channel 47	476.5875	Repeater Channel	12.5 kHz
Channel 48	476.6125	Repeater Channel	12.5 kHz
Channel 49	476.6375	General Chat Channel	12.5 kHz
Channel 50	476.6625	General Chat Channel	12.5 kHz
Channel 51	476.6875	General Chat Channel	12.5 kHz
Channel 52	476.7125	General Chat Channel	12.5 kHz
Channel 53	476.7375	General Chat Channel	12.5 kHz
Channel 54	476.7625	General Chat Channel	12.5 kHz
Channel 55	476.7875	General Chat Channel	12.5 kHz
Channel 56	476.8125	General Chat Channel	12.5 kHz
Channel 57	476.8375	General Chat Channel	12.5 kHz
Channel 58	476.8625	General Chat Channel	12.5 kHz
Channel 59	476.8875	General Chat Channel	12.5 kHz
Channel 60	476.9125	General Chat Channel	12.5 kHz
Channel 61	476.9375	Reserved for Future Expansion	-
Channel 62	476.9625	Reserved for Future Expansion	-
Channel 63	476.9875	Reserved for Future Expansion	-
Channel 64	477.0125	General Chat Channel	12.5 kHz

Channel Name:	Frequency:	Purpose:	Frequency Spacing:
Channel 65	477.0375	General Chat Channel	12.5 kHz
Channel 66	477.0625	General Chat Channel	12.5 kHz
Channel 67	477.0875	General Chat Channel	12.5 kHz
Channel 68	477.1125	General Chat Channel	12.5 kHz
Channel 69	477.1375	General Chat Channel	12.5 kHz
Channel 70	477.1625	General Chat Channel	12.5 kHz
Channel 71	477.1875	Repeater Input	12.5 kHz
Channel 72	477.2125	Repeater Input	12.5 kHz
Channel 73	477.2375	Repeater Input	12.5 kHz
Channel 74	477.2625	Repeater Input	12.5 kHz
Channel 75	477.2875	Repeater Input	12.5 kHz
Channel 76	477.3125	Repeater Input	12.5 kHz
Channel 77	477.3375	Repeater Input	12.5 kHz
Channel 78	477.3625	Repeater Input	12.5 kHz
Channel 79	477.3875	General Chat Channel	12.5 kHz
Channel 80	477.4125	General Chat Channel	12.5 kHz

Currently, older 40 channel radios may still use 25 kHz spacing however this may be phased out by 2017. The ACMA plan to review this policy in 2016.

New Zealand

New Zealand offers a similar PRS service. New Zealand's Personal Radio Service (PRS) and 26 MHz Citizens Band radio are very similar to Australia's UHF Citizens Band and 27 MHz Citizens Band services.

The New Zealand Government's Ministry of Commerce introduced the UHF PRS in 1996 to allow for freely available short-range wireless communications outside the 26 MHz CB band. The UHF (but not VHF) band was selected due to its ability to withstand atmospheric and groundwave interference unlike the existing 26 MHz allocation.

NZ PRS channels

- <http://www.uhfcba.com.au/NZ-PRS-Channels.php>

See also

- Citizens band radio
- VMB4 Newcastle - An example of an Australian UHF CB Repeater

References

1. Jim Sinclair *Radio Signal Finding* McGraw-Hill Professional, 2000 ISBN 0-07-137191-5 page 281
2. <http://www.acma.gov.au/Citizen/TV-Radio/Radio/Marine-and-Amateur-Radio/citizen-band-radio-service-cbrs-fact-sheet>
3. <http://www.uhfcb.com.au/CB-Radio-History.php> CB radio History
4. <https://www.legislation.gov.au/Latest/F2015L00876>
5. <https://www.mainroads.wa.gov.au/Documents/Final%20PDF%20version%20-%20OSOM%20Loads%205E2C%20Pilots%20and%20Escort%20vehicles%20brochure.RCN-D13%5E23398873.PDF>
6. <http://www.police.qld.gov.au/Resources/Internet/rti/policies/documents/Circular%202-2014.pdf>
7. http://www.acma.gov.au/WEB/STANDARD/pc=PC_287

External links

- Radiocommunications (Citizen Band Radio Stations) Class Licence 2015 (<https://www.legislation.gov.au/Latest/F2015L00876>) - The Australian official licence under which UHF CB operates
- Australian Communications and Media Authority (<http://www.acma.gov.au>) - The Australian regulator of the radio-frequency spectrum
- Tropinet UHF CB Repeater Database (<http://www.tropinet.com/uhf-repeaters/search.html>) for a listing of repeaters in Australia.

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