

Author background (Apologies I'm not a wordsmith): As a young person in the early eighties, I was exposed to 27MHz AM/SSB CB through family and friends. This opened a lifelong interest in radio and electronics. First with a group of friends all getting on air with 27MHz AM transceivers and my taking this further with AM/SSB and UHF CBRS. And an Electronics career that then opened my eyes to the hobby of Amateur radio and business of Commercial Two-way. I have continued my interest with emergency services and communications, including WICEN and the needs/benefits of CBRS / two-way in community safety, business and family activities. While many people are happy to accept the mobile phone options as a replacement, my experiences and repeated instances of failures/etc like we recently had in Dalby (Qld), repeated Carrier fall-downs or black spots (Telstra, Optus, Vodafone) and the result of natural disasters (bushfires/Etc). I feel the radio to radio/radios without a complex third obstruction (Network) will always need to exist as an option/back up.

Radio Transceivers have proven their worth in situations/disasters like Cyclone Tracey (Darwin in 1974), Bushfires (Including Black Friday 1939, Ash Wednesday 1983 and others) <sup>#W</sup>. And since then, also CBRS transceivers, with many in 'Unofficial' use with volunteer emergency services (CFA, SES, NSW BFB, Etc) between members, with limited availability of official 'network' radios, as a backup or civilian link.

In recent years we (family) have had a very important need occur with my young child who has recently been diagnosed with a very serious lifelong medical condition, requiring practically constant monitoring. This can only be done viably with radio transceivers. I will explain later that the UHF CBRS has proven to be 98% useless to us with congestion, profanity and abuses/harassment. And some proposals/solutions maybe?

Background of 27MHz & UHF Citizen Band Radio Service: Before it was legalised in the 1970's the frequencies were part of the Amateur Radio service. First being 18 channel (AU) and also 23 channels (US) mobile transceivers, with our government's proposal of only a UHF CBRS band, not the 27MHz band. Before community lobbying called for both the 27MHz 40 channels and UHF 40 Channels. And at the same time as the CBRS became a reality with licencing, a fee being introduced, and with it a callsign that was to be used with transmissions. Two aspects of the CBRS that are now no longer. Refer: ACMA & References, for further info.

I have long been aware of businesses cutting costs and using UHF CBRS over having an assigned (licenced) frequency, even when there is a concern<sup>#0</sup> (Safety) that other uses could disrupt an important message. I have been waiting at road works and picked up the traffic controllers talking, UHF CBRS being the communications being used. At least a dozen times in the last few years I have heard a controller with another driver somewhere having an argument over why they have to wait so long. I am also aware that there are many cheap and questionable transceivers in use that are not checked for suitability, so allowing people to ignore protocol. Some retailers selling 16 channel units that cover 476.4250 ~ 477.4125MHz but which 16 channels? In reference to my own situation, I have attempted to use UHF CBRS with my disabled child but one attempt had an unknown male trying to chat with her despite our using only low powered walkie talkies and CTCSS. I immediately changed our CTCSS tone and within minutes this person was again trying to chat with her, having found our new tone.

*While I am no expert, I will make comment as a user/parent/family member/friend/emergency service volunteer/etc at times having a need of safety that radio communications only enable, but particularly as a spasmodic listener (In the outer south eastern area of Melbourne) I ask is it "operating effectively and efficiently" as suggested? Thank you for the invitation! In addition to my own comments/feedback and information I also include/references here from multiple internet sources (easily found by Bing/google searches). As a matter of fact, or clarification for those interested.*

### **Changes to CB radio arrangements;**

#### **What the CB class licence does.**

- The Citizen Band Radio Service, more commonly known as 'CB radio' is a 2-way communications service that can be used by any person in Australia for personal or business purposes. CB radios operate on designated channels in the high frequency (HF) (26.965 to 27.405 MHz) and ultra-high frequency (UHF) (476.425 to 477.400 MHz) bands. CB radios may be used for voice communications or for telemetry and telecommand applications. ⬅ *I find "the UHF CBRS has proven to now be 98% useless to us (on a personal/family level) with congestion, profanity and abuses/harassment". It is more business than anything else.*

#### **Changes to the CB class licence.**

- We consider that the CB class licence is operating effectively. ⬅ *See above! Friends, all agree it (UHF CBRS) is not at all suitable for family use. Busy and with many channels' users swearing. The 27MHz (AM/SSB) is still very good, with the limitations on Handheld/portable options due to size, we are pushed towards UHF CBRS.*
- Frequency modulation use in the HF band. ⬅ *Long overdue and would be of great benefit to many country users. And to quote: (forums.whirlpool.net.au/archive/1643706); User #114539: I've heard that 27mhz CB is still in use by people who want to get away from all the idiots on UHF CB, and actually have a proper conversation....*
- Initiating contact on HF channels 11 and 16 and UHF channel 11. ⬅ *This is an appropriate update and with most users ignoring channel allocations, particularly on UHF CBRS so this will not affect anyone.*
- Consent of an inspector about altering a CB radio. ⬅ *No one fixes anything anymore.*
- Prohibition on certain 'on-air' conduct. ⬅ *See above! Friends, all agree it is not at all suitable for family use. No point complaining, nothing changes.*
- Directions given by inspectors and other persons. ⬅ *Appropriate update.*
- A CB radio connected to a telecommunications network. ⬅ *Appropriate update.*
- Use of Voice over Internet Protocol (VoIP) applications. ⬅ *Appropriate update, with conditions (that will be ignored) that this is only allowed on Channels #21, 22, 23, 24, 25, 61, 62, 63, 64, 65. ⬅ And that these frequencies/channels are also opened to DMR modes (TDMA Single and dual slot) together with FM (Analogue). Plus, with the addition of Channels as DMR/FM #66, 67, 68, 69 and 70 (See also: Channel traffic findings channel #70?) would we see better / efficient channel use? Yes! Many retailers are already selling DMR radios with UHF CBRS channel options!*
- Formatting and other drafting changes. ⬅ *Appropriate update.*

## **Other matters for comment not reflected in the CB class licence 2025;**

Emergency communications on HF channel 9 and UHF channels 5 and 35;

- We would like to know what the level of demand is for these channels, from the perspective of:

- the bodies that monitor them
- the people who may use or have used them
- emergency services agencies.

☛ *I have personally found these channels (frequencies) being used by many as just another channel. For years I have heard users warning those on the Channels that they were reserved for emergencies and also (even repeatedly/daily this last two months) I've heard heavy business use of UHF CBRS Channel #5 and #35. And bring attention to a SURVEY done through Radio Rescue Emergency Communications Inc. [[radiorescue.org.au/contact/uhf-survey/](http://radiorescue.org.au/contact/uhf-survey/)]; Attachment: RREC-uhfCBRS-5+35-survey<sup>#E</sup> and my findings ☛ More on this later: 'This is my monitoring findings' – Refer: Channel traffic.*

Channel arrangements for data transmission (telemetry and telecommand).

We are considering converting UHF channels 22 and 23 – / (61, 62 and 63). ☛ *I refer to my previous comment and reference 'CRDC.com.au' <sup>#R</sup>– The use of UHF CBRS has in part been superseded by new and efficient technologies that indicate current/further data channels are unnecessary. These should be gazetted/legislated with Channels # 20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 61, 62, 63, 64, 65 (Or more as dual mode?). As a digital mode for Data transmission, including DMR Voice (TDMA) and TDMA Voice (Dual slot – Single frequency repeaters<sup>#B</sup> ☛ with antenna height & power restrictions)/etc. (Not that this channel allocation won't still be ignored) ☛ More on this later: Refer to my monitoring findings: Channel traffic.*

## **Draft Radiocommunications (Citizen Band Radio Stations) Class Licence 2025**

*I will not dissect or comment on this as I am not a legal scholar and unfortunately the majority of the users of the CBRS service will ignore this anyway as they already have been, compliance is not hard;*

- *27MHz Mode: F3E (Frequency modulation - voice) or G3E (Phase modulation - Voice) (Page#19 - Restrictions): refer to my comments page #2. FM a most welcome update.*
- *Particularly (Page#13 - Restrictions): A CB station must not operate on the frequencies in sub-items 1 to 16 (UHF channels 1 to 8 and 41 to 48) and sub-items 29 to 72 (UHF channels 31 to 38 and 71 to 78) if the operation causes interference to a CB repeater station.*

**Conclusion:** *I remember when both the 27 MHz (AM/SSB) and UHF CBRS were very useful and the users respected the privilege, benefits and protocols so everyone was happy, including those who needed the help available from Crest/etc but this has changed with options like Mobile phones/etc.*

*And while the 27MHz (AM/SSB) will benefit from the FM mode update. The UHF CBRS is unsuitable to those who need communications for safety, be those rural / farm users, travellers and/or families. So, in view of this I propose the opening of two additional & alternative options for NON-Urban/non-city businesses, so only for Farmers, travellers and family use (See Appendix: 'Rural & Travellers Community Radio Service').*

And also, a 'family band' digital mode (DMR – TDMA) multi-channel allocation in the ISM 900MHz Band, as is already used in many Shops/businesses with the Motorola offerings (Motorola Curve/etc). The Motorola DLR700 has 50 Channels but I find no information on the channels listed in Australian as part of the 900MHz ISM Band, so I do not know what actual frequencies these radios are using. These are using a digital mode FHSS (Frequency-hopping spread spectrum)<sup>#F</sup> and this uses a number of changing frequencies per channel occupying a large spectral band. DMR (Digital Mobile Radio)<sup>#D</sup> is something called Time Division Multiple Access (TDMA). This essentially splits a single 12.5 kHz channel into two alternating timeslots.

There are a number of licence holders in this band with significant wide frequency allocations and would not seek to upset/affect them. These suggestions of mine are modelled loosely on the (internet listed information on the) US Family Radio Service (FRS), General Mobile Radio Service (GMRS), Multi-Use\_Radio\_Service (MaRS) and business/Itinerant licence. While the UHF CBRS is the Australian/NZ answer to the FRS, the GMRS offers a bit more with higher power levels, greater range and personal repeaters but still UHF frequencies. The MaRS is VHF frequencies and as VHF is better suited to country/rural and longer distances we in Australia (being a large land mass) should have a MaRS / VHF Marine like band for those with a; legitimate need, legitimate and respectful use intention and be so rewarded with a functional and effective emergency response option. While agencies like CREST and 'Australian Citizen Radio Monitors' have and do a great service to some <sup>#M</sup> of the Australian community, with the miss-use of UHF CBRS channels 5/35 and the likely removal of these channels as designated Emergency radio channels. I Suggest with this in mind I offer the: Suggested replacement / alternative (Semi) rural (/Outer metro) option with the removal of UHF CBRS Channels #5/35? → **'Rural & Travellers Community Radio Service'<sup>#V</sup>**

I would expect consultation with all stake holders including Emergency radio monitors (CREST/Etc), Marine clubs/Authorities, and others. I would hope that a significant level of Government support would be available to facilitate the initial setup and some lesser level to maintain the ongoing function, much like with current volunteer agencies (Volunteer Coast Guard/Volunteer Fire services/Volunteer Emergency services/Etc). This may also extend to include Amateur volunteers also who would volunteer through a roster system with an existing agency. This could also be financed by a special licence class with a small but realistic fee (free for registered and active monitor/responders).

I refer to my table Pages #5 & 6; As a matter of accuracy and validation I have personally spent 30 ~ 90 Minutes at a time (Over 12 hours), on random days and times, randomly at locations around my area (Narre Warren to Cranbourne), Fifteen (15) times, documenting the radio traffic on the UHF CBRS 77 Channels, then listing this on pages # 5 & 6. Scanning through the channels using a handheld with only a 30cm~ antenna and without significant elevation. This is my findings of use/mis-use, profanity, congestion, heavy business use that seems to border on commercial or fleet use and also digital mode (not on the data channels 22 & 23). In years previous I would hear voice traffic on channel 23. And some serious mis-use of channels 5/35 and the repeaters channels, but to listen now I find business of all sorts; Couriers, Delivery fleets, Traffic Management, Weigh bridge operations, shops and schools, the list is endless. With absolutely no consideration of the channel use protocols in place and profanity in practically every conversation. This is the finding after I have spoken to many others, particularly families who wish to use the CBRS (UHF) service and it is deemed to be unusable by all.

*While the designated repeater channels #1 ~ 8 / 41 ~ 48 (outputs) and #31 ~ 38 / 71 ~ 78 (inputs) can legally<sup>2</sup> be used for "General use" outside of the repeater channel coverage area. Under certain conditions (atmospheric / elevation) the UHF signal can travel for hundreds of kilometres and so often effects a repeater that while not heard locally is disrupted for the local users of that repeater. It is recommended that channels 31 ~ 38 and 71 ~ 78 (inputs) are not used for normal conversations. A protective action in place on most commercial and many Amateur repeaters is to use ctcss access, so transmissions without a tone or the incorrect tone/s are not able to activate the repeater. I have found ctcss in use with a few UHF CBRS users but this is not a solution to a congested channel as it will not make a channel clear, only limit who you hear. And only those using the same tone will be heard, others with a stronger signal can still monopolise the channel, and often do.*

The next two pages contain the **80 UHF CB Channel List**. This is collated from multiple on-line sources and includes the 'special use' channels as listed. I also include my key to describe my findings. I put this list on pages: #6 & 7, so those who wish to print just this list may do so easily.

I am not aware of how many more users may be sitting on a channel with Secall or CTCSS and so only hear their own users and so use the channel very infrequently.

**80 UHF CB Channel List**

Key: b = busy, B = Very Busy, C = Commercial/Fleet/Business use,  
M = Multi-users, P% = Profanity %, T = Selcall tones,  
S% = Scramble/distortion %, D = Digital transmission,

Channel	Frequency	Use	Channel traffic (after 15 random monitoring's):
1	476.4250	Duplex – Repeater Output	Multiple days: B – C / M / P 10% / D
2	476.4500	Duplex – Repeater Output	Multiple days: B / M / P 40%
3	476.4750	Duplex – Repeater Output	Repeater channel 98% useless: M / P 90% / T
4	476.5000	Duplex – Repeater Output	Multiple days: b / M / T
5	<b>476.5250</b>	Duplex – Repeater Output – <b>(Emergency Use Only)</b>	Multiple days: B – C / M / P 80%
6	476.5500	Duplex – Repeater Output	Multiple days: B – C / M / P 40% / S 10%
7	476.5750	Duplex – Repeater Output	Multiple days: B / M / P 80%
8	476.6000	Duplex – Repeater Output	Multiple days: B – C / M / P 10%
9	476.6250	Simplex – General Use	Multiple days: b / P 5%
10	476.6500	Simplex – <b>4WD Drivers, Convoys, Clubs &amp; National Parks</b>	Multiple days: B – C / M / P 5%
11	476.6750	Simplex – <b>Call Channel</b>	Multiple days: B – C / M / P 10% / S 95%
12	476.7000	Simplex – General Use	Multiple days: B / M / P 10%
13	476.7250	Simplex – General Use	Multiple days: B / M / P 15% / S 90%
14	476.7500	Simplex – General Use	Multiple days: B / M / P 40% / S 90%
15	476.7750	Simplex – General Use	Multiple days: B / P 20%
16	476.8000	Simplex – General Use	Multiple days: b / M / P 5%
17	476.8250	Simplex – General Use	Multiple days: B - C / M / P 40%
18	476.8500	Simplex – <b>Caravan &amp; Camper Convoy Channel</b>	Multiple days: B- C / M / P 20%
19	476.8750	Simplex – General Use – <b>Horse Floats &amp; Convoys Channel</b>	Multiple days: B / M / P 5%
20	476.9000	Simplex – General Use	Multiple days: B / P 5%
21	476.9250	Simplex – General Use	Multiple days: B / M / P 15%
22	476.9500	Data Only (No Voice – No Packet)	
23	476.9750	Data Only (No Voice – No Packet)	
24	477.0000	Simplex – General Use	Multiple days: B - C / P 20%
25	477.0250	Simplex – General Use	Multiple days: B / M / P 20%
26	477.0500	Simplex – General Use	Multiple days: b / P 10% / T
27	477.0750	Simplex – General Use	Multiple days: B / M / P 30%
28	477.1000	Simplex – General Use	Multiple days: B – C / M / P 20% / S 95%
29	477.1250	Simplex – <b>Pacific Hwy (NSW), Bruce Hwy (QLD) – Road Channel</b>	Multiple days: B – C / M
30	477.1500	Simplex – <b>UHF CB Broadcasts</b>	Multiple days: B / M / P 10% / S 10%
31	477.1750	Repeater Input	Multiple days: b / M
32	477.2000	Repeater Input	Multiple days: b / M / S 10%
33	477.2250	Repeater Input	Multiple days: See channel #3 repeater input.
34	477.2500	Repeater Input	Multiple days: B / M / S 10%
35	<b>477.2750</b>	Repeater Input – <b>(Emergency Use Only)</b>	Few days: b
36	477.3000	Repeater Input	Multiple days: B / M / P 20%

37	477.3250	Repeater Input	Multiple days: B / M / P 5%
38	477.3500	Repeater Input	Multiple days: B / M / P 20%
39	477.3750	Simplex – General Use	Few days: b
40	477.4000	Simplex – <b>Highway Channel</b> (Truck) Channel, if not using Ch 29.	Multiple days: B / M / P 60%
41	476.4375	Duplex – Repeater Output	Multiple days: B / M / P 20%
42	476.4625	Duplex – Repeater Output	Few days: b / P 5%
43	476.4875	Duplex – Repeater Output	Few days: b / P 5%
44	476.5125	Duplex – Repeater Output	Few days: B / P 5%
45	476.5375	Duplex – Repeater Output	Few days: B / P 5%
46	476.5625	Duplex – Repeater Output	Multiple days: B / P 5%
47	476.5875	Duplex – Repeater Output	Multiple days: B / M / P 5%
48	476.6125	Duplex – Repeater Output	Few days: B / P 5%
49	476.6375	Simplex – General Use	Multiple days: B – C / M
50	476.6625	Simplex – General Use	Multiple days: B – C / M / P 5% / S 10% / T
51	476.6875	Simplex – General Use	Multiple days: B / M / P 5%
52	476.7125	Simplex – General Use	Few days: b / M
53	476.7375	Simplex – General Use	Multiple days: B / M / P 10% / S 80%
54	476.7625	Simplex – General Use	Few days: B
55	476.7875	Simplex – General Use	Few days: B / P 30% / T
56	476.8125	Simplex – General Use	Few days: B / M / P 20%
57	476.8375	Simplex – General Use	No transmissions received
58	476.8625	Simplex – General Use	Few days: B
59	476.8875	Simplex – General Use	Multiple days: B
60	476.9125	Simplex – General Use	Few days: B
61	476.9375	Reserved For Future Expansion	
62	476.9625	Reserved For Future Expansion	
63	476.9875	Reserved For Future Expansion	
64	477.0125	Simplex – General Use	Few days: B
65	477.0375	Simplex – General Use	Multiple days: B
66	477.0625	Simplex – General Use	Multiple days: B / M / P 30%
67	477.0875	Simplex – General Use	Few days: B
68	477.1125	Simplex – General Use	Few days: b
69	477.1375	Simplex – General Use	Multiple days: B / M / S 20% / D
70	477.1625	Simplex – General Use	Multiple days: B / M / P 30%
71	477.1875	Repeater Input	Multiple days: B / M / P 30% / S 60%
72	477.2125	Repeater Input	Multiple days: B
73	477.2375	Repeater Input	Multiple days: B / P 20%
74	477.2625	Repeater Input	Multiple days: B
75	477.2875	Repeater Input	Few days: B / P 20%
76	477.3125	Repeater Input	Multiple days: B / P 30%
77	477.3375	Repeater Input	Few days: b
78	477.3625	Repeater Input	Multiple days: B - C
79	477.3875	Simplex – General Use	Few days: b
80	477.4125	Simplex – General Use	Few days: D

## Appendix/Attachments list:

#E: RREC-uhfCBRS-5+35-survey

#V: Rural & Travellers Community Radio Service – Suggestion.

## References (Some):

Changes to CB radio arrangements\_consultation paper

Draft Radiocommunications (Citizen Band Radio Stations) Class Licence 2025

[www.acma.gov.au/](http://www.acma.gov.au/)

W: [www.wia.org.au/discover/introduction/emergency/](http://www.wia.org.au/discover/introduction/emergency/)

- [radiorescue.org.au/cb-radio/cb-history/](http://radiorescue.org.au/cb-radio/cb-history/)
- [radiorescue.org.au/contact/uhf-survey/](http://radiorescue.org.au/contact/uhf-survey/)

#O: [arcia.org.au/wp-content/uploads/2019/03/uhf-cb-faqs-final-august-2017.pdf](http://arcia.org.au/wp-content/uploads/2019/03/uhf-cb-faqs-final-august-2017.pdf)

#M: [www.crestvic.org.au](http://www.crestvic.org.au)

#M:  **CREST NSW Inc**

#M: [www.crest.org.au](http://www.crest.org.au)

#M: [www.crestqld.org.au](http://www.crestqld.org.au)

#M: Australian Citizen Radio Monitors S.A. Inc. [[acrm.org.au/information/acrm\\_info.html](http://acrm.org.au/information/acrm_info.html)]

- [www.vk3ye.com/cb.htm](http://www.vk3ye.com/cb.htm)

#R: (Farm Comm's): [www.CRDC.com.au](http://www.CRDC.com.au) = Options other than UHF CBRS for farm/rural radio control/reporting systems.

- [forums.whirlpool.net.au/archive/1643706](http://forums.whirlpool.net.au/archive/1643706); User #114539: *I've heard that 27mhz CB is still in use by people who want to get away from all the idiots on UHF CB, and actually have a proper conversation....*
- [ham.stackexchange.com](http://ham.stackexchange.com)

#D: DMR (Digital Mobile Radio); [en.wikipedia.org/wiki/Digital\\_mobile\\_radio](http://en.wikipedia.org/wiki/Digital_mobile_radio) & [www.dmrassociation.org/dmr-key-benefits.htm](http://www.dmrassociation.org/dmr-key-benefits.htm)

#B: [ham.stackexchange.com/questions/490/vhf-uhf-digital-single-frequency-repeater-without-duplexers](http://ham.stackexchange.com/questions/490/vhf-uhf-digital-single-frequency-repeater-without-duplexers)

#F: FHSS (Frequency-hopping spread spectrum): [en.wikipedia.org/wiki/Frequency-hopping\\_spread\\_spectrum#Technical\\_considerations](http://en.wikipedia.org/wiki/Frequency-hopping_spread_spectrum#Technical_considerations) & ResearchGate: [Frequency\\_hopping\\_spread\\_spectrum\\_History\\_principles\\_and\\_applications](http://en.wikipedia.org/wiki/Frequency_hopping_spread_spectrum_History_principles_and_applications)

[https://en.wikipedia.org/wiki/Personal\\_radio\\_service](https://en.wikipedia.org/wiki/Personal_radio_service):

- US-specification: Family Radio Service & General Mobile Radio Service (GMRS) (using both 462 and 467 MHz). GMRS being higher powered requires a license.
- US-specification: Multi-Use\_Radio\_Service; No license, VHF (with a power limit of 2 watts, using both 151 and 154 MHz), Antenna height restrictions.
- US-specification: Pool of VHF/UHF 'Share' frequencies, requiring a business/Itinerant licence. → [https://wiki.radioreference.com/index.php/Common\\_Itinerant\\_and\\_Business](https://wiki.radioreference.com/index.php/Common_Itinerant_and_Business)

Motorola DLR1020 & 1060, DLR600 & DLR700

Trisquare\_tsx300