



Australian Citizens Radio Emergency Monitors

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Our Ref: D05-0601-ACA1
Your Ref:

**Directorate,
Administration
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1st June 2005

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Dear Geoff

RE: CBRS SUBMISSION

Further to our conversation following our previous submission to the ACA on growing problems on the CBRS bands, especially the UHF band, as requested please find attached our further submission dealing with the subject of changes to equipment labelling and supplied information for consideration by the Standards Australia Industry Group and ACA.

To prepare this submission we have contacted a number of other organisations and have obtained the support of those groups indicated in the submission. It is therefore presented by us on behalf of all the groups so detailed.

As you will see from the suggested solutions, one of those may involve changes to the CBRS Class Licence and we would like to request the ACA accept this submission as an application for consideration of those changes. As discussed, the remainder of the submission is primarily for consideration by the industry group, however we would also request that Standards Australia and the ACA consider the contents and suggestions with the view of possible changes to regulations and/or standards where necessary.

Yours Sincerely

**Martin Howells
DIRECTOR**

CB RADIO SAVES LIVES - YOURS COULD BE NEXT!

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Australian Citizens Radio Emergency Monitors

Submission to the Standards Australia Industry Group regarding changes to Citizens Band Radio Service equipment labelling requirements

Prepared in conjunction with:



ACBRO



**ACRM – SA
ACRM - WA**



TASVEC



CREST Victoria



**VKS-737 Radio Network and the
Australian National 4WD Radio Network**

1st June 2005

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** Whilst the VKS-737 network is not themselves connected with the CB bands or CB emergency monitoring, many of their members also utilise CB radio and as such the VKS-737 network have indicated their support of this submission and the proposals presented.*

Terms

ACA	Australian Communications Authority – the agency responsible for regulating the radio frequency spectrum in Australia.
ACBRO	Australian Association of Citizens and Band Radio Operators.
ACRM	Australian Citizen Radio Monitors (originally started in 1974 as Australian Citizen Radio Movement).
ACREM	Australian Citizens Radio Emergency Monitors.
CB	Citizen Band – a radio service intended to allow the public access to radio communications, first legalised in Australia in July 1977 using frequencies in the 27MHz HF band and, later, also in the 476/477MHz UHF band.
CBRS	Citizen Band Radio Service – see CB Citizen Band Radio Station – a station operating on frequencies allocated to the Citizen Band Radio Service.
CREST	Citizens Radio Emergency Service Teams.
CTCSS	Continuous Tone Coded Squelch System – a form of signalling that utilises ‘sub audible’ tones transmitted with a signal to prevent unwanted signals from being heard. (signals that do not contain the correct tone will not be heard by the operator)
HF	High Frequency – the part of the radiofrequency spectrum between 3MHz and 30MHz. The CB band that is allocated between 26.965MHz and 27.405MHz.
FRS	Family Radio Service. A licence-free radio service in the USA utilising 14 channels on the 460MHz band, maximum 0.5W ERP output.
MHz	Megahertz - 1,000,000 cycles per second.
TASVEC	Tasmanian Volunteer Emergency Communications.
UHF	Ultra High Frequency – the part of the radiofrequency spectrum between 300MHz and 3000MHz. The CB band that is allocated between 476.425MHz and 477.400MHz.
VKS737	The network operated by the public benevolent institution “Australian 4WD Radio Network”, providing communications services to 4WDers and outback travellers.

Introduction

The Citizens Band Radio Service (CBRS) has been a popular and affordable method for ordinary citizens to keep in touch since the service was first legalised in July 1977. Presently the CBRS consists of frequency allocations in two bands – the 27MHz band (40 channels from 26.965MHz to 27.405MHz, spaced 10kHz apart), and the UHF band (40 channels from 476.425MHz to 477.400MHz, spaced 25kHz apart). The UHF band has become extremely popular amongst both hobbyists and commercial operators, the latter utilising the now ‘no licence fee’ service as a means of providing communications without the expense involved in the use of commercial frequency allocations. Since legalisation in Australia certain channels have been allocated by legislation for specific uses. Among these are the CBRS Emergency Channels (Ch.9 on 27MHz and Chnls. 5 and 35 on UHF). These channels have always been reserved by legislation for use by any station requiring emergency assistance, and they are often monitored by volunteers around Australia. Other channels allocated by law include calling channels – channels 11 and 16 on 27MHz and channel 11 on UHF.

Initially each station required a licence to operate on the CBRS band, and as such they were supplied with documentation to show them what channels were allocated for specific purposes. Even during the times when almost half of the CBRS stations in Australia were unlicensed, knowledge of the various legally allocated channels was still widespread and generally observed by all operators. With the introduction of the *Citizens Band Radio Stations Class Licence* in 1994 documentation from the Government agency responsible for radiocommunications was no longer issued, and many new operators with no prior CBRS experience commenced operations with no knowledge of channel uses or allocations. This presented new problems for the CBRS band, especially when new operators would select the emergency channel as a chat channel, unaware of its allocation.

This situation has slowly worsened over the years. Recent popularity of the cheap 40 channel UHF hand-helds, now available at numerous retailers for under \$50/pair, has seen the number of children and travellers using the UHF CBRS frequencies increase dramatically. Unfortunately most often these radios are sold simply as “Personal 40 channel UHF radio” or “UHF Communicators” with no mention of the fact that they are, indeed, CB radios and, more disturbingly, often no mention of the CBRS Class Licence or the relevant channel allocations specified in that document. The result is an ever increasing number of users utilising inappropriate channels, such as repeater inputs, call channels and the two UHF emergency channels, for regular contact. Where there is a 5/35 emergency repeater in operation, this utilisation of channel 35, even with the extremely low power units, can cause significant problems and totally block access to the emergency repeater.

The Class Licence

The *'Radiocommunications (Citizens Band Radio Stations) Class Licence'* ('the Class Licence') was first introduced in 1994 to replace individual Apparatus Licence requirements for CB stations. The Class Licence is issued under the provisions of subsection 132 (1) and 135 of the *Radiocommunications Act 1992* and specifies operating parameters and conditions applicable to stations operating on frequencies allocated to the Citizens Band Radio Service. The Class Licence in force at this time is the *Radiocommunications (Citizens Band Radio Stations) Class Licence 2002*.

Section 6 of the Class Licence specifies:

“6 Conditions — general

A person must not:

- (a) except in an emergency — operate a CB station on:
 - (i) carrier frequency 27.065 megahertz; or
 - (ii) carrier frequency 476.525 megahertz; or
 - (iii) carrier frequency 477.275 megahertz; or”

The frequencies referred to above are specified in Schedule 1 to the Class Licence as:

- 27.065 megahertz HF channel 9;
- 476.425 megahertz UHF channel 5; and
- 476.275 megahertz UHF channel 35.

Part 3.4, subsection 132 (3) of the *Radiocommunications Act 1992* specifies:

“Operation of a radiocommunications device is not authorised by a class licence if it is not in accordance with the conditions of the licence.”

The implications of this provision is that any person operating on the emergency channels for non-emergency purposes, or indeed on any other channel specified in the Class Licence contrary to the use specified, is in fact operating an **unlicensed radiocommunications device** as the operation is no longer authorised by the Class Licence.

Part 3.1, subsection 46 of the *Radiocommunications Act 1992*, specifies:

“46 Unlicensed operation of radiocommunications devices

Subject to section 49, a person must not, without reasonable excuse, knowingly or recklessly operate a radiocommunications device otherwise than as authorised by:

- (a) a spectrum licence; or
- (b) an apparatus licence; or
- (c) a class licence.

Penalty:

- (a) if the radiocommunications device is a radiocommunications transmitter:
 - (i) if the offender is an individual—imprisonment for 2 years; or
 - (ii) otherwise—1,500 penalty units; or

- (b) if the radiocommunications device is not a radiocommunications transmitter—20 penalty units.”

Obviously the above penalties are for worse case scenario, however it can be clearly seen that the operation of a CB station contrary to the provisions of the Class Licence can have serious legal implications. This is apart from any additional ramification should the operation cause the death of a person due to an emergency call being blocked.

Growing Problems

It has become obvious that the situation on the UHF CBRS band is worsening at a rapid rate. It is becoming more common for 5/35 emergency repeaters to be rendered totally useless by children, truck drivers or travellers using the input channel, channel 35, for normal conversations unaware that channel 35 is indeed an emergency channel. If the operators happen to be within range of an Emergency Monitor, often they can be advised of the channel allocation and will then move, but far more often the stations are only within range of the repeater and Monitors are unable to make contact. The obvious fear is that this situation could block a serious emergency call from being heard and could therefore contribute to a death. The low cost of these low-powered UHF hand-held radios has seen a massive increase in the number of children being given these as gifts rather than the traditional 27MHz ‘toy walkie-talkies’. Often both the children and their parents are unaware that the hand-helds utilise CB channels, and they believe they have free access to any of the available 40 channels. When this is combined with the CTCSS option that is often also provided the potential for disaster is multiplied 100 fold.

Over the years the CBRS emergency channels have been used to obtain assistance for a wide range of incidents, from simple breakdowns and road directions, to severe motor vehicle accidents, boats in distress, and more. It is not uncommon for a call to involve the immediate safety of life and/or property, and although mobile telephones have now become the primary means for the public to contact the emergency services, there are still instances where the CBRS emergency channels are used as the primary link. A valid example of this would be during severe bushfires, when landline and mobile telephone services may fail for a number of reasons. Another example involves an incident in the NSW Barrington Tops region in 1998 when a teenager was severely injured during a camping accident. Rescuers were unable to use their own dedicated radio networks due to the terrain and location, and it fell to CBRS emergency monitors to relay information between the rescue party and Ambulance Control, including co-ordinating the use of the Rescue Helicopter.

The problem is not limited to only new users such as children and travellers. Many truck drivers are now using UHF in preference to 27MHz and are also unaware that there are two emergency channels on UHF CB, meaning that they often ‘drop down a few channels’ from the Highway Channel (channel 40) and end up chatting on channel 35, potentially preventing many other stations from using any 5/35 emergency repeater in the area. As the trucks are often travelling in close proximity to each other, attempts to make contact and clear the channel is often extremely difficult if not impossible.

Obviously the problem is one of ‘education’, in that new (and existing) users need to be made aware of a number of factors, being:

- 1. the fact that the equipment uses CB frequencies;**
- 2. the fact that operation is governed by a Class Licence; and**
- 3. the fact that certain channels are reserved for specific uses.**

Although some manufacturers do list channel allocation details within the instruction manual, it is becoming more common, especially with these cheap hand-held radios, for no information to be included regarding channel uses or the Class Licence. This seems particularly true where the models are also used in the USA for the “*Family Radio Service*” or FRS where there are no channel allocations or Class Licence. An example of one of the ‘channel charts’ with very limited information is shown at **Appendix B**, taken from the Uniden UH044 Operating Guide. It fails to show channel 35 as an emergency channel, and lists channel 11 simply as “back-up emergency”. An example of even worse information can be found in the GME Electraphone TX4200 User Guide, which contains **absolutely no information** on channel allocations or uses!

We believe this is unacceptable and that it would be in everyone’s best interest if manufacturers were to include all relevant information. Fortunately Uniden Australia were very receptive to comments from ACREM a few years regarding the contents of their manuals, and an example of the improved information is shown at **Appendix C** and proves that it would take very little effort for all manufacturers to provide this information, however this will probably not solve all of the problems, especially as many people fail to read instruction manuals.

A Death Has Occurred

Although many believe that our concerns are ‘unrealistic’, emergency monitors in Queensland are already well aware of how serious the consequences of misuse of the emergency channels can be. In late 2004 near Deception Bay, north of Brisbane, monitors report that an influx of channel blockers and abusive language on the emergency repeater ‘BNE05’ prevented monitors from receiving an emergency call from a person involved in a serious motor vehicle accident. Up to four monitors attempted to clear the repeater so the call could be received and actioned. Eventually when the call was able to be taken, some **40 minutes later**, the caller ‘broke down in tears’ advising monitors, and those that had blocked the call, that his friend had died.

Had the emergency channel been clear and that call taken immediately, perhaps that person would have survived. At the very least a person involved in a serious accident that claimed one life was put through the added stress and anxiety of having to battle and argue for **40 minutes** just to place a call for emergency assistance. This is totally unacceptable and proves that immediate action is indeed warranted before further lives are lost or, at the very least, placed in jeopardy.

In recent times the community has shown extreme concern when reports of delays to the 000 emergency number surfaced, and the Government moved quickly to rectify problems and assure the community that lives would not be placed in jeopardy, yet here we have a situation where the emergency contact for a number of people is blocked, jammed and rendered useless and yet no body appears to be concerned except for those volunteers that give up their time to monitor these channels and try to keep them clear for those that truly require assistance.

Use of CB Channels

To prepare this submission we contacted a number of other organisations and operators across Australia seeking information and comment on operations causing interference to the emergency channels because the users were unaware of the channel allocations. Following is a summary of the information provided, where possible using the words of the actual respondents:

- **ACREM (ACREM-NSW and ACREM-QLD)**

- In April 2005 the ACA in Brisbane was called upon to locate and deal with a number of commercial users operating on channel 35 for business purposes, causing interference to the BNE05 emergency repeater. Repeated attempts by ACREM Monitors to clear these stations had failed. Despite ACA efforts several commercial users remain on channel 35 causing interference as of May 2005.
- Brisbane Monitors report that several commercial operators appear to be utilising CTCSS on channel 35. This is slowly being confirmed using software to decipher the CTCSS tones being transmitted.

- **ACRM-SA (Phil Richards, President)**

- “The problem is well known down here in SA and in response to your request I can offer you our support. Also it was found that small Uniden Walkie-talkies on UHF came out standard with Channel 35 as the default turn on channel and many users were belting our Repeater 5 inadvertently. Two retail outlets, sympathetic to our cause, being Uniden agents made requests on our behalf to have the default channel moved out of the Repeater-back channel range and advised them that any channel between 31 and 38 should not be used because they were the input channels to the repeaters in Australia. When we got a response we were told that it was too expensive to retool just for Australia, however it would be considered.

We have most problems with Truckers using 35 and because they have been on it for miles when they approach Adelaide they are surprised when monitors ask them to please shift.”

- **ACBRO (Ted Sawyer, Assistant Secretary)**

- “I, like yourself for some time now have been advocating that something informative should be given to the purchaser of CB equipment informing them of the changes (i.e. Class Licence) and also protocol to use the equipment for both UHF and HF.

With regard to UHF 5/35 I feel that through the lack of what should have been done (as above) the issue has reached the state of chaos, as all and sundry are using this and other uplinks on Simplex and the bane of non equipped radios CTCSS to communicate.”

- **TASVEC (Gavin O’Shea, Director)**

- “People believe that under a Class Licence they can do as they like and there are no rules to go by. Every day we have to ask people not to use repeater channels for simplex use. In our case 1/31 being SET01 repeater and 5/35 being HBT 05 Emergency repeater in Hobart. We always get a mouth full that “*we can do as we like no one is policing the channels.*”

Now that the AFL football comes to Tassie for a few games they are using rental hand helds on UHF CB with and without CTCSS and using repeater and Emergency channels, and say that is what the rental company said to use.”

- In Tasmania, tourists travelling around Australia on bikes were using UHF channel 35 to keep in contact with each other. Eventually a TasVEC Monitor located the group and spoke to them regarding the emergency channels. They advised that they had purchased the UHF hand-held units at a Dick Smith Electronics store in NSW and that staff at the store had set the radio's onto channel 35, advising “this should be a good channel for you to use”.

- **CREST-Victoria** (*Jeffrey Smith, Chief Executive Officer*)

- “Most persons incorrectly using these government allocated emergency frequencies seem to be of the mind that once paid licences were withdrawn then it was literally 'open slather' on the emergency frequencies on any band at all.

Our monitors regularly advise these types of users on the emergency frequencies that they are in breach of the regulations by using the frequencies for normal chatter and not leaving them clear for emergency purposes. They reply by abusing our monitors saying that it is no longer an emergency channel.”

- **ACRM-WA** (*Rae Thorp*)

- “We as a group fully support you with your submission.

We also feel even if they are placed clearly on equipment it won't make a great deal of difference as people don't read the instructions.

As our repeater in the SW of WA is used for Marine operations, most CBer's are very good on air and other users tell them off if they swear or act a goat on the frequency. So in this way our 6/36 is kept clean and a pleasure to use. Truckies, surveyors etc are our main problem as they go on 36.”

- **Private CB operators**

- In early February 2005, following severe storms in Victoria, a Melbourne SES Unit trying to clear business users from UHF channel 35 was told ‘where to go’ as channel 35 was “their channel”.
- Commercial users in the Melbourne area, after being told about the emergency channel allocations and Class Licence, responded “it wasn't in the box with the radio so there isn't a class licence”. Yet another commercial operator using channel 35 replied “I've been using channel 35 for 5 years so I'm not going to stop now.”
- One operator has reported that his ‘DSE 40 channel UHF Communicator’ (DSE Cat. No. D1800) is able to have the CTCSS function enabled on channel 5. This means that users causing extreme interference to an emergency call would not be able to be cleared, even if they were within simplex range of a Monitor. Whilst the comparable Uniden units have CTCSS blocked on channel 5, this cheap DSE set does not. (*Stephen Selden, ACT, private member of ACBRO*)

Solutions

The organisations presenting this submission would like to see the manufacturers accept responsibility for ensuring their customer are, at least, presented with correct and useful information when purchasing this equipment. Although there is no doubt education of new purchasers alone will not resolve all of the current problems on the CBRS bands, and ultimately compliance enforcement from the Australian Communications Authority would prove more beneficial in solving the existing problems, tackling future users of the band, educating them regarding channel allocations and the existence of licence conditions, is seen as a major step in helping to avoid future users adding to the already chaotic bands.

The ACA regards the CBRS as a “self regulating” service, meaning it is largely up to the users to ensure operating regulations are observed and, in the event of non-compliance, report incidents to the Authority for investigation. Unfortunately, particularly since the removal of the user-pay licence, problems on the CBRS bands have increased to a level that appears beyond even the ACA. As such, in the concept of “self regulation”, we ask that the manufacturers assist in this task by ensuring information packaged with these devices, especially low-cost UHF devices, reflect correct and minimum information. Even models imported from the USA require re-programming in order to operate legally in Australia, therefore the cost of adding information relevant to the Australian market is seen as negligent, especially when compared with the alternative cost of a human life.

We would suggest three measures be adopted by the ACA, Standards Australia and the industry to help assist with the above problems:

1. Minimise Potential for Interference

- a) Although the use of ‘Speech Encryption’ or “Scramblers” is prohibited under the Class Licence to operate on call channels, emergency channels or repeaters (sect. 6(c)), CTCSS is not prohibited from any channel on the UHF band under the Class Licence. The use of CTCSS tones on the emergency channels however would mean that any attempts by Emergency Monitors to clear interfering stations would not be received, and therefore increases the risk to safety of life messages should users operate with CTCSS.

We therefore believe that CTCSS functions should not be able to be activated on channels 5 or 35. Whilst some manufacturers do indeed disable CTCSS on the emergency channels, we have seen other units where this is not the case and as such we request that the ACA and Standards Australia take immediate steps to amend the relevant legislation and standards to prohibit the use of CTCSS on emergency channels. We also suggest that all manufacturers, with this in mind, make changes to the firmware controlling radio’s so that CTCSS functions can not be enabled on the emergency channels. This would help to avoid the problems currently experienced by Monitors in several locations who are unable to clear interfering stations that have CTCSS enabled whilst using channel 5/35.

- b) Also, we would like Standards Australia and the manufacturers to consider removing the repeater input channels, channels 31 to 38, from the list of selectable channels. Although the use of these channels outside the range of a repeater is permitted under the Class Licence, the vast majority of those using the cheaper units, some of which do not have a ‘duplex’ or repeater function, are children who treat the units as toys rather than CB’s. As such, removing the ability for these units to transmit on the repeater input channels would, in our opinion, greatly reduce the accidental interference caused by the fact the this type of user is most often unaware of where repeaters may be located and as such which channels should be avoided. (*originally suggested by ACRM-WA*)

2. Improved content within User Guides

Whilst some User Guides contain complete, or almost complete, channel allocation guides, there are still many that do not contain accurate or any information, and even more that fail to draw the users attention to the existence of legislation governing the use of the equipment.

Appendix A is an example of the minimum information we would like to see included with all CBRS radio equipment sold in Australia. If preferred, rather than reprint manuals this information could be included as a supplement, therefore reducing the expense to manufacturers to comply. It would also be possible for the industry as a group to print these supplements in large quantities to further reduce costs.

3. Labels on CBRS Equipment

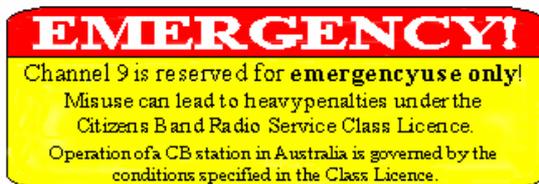
Although the inclusion of information within User Guides is deemed necessary, as we know many people only refer to the User Guide as a last resort. Also, business owners may have a number of employee's that use the equipment from time-to-time and each employee may not necessarily have an opportunity to read as User Guide. For this reason we believe an additional step needs to be implemented to draw the attention of the operator to the existence of the emergency channels. It is hoped that once operators know this information they may then seek the additional information provided in the User Guide.

The simplest, cheapest and easiest method to achieve this goal is by way of a small sticker, applied to each device, to attract the operators' attention. The sticker should be brightly coloured to attract attention, and also be durable to withstand normal operating environments as far as possible. Again, as devices imported from the USA need to be re-programmed for use in Australia, the attachment of this sticker is not seen as an obstacle or inconvenience that would add any significant costs for the manufacturer, again apart from the initial costs of obtaining the stickers.

A suggestion for the design of these stickers is shown below, and to maintain consistency should be applied to UHF and 27MHz CB equipment, and to hand-held, mobile and base station devices alike. Even UHF equipment not sold as "CB" should be included, such as "40 Channel UHF Communicators" or "40 Channel UHF Personal Radio" devices.



Sample label for UHF equipment (not necessarily to size or scale). Final sticker should be designed to fit on the equipment whilst remaining legible.



Sample label for 27MHz or HF equipment. Again, label should be designed to fit on the equipment whilst remaining legible, so this example is not necessarily to size or scale.

These labels are intended to achieve two things:

1. To inform the user of the legally allocated emergency channels, thereby reducing the chances of inadvertent interference to an emergency call; and
2. To inform the user that legislation governing the operation of CB equipment in Australia does exist. Users may then seek the additional information contained in the User Guide should they so desire.

Summary

It is very easy for people, including the manufacturers, to say “it’s not our problem”, however what happens if one day it is someone that you know calling for help and unable to be heard because of people misusing the emergency channels? We simply ask that you consider this possibility, and then ask how much trouble is it really to provide some more information to the end users? Once, when CB was first introduced in Australia, you could only purchase sets from dedicated radio or electronics stores where the staff knew about the products and could advise customers accordingly. It was not uncommon for customers, knowing nothing about radio at all, to walk into a store and be advised on what to buy and how to set it all up correctly. Now, however, you can purchase the low-cost UHF hand-held units at a number of stores such as discount warehouses, supermarkets, auto shops, etc. Often the staff do not have any knowledge of the products and if they do, often it is very basic knowledge.

In an attempt to remedy problems locally ACREM-NSW members attended a number of retailers that sold “Uniden UHF Communicators” and similar products. In almost all cases, even at the ‘specialist’ electronics retailers, the vast majority of staff were unaware of the UHF CB channel allocations or that a Class Licence existed. Some that did know a little still failed to understand that on UHF there are two emergency channels. Only a very, very small minority of staff actually knew about the products and could advise the customer correctly. This is the reason problems are now so extensive – retailers selling products that they have very little knowledge about, with extremely limited information being provided by the manufacturers.

To contact all retailers that sell such equipment is impossible, and for the ACA or any other group to undertake widespread publicity is equally impossible. The most logical and reasonable approach to easing future problems is for manufacturers, Standards Australia and the ACA to agree on a standard that will ensure all CB equipment approved for use in Australia contains certain minimal information to attract the users attention regarding emergency channels, channel allocations and the existence of the Class Licence.

We, being groups representing CB operators and emergency Monitors in Australia, sincerely hope this industry will help support our aim to remedy the growing problems and avoid any further loss of life due to emergency calls being blocked.

Martin Howells (VK2UMJ)
Director
Australian Citizens Radio
Emergency Monitors

For and on behalf of the organisations listed at the front of this document.

Appendix A – Supplemental Information for User Guides

CHANNEL ALLOCATIONS

This equipment operates within the Australian Citizens Band Radio Service (CB).

IMPORTANT! The operation of this equipment is governed by the conditions specified in the Citizens Band Radio Stations Class Licence and other legislation. This Class Licence automatically covers all stations operating on the CB bands without the need to obtain or pay for an individual licence. The Australian CB band is not “licence free”! Heavy penalties can apply for operations contrary to the provisions of the Class Licence.

Simplex Channel Allocations

<i>Ch</i>	<i>Freq</i>	<i>Notes</i>	<i>Ch</i>	<i>Freq</i>	<i>Notes</i>
1	476.425		21	476.925	
2	476.450		22	476.950	Data Only – NO voice
3	476.475		23	476.975	Data Only – NO voice
4	476.500		24	477.000	
5	476.525	EMERGENCY only	25	477.025	
6	476.550		26	477.050	
7	476.575		27	477.075	
8	476.600		28	477.100	
9	476.625		29	477.125	
10	476.650		30	477.150	
11	476.675	CALL Channel	31	477.175	
12	476.700		32	477.200	
13	476.725		33	477.225	
14	476.750		34	477.250	
15	476.775		35	477.275	EMERGENCY only
16	476.800		36	477.300	
17	476.825		37	477.325	
18	476.850		38	477.350	
19	476.875		39	477.375	
20	476.900		40	477.400	Road Channel

Duplex / Range Extender Channel Allocations

<i>Ch</i>	<i>Rx Freq</i>	<i>Tx Freq</i>	<i>Notes</i>
1	476.425	477.175 (CH31)	
2	476.450	477.200 (CH32)	
3	476.475	477.225 (CH33)	
4	476.500	477.250 (CH34)	
5	476.525	477.275 (CH35)	EMERGENCY ONLY
6	476.550	477.300 (CH36)	
7	476.575	477.325 (CH37)	
8	476.600	477.350 (CH38)	

Appendix B – Example of Poor Information

Taken from the Uniden UH044 Operating Guide. Notice how channel 35 is **not** listed as an emergency channel and channel 11 is listed as “back-up emergency” rather than Calling, which is its primary allocation.

UHF CHANNELS & FREQUENCIES

Ch.	Freq.	Usage	Ch.	Freq.	Usage
01	476.425	Simplex/Duplex	21	476.925	Simplex
02	476.450	Simplex/Duplex	22	476.950	Simplex
03	476.475	Simplex/Duplex	23	476.975	Simplex
04	476.500	Simplex/Duplex	24	477.000	Simplex
05	*476.525	Simplex/Duplex	25	477.025	Simplex
06	476.550	Simplex/Duplex	26	477.050	Simplex
07	476.575	Simplex/Duplex	27	477.075	Simplex
08	476.600	Simplex/Duplex	28	477.100	Simplex
09	476.625	Repeater	29	477.125	Simplex
10	476.650	Repeater	30	477.150	Simplex
11	#476.675	Back-up Emergency Channel	31	477.175	Simplex
12	476.700	Repeater	32	477.200	Simplex
13	476.725	Repeater	33	477.225	Simplex
14	476.750	Repeater	34	477.250	Simplex
15	476.775	Repeater	35	477.275	Simplex
16	476.800	Repeater	36	477.300	Simplex
17	476.825	Repeater	37	477.325	Simplex
18	476.850	Repeater	38	477.350	Simplex
19	476.875	Repeater	39	477.375	Simplex
20	476.900	Repeater	40	477.400	Simplex

* Emergency calling for both simplex and duplex operation

Please do not use this channel in non-emergency cases.

Back-up Emergency Channel

Channels 22 and 23 are used for Telemetry and Telecommand applications, voice communications are not permitted on these channels.

Appendix B – Example of Poor Information (continued)

Taken from the ‘DSE 40 Channel Communicator’ (Cat. No. D1800) User Manual, this chart gives even less information than the previous example. As you can see, on page 9 under “General Note” there is information regarding channels 22 and 23 being allocated for data, but there is no information there, or on the channel chart, advising of the emergency channels, call channel or repeater input/output channels. It clearly gives the impression that the only channels to be avoided are 22 and 23. On the positive side it does advise that the unit uses CB frequencies.

These units retail from DSE and Tandy stores for \$19.95 each, and are very popular amongst children where they are considered ‘toys’. Even at the low power of 500mW these units are capable of causing interference to the emergency channels if operated within range of a 5/35 emergency repeater or even an emergency Monitor, especially if the call for assistance is weak and low in comparison with the signal from this set.

SERVICE AND REPAIR

If your radio is not performing as it should, take it to the store of purchase for assistance.

Modifying or tampering with the radio's internal components can cause a malfunction and may invalidate its warranty.

Never open the radio's case, and never change or replace anything in your radio except batteries.

SAFETY INFORMATION

To minimise your exposure to electromagnetic radiation, always hold the transceiver at least 2.5cm away from your body and limit the transmit duration to 2 minutes in any 6 minute period.

GENERAL NOTE

Channel 22 and 23 are designed for short duration transmissions (max 3 seconds in 60 minutes), and typically used for remote data transmitters. Voice operation is not permitted on these channels.

TECHNICAL SPECIFICATIONS

Description	Specs
Power Output	520mW
Operating Frequency	476.4250 – 477.4000 MHz
Channels	40
Quiet Codes	38
Modulation	FM
Talk Range	Unobstructed conditions. Up to 3 KM (2 Miles)
Power Source	4 AAA Alkaline Batteries or Rechargeable Batteries
LCD	Backlit

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AUSTRALIAN CBFR CHANNEL FREQUENCIES (MHz)

CHANNEL	FREQUENCY	CH	FREQUENCY	CH	FREQUENCY
1	476.425	15	476.775	29	477.125
2	476.450	16	476.800	30	477.150
3	476.475	17	476.825	31	477.175
4	476.500	18	476.850	32	477.200
5	476.525	19	476.875	33	477.225
6	476.550	20	476.900	34	477.250
7	476.575	21	476.925	35	477.275
8	476.600	22	476.950	36	477.300
9	476.625	23	476.975	37	477.325
10	476.650	24	477.000	38	477.350
11	476.675	25	477.025	39	477.375
12	476.700	26	477.050	40	477.400
13	476.725	27	477.075		
14	476.750	28	477.100		

QUIET CODE CHART

Code	Frequency(Hz)	Code	Frequency(Hz)	Code	Frequency(Hz)
1	67.9	14	107.2	27	167.9
2	71.9	15	110.9	28	173.8
3	74.1	16	114.8	29	179.9
4	77.0	17	118.8	30	186.2
5	79.7	18	123.0	31	192.8
6	82.5	19	127.3	32	203.5
7	85.4	20	131.8	33	210.7
8	88.5	21	136.5	34	218.1
9	91.5	22	141.3	35	225.7
10	94.8	23	146.2	36	233.6
11	97.4	24	151.4	37	241.8
12	100	25	156.7	38	250.3
13	103.5	26	162.2		

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Appendix C – Example of Improved Information

Taken from the Uniden UH041 / UH041P Operating Guide. Notice how with very little modification to the chart shown above the user is provided with more correct information about the CB channel allocations. There is still room for more information, however at least this version shows both emergency channels and the call channel.

UHF CHANNELS & FREQUENCIES

CH No.	Simplex Mode Transmit / Receive Frequency (MHz)	Duplex Mode Transmit Frequency (MHz)	CH No.	Simplex Mode Transmit / Receive Frequency (MHz)
1	476.425	477.175 CH31	21	476.925
2	476.450	477.200 CH32	22	476.950
3	476.475	477.225 CH33	23	476.975
4	476.500	477.250 CH34	24	477.000
5	476.525	477.275 CH35	25	477.025
6	476.550	477.300 CH36	26	477.050
7	476.575	477.325 CH37	27	477.075
8	476.600	477.350 CH38	28	477.100
9	476.625		29	477.125
10	476.650		30	477.150
11	476.675		31	477.175
12	476.700		32	477.200
13	476.725		33	477.225
14	476.750		34	477.250
15	476.775		35	477.275
16	476.800		36	477.300
17	476.825		37	477.325
18	476.850		38	477.350
19	476.875		39	477.375
20	476.900		40	477.400

NOTE: Channel 05 and 35 are Emergency Channels and channel 11 is a Calling Channel. Channels 22 and 23 are used for telemetry and telecommand applications, voice communications are not permitted on these channels.

Appendix D – Generic Channel Chart

This chart has been produced for distribution amongst retailers and operators to advise of the legal channel allocations as well as those generally used and accepted throughout Australia. It is presented here in the hope that manufacturers will either utilise this information in compiling their own versions, or use this chart, to distribute to retailers re-selling their products. This would help to eliminate the false information being provided by some retailers.

AUSTRALIAN UHF CB/PERSONAL RADIO SERVICE CHANNEL ALLOCATIONS

In Australia, although there is no individual licence needed to use this equipment, it is still governed by the *Citizens Band Radio Stations Class Licence* and the *Radiocommunications Act*. Under this Federal legislation certain channels have been reserved for specific use. Some other channels have also been designated for certain uses by general agreement. These are **National** allocations – there may be channels used locally for other purposes, however these uses are not part of the legislated channel allocations.

USED FOR	CHANNELS	COMMENTS
Repeaters * (range extenders) Established by law	1 to 8 (31 to 38)	Transmitting on these channels within range of a repeater will increase the communications range. A repeater needs two channels to work, i.e. 1 and 31 up to 8 and 38, thus, channels 31 to 38 should also be avoided from use.
Emergency Calling Established by law	5 & 35	Can be used by anyone in an emergency situation ONLY . Ch 35 is used by 5/35 Repeaters. You should NOT use channel 35 for normal contacts!
Calling Established by law	11	To call or locate another station. Parties must then switch to a conversation channel.
Conversations Established by law	9, 10, 12 to 21, 24 to 30, 39	Used for conversations between stations
<u>Data</u> Transmissions Established by law	22, 23	No voice transmissions allowed on these two channels. Reserved for telemetry & telecommand.
Highway Communications (Legally Recommended Use)	40	Mainly used by Truck Drivers and other Highway users
Caravaners, Campers (Generally Accepted Use)	18	Holiday Maker's communication channel, e.g., when in convoy
4WD Drivers (Generally Accepted Use)	10	Used by 4WD enthusiasts, clubs, convoys and in national parks.

* Although the Class Licence does permit the use of channels 1 – 8 and 31 – 38 for normal conversations (except channels 5/35) when there is no repeater within range, as atmospheric conditions can cause signals to travel excessive distances, the use of these channels even outside the known coverage area of a repeater could cause interference to distant repeater stations.