



Australian Communications & Media Authority

Spectrum Proposals: 403 – 520 MHz

Proposals for future arrangements in the 400 MHz band

Reply Submission from the

Australian Citizens Radio Emergency Monitors
Incorporated

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Abbreviations

ACMA	Australian Communications & Media Authority.
ACREM	Australian Citizens Radio Emergency Monitors Incorporated.
CB	Citizens Band Radio Service.
CBRS	Citizens Band Radio Service.
kHz	Kilohertz.
MHz	Megahertz.
RDF	Radio Direction Finding.
UHF	Ultra High Frequency. The portion of the radiofrequency spectrum between 300 MHz and 3000 MHz.

Introduction

ACREM would like to thank the ACMA for providing this opportunity for stakeholders to comment on the proposed changes. We also appreciate that ACMA have taken into consideration the concerns expressed in our response to the first Discussion Paper, particularly concerns regarding interference to the UHF CBRS emergency channels.

As with our response to the initial discussion paper, we have limited our response to those matters affecting the UHF CBRS and, in particular, matters that have the potential to impact on the operation of the two emergency channels.

Since the UHF CBRS band was introduced in Australia two channels, being channels 5 (476.525 MHz) and 35 (477.275 MHz) have been reserved for emergency use only. Even with the proliferation of mobile telephone technology the CB emergency channels are still widely used, with volunteer monitors often responding to calls for assistance from the community. Although the number of calls today are significantly less than the number of calls received during the 1980's, when CB was at its peak, there are still sufficient calls in many regions to justify the protection of these channels.

Following various natural disasters the CB emergency channels are often used by trucks and travellers either reporting road hazards or seeking information on weather conditions and road closures, In June 2007 ACREM Monitors from Cessnock, Maitland, Newcastle and Krumbach responded to the flooding in Cessnock and Maitland when they established and maintained two 24 hour monitoring stations in the Cessnock and Maitland region. During a 2 day period at the height of the Maitland flooding ACREM Monitors responded to well over 100 calls on the CB emergency channels, both UHF and 27MHz. Many of these calls were from truckies and travellers stuck on closed roads and seeking information about alternate routes so they could return to their home and family, and ACREM Monitors relayed up-to-date information from the Roads & Traffic Authority Traffic Management Centre (TMC) and the Bureau of Meteorology. This one event alone proves that the CB emergency channels have a vital and valuable role to play in the community and are therefore deserving of protection from interference.

UHF Citizen Band Radio Service

Proposals

10. ACMA proposes to undertake a process to implement revised arrangements for the UHF CBRS based on the following core concepts:

- extension of the CBRS band by 6.25kHz at the top edge of the band
- the reduction to 12.5kHz channels for CBRS simplex channels
- the retention of 25kHz channels for the eight (8) existing repeater channel pairs, including the emergency channels and the two (2) existing telemetry/telecommand channels
- review the coordination and assignment rules for repeater channels

As mentioned in our response to the discussion paper¹, overall this organization supports the concept of increasing the number of channels on the UHF CBRS band. An increase in the popularity of the UHF CB band for business use has caused significant congestion on the band in and around major cities, and an increase in channel availability would help to alleviate this congestion to some degree, however, we had several concerns regarding this change that we identified in the response:

1. Maintaining emergency channel number allocations
2. Interference to emergency channels during phase-in period
3. Publicity and enforcement of band changes
4. Cost of changes to volunteer organizations

1. Maintaining emergency channel number allocations

The ACMA have proposed changes only to the simplex channels, keeping the repeaters and emergency channels unchanged in both frequency assignment and channel designation. We believe that this proposal satisfactorily resolves the issues we identified regarding possible changes to these channels, and presents a suitable alternative that will cause no concerns to CB monitoring groups.

2. Interference to emergency channels during phase-in period

The proposal put forward by ACMA resolves this concern. With no changes to the 25kHz spacing of channels 1 to 8 and 31 to 38 there is no real potential for interference concerns caused by the new channel spacings.

3. Publicity and enforcement of band changes

This subject remains a major concern to this organization. Compliance action by ACMA has slowly declined since the introduction of the Class Licence, to the point where some hobbyists now admit they would much prefer to pay a licence fee if it meant ACMA would act on stations openly breaching the CBRS operating conditions. Of great concern to ACREM was a conversation reported to us by a Queensland repeater licensee. It was alleged that upon contacting ACMA to seek assistance locating and resolving deliberate interference to his repeater, the ACMA officer said words to the effect “we don’t care about CB, we know people run high power and block people out but we just don’t care anymore”. When asked about interference to the emergency channels the officer allegedly said “if they have a problem they should buy a mobile phone”.

Obviously we have no way of confirming that these comments did actually occur, and if so which ACMA officer may have been responsible, however if the alleged comments were indeed made, this view by ACMA compliance staff is unacceptable, and could very easily cost a life. At least one death has already occurred due to deliberate interference to an emergency channel repeater, blocking a call for help for some 40 minutes. Whilst volunteer monitors try very hard to resolve interference themselves, even

¹ “Spectrum Options: 403-520MHz: Initial consultation on future arrangements for the 400MHz band”, April 2008, Australian Communications & Media Authority.

tracking some users in order to educate them, there are times when they are simply unable to resolve the problems, either due to a lack of sophisticated RDF equipment, or the unwillingness of the operators to observe the emergency channel allocations. In these instances ACMA has a legal obligation to the public to take action to resolve the interference as quickly as possible, and to openly advise a repeater licensee that ACMA is unwilling to even investigate, let alone act, is a cause for extreme concern for all CBRS users.

Concerns over ACMA action appears to be worse in Victoria where several volunteer monitors now refuse to conduct any type of monitoring due to the deliberate misuse of the emergency channel repeaters, and threats of physical violence against the monitors trying to clear the channels. One monitor in particular has had his residential address broadcast over these channels by operators threatening to do him harm, and now refuses to undertake any form of monitoring for fear of his own safety. Again, it is alleged that numerous reports to ACMA have failed to obtain any response, and so these operators continue to ignore the Class Licence allocated emergency channels.

Whilst we appreciate that ACMA has to justify the allocation of resources, and the CBRS bands are a low priority, the ACMA nonetheless has an obligation to enforce the provisions of the Class Licence and the Radiocommunications Act. In recent years in Queensland, ACMA staff from the Brisbane office did play a very active role in dealing with operators misusing the emergency channels, working with local monitors to resolve issues, at times within hours of first receiving the complaint. We believe, from information obtained at the time, that ACMA officers located several operators using UHF CB channel 35, in some cases issuing a \$220 infringement penalty notice. This was of great assistance to the volunteer monitors who tried their best to resolve the interference before contacting ACMA, and also showed local CBRS users that ACMA was willing to enforce the provisions of the Class Licence. Since then there has been a staffing change, as well as an internal change to how ACMA receive and respond to interference reports, and as such no further obvious compliance action has been undertaken. In fact, contact with the office by a representative of our organization was met with some indifference and very little interest in working with local members to try and keep the emergency channels clear of deliberate interference.

4. Cost of changes to volunteer organizations

The concerns of this organization regarding possible cost to volunteer groups concerned changes to the repeater channels, and the costs of upgrading or replacing repeaters to comply with the new spacing. However as mentioned above the proposed changes resolve this issue and remove this concern expressed in our first response.

Channel Numbering

One proposal for the new channel numbering simply adds the suffix “A” or “B” to the existing channel numbers, interleaving the new frequencies. This results in the channel numbering shown in table 1:

Old Chnl	New Chnl	Freq.	Notes	Old Chnl	New Chnl	Freq.	Notes
1	1	476.4250	Repeater out	20	20A	476.9000	
2	2	476.4500	Repeater out	N/A	20B	476.9125	New 12.5kHz ch.
3	3	476.4750	Repeater out	21	21A	476.9250	
4	4	476.5000	Repeater out	22	22	476.9500	Data
5	5	476.5250	Emergency	23	23	476.9750	Data
6	6	476.5500	Repeater out	24	24A	477.0000	
7	7	476.5750	Repeater out	N/A	24B	477.0125	New 12.5kHz ch.
8	8	476.6000	Repeater out	25	25A	477.0250	
9	9A	476.6250		N/A	25B	477.0375	New 12.5kHz ch.
N/A	9B	476.6375	New 12.5kHz ch.	26	26A	477.0500	
10	10A	476.6500		N/A	26B	477.0625	New 12.5kHz ch.
N/A	10B	476.6625	New 12.5kHz ch.	27	27A	477.0750	
11	11A	476.6750	Calling	N/A	27B	477.0875	New 12.5kHz ch.
N/A	11B	476.6875	New 12.5kHz ch.	28	28A	477.1000	
12	12A	476.7000		N/A	28B	477.1125	New 12.5kHz ch.
N/A	12B	476.7125	New 12.5kHz ch.	29	29A	477.1250	
13	13A	476.7250		N/A	29B	477.1375	New 12.5kHz ch.
N/A	13B	476.7375	New 12.5kHz ch.	30	30A	477.1500	
14	14A	476.7500		31	31	477.1750	Repeater in
N/A	14B	476.7625	New 12.5kHz ch.	32	32	477.2000	Repeater in
15	15A	476.7750		33	33	477.2250	Repeater in
N/A	15B	476.7875	New 12.5kHz ch.	34	34	477.2500	Repeater in
16	16A	476.8000		35	35	477.2750	Emergency
N/A	16B	476.8125	New 12.5kHz ch.	36	36	477.3000	Repeater in
17	17A	476.8250		37	37	477.3250	Repeater in
N/A	17B	476.8375	New 12.5kHz ch.	38	38	477.3500	Repeater in
18	18A	476.8500		39	39A	477.3750	
N/A	18B	476.8625	New 12.5kHz ch.	N/A	39B	477.3875	New 12.5kHz ch.
19	19A	476.8750		40	40A	477.4000	Road Channel
N/A	19B	476.8875	New 12.5kHz ch.	N/A	40B	477.4125	New 12.5kHz ch.

Table 1 – proposed new channel numbering.

We would submit that this format will be confusing, especially during the phase-in period when there will be current 40 channel sets combined with new 60 channel sets. Even though the new sets will be operating with a narrower bandwidth, there will remain some level of compatibility between the 12.5kHz and 25kHz devices.

We would propose retaining the current channel numbering scheme (1 to 40) with the new 12.5kHz frequencies allocated channel numbers from 41 to 60. This would improve compatibility between old and new equipment during the phase-in period as the first 40 channels of new sets would match the operating frequency of the older equipment. This would also assist the transition for users of 25kHz equipment when they upgrade, as the first 40 channels would already be familiar to them, whereas the creation of “A” and “B” channels effectively introduces an entirely new channel numbering scheme, forcing users to refer to “channel conversion charts” if they are communicating with stations using a mix of 12.5 and 25kHz equipment, or for business users when they wish to change their fleet over but remain using the same frequency.

Whilst this is not a major issue, it is nonetheless an inconvenience that is not essential given our technology today which would make the alternate numbering scheme easily possible. The alternate channel numbering that we would like to suggest is shown at table 2 below.

Old Chnl	New Chnl	Frequency	Notes	Old Chnl	New Chnl	Frequency	Notes
1	1	476.4250	Repeater output	31	31	477.1750	Repeater input
2	2	476.4500	Repeater output	32	32	477.2000	Repeater input
3	3	476.4750	Repeater output	33	33	477.2250	Repeater input
4	4	476.5000	Repeater output	34	34	477.2500	Repeater input
5	5	476.5250	Emergency	35	35	477.2750	Emergency
6	6	476.5500	Repeater output	36	36	477.3000	Repeater input
7	7	476.5750	Repeater output	37	37	477.3250	Repeater input
8	8	476.6000	Repeater output	38	38	477.3500	Repeater input
9	9	476.6250		39	39	477.3750	
10	10	476.6500		40	40	477.4000	Road
11	11	476.6750	Calling	N/A	41	476.6375	New 12.5kHz channel
12	12	476.7000		N/A	42	476.6625	New 12.5kHz channel
13	13	476.7250		N/A	43	476.6875	New 12.5kHz channel
14	14	476.7500		N/A	44	476.7125	New 12.5kHz channel
15	15	476.7750		N/A	45	476.7375	New 12.5kHz channel
16	16	476.8000		N/A	46	476.7625	New 12.5kHz channel
17	17	476.8250		N/A	47	476.7875	New 12.5kHz channel
18	18	476.8500		N/A	48	476.8125	New 12.5kHz channel
19	19	476.8750		N/A	49	476.8375	New 12.5kHz channel
20	20	476.9000		N/A	50	476.8625	New 12.5kHz channel
21	21	476.9250		N/A	51	476.8875	New 12.5kHz channel
22	22	476.9500	Data	N/A	52	476.9125	New 12.5kHz channel
23	23	476.9750	Data	N/A	53	477.0125	New 12.5kHz channel
24	24	477.0000		N/A	54	477.0375	New 12.5kHz channel
25	25	477.0250		N/A	55	477.0625	New 12.5kHz channel
26	26	477.0500		N/A	56	477.0875	New 12.5kHz channel
27	27	477.0750		N/A	57	477.1125	New 12.5kHz channel
28	28	477.1000		N/A	58	477.1375	New 12.5kHz channel
29	29	477.1250		N/A	59	477.3875	New 12.5kHz channel
30	30	477.1500		N/A	60	477.4125	New 12.5kHz channel

Table 2 – suggested alternate channel numbering

Phase-in Period

The proposed phase-in period of 5 years is seen as reasonable, although unlike larger commercial users most hobbyists would be unlikely to purchase new equipment within 5 years if their existing equipment is reasonably new.

The proliferation of commercial Land Mobile transceivers on the UHF CBRS band would reduce this issue as most of these should be capable of being reprogrammed to operate with the new channel scheme, however those hobbyists operating UHF CBRS transceivers may not be able to afford new equipment within the 5 year time frame. We believe there are two possible solutions to this problem:

1. as proposed, some room for compromise should exist where hobbyists are unable to upgrade equipment within the 5 year period. The risk with this is that hobbyists refusing to change equipment could cause interference to adjacent 12.5kHz channels for some time after the phase-in period expires. As there is no interference protection on the CBRS this could render the increased channels useless in major cities if a majority of hobbyists continue to utilise 25kHz equipment.
2. where equipment design makes this possible, manufacturers should be encouraged to offer low-cost upgrades of existing equipment that is less than 5 years old. This option may encourage many hobbyists on limited budgets, and even small business owners, an affordable solution to obtaining 12.5kHz compliant equipment without having to purchase all new equipment.

We would like to ask ACMA to liaise with manufacturers to investigate and encourage option 2 where equipment design allows this option.

Coordination & Assignment Rules for Repeaters

Whilst the proposed new channel scheme does not provide any new repeater channels, the proposed option of reviewing the coordination and assignment rules could help reduce the current problems by allowing more repeaters to be licensed in major cities.

One concern for consideration is the potential for nearby repeaters on the same channel to interfere with each other. Just one example of this involves the CHN05 and SIN05 repeaters located at Charlestown and Mt Arthur respectively. Although these emergency channel repeaters are separated by the required minimum distance, ACREM Monitors operating in Cessnock, Maitland and some other locations often receive both repeaters with strong signals. On more than one occasion calls being received on one repeater have been blocked by transmissions from the other repeater, causing concern for those Monitors affected and forcing them to erect directional antenna arrays to allow them to choose which repeater they will monitor.

Whilst we fully support the relaxation of some assignment criteria for UHF CBRS repeaters we would ask ACMA to bear in mind the potential for nearby repeaters to cause this kind of interference, even when minimum legal distances are observed.

Summary

Overall we believe that ACMA have proposed sensible and appropriate solutions to the expansion of the UHF CBRS band, although we would like to see consideration given to the alternate channel numbering scheme shown in table 2.

We therefore support the following proposals:

1. The extension of the CBRS band by 6.25kHz at the top edge of the band; and
2. The reduction to 12.5kHz channels for CBRS simplex channels; and
3. The retention of 25kHz channels for the eight (8) existing repeater channel pairs, including the emergency channels and the two (2) existing telemetry/telecommand channels; and
4. Review the coordination and assignment rules for repeater channels.

We would also ask ACMA to recommence active enforcement action on the CBRS frequencies, where the operation of offending stations pose a significant risk to public safety due to interference to the emergency channels. Despite common beliefs these channels are used, especially in areas where mobile telephone service may be lacking or where telephone services have failed due to some other emergency (e.g. fires, storms, floods, etc). It is not uncommon for volunteer monitors to action calls concerning the immediate safety of life and/or property, and the fact that these channels are within the Citizens Band Radio Service should not affect the level of compliance enforcement that emergency channels should receive.

Monitors volunteer their time and also their radio equipment, telephone service, etc, to serve their communities and help save lives. For these dedicated volunteers to be forced to cease monitoring due to a fear for personal safety, or due to the levels of deliberate interference on the repeaters, is unacceptable regardless of what radio service we are dealing with. These operators feel that ACMA have all but "given up" on the CBRS bands and believe that it is only a matter of time before more lives are lost due to deliberate interference blocking legitimate callers urgently needing assistance.

We would like to thank ACMA for providing this opportunity to respond to the proposed changes, and for their understanding regarding the concerns expressed over changes to the emergency channels.