

Review of submissions, *Frequency use at low level in Class G airspace –* Final Report

Civil Aviation Safety Authority (CASA)

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1 Glossary

Key Terms

The following key terms are used to refer to the feedback provided to the Civil Aviation Safety Authority (CASA) about the Discussion Paper *Frequency use at low level in Class G airspace* Discussion Paper (DP):

1. *Options* refer to the two main options addressed by CASA in the DP, namely the preference to retain Area VHF (Option 1) and the preference to revert to MULTICOM (Option 2).
2. *Sub-options* refer to the 13 multiple choice options available in the online survey (Section 3.2).
3. *Respondents* refer to the 390 individuals or organisations that responded to CASA's call for industry consultation on the DP. This includes both those completing the online response form and those providing only a submission.
4. A *response* describes the sub-option or set of sub-options selected by any respondent to the online response form. Of the 390 respondents, 381 submitted a response by allocating one or more options.¹
5. A *submission* describes a free text response submitted by any individual or organisation (whether online, via email, or in Word or PDF format). 75 respondents provided submissions.

Acronyms

The report uses and quotes various terms related to frequency use and the aviation industry. The majority of industry terms and acronyms used in the paper are defined in the reference material supplied in the DP, or otherwise quoted verbatim from the submissions. The terms are defined as follows:

Acronym	Description	Acronym	Description
AGL	Above Ground Level	FIS	Flight Information Service
AIP	Aeronautical Information Publication	IFR	Instrument Flight Rules
ALA	Aircraft Landing Area	MHz	Megahertz
AMSA	Australian Maritime Safety Authority	NMOC	Not Marked on Charts
AMSL	Above Mean Sea Level	NOTAM	Notice to Airmen
ATC	Air Traffic Control	RAPAC	Regional Airspace and Procedures Advisory Committee
ATS	Air Traffic Service	RNC	Raster Navigational Charts
CASA	Civil Aviation Safety Authority	RPT	Regular Public Transport
CPL	Commercial Pilot Licence	SIS	Surveillance Information Service
CTAF	Common Traffic Advisory Frequency	SOPs	Standard Operating Procedures
EFB	Electronic Flight Bag	VHF	Very High Frequency
ERSA	En Route Supplement Australia	VFR	Visual Flight Rules
FIA	Flight Information Area	WAC	World Aeronautical Chart

¹ One respondent completed the online response form but did not select any sub-options nor provide a submission (abstention). Eight of the respondents who provided submissions did not provide an online response.

2 Executive Summary

This report presents a synthesis and analysis of the feedback provided to the Civil Aviation Safety Authority (CASA) in relation to its *Frequency use at low level in Class G airspace* Discussion Paper (DP). Feedback was received via both an online response form and written submissions. Nous Group (Nous) undertook quantitative analysis of multiple choice online form responses, and qualitative and quantitative analysis of written submissions to prepare the report.

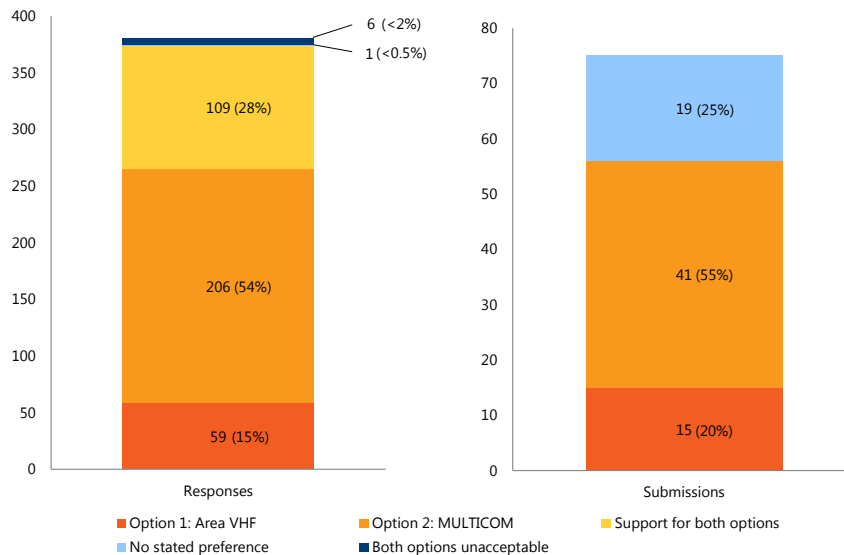
Nous found that the majority of respondents across all response types and demographics indicated a preference for MULTICOM as the common low-altitude VFR frequency in the vicinity of unmarked Aircraft Landing Areas (ALAs) over retaining the use of the designated Area VHF (Very High Frequency). However, the broad preference for MULTICOM was accompanied by detailed arguments in support of Area VHF, including submissions from two agencies responsible for aviation safety. Submissions in relation to the DP often provided views on further issues affecting the aviation community beyond the two proposed options. For example, numerous submissions noted the importance of pilot responsibility and education regarding any regulatory changes in order to ensure optimal results from either option.

The majority of respondents expressed support or acceptance of MULTICOM (Option 2), with considerable resistance to Area VHF (Option 1)

Over half of all responses and submissions expressed exclusive support for MULTICOM (Figure 1).² Though there were detailed arguments to retain the current practice of monitoring and broadcasting on Area VHF, including submissions from two Commonwealth Government agencies responsible for aviation safety, there was broad criticism of its perceived limitations from detractors.

Figure 1: Overall preferences across response types

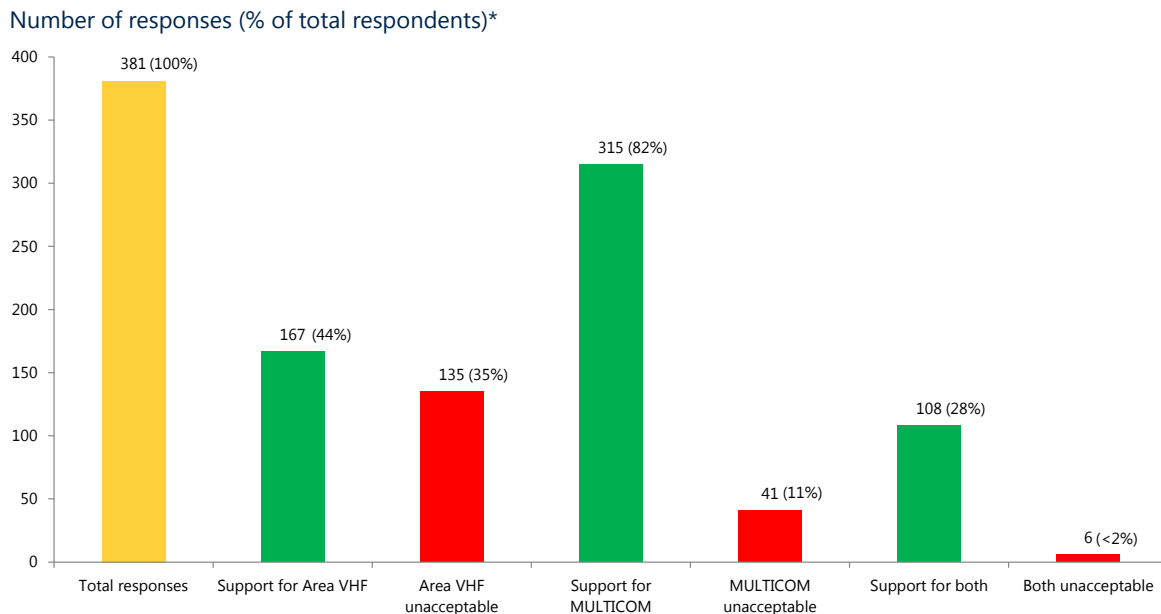
Overall preferences (% of respondents for each response type)



Source: CASA – Data extract from online response form and analysis of submissions.

² Among the submissions, 'exclusive support' refers to submissions written explicitly in favour of one of the two options. Among the responses, 'exclusive support' is based on selection of sub-options outlined in Section 3.2. Respondents who exclusively supported Area VHF selected one or more of sub-options 1.1-1.4 (expressing some level of support for Area VHF) alongside either sub-option 2.8 (MULTICOM not acceptable) or no sub-options related to Option 2. Conversely, respondents who exclusively supported MULTICOM selected one or more of sub-options 2.1-2.7 alongside either sub-option 1.5 or no Option 1 sub-options. The online respondent with 'no stated preference' indicated Option 2 was unacceptable without selecting an Option 1 sub-option.

Figure 2: Overview of online responses³



Source: CASA – Data extract from online response form.

*Note: Percentages cannot be summed as each respondent could select multiple sub-options within their response.

As illustrated in Figure 2, approximately 44% of the 381 online responses expressed some level of support or preference for Area VHF, while 39% indicated that it was “not acceptable under any circumstances.” By contrast, 82% of responses expressed some level of support for MULTICOM while 11% stated that it was unacceptable. A significant proportion of respondents across both response types (28% of responses and 25% of submissions) did not explicitly select one of the two main options. Nonetheless, an overall preference for MULTICOM was observed in qualitative and quantitative analysis across both response types and all demographic groups (Section 3.2.1). Accordingly, Nous’ analysis has found that the majority of respondents favour a return to the pre-2013 situation in which MULTICOM 126.7 MHz was used in the vicinity of an unmarked ALA, except in the vicinity of a discrete Common Traffic Advisory Frequency (CTAF) or Broadcast Area Frequency.

Common themes emerged in relation to safety, coverage and uniformity

Common themes expressed in the submissions highlighted arguments based on the relative safety benefits, coverage, and simplicity of both options. The driving theme of support for Area VHF was the added safety benefits of access to Air Traffic Control (ATC). Conversely, criticism of Area VHF hinged on concerns regarding coverage, frequency congestion, current uptake, and a lack of clarity surrounding the appropriate area frequency for use in any given region.

Support for MULTICOM reflected the inverse: the view that MULTICOM has better coverage, high levels of established use, and is straightforward to use as it is uniform in all regions. Submissions also emphasised a desire to separate ATC services from pilot broadcasting to reduce the risk of over-transmission. However, these arguments were disputed by supporters of Area VHF who also provided criticism of MULTICOM with complaints similar to those levelled at Area VHF (e.g. congestion).

³ As respondents could select multiple sub-options across both Option 1 and Option 2, the percentages represented on this chart cannot be summed. For example, many of the respondents who expressed some level of support for MULTICOM also expressed some level of support for Area VHF – these respondents are represented across multiple columns, among the group that expressed ‘Support for MULTICOM,’ ‘Support for Area VHF,’ and ‘Support for both.’

Beyond the options provided, respondents expressed concerns regarding education, aeronautical charts, carriage requirements, and general information provision

A significant aspect of the submissions was commentary that extended beyond the scope of the two options proposed in the DP. This included broader concerns about trends and practices in the aviation community not directly related to frequency usage. The most frequent theme of these views was an emphasis on the importance of a uniform, robust approach to aviation community education that reinforced pilot responsibility and awareness. Other key themes included:

- alterations to aeronautical charts, especially concerning Flight Information Area (FIA) boundaries
- recommendations for alternative low level frequencies
- strengthened regulations regarding aircraft equipment
- improvements to CASA's information provision in the future, particularly regarding notification of regulation changes and future Discussion Papers.

Overall, these comments reflected a desire amongst the majority of respondents that any regulatory change resulting from this consultation process should be accompanied by a comprehensive publicity and education program, and eventually strengthened by further consultation and reform.

3 Purpose and context for the report

This report provides a summary and analysis of feedback provided to CASA in regards to the DP. The feedback was provided by a variety of members of the aviation community and constitutes industry consultation on the issue of the most appropriate frequency for use in low level Class G airspace in Australia. This section provides an overview of the context for this report, including summaries of:

- the content of the DP
- the volume and nature of the feedback received
- the methodology and purpose of the Nous report
- the key terms used in the report.

3.1 The Discussion Paper outlined the context of low level frequency use in Australia and summarised the advantages and disadvantages of its two proposed outcomes

The DP was published by CASA on 27 February 2017. The paper sought feedback from individuals and organisations in the aviation community on the subject of the most appropriate very high frequency (VHF) radio frequency for use by pilots in low level Class G airspace, specifically in the vicinity of unmarked aerodromes and Aircraft Landing Areas (ALAs) (DP, p. 17). The DP was composed of four sections:

- reference material
- context for the industry consultation
- discussion of the objectives, historical background and international context, key considerations, and suggested options for amending the regulations surrounding low level frequency usage
- a supplementary risk assessment brief.

The two options put forward for consideration in the responses and submissions were:

1. use of the relevant Area VHF in Class G airspace for aerodromes not published on an aeronautical chart
2. use MULTICOM as the common low-altitude VFR frequency (DP, p. 18).

The DP stated that the options do not apply at aerodromes that are published on an aeronautical chart or within a Broadcast Area, and is limited in scope to aircraft equipped with radios.

The DP stated that CASA's preferred option is "to retain, but enhance, the current practice of using the relevant Area VHF in Class G airspace for aerodromes not published on an aeronautical chart" (DP, p.32). However, the DP also noted that "RAPAC [Regional Airspace and Procedures Advisory Committee] conveners, advocating for a specific segment of the aviation industry, propose the use of MULTICOM as the common low-altitude VFR frequency across Australia" (DP, p. 32). The DP invited the contribution of "all airspace users" to the discussion surrounding its two proposed options (DP, p. 32).

3.2 CASA's consultation process invited online survey responses and free text submissions

The DP invited feedback from members of the aviation community through two channels: an online response form (survey) and free text submissions. The feedback period closed on 5 May 2017. The online

response form collected biographical information and requested indicators of required confidentiality ('confidential' or 'public and attributable') and prompted the respondent to select between 13 sub-options related to the two proposed options. There was no restriction on the number of sub-options that could be selected and the majority of respondents selected two or more sub-options. The sub-options were:

1. Sub-options for Area VHF (Option 1)	2. Sub-options for MULTICOM (Option 2)
1.1 Acceptable without change	2.1 Acceptable with 2,000ft AGL as the low altitude VFR frequency height
1.2 Acceptable with publication of FIA boundaries on World Aeronautical Charts	2.2 Acceptable with 3,000ft AGL as the low altitude VFR frequency height
1.3 Acceptable with publication of World Aeronautical Charts at least annually	2.3 Acceptable with 5,000ft altitude (A050) based on area QNH as the low level VFR frequency height
1.4 Changes would make it acceptable	2.4 Acceptable with 3,000ft altitude (A030) based on area QNH as the low level VFR frequency height
1.5 Not acceptable under any circumstances	2.5 Acceptable with mandatory carriage – by all IFR aircraft – of radios capable of monitoring at least two VHF frequencies
	2.6 Acceptable with mandatory carriage – by RPT aircraft conducting VFR operations – of radios capable of monitoring at least two VHF frequencies
	2.7 Changes would make it acceptable
	2.8 Not acceptable under any circumstances

Respondents selecting sub-options expressing that “changes would make it acceptable” were prompted to provide further details in the online response form. Due to technical difficulties, multiple respondents could not access the comments section. In multiple cases, comments were provided by alternate means such as direct email and received (and analysed) as submissions.

There were no restrictions on free text submissions, and the 75 received submissions ranged from paragraph length up to 19 pages. These were also marked by their authors as either 'confidential' or 'public and attributable.'

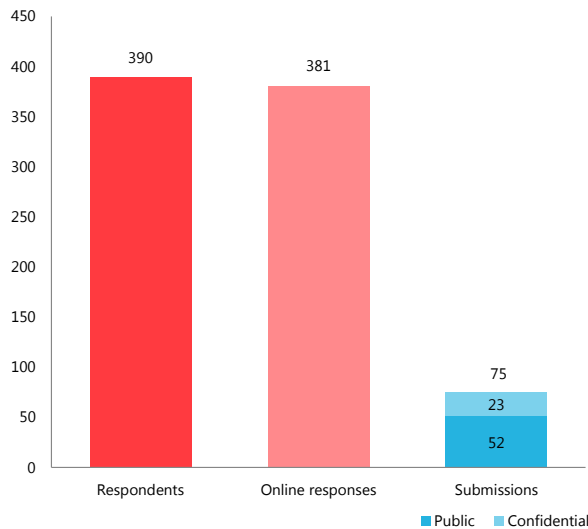
3.2.1 Summary of feedback

In total, there were 390 respondents, 381 responses and 75 submissions to the DP (Figure 3A). Within the submissions, 52 were provided as public contributions and 23 were marked as confidential. Of the submissions, 66 were less than two A4 pages and classified as 'Short' by CASA. The remaining nine submissions ranged from 3—19 pages, and were classified as 'Detailed.'

Of the 390 respondents, 214 individuals (55%) did not declare an affiliation, or provided their response as a private individual (Figure 3B). The remaining 45% of respondents identified themselves as a particular type of airspace user or declared an affiliation to a specific group, organisation or type of organisation. These respondents fell into seven broad categories, listed by the relative volume of responses:

Figure 3A: Summary of response volumes

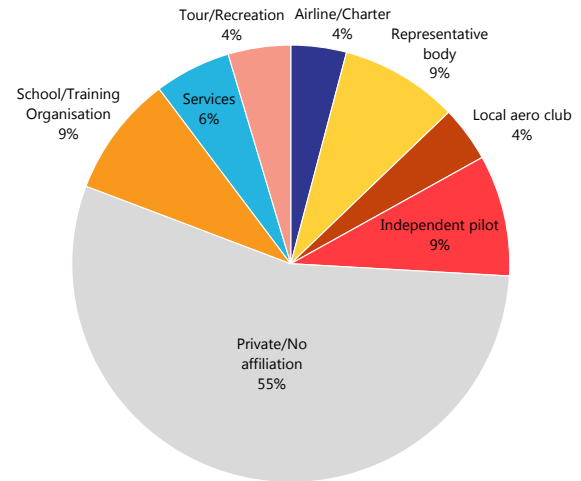
Number of respondents, responses and submissions



Source: CASA – Data extract from online response form and analysis of submissions.

Figure 3B: Demographic overview of respondents

Demographics of respondents



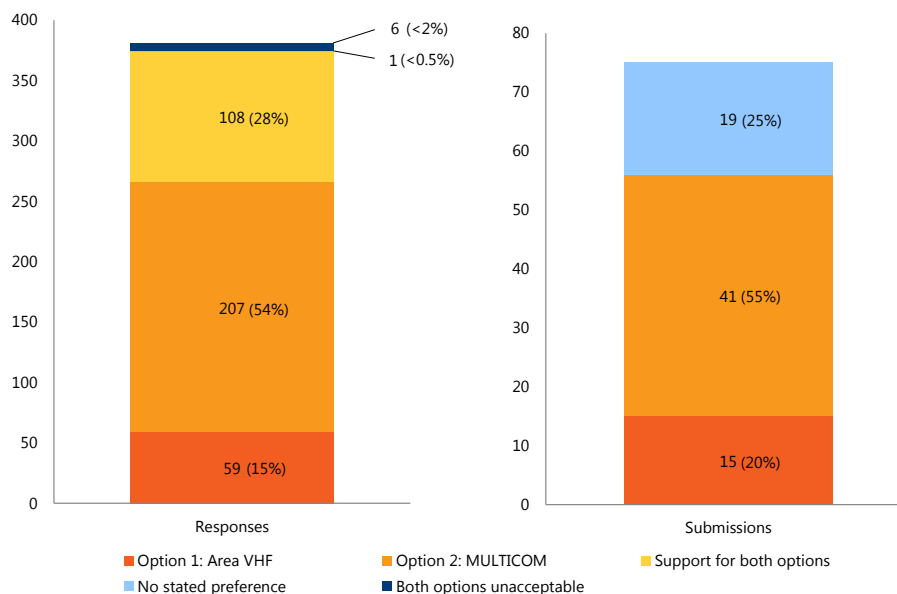
Source: CASA – Responses to 'Organisation' prompt in online response form or self-identification in submissions.

1. Independent pilots and unpowered aircraft users, including gliders (35)
2. Flight schools and pilot and unpowered aircraft training organisations (35)
3. Representative bodies and peak organisations, including two government agencies, two employees of government institutions and two CASA staff (34)
4. Aviation services, including airport staff, manufacturers, retail and crop-spraying services (22)
5. Tour and recreational organisations, including ballooning and gliding companies (18)
6. Airlines and charter services (16)
7. Members of local Australian aero clubs (16).

All of the detailed submissions were submitted publically and marked for attribution to their authors. Of these submissions, two were received from Commonwealth Government agencies: one that provides air traffic services (Airservices Australia) and one that provides search and rescue services (Australian Maritime Safety Authority). One submission was from a State Government department (Department of Environment, Water and Natural Resources, Government of South Australia). One submission was received from a past chairman of CASA. The remaining five detailed submissions were submitted by representative bodies – the Aerial Application Association of Australia (AAAA), Honourable Company of Air Pilots Australia (HCAPA), National Aerial Firefighting Centre (NAFC), Regional Airspace and Procedures Advisory Committee (RAPAC) convenors, and Recreational Aviation Australia (RAAus).

Figure 4: Overall preferences across response types

Overall preferences (% of respondents for each response type)



Source: CASA – Data extract from online response form and analysis of submissions.

The responses included 207 responses (54%) which exclusively supported MULTICOM and 59 responses (15%) which exclusively supported Area VHF (Figure 4).⁴ A further 108 responses expressed some level of support for both options, while six responses (<2%) believed neither option was acceptable under any circumstances and one response did not indicate a clear preference.

Of the 75 submissions, 15 (20%) were submitted in favour of Area VHF and 41 (55%) were submitted in favour of MULTICOM. The remaining 19 submissions did not declare an overall preference and commented primarily on issues beyond Option 1 and Option 2, though almost all submissions were primarily concerned with the issue of frequency use in low level airspace. Of the nine detailed submissions, two (22% of detailed submissions) were submitted in favour of Area VHF and five (56% of detailed submissions) were submitted in favour of MULTICOM. The remaining two submissions did not declare an overall preference.

Across all demographic groups, a larger proportion of respondents expressed exclusive support for MULTICOM (Table 1). The highest proportion of MULTICOM support was among members of representative bodies, local aero clubs and individuals from tour and recreational companies (67-69% in each). Relative support for Area VHF was highest among members of flight schools and training organisations, as well as individuals from the aviation services industry (23% in each).

⁴ Among the submissions, 'exclusive support' refers to submissions written explicitly in favour of one of the two options. Among the responses, respondents who exclusively supported Area VHF selected one or more of sub-options 1.1-1.4 (expressing some level of support for Area VHF) alongside either sub-option 2.8 (MULTICOM not acceptable under any circumstances) or no sub-options related to Option 2. Respondents who exclusively supported MULTICOM selected one or more of sub-options 2.1-2.7 (expressing some level of support for MULTICOM) alongside either sub-option 1.5 (Area VHF not acceptable under any circumstances) or no Option 1 sub-options. The online respondent with 'no stated preference' indicated Option 2 was unacceptable without selecting an Option 1 sub-option.

Table 1: Preferences of key demographic groups

Exclusive support across demographics (% of respondents in demographic group)

	Option 1: Area VHF	Option 2: MULTICOM
Airline/Charter	3 (19%)	8 (50%)
Representative body	5 (15%)	23 (68%)
Local aero club	3 (19%)	11 (69%)
Independent pilot	5 (14%)	15 (43%)
Private/No affiliation	31 (14%)	112 (52%)
School/Training	8 (23%)	18 (51%)
Aviation services	5 (23%)	11 (50%)
Tour/Recreation	2 (11%)	12 (67%)

Source: CASA – Data extract from online response form and analysis of submissions.

Each of the themes discussed in Sections 4 and 5 were raised in roughly equal measure by members of different demographic groups. A notable exception included the nine submissions which explicitly raised the perceived coverage limitations of Area VHF (Section 4.3). Over 55% of these submissions (5) were submitted by representative bodies. This included two peak organisations and a submission from the South Australian Department of Environment, Water and Natural Resources (all supporting MULTICOM), as well as acknowledgments in submissions from both Airservices and AMSA (in support of Area VHF).⁵ Another exception to the equal share of themes among demographic groups can be observed in the 15 submissions which criticised the Discussion Paper itself (Section 6.5). These submissions were predominantly submitted by peak organisations and pilot representative bodies (33%) as well as independent pilots (20%).

Overall, the analysis across demographic groups supports the general preference for MULTICOM with only minor variation between different demographics. The predominance of responses and submissions from private individuals or respondents who did not declare an affiliation suggests that, in future, CASA Discussion Papers could encourage respondents to state their affiliation or role in the aviation community in order to gain more from this metric, and provide responses tailored to the preferences of specific segments of the aviation community.

3.3 This report synthesises and analyses responses and submissions to the Discussion Paper

This report provides a summary of the feedback received as part of CASA’s industry consultation on the DP. It has de-identified the majority of information (except where public attribution has been specified by the respondent). Nous has not fact-checked or expressed a value judgment regarding the content of any

⁵ The submission from Airservices, however, stated that despite the potential for limited Area VHF coverage at low levels (which could cause pilot broadcasts not to be heard by ATC) these limitations were mitigated by aircrafts at higher altitudes relaying low level broadcast information to ATC controllers.

of the submissions, and the views expressed in Sections 4, 5, and 6 are representative of their authors' perspectives only.

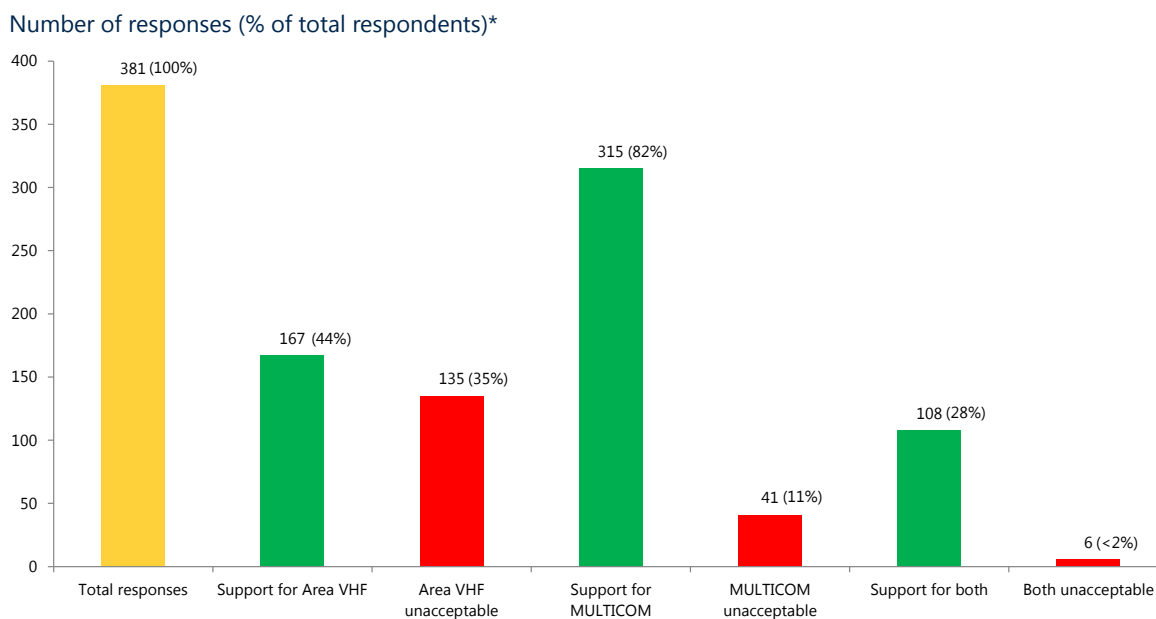
As stated in the DP, the consultation process is intended to assist CASA to make an informed, mutually-agreeable decision on the most appropriate frequency for use in low level airspace and ultimately receive improved feedback from recreational and professional pilots, local aero clubs, flight schools, aviation safety organisations and all other low-altitude airspace users on the clarity and effectiveness of VHF frequency regulations in Class G airspace (DP, p. 4-5). This report serves to aid that decision process.

3.3.1 Methodology of the synthesis and analysis

Nous conducted a quantitative and qualitative analysis of all responses and submissions to CASA regarding the DP. This included supplementary information in emails between respondents and CASA staff (when flagged by the author as a contribution or further comment).

Nous began with a quantitative analysis of the sub-options selected by each respondent to determine how many respondents expressed support for each option, rejected each option, and how many expressed support or rejection of both. Figure 5 presents the overarching findings of this quantitative analysis. More detailed quantitative analysis is presented in Sections 4 and 5.

Figure 5: Overview of online response results⁶



Source: CASA – Data extract from online response form.

*Note: Percentages cannot be summed as each respondent could select multiple sub-options within their response.

Nous complemented the quantitative analysis of responses with quantitative and qualitative analysis of the free text submissions, which addressed all arguments and demographics represented.

⁶ As respondents could select multiple sub-options across both Option 1 and Option 2, the percentages represented on this chart do not sum to 100%. For example, many of the respondents who expressed some level of support for MULTICOM also expressed some level of support for Area VHF/ These respondents are represented in multiple columns, among the group that expressed 'support for MULTICOM,' 'Support for Area VHF,' and 'Support for both'.

This qualitative analysis identified themes in relation to:

- the perceived advantages and disadvantages of the two key options
- general aviation safety
- additional concerns expressed in a variety of the submissions.

Nous analysed each submission to produce insight into the frequency of key concepts and arguments in the submissions, which are then grouped according to their driving themes.

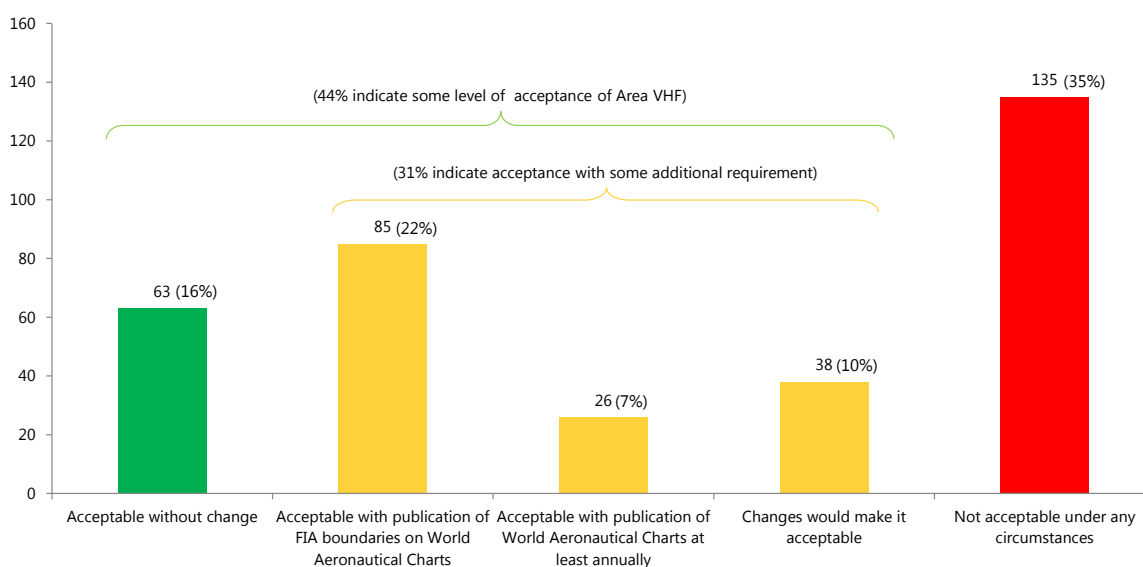
4 Despite some strong support for Area VHF (Option 1), respondents highlighted limitations related to coverage, congestion, and clarity

Option 1 of the DP proposed to “maintain the current policy whereby Area VHF is recommended as the appropriate VHF frequency in the vicinity of an aerodrome not published on an aeronautical chart” (DP, p. 4). Figure 6 presents the number of responses in relation to sub-options regarding Area VHF.

Multiple respondents (16%) indicated that Area VHF is acceptable without change. A significant proportion of respondents (31%) indicated that Area VHF would be acceptable with changes or additional requirements. However, more than one-third of respondents (35%) indicated that Area VHF is not acceptable under any circumstances.

Figure 6: Responses to sub-options regarding Area VHF (Option 1)⁷

Number of responses (% of total respondents)*



Source: CASA – Data extract from online response form.

*Note: Percentages cannot be summed as each respondent could select multiple sub-options within their response.

Over 85% of submissions, regardless of their overall preference, expressed a view on the relative advantages and disadvantages of Area VHF as the low level frequency for use in Class G airspace.⁸ There were 15 submissions (20%) that voted in favour of Area VHF, and each of these submissions expressed the view that it offers significant safety benefits. This related primarily to the availability of Air Traffic Control (ATC) services, particularly Flight Information Services (FIS), and the associated benefits for alerted see-

⁷ As respondents could select multiple sub-options within a single response, these percentages cannot be summed. The numeric figures indicate the number of respondents that selected each sub-option. However, there was often overlap between selections, and any respondent could be represented in more than one of the above columns. This was common amongst the sub-options represented in bracketed subcategories ('some level of acceptance' or 'acceptance with some additional requirement'). The bracketed percentages indicate the overall percentage of respondents who selected at least one sub-option from the respective subcategory.

⁸ The majority of content in the submissions related to discussion, support, or criticism of Area VHF. Though there was detailed discussion of the perceived benefits of MULTICOM among its supporters, a significant proportion of this group expressed support for MULTICOM foremost as an alternative to Area VHF. For this reason, Section 3 of this report is significantly longer than Section 4.

and-avoid (SAA) and search and rescue (SAR) purposes. However, 41 submissions (55%) expressed criticism of Area VHF (in relation to use by low level aircraft) and expressed overall support for MULTICOM. Though several of these submissions acknowledged the benefits of ATC overall, multiple submissions expressed the view that an ATC frequency such as Area VHF should not be used for pilot broadcasting as this may compromise its safety benefits. Other concerns related to Area VHF were coverage limitations at low level, potential frequency congestion, lack of clarity surrounding Flight Information Area (FIA) boundaries, and limited existing uptake. These views are discussed in detail below.

4.1 Supporters highlighted safety benefits of Area VHF, including air traffic services and search and rescue purposes

Of the 15 submissions submitted in support of Area VHF (both with and without changes), almost all respondents argued for its benefits for pilot safety and situational awareness, particularly due to the influence of ATC services. Roughly two-thirds of these responses (9) discussed the benefits of ATC services explicitly. Approximately five respondents noted that VFR pilots in Class G airspace depend on Area VHF, particularly to receive alerts of RPTs or charter flights en route to nearby aerodromes. This was noted as especially the case where paths are close and there is a real risk of collision. A small subsection of the supporters of MULTICOM also noted the safety benefits of Area VHF under certain circumstances. For example, despite the overall preference for MULTICOM in the submission from the Honourable Company of Air Pilots, Australia (HCAPA), its submission also emphasised the need for all pilots to be aware of the Area VHF for their current position at any given moment. This is to ensure that they could contact ATC for assistance if urgently needed. HCAPA emphasised that aircraft departing from a location or reaching altitudes used by IFR traffic should announce their intentions on the Area VHF frequency. This was noted as helping to ensure any IFR pilots in the vicinity may benefit optimally from the ATC services.

Safety arguments regarding Area VHF also included matters specific to unmarked ALAs. Four private pilots emphasised their reliance on Area VHF due to frequent use of private ALAs that are unmarked or unknown to most pilots. They argued that a regulation for using MULTICOM in the vicinity of unmarked ALAs would be counterproductive. In their view, if an aircraft is monitoring Area VHF and they unknowingly approach an unmarked ALA, the aircraft will already be on the correct frequency. By contrast, a pilot on Area VHF who is required to monitor MULTICOM in the vicinity of unmarked ALAs may compromise their situational awareness by constantly scanning for ALAs (to alert a change in frequency) or reduce their safety (by not identifying an ALA and remaining on the incorrect frequency). One submission expressed a similar view in relation to unpowered aircraft. The respondent argued that in-flight frequency changes are particularly dangerous for gliders, and expressed the view that retaining Option 1 would ensure that gliders (who may utilise Area VHF for the duration of a flight) do not have to change frequency when approaching an unmarked ALA. However, approximately five respondents argued that there are low traffic volumes near uncharted aerodromes and that collision risk is already reduced in these areas. Additionally, there is little crossover between MULTICOM users (flying at lower levels) and Area VHF users (including RPTs and charters, flying at higher, 'cruising' altitudes). Therefore, in their view, it is not a significant safety risk if aircraft monitor different frequencies in the vicinity of an unmarked ALA, and mandating Area VHF would have little added safety benefit.

Notably, however, the two detailed responses from government agencies that provide air traffic services (Airservices Australia) and search and rescue services (Australian Maritime Safety Authority) expressed support for retaining Area VHF on the basis of safety. Though supporters of MULTICOM expressed concern about the effectiveness of having ATC services and pilot broadcasts on the same frequency, Airservices argued that the relationship between ATC controllers and VFR pilots is supportive. In their words, "ATC are required to provide VFR traffic information 'where practicable.' VFR aircraft transmitting on an ATC monitored VHF frequency would assist ATC in performing this function." In order to have the best chance of receiving ATC assistance in case of emergency, Airservices recommended that VFR aircraft should regularly monitor area frequency:

Though Airservices acknowledge that aircraft (particularly those with a single VHF radio) “cannot remain on the appropriate VHF frequency at all times... to ensure all aircraft in Class G airspace are given the best opportunity to receive the ATC initiated FIS ATC are required to provide, aircraft should be on the appropriate area VHF frequency unless to meet another requirement of the AIP.”

— *Submission from Airservices Australia*

Additionally, Airservices expressed the view that monitoring Area VHF insures against airspace infringement (including violations of controlled airspace and unauthorised entry into restricted airspace), of which 200 instances have been reported from January-May 2017. They argue that these occurrences are detected by surveillance and may be anticipated by ATC, and the only means of warning is via the area frequency. Monitoring of Area VHF is additionally necessary, in their opinion, to warn aircraft of impending violations and ensure that other aircraft do not have to be maneuvered to ensure separation, and in the case of restricted airspace where military operations may be occurring, the personal safety of the infringing pilot and any passengers.

Similarly, the submission from Australian Maritime Safety Authority (AMSA) expressed support for Area VHF due to its advantages for search and rescue (SAR) purposes. AMSA argues that the SAR alerting service is essential for aviation emergencies, as “having the ability to communicate with an Air Traffic control (ATC) operator in times of crisis... will often avoid the escalation of the circumstances from an IFR [in-flight emergency response] and result in there being no need for JRCC [Joint Rescue Coordination Centre] involvement.” They also support Area VHF as FIS provides “preventative safety measures” through Hazard Alert broadcasts and information to pilots on NOTAMs that include notification of restrictions to airspace/airspace exclusions. These may “provide critical information, or control air traffic to optimise air traffic safety in and adjacent to an active search and rescue incident location. This information would not be heard on MULTICOM and may result in a lack of situational awareness.” The other key argument by AMSA is that radio transmissions on MULTICOM are not recorded whereas Area VHF transmissions are recorded, creating “a distinct advantage from a SAR intel perspective,” especially as adjacent regions using MULTICOM does not assist AMSA in establishing a probability area for searching for SAR operations. Accordingly, the AMSA submission concludes:

“AMSA acknowledges that any regulatory setting will have disadvantages and notes that common concerns raised include Area frequency congestion, Area frequency boundaries not representative of coverage, and Area frequency coverage limitations. However for a SAR perspective the MULTICOM ‘Option 2’ presents significant issues that have the potential of adversely impacting SAR incident response and the safety of aircraft operations in a search and rescue incident location.”

— *Submission from Australian Maritime Safety Authority*

4.2 Submissions demonstrated concern about frequency congestion on Area VHF due to ‘chatter’ or over-transmission

The central theme of criticism for Area VHF concerned the perceived safety limitations of frequency congestion on some Area VHF frequencies, particularly where over-transmitting led to reduction in the effectiveness of ATC broadcasts. This concern was raised in 29 submissions (39%).

Approximately a dozen submissions expressed the view that the majority of Area VHF traffic relates to IFR-type operations and may alienate low level VFR pilots. Of these submissions, a few respondents emphasised the perceived risk that VFR pilots monitoring Area VHF may mute their radios. Due to the

perception that broadcasts are irrelevant to their own operations, the pilots would nullify the benefits of Area VHF's ATC services and therefore the advantages of monitoring Area VHF in the first instance. Three private and recreational pilots confirmed this by stating that when they are within the vicinity of their destination airport they cease monitoring the Area VHF to avoid 'distractions' from critical messages on the CTAF.

There were multiple reasons for Area VHF congestion proposed by the respondents. Approximately ten respondents suggested it was a result of being able to hear all transmissions at some altitudes. One respondent suggested that congestion was due to Airservices' rebroadcasts across multiple area frequencies. One submission criticised Area VHF for congestion in regional areas due to traffic commuting to urban centres. The submission noted that attempts to use Area VHF for instructional purposes were thwarted by frequent interruptions by passenger jets on approach to a major airport.

Approximately 20% of the submissions supporting MULTICOM expressed concern that a broader uptake of Area VHF by industry would result in a significant increase in frequency congestion. This may exacerbate an existing issue as close to ten submissions expressed the belief that ATC are not reporting frequency congestion problems because the "majority" of pilots do not abide by the 2013 amendment, and continue to use MULTICOM. This belief was supported by the past Chairman of CASA, whose previous communications with CASA (enclosed as a supplement to their submission) expressed concern that low levels of congestion on Area VHF suggest the "majority" of pilots ignored the 2013 amendment and continued to use MULTICOM. A member of a RAAus Flying School stated that the Area VHF option does not meet with their training recommendations and the congestion that would be caused by an industry-wide adoption of Area VHF would be "enormous." They illustrated the following congestion problem:

"Just imagine for a minute on a fly-away scenario where there are 10 or more aircraft operating into an aerodrome not published on a chart. Every single aircraft is now calling on the Area VHF frequency. An inbound call, at no less than 10nm, a joining the circuit call, a base leg call, and then finally, (if they can be heard on ground) a clear of runway call. All the time we have RPT traffic trying to contact ATC to advise that they are actually inbound into a Non-Towered aerodrome that has a discrete CTAF frequency and a very high level of traffic, the poor controller is going to be overwhelmed by the congestion on the radio."

— *Submission from the Chief Flying Instructor of a Recreational Aviation Australia Flying School*

Similarly, one submission commented that, due to some company's standard operating procedures (SOPs), the majority of IFR aircraft monitor the CTAF or MULTICOM within 30NM or below 10,000ft AMSL of an ALA, with a second radio monitoring the Area VHF of the nearest large metro region. Three pilots also indicated that these metro Area VHF's are already overly congested (with both IFR and VFR radio traffic) and could be congested further if there was a clarified regulation for all pilots to use Area VHF around unmarked aerodromes.

Though approximately half a dozen supporters of Area VHF acknowledged the potential for frequency congestion the matter was noted as a minor or potentially avoidable problem, and submissions cited the prevalence of non-radio aircraft and emphasised the role of pilot training and discretion. Airservices cited the Corporate Integrated Reporting and Risk Information System (CIRRIS) finding of only 8 reported occurrences of Area VHF frequency congestion since 2007. Airservices' submission noted that the majority of these occurred on frequencies used only in controlled airspace, and emphasised the view that air traffic controllers and pilots are trained to handle over-transmissions safely. Two respondents cited anecdotal evidence that congestion on Area VHF was a misconception. One pilot, who reported monitoring three frequencies while flying, stated:

"The number of broadcasts made on area frequencies by aircraft operating into, at and out of aerodromes that are not marked on aeronautical charts is negligible, with a corresponding negligible risk of 'over-transmitting' 'important' Area frequency transmissions to and from other aircraft."

— *Submission from a private pilot*

The same respondent reported that most in-vicinity broadcasts made on Area VHF are mistakes, brought to the attention of the respective pilot by other aircraft with minimal fuss.

There were five submissions that proposed solutions to address the potential congestion issue. One submission suggested re-broadcasting (ATC and Airservices broadcasts) only across immediate boundaries rather than complete sectors. This would be to ensure that Area VHF is used only to inform aircraft in neighbouring FIAs. A supporter of Area VHF, and member of a local aero club, suggested that to insure against increased congestion, local area controllers could also be made aware of the locations of unmarked ALAs. This would enable them to monitor or remain wary of any circuit calls made from these locations and minimise over-transmitting. AMSA's submission acknowledged both the issue of potential frequency congestion and limitations ('blind spots') in Area VHF coverage but proposed several mitigation strategies. These included the carriage and registration of distress beacons, submitting flight plans, SARTIME or leaving a flight note. The submission also emphasised that, despite the perceived risk of over-transmitting, distress broadcasts may be heard and relayed to ATC by nearby pilots. Furthermore, current regulations require carriage of a HF radio by pilots flying in 'Designated Remote Areas' as an added safety precaution. Overall, AMSA's submission proposed that these solutions could be used to address any potential shortcomings of Area VHF:

AMSA stated that the common issues raised to criticise Area VHF "can be overcome in part with good airmanship," as well as existing regulations, such as the requirement of carriage of HF radio in remote areas, the "overarching obligation of the pilot in command to take steps to ensure their own safety and the safety of others" through responsibility and discretion in the selection of frequencies, "such as in circumstances where reception of an 'Area' frequency may be compromised, as well as how that risk may be mitigated."

— *Submission from the Australian Maritime Safety Authority*

4.3 Some respondents expressed safety concerns regarding 'blind spots' in Area VHF coverage

Concerns about potential congestion on Area VHF were frequently accompanied by criticism about perceived coverage limitations. A key theme of submissions supporting MULTICOM was that Area VHF frequencies are not designed for broadcasts in Class G airspace and this results in significant 'blind spots' or areas of limited coverage. This was raised in nine submissions (12%). Of these submissions, one-third suggested that this coverage concern was the key reason to support retention (as before the 2013 AIP amendment) of MULTICOM as the default frequency in Class G airspace. An additional third of the submissions noted that VHF black spots affect multiple areas of Australia, particularly its remote regions. As stated in one submission:

"There are large black spot areas in G airspace all over the country, including close to major centres, where two way communications with ATC is not possible. Because neither pilots nor ATC can hear each other in these areas, there is the serious risk of unintentional jamming of ATC transmissions to controlled airspace traffic. The safety implications of this are obvious."

– *Submission from a member of a Victorian Regional Airspace And Procedures Advisory Committee*

This submission lists multiple locations where the designated area frequency is not available until particular altitudes (as high as 12,500ft in Devonport Downs) but an alternative frequency is viable on the ground. Another submission, from a member of a local flying school, expressed the view that the benefits of Area VHF's ATC services is nullified by its low levels of coverage at low level altitudes, due to ground based radio antenna positioning or lack of adequate repeaters.

Despite Airservices support for Area VHF overall, its submission acknowledged the height limitations of Area VHF, stating that aircraft below A030 or 2000ft AGL are often not detected by VHF receivers and therefore not heard by ATC. The system therefore relies on calls being relayed by aircraft at higher altitudes. To address this, several respondents urged that if Area VHF is to become the prescribed frequency, VHF radio coverage maps for ATC coverage at 3,000FT AGL must be provided, and improvements must be made to the ADS-B map at 5,000ft AGL.

4.4 Respondents argued that selection of the appropriate Area VHF is complicated by a lack of clarity surrounding boundaries and markings on charts

Over one-third of all submissions (26) expressed concerns about the retention of Area VHF due to their perception that there is a lack of clarity surrounding area boundaries, as well as a lack of consistency in how boundaries and ALAs are marked on various charts. The concern among these submissions was that a lack of clarity would limit a pilot's ability to discern the appropriate area frequency for use at different points in any journey. Nearly one-quarter of submissions (17) expressed the view that it is not acceptable for aerodromes to be marked on some but not all major charts, and argued for unified aerodrome listing across the available paper and electronic charts. A subset of these respondents expressed the view that aerodrome owners/operators should not be allowed by CASA to request that their aerodrome is not shown on charts if it meets CASA's definition of a 'busy' aerodrome.

The issue of conflicting or unclear representations of boundaries and ALAs across different charts was raised in 14 submissions (19%), 12 of which expressed the belief that this lack of clarity creates challenges for using area VHF in the vicinity of unmarked ALAs. The submission from the South Australian Department of Environment, Water, and Natural Resources provided a particularly comprehensive description of this perceived lack of clarity. The submission expressed the following beliefs:

1. "The concept of NMOC ['not marked on charts'] is not well defined," as there are significant variations between different charts and between different editions of the same charts. They believe that it is therefore unclear which chart is 'definitive' in determining NMOC status, and if Option 1 is retained, the differentiation between marked and unmarked ALAs will become a safety problem.
2. "Many airstrips are on or near FIA frequency boundaries," making the correct frequency unclear.
3. "Many NMOC airstrips are in the vicinity of an airstrip that is marked on charts," which makes it unclear whether to use the area frequency or the frequency of the marked ALA.
4. "EFBs [electronic flight bags] have a different concept of "marked on charts" to paper maps," and that the use of electronic charts makes NMOC status more ambiguous due to variations from traditional paper charts.

Of the one-third of submissions commenting on clarity surrounding boundaries and charting, 12 submissions (16% of all submissions) described ambiguity around frequency use on boundary intersections. A member of the Devonport Aero Club stated that the 2013 amendment led to ambiguity surrounding the appropriate area frequency for circuit calls, as the location of their aero club is “at the intersection of three Area Frequencies and is in close proximity to the Devonport/Wynyard CTAF... if the MULTICOM frequency is included, there are 5 frequencies to choose from.” Another submission from a private pilot indicated a similar problem and stated that their charted field is less than 15NM from seven discrete frequencies. The member of Devonport Aero club added that on the occasion where all pilots have been urged to use a single area frequency, significant congestion has occurred “causing ATC to direct RPT traffic to an alternate frequency.” Similarly, a submission from a contractor to the aviation industry criticised Area VHF congestion and noted that technical errors may result from adjoining areas nominating the same frequency. For example Lismore, Ballina, and Casino all use 124.2MHz. The submission notes that due to a large quantity of RPT, private operations and other traffic in their area “there are moments when conflicting traffic cannot get on due to hetrodynal activity [*sic*]” and that this should be fixed through the prescription of discrete frequencies for nearby regions.

In contrast to the above, three submissions, expressed a preference not to have FIAs listed on the World Aeronautical Chart (WAC), citing potential cluttering of the maps. These submissions emphasised that pilot discretion, planning and use of electronic devices with interactive or highly detailed maps can neutralise the problem of unmarked FIAs (this issue is discussed in more depth in Section 6.2). Two submissions emphasised that modern GPS have a function that displays the nearest available frequencies and aerodromes, providing an alternate way to learn and access these frequencies (especially CTAFs) while en route that requires only a small amount of pilot discretion or distraction.

4.5 Some respondents argued that Area VHF is rarely used and MULTICOM remains the established frequency

There were 21 submissions (28%) which expressed the view that despite the 2013 amendment to the AIP, the majority of low level Class G airspace users continue to monitor MULTICOM (in lieu of Area VHF). Approximately a quarter of these submissions (7) were submitted by members of representative bodies, particularly peak organisations. This issue, raised in approximately half of the submissions written in support of MULTICOM, demonstrated agreement with the RAPAC conveners’ advice to CASA that:

1. Only a minority of Area VHF users operate at lower altitudes in Class G airspace; and
2. That there has been almost no use of Area VHF by industry (p. 16).

Approximately half a dozen submissions noted that the lack of mainstream uptake of Area VHF is not a fault of the system specifically, but an outcome of pilot training. The submission from the South Australian Department of Environment, Water, and Natural Resources, which expressed the view that the requirement to use Area VHF is “universally disobeyed,” indicated that local pilots who broadcast on MULTICOM are widely unaware of the 2013 amendment. The submission from RAAus expressed the belief that widespread use of MULTICOM is also related to the habits and preferences of individual pilots:

“When faced with a rule which pilots do not see as improving their safety it is highly likely to be ignored in favour of continuing with existing practice. The most deeply ingrained behaviours are those learned in initial training and for the vast majority of pilots, the use of MULTICOM as the standard for Class G airspace in country areas will continue to be the default practice.”

— *Submission from Recreation Aviation Australia*

Five respondents expressed the belief that pilots are underutilising Area VHF due to the perception that it is reserved for larger aircraft or that MULTICOM is a safer option due to the possibility of unknowingly crossing frequency boundaries and/or inability to hear broadcast for low level pilot due to Area VHF coverage limitations. Of these respondents, three stated that Area VHF is used for conducting a 'listening watch' while position reports (or equivalent) are only made on the local CTAF. A member of Helispirit expressed the view that tuning into Area VHF (for aircraft with only one radio) poses safety risks, as it could transition from current levels of underutilisation to over-transmitting and congestion:

"I believe effective traffic broadcasting is essential to the improved safety and situational awareness of all airspace users and if ALL users broadcast as I believe they should, there would be a significant increase in radio transmissions on area freq. if a larger scale MULTICOM is not created... I would recommend pilot awareness training of concise radio phraseology and recommended broadcasting requirements be incorporated into the introduction or otherwise of the new MULTICOM boundaries."

— *Submission from a member of Helispirit*

Low uptake of Area VHF was also raised in relation to pilot training programs. One respondent stated that the training organisation that they fly for requires trainee pilots to make multiple calls on Area VHF (and to monitor both Area VHF and MULTICOM). However, the respondent noted that trainees ignore this recommendation due to fear of making an incorrect broadcast on Area VHF and creating congestion. This was noted as particularly the case on area frequencies that are maintained by an approach controller.

The submission from HCAPA also argued that many airspace users may be more inclined to monitor a CTAF than the stipulated area frequency. Specifically, they stated that pilots may wish to "monitor a nearby CTAF even when outside the defined "vicinity" of the aerodrome. In the more populous parts of Australia they may rarely be far from the vicinity of an aerodrome." In HCAPA's opinion this could be due to the coverage limitations of Area VHF for pilots flying at in the lower levels of Class G. The submission cites both vintage and lower-performance aircraft. For these pilots, HCAPA suggests:

"That with higher-level airspace using the same ATC frequency and with re-transmission in effect, they can gain more useful information relative to their flights by monitoring a CTAF (often 126.7 MHz) or using a "chat " frequency to maintain contact with others flying in a similar area for a common purpose. In the event of an emergency, all the arguments for being in contact with someone to pass on information are met by this practice, and emergency services may be summoned and advised that way."

— *Submission from the Honourable Company of Air Pilots, Australia*

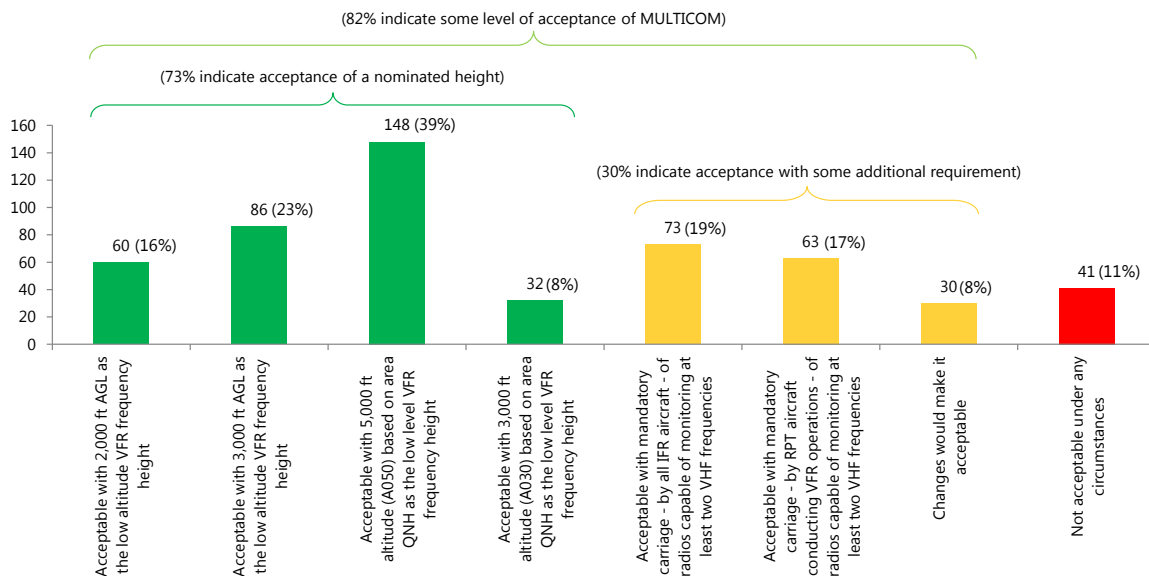
5 The majority of respondents expressed some level of support for MULTICOM (Option 2), citing its uniformity and established usage

Option 2 of the DP proposed to “promulgate MULTICOM as the common low-altitude VFR frequency for use in Class G airspace” (DP, p. 4). Figure 7 represents the responses which selected sub-options relating to MULTICOM.

Nearly three-quarters of respondents (73%) expressed that MULTICOM is acceptable without change at a specified altitude, up to 2,000, 3,000 or 5,000ft AGL. A significant number (30%) also expressed support for MULTICOM when certain changes or additional requirements are introduced. A relatively small proportion (11%) believed that it is not acceptable under any circumstances.

Figure 7: Responses selecting sub-options regarding MULTICOM (Option 2)⁹

Number of responses (% of total respondents)*



Source: CASA – Data extract from online response form.

*Note: Percentages cannot be summed as each respondent could select multiple sub-options within their response.

As in the case of the responses, the majority of submissions supported Option 2 – 55% of respondents (41) expressed the view that the interests of the aviation community would be best served by reinstalling MULTICOM for low level operations in the vicinity of unmarked ALAs. Support for MULTICOM hinged on both its uniformity (as a non-area specific frequency) and its separation from the ATC services provided on Area VHF. Though respondents largely lauded the safety benefits of ATC services, they expressed the view that pilot broadcasts (particularly in relation to circuit broadcasts and communications not necessary to self-separation) should be on a separate frequency to ATC alerts to avoid congestion or over-transmission.

⁹ As respondents could select multiple sub-options within a single response, these percentages cannot be summed. The numeric figures indicate the number of respondents that selected each sub-option. However, there was often overlap between selections, and any respondent could be represented in more than one of the above columns. This was common amongst the sub-options represented in bracketed subcategories ('some level of acceptance' or 'acceptance with some additional requirement'). The bracketed percentages indicate the overall percentage of respondents who selected at least one sub-option from the respective subcategory.

The 18% of submissions that did not support MULTICOM expressed concerns similar to those raised in criticism of Area VHF; particularly that MULTICOM has limited uptake and frequency congestion. Each of these views is discussed in detail below.

5.1 Broad support for MULTICOM emphasised the benefits of using a uniform frequency not used for ATC purposes

The most common themes of the support for MULTICOM related to the view that a uniform established frequency, separate to the main frequency used for ATC purposes and higher altitude jet traffic, would provide the greatest clarity and safety benefits for pilots in Class G airspace. Generally, submissions supporting MULTICOM noted the implicit safety benefits of an ATC frequency. However their concerns over coverage limitations and congestion outweighed these benefits. Furthermore, the submissions noted that the use of an alternate frequency used by nearby aircraft created clearer lines of communication and could more effectively support alerted see and avoid. Other supporters of MULTICOM indicated that most aerodromes with significant traffic are already included on charts, and that the case for using the ATC frequency in the vicinity of smaller, less busy ALAs was weakened due to decreased risk of collision.

Over a dozen submissions emphasised the view that radio frequencies used for ATC should be reserved separately from frequencies for pilot broadcasting in order to avoid congestion. A member of Lone Eagle Flying School, for example, described the 2003 introduction of MULTICOM as a solution to “remove aerodrome radio traffic onto a common non-ATC frequency, thereby freeing up the area frequency for elevated and IFR.” A detailed submission from a past Chairman of CASA criticised the current guidelines for removing this separation. Their submission expressed the understanding that Australia is the only nation in which ATC frequencies allow (and mandate) “self-announcements” from VFR pilots and circuit-area traffic, and that this poses significant safety risks of over-transmission of important ATS alerts. A similar point was argued at length by HCAPA:

“A prime consideration in our opinion, that has not been mentioned in the Discussion Paper, is the principle that radio frequencies used for Air Traffic Control purposes should not also be used for communications between aircraft that do not relate to or include Air Traffic Control units, and that aircraft-to-aircraft communications should be conducted on alternative frequencies. This is embodied in ICAO Annexes and SARPs. We consider that, with the demise of Flight Service and combination of Flight Information into the roles of ATC, the NAS was designed with the MULTICOM for use low level in Class G airspace... The NAS as originally implemented kept circuit operations off the ATC frequency regardless of whether or not the location was depicted on a chart, making the MULTICOM a default aircraft-to-aircraft frequency at very low altitudes below the levels at which IFR flights operated in cruise. For these reasons, we support a return to the use of a MULTICOM frequency at all locations in Class G airspace below 3,000ft AGL as our preferred solution.”

— *Submission from the Honourable Company of Air Pilots, Australia*

The preference for distinct ATC and aircraft-to-aircraft frequencies was argued as particularly relevant for busy approach points, where navigational and circuit broadcasts from nearby locations could obscure traffic alerting services or other important safety-related broadcasts.

As discussed in Section 4.5, it was indicated widely across the submissions that the change to MULTICOM could be made with little to no cost to the pilots, and could be successfully rolled-out due to already high levels of usage. Over a quarter of submissions (28%) highlighted that pilots habitually broadcast their intentions or movements at unmarked ALAs on MULTICOM, and that the practice of broadcasting on Area VHF has not been widely adopted by industry. Indeed several of these respondents observed that the majority of pilots in their local area used MULTICOM for all flights in low level airspace, and that local

pilots primarily fly at low level (below 5,000ft AGL). The CFI and Head of Operations of a large Australian flying school stated in his submission that “we still encourage our instructors and students to make a precautionary broadcast on 126.7 when approaching an ALA, as we are well aware that most other users in the vicinity will be using that frequency.” One submission cited the example of flying inbound to a small, unlicensed ALA close to an urban centre. In this case, using the designated Area VHF of the urban area could be problematic as it may cease to be available at certain points in descent due to coverage limitations at lower altitudes. The respondent highlighted that, in this situation, if any aircraft in the vicinity of the ALA was relying on MULTICOM it could be easily and immediately alerted.

There were 13 submissions (17%) that commented on the usefulness of having a single frequency for use in the vicinity of unmarked ALAs, as opposed to a variety of location-specific area frequencies. These submissions highlighted the benefit of increased or uniform usage of the frequency in order to reduce ambiguity, particularly for new pilots. Specifically, they supported the clarity of MULTICOM, as flying in some parts of the country requires multiple frequency changes within relatively small regions particularly in remote areas. A regulation to use MULTICOM would clear ambiguity over area boundaries and reduce cockpit workload, including the burden of frequently re-tuning or chart monitoring.

To maximise the benefit of a uniform frequency among all low level aircraft, one submission suggested that the MULTICOM frequency could be extended up to 10,000ft AMSL, or to the lower bound of any existing CTA, due to their view that there is a “distinct (almost natural) operational boundary” that exists at this altitude. This is due to the majority of large RPT and some charter flights operating above this level. Approximately ten respondents stated their view that aircraft flying at relatively high levels had no need to hear ground level broadcasts. Among the 28% of submissions which argued that MULTICOM is already the default frequency, there was also a common view that selecting MULTICOM as the uniform low level frequency would ensure that the majority of recreational and private pilots in Class G monitor and communicate on the same frequency as other local traffic, as MULTICOM is already relied upon by agricultural aircraft and flying schools.

Furthermore, two of the submissions provided in support of Area VHF commented that MULTICOM could be the appropriate frequency for usage under specific altitude requirements (such as 2,000 or 3,000ft AGL), assuming that Area VHF was retained for heights above this threshold to ensure access to ATS. Three respondents recommended MULTICOM become the recommended frequency for all uncontrolled aerodromes, regardless of their identification on aeronautical charts. Two submissions proposed that MULTICOM could be used on the lateral boundaries of all CTAFs or that low level, high speed jets (operating below the Area VHF coverage range) should be required to monitor and report on MULTICOM at all times.

5.2 While most submissions supported the use of MULTICOM without further requirements, some respondents proposed additional requirements

As shown in Figure 7, the majority of MULTICOM supporters, and 73% of respondents to the DP overall, supported the use of MULTICOM without further requirements. However, 30% of online responses expressed conditional support for MULTICOM. As respondents had the ability to select multiple sub-options, this figure includes:

1. 82 respondents (22%) who supported MULTICOM with no additional changes *as well as* MULTICOM with additional requirements, and
2. 30 respondents (8%) who only supported MULTICOM with additional requirements (specifically, a requirement that IFR or RPT aircraft are equipped to monitor two frequencies).

While these 30 responses (including six respondents who also provided submissions) indicated support for MULTICOM, no submissions addressed these requirements in relation to MULTICOM specifically. General

comments on the desire for dual frequency monitoring are discussed in depth in Section 6.4. However, one submission proposed an alternate change: the respondent referred to their experience as a pilot in Canada, where the MULTICOM frequency is used as a generic low level frequency (below 18,000ft). However, Canadian MULTICOM is monitored by ATIS, an alteration which the respondent proposes as an ideal compromise for the Australian context. They state that this could allow ATC controllers to monitor high-level jet traffic while maintaining an alternate frequency (such as Area VHF) to issue alerts without interruption from low-level VFR aircraft.

5.3 The minority that did not support MULTICOM perceived reduced safety benefits

One-fifth of submissions produced in support of Area VHF primarily expressed concerns about the safety risks of a non-ATC VHF. This included the submission from AMSA, which stated that MULTICOM “presents significant issues that have the potential of adversely impacting SAR incident response and the safety of aircraft operations in a search and rescue incident location.” Notably, the submission from Airservices did not raise any criticism of MULTICOM specifically and addressed their comments exclusively to the relative benefits of Area VHF.

Other concerns were similar, but inverse, to the criticism of Area VHF – they expressed the belief that MULTICOM and not Area VHF had limitations related to uptake and congestion. Two supporters of Area VHF expressed the view that MULTICOM is not commonly used by pilots, and provided anecdotal evidence that Area VHF is the default in their local area. Approximately seven respondents stated that a broader uptake of MULTICOM would result in frequency congestion. Half of these respondents added that increased congestion would alienate current users of MULTICOM, who would cease to monitor the frequency and defeat its perceived advantage over Area VHF.

However, five respondents (7%) expressed the view that pilots already use MULTICOM to make excessive, irrelevant or non-standard transmissions. Each of these submissions emphasised the subsequent risk of over-transmission of safety-related broadcasts. Some of these submissions added that over-transmissions on MULTICOM could make it difficult to effectively monitor more than one frequency, due to the number of overlapping or simultaneous transmissions. One supporter of Area VHF expressed the view that MULTICOM is congested with too much chatter from local pilots, particularly local circuit radio calls that can be heard at adjacent aerodromes. Another submission argued that over-broadcasting is an outcome of common flying school practices that conflict with the guidelines of the AIP. According to the respondent, these include narrating circuits through individual and continuous broadcasts that create significant congestion. Two submissions added that these training broadcasts cut over broadcasts made at neighbouring aerodromes, and subsequently reduce pilot’s situational awareness.

6 Respondents also expressed views on matters beyond the stated options

Nearly three-quarters of the submissions (74%) expressed opinions or provided suggestions that go beyond the scope of the options outlined in the DP, but that are nonetheless related to either low level frequency use or, more broadly, the safety of the Australian aviation community. These opinions spanned overriding concerns such as pilot responsibility, education and chart listing, as well as specific subjects such as alternative frequencies, potential regulation changes and the tenor and content of the DP itself. These issues are described in more detail below.

There were also general comments provided in the submissions that were raised by more than one respondent, but without significant elaboration. These comments indicated a potential need for a common frequency above 5,000ft AGL (as well as in the lower altitudes discussed in the DP). In their submission, the RAPAC convenors provided the following list of 'associated issues' that "need to be addressed with industry, Airservices and the RAPACs":

1. Criteria for the marking of ALAs on charts.
2. Marking on charts a symbol for the locations of ATS Area VHF transmitter sites.
3. Removal of ATS Frequency boundaries from charts (in conjunction with 2 above).
4. Consider the re-introduction of the Visual Enroute Chart (VEC) or similar (if FIA frequencies remain on charts).
5. Increased pilot education, in particular, the use of radio, trigger broadcasts, airmanship, and See-and-Avoid (collision avoidance) techniques especially for IFR operations in VMC.
6. A review (audit) to be conducted of all Broadcast Areas (BAs) and CTAFs with a view to the reduction of the number of frequencies used.

— *Submission from the Regional Airspace and Procedures Advisory Committee Convenors*

6.1 Submissions highlighted the overriding importance of pilot responsibility and education among the aviation community

The desire for clarity and improved education around the chosen frequency, regardless of the outcome of the consultation, was a driving theme of the submissions supporting both options. There were 27 submissions (36%) that stated that the need for clarity and notification surrounding changes in regulation preceded the importance of the procedural or legislative changes themselves. A further 11 submissions (15%) argued that the choice of frequency was less important than reinforced pilot and aviation community education following the implementation of the change. This was emphasised, in particular, for pilots operating under VFR who are therefore responsible for traffic separation. One private pilot stated:

"Whatever Class G frequency rules and arrangements are put in place, they have to be the subject of far better education campaigns and follow-up reinforcement than have accompanied other airspace and related changes in the last couple of decades."

— *Submission from private pilot*

Of the 27 submissions which commented on the need for clarity surrounding changes in regulation, there were strongly-worded views that CASA should increase its efforts to ensure protocols and guidelines for frequency use and broadcasting are clear, consistent and widely accessible. According to these

respondents, these improvements would be required in order to make either option function optimally, and to ensure airspace users abide by whatever protocols are decided upon. Many submissions noted that CASA's decision will need to be accompanied by a comprehensive publicity and education program.

Nearly ten submissions, including the submission from RAAus, expressed the view that the effectiveness of the DP may be limited as pilots will continue to act as they believe best. Among these submissions, four emphasised that aviation safety is linked most closely to discretionary (and not prescriptive) frequency choice. One respondent suggested a rewording of the AIP to codify the importance of pilot responsibility: they expressed the view that the pilot in command of an aircraft should use the frequency that they consider most appropriate and safest to monitor at any given time. Another submission suggested that CASA should urge flying school instructors to maintain up-to-date familiarity with the AIP guidelines. This is to ensure that procedures being taught by flying schools are consistent (both between schools and with the procedures published in the AIP) and that trainee pilots are aware of formal broadcast requirements and not only common practice or personal preference.

Overall, 13 respondents (17%) argued that CASA guidance needs to reinforce the importance of pilot discretion. These submissions emphasise the role of personal responsibility and discernment, particularly regarding the use of the radio for broadcasts where risk of collision does not exist. They emphasised that the CASA decision should support an overall culture of pilots keeping a 'listening watch' and lookout at all times. The overriding message of submissions that referred to pilot education or responsibility was that there is potential for CASA to take a more interventional role. This would include increased oversight and promotion of pilot education to ensure uptake of its chosen frequency to maximise the safety benefits of determining a single VHF frequency for low level use.

6.2 Several submissions raised concerns surrounding frequency boundaries or improvements to aeronautical charts

There were 17 submissions (23%) which stated that aerodromes, FIA boundaries, and discrete CTAF areas need to be clearly delineated on all official and major charts in a user friendly manner. Though ten of the respondents expressing this opinion were in favour of MULTICOM, the suggestion was stated as particularly relevant if Area VHF is maintained as the recommendation. Accordingly, it was also stated in four submissions provided in support of Area VHF. Approximately three-quarters of the 17 submissions stated or implied that there is a safety risk (particularly in the vicinity of less busy ALAs/aerodromes) that pilots may be operating off different charts and be unaware of the most appropriate frequency for their position. Approximately half a dozen respondents added that the current system is overly complicated, and that the quantity of documents and charts create problems of cross-referencing especially when in-flight. For example, one respondent raised the following issue:

"Programmes like OzRunways, AvPlan, etc. add confusion... These programmes have large databases from multiple sources including AOPA, The Pilot's Touring Guide, etc., which also contain ALAs or airports not in ERSA or on Airservices charts."

— *Submission from a member of the Lone Eagle Flying School*

To avoid this confusion, a member of the Royal Federation of Aero Clubs Australia suggested that all frequencies potentially required entering or departing from specific aerodromes or ALAs (including Area VHF, CTAF, and PAL frequencies) should be grouped in the En Route Supplement Australia (ERSA) by area boundary or region. In their view, this would allow quicker access to information when already in the vicinity of an aerodrome/ALA with increased traffic.

Four respondents criticised the process of applying to Airservices Australia to have their ALA marked on official aeronautical charts. For example, a member of Devonport Aero Club cited complications around

their club ALA's location on the intersection between three discrete area frequencies. Despite the situation being an "obvious safety hazard," they describe the process to have the ALA marked as "time consuming and inefficient," stretching over 16 months and involving communication with multiple Airservices' Officers. The respondent proposed that if the process is not streamlined the result will be that the majority of ALAs continue to be unmarked on official charts. While acknowledging the difficulty and delays experienced in getting unmarked aerodromes marked on charts (an issue addressed in the DP), two respondents emphasised that if the outcome of this consultation is to preserve Area VHF as the recommended frequency, proactive action should be taken by CASA to expedite the aerodrome marking process. A member of Wimmera Aero Club argued that owners/operators of ALAs and aerodromes should be incentivised to have them marked on charts (especially WAC and Raster Navigation Charts (RNC)), and owners/operators of 'decommissioned' ALAs and aerodromes to have them removed. It was noted that this could be achieved by improving education or regulations or reducing red-tape around these processes. To reduce clutter from including more ALAs and aerodromes on these charts, the respondent proposed that "on WAC/RNC the ALA name could be depicted in magenta colour without the present ALA symbol."

A handful of submissions suggested other, broader improvements in the clarity surrounding area boundaries and their respective frequencies. One respondent, a member of a pilot training organisation, suggested that if MULTICOM becomes the suggested frequency, existing, discrete CTAF frequencies covering nearby aerodromes should be migrated to MULTICOM to reduce the need for multiple frequency changes in smaller regions. The submission from Airservices Australia stated that "a delineated trigger is required to determine when aircraft change to CTAF and ATC will no longer commence communications checks for SAR action or continue with FIS. This could be achieved by addressing/specifying the chart type which is to indicate locations of aerodromes."

There was one lengthy criticism of the DP in relation to frequency boundaries and aeronautical charts from a past Chairman of CASA. The submission notes that the removal of FIA boundaries from aeronautical charts is not discussed in the DP, though in their view it is the "prime reason" for present issues surrounding frequency usage. The respondent states that the DP therefore proposes a 'quick fix' rather than genuine reform, which would need to address the issue of frequency boundaries and ATC usage by VFR pilots. The respondent rejects the proposal (made by other respondents and raised in the DP) that area boundaries should be reincorporated into charts, stating:

"FIA boundaries are there for workload purposes for ATC and are not the optimum frequency for a VFR pilot wanting to communicate to controllers. Most modern GPS units have a 'nearest' function allowing the pilot to monitor the nearest VHF outlet, which would normally give the greatest chance of communications at low level."

— *Submission from a past Chairman of the Civil Aviation Safety Authority*

The respondent proposes that CASA return to the regulations of the National Airspace System (NAS) based on the US airspace system and previously agreed upon by the Commonwealth Government, or else to the "pre-AMATS" (1991) system with "Flightservice / Flightwatch monitoring and giving traffic information across frequency boundaries."

6.3 Some submissions proposed alternative frequencies

Approximately ten submissions (13%) proposed or mentioned alternative frequencies that could be considered alongside (or instead of) MULTICOM and Area VHF as the common low level frequency for use in Class G airspace. These included submissions from the Gliding Federation of Australia and a past Chairman of CASA.

Three respondents suggested the use of 123.45MHz to avoid MULTICOM and AREA VHF congestion around aerodromes not published on a chart, as it is already frequently used by low level Class G traffic. Several respondents stated that they already use 123.45, designated by ICAO as the air-to-air VHF communications channel for aircraft out of range of VHF ground stations, for navigational and non-safety-related broadcasts, particularly when flying in company. These submissions largely suggested that MULTICOM could then be the frequency for ALAs published on charts but without their own discrete CTAF or Broadcast Area Frequency, and Area VHF could remain reserved for higher level operations and ATC purposes.

Two other responses suggested the use of emergency frequency 121.5MHz at unmarked ALAs, as the frequency is monitored by overflying jet traffic and has relevant information passed to ATC. An example of this is the submission from the past Chairman of CASA which references the requirement in the US to monitor 121.5MHz as this ensures:

- pilots in emergency situations are able to give MAYDAY calls
- VHF pilots unknowingly entering controlled airspace can be contacted by ATC (via an intermediary, high-flying aircraft) and alerted to the correct ATC frequency for that area.

There was also resistance to both proposed options by unpowered aircraft users. This was expressed most extensively in a submission by the Gliding Federation of Australia (GFA). GFA expressed the belief that “adoption of either option by Glider pilots would increase the risk of glider to glider mid-air collision... the greatest risk for glider pilots in class G airspace.” The submission stated that gliders currently use gliding safety frequencies when not subject to discrete CTAFs along with FLARM (flight alarm) assistance for alerted see-and-avoid. The submission provided the following criticisms:

- “Not all glider pilots would identify the unmarked aerodrome so would not all change frequency.
- Glider pilot alerted see and avoid radio communications would congest the Area frequency or the MULTICOM frequency.
- Looking up frequencies to use at low altitude when you are looking for lift or a place to outland is impractical.”

— *Submission from the Gliding Federation of Australia*

GFA proposed that an alternative to designation of a uniform frequency in Class G airspace is to ensure all busy ALAs are marked on charts. Additionally, the submission proposed that, should CASA determine a uniform frequency, it should not be mandatory for gliders to allow them to continue to use gliding safety frequencies. This view was not shared amongst all gliders, two of whom responded in support of MULTICOM, while another responded in support of Area VHF. The former supported MULTICOM’s clarity and expressed concerns about the workload of looking up and manually changing frequency to the designated Area VHF, while the latter provided an inverse argument about manually changing to MULTICOM when primarily gliding on Area VHF.

Four submissions stated the view that Class G aircraft should always use a distinct frequency from Class A/E, and emphasised this as the most important safety concern for low level aircraft. The submissions supported the use of a uniform low level frequency with a separate frequency for RPT and charter flights operating at higher altitudes, as this would avoid over-transmission between Class G and Class A/E. Additionally, two submissions emphasised the importance of a uniform frequency rule regardless of whether an ALA is marked on charts. One submission criticised CASA for making distinctions for frequency usage “on the basis of presence or absence on the WAC charts,” referred to as “hopelessly out-of-date.” They argued instead that a uniform rule throughout Class G airspace would best ensure pilot safety, only allowing exceptions for CTAFs with high traffic density and discrete frequencies.

6.4 Respondents suggested strengthened carriage regulations

Fifteen respondents (20%) expressed the view that CASA should introduce new regulations to ensure pilot safety. For example, mandating (or in some cases, not mandating) the carriage of VHF radios. Nearly all of these respondents emphasised the perceived necessity of radios, with ten respondents (13%) expressing the perceived benefit of two or more radios for simultaneous frequency monitoring. One submission (from one of six respondents to state that both Area VHF and MULTICOM were “not acceptable under any circumstances”) argued that mandating carriage and use of radios was the most immediate concern for CASA, and that it must be addressed prior to changing frequency guidelines, as either frequency option will only work if all pilots have access to their services. A member of Lone Eagle Flying School emphasised the particular benefit of radios “when descending from altitude into the vicinity of an aerodrome.” Their submission suggested the achievability of a changed regulation as “most modern VHF COM radios can now monitor two frequencies.” The submission from the National Aerial Firefighting Centre (NAFC) expressed the view that frequency guidelines must be straightforward and actively encourage radio usage, and stated that see and avoid procedures are “considerably enhanced” by effective radio communications. Accordingly, it directed CASA’s attention to the procedures used by aircraft responding to fire and emergency incidents, which include carriage of “a minimum of two 720 channel VHF-AM radios, fully integrated into the aircraft audio system.”

On the contrary, two respondents expressed concern about the possibility of making dual-frequency monitoring mandatory for pilots in Class G airspace. They expressed the view that despite the assumed safety benefits, monitoring multiple frequencies (especially if there is congestion) may cause distraction. They emphasised the importance of pilot discretion in selecting the number of appropriate radios for their aircraft and flight purposes.

Other proposed regulatory changes, for example those included in the AMSA submission as ‘risk mitigation strategies,’ included mandated carriage of HF radios in remote areas (one submission) and the carriage and registration of distress beacons in case of emergency (one submission).

6.5 Respondents proposed improvements to CASA’s information provision going forward

Over a quarter of the submissions made comment on the nature of CASA’s role, the DP itself, and suggested potential improvements for CASA’s information provision in the future. Several of these submissions urged decisive action on the issue by CASA. A handful of submissions began with a recap of the history of airspace frequency changes in Australia, with particular emphasis on the 2013 amendment. Some submissions expressed criticism of how this amendment was implemented and the lack of industry consultation prior to the AIP change.

Approximately ten of these respondents emphasised the importance of making the outcome of this DP and the selection of the most appropriate frequency clear to all members of the aviation community through an extensive or more publicised notification process. Examples of how this could be achieved included formal policy notices and an aviation ruling alongside any NOTAMs or amendments to the AIP. Similarly, a few respondents expressed the desire for CASA to streamline the process of publishing NOTAMS (especially for ad hoc ‘fly-ins’ and similar activities), and to increase their emphasis that airspace users must regularly check NOTAMS to ensure safety around these operations.

Several suggestions and concerns were specific to the nature of the DP itself, and were voiced in 15 separate submissions (20%). These submissions were submitted exclusively by private individuals (47%), members of representative bodies (33%), and independent pilots (20%). Some of these respondents believed that the options offered by the DP were restricted, and that the question of frequency usage required a broader scope for discussion. Five respondents also criticised the DP’s use of overseas comparisons, due to the perception that they have little relevance to the unique Australian context (particularly given its scale and the prevalence of remote regions). One submission stated that since both

MULTICOM and Area VHF meet the 'Acceptable Risk Criteria' outlined by the International Civil Aviation Organization (ICAO), the DP provides unnecessary additional information when either VHF could suffice. This submission emphasised the importance of pilot education as the driving factor behind the success of either option.

Approximately half a dozen submissions also expressed discontent regarding the tone in which the DP was written. Two submissions – from HCAPA and RAAus – discussed this in detail. As stated in the HCAPA submission:

“We are disappointed with the tone of the Discussion Paper, which gives the appearance of prolonging the confrontational attitude displayed by the former management of the Office of Airspace Regulation in its dealings with the Aviation community represented by the RAPACs... [however] the case for the continuation of the MULTICOM has in fact been developed by [RAPACs] in consultation with a wide group of people with expert knowledge of airspace management, air traffic management, and risk analysis, and has been developed over a considerable time frame.”

— *Submission from the Honourable Company of Air Pilots, Australia*

Broadly, the HCAPA submission expressed the view (shared by RAAus and a small handful of respondents) that the DP was not ideally impartial. The submission expressed skepticism that the context or relative risks of each option were outlined in equal depth. Additionally, both RAAus and HCAPA’s submission and a submission from the Australian Federation of Air Pilots expressed concern that an alteration in CAAP 166-1, which changed the definition of MULTICOM and was released shortly before submissions to the DP closed, was presupposing the outcome of the consultation to favour MULTICOM. Ultimately, each submission emphasised the importance that CASA pay full heed to the results of the industry consultation.