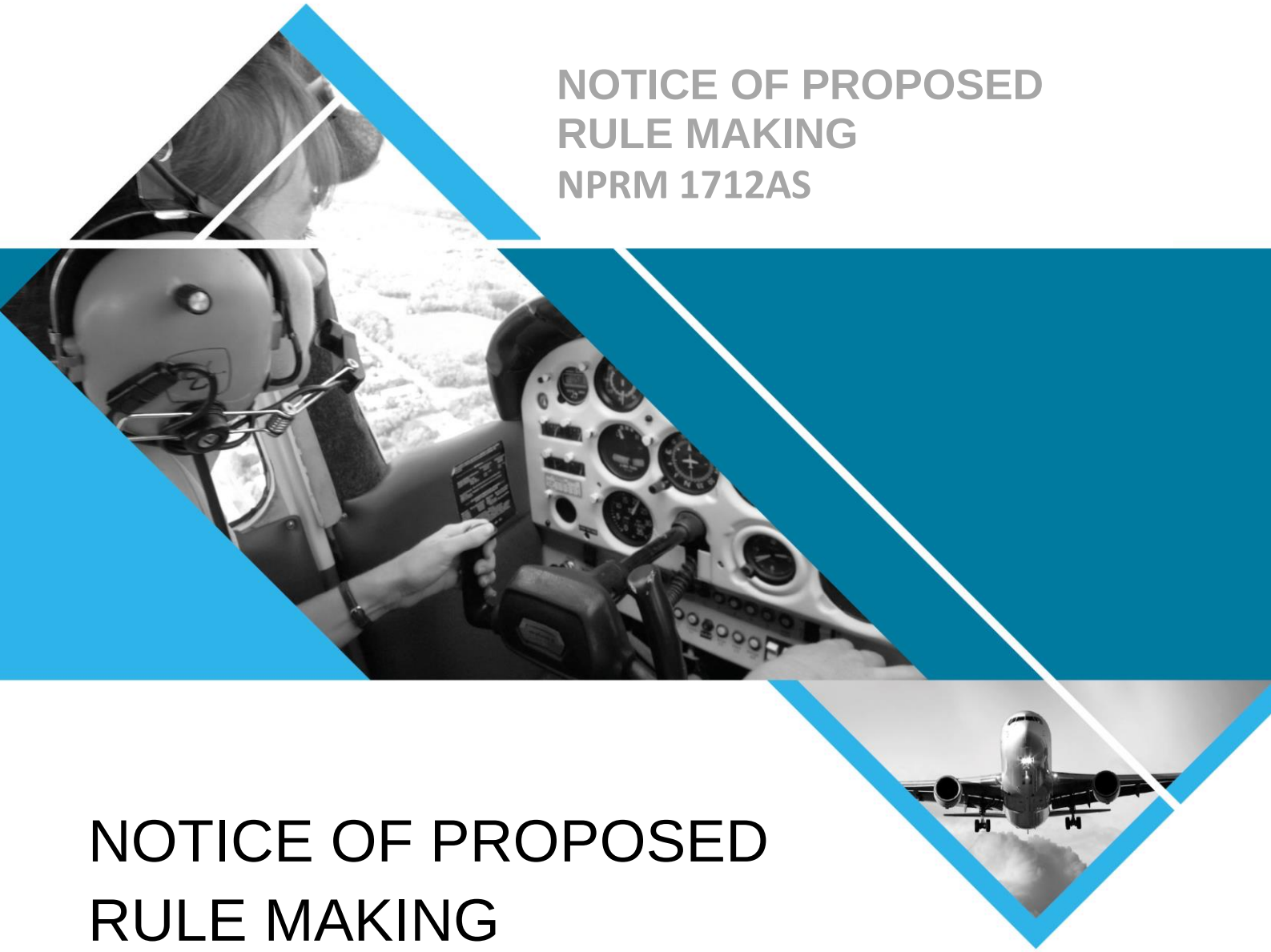
Australian Government
Civil Aviation Safety Authority



NOTICE OF PROPOSED RULE MAKING
NPRM 1712AS

NOTICE OF PROPOSED RULE MAKING

FREQUENCY USE AT LOW LEVEL IN CLASS G AIRSPACE

Project number	16/03
File ref	D17/452895
Date	Dec 2017

Introduction

CASA published a discussion paper, *Frequency use at low level in Class G airspace* (DP 1610AS), on the CASA website and sought public comment from 27 February to 5 May 2017. The purpose of this discussion paper was to consider the most appropriate very high frequency (VHF) radio frequency for pilots to use at low level in Class G airspace. CASA intended that the responses to the discussion paper would be used to inform a decision on the appropriate frequency.

The options presented were to retain use of Area VHF for aerodromes not published on aeronautical charts or to use 126.7 MHz as the common low-altitude VFR frequency for use in Class G airspace. The second option is commonly referred to as MULTICOM. Multiple options regarding the maximum altitude to which MULTICOM would apply were presented.

In total there were 390 respondents to the discussion paper, including 382 online responses and 8 email responses, along with 75 written submissions. The responses revealed broad support or acceptance of MULTICOM (82%), compared with 43% support or acceptance of Area VHF. Of the height sub-options proposed for the use of MULTICOM, there was a preference for A050 (39%), followed by 3,000 ft above ground level (AGL) (23%), 2,000 ft AGL (16%) and A030 (8%).

Purpose and scope of the proposed amendments

With publication of the DP, CASA was seeking to ensure that aircraft operating at low level in Class G airspace were on the same frequency to obtain the maximum benefits of 'alerted' see-and-avoid and that the procedures in place were simple for pilots to understand and follow. CASA believes MULTICOM can be implemented as part of an enhanced airspace solution. The proposals below are intended to be implemented together to provide safety benefits to both VFR and IFR aircraft.

Key Proposal 1 - MULTICOM below A050

It is proposed that VFR and IFR aircraft will monitor and broadcast on the MULTICOM frequency of 126.7 MHz below A050 (B050). This height aligns with the height above which VFR aircraft must have a VHF radio (i.e. at or above A050). IFR aircraft would still be required to monitor, and respond on, the overlying Area VHF frequency where able however they would need to advise ATC that they were no longer monitoring the Area VHF frequency if they only had a radio capable of monitoring one frequency. This is the case currently when IFR aircraft advise ATC they are 'CHANGING TO CTAF'. It should also be noted that IFR aircraft are required to make position reports according to their flight notification and these would still be required when inside the MULTICOM area as it is currently in CTAFs and Broadcast Areas. If an IFR aircraft was only capable of using one frequency at a time, this would require switching between 126.7 MHz and Area VHF. Additionally, ATC would continue to be holding SARWATCH for IFR aircraft until it was cancelled which CASA would continue to recommend be cancelled, when changing to CTAF, in the circuit area or after landing.

Key Proposal 2 - Larger CTAF areas

CAR 166/166A/166C/166E utilise the term 'in the vicinity of' a non-controlled aerodrome for the purposes of defining when certain procedures are required to be conducted. Currently, an aircraft is defined by CAR 166 as being in the vicinity of a non-controlled aerodrome when it is within:

- airspace other than controlled airspace;
- 10 miles from the aerodrome; and

- a height above the aerodrome that could result in conflict with operations at the aerodrome.

In implementing MULTICOM, there is an opportunity to enhance the safety of IFR operations, in particular air transport operations, to certified and registered aerodromes by re-defining the definition of 'in the vicinity of a non-controlled aerodrome'. The area encompassed by this definition is commonly referred to as 'the CTAF area'.

Extending the lateral limit from 10 nm to 20 nm would increase safety by ensuring that all aircraft operating at the aerodrome are on the same frequency, including aircraft conducting an instrument approach which typically commences at around 15 nm. This change would result in traffic at the aerodrome being alerted earlier to incoming IFR aircraft and/or traffic of significantly higher speed and will avoid IFR aircraft having to manage multiple frequency changes in a very short period thus reducing cockpit workload.

In addition, a volume of airspace for a CTAF is proposed to be reintroduced to align the vertical limits of CTAFs to be the same height as MULTICOM and remove the ambiguity that currently exists. This height would be up to but not including 5,000 ft AMSL. This would also avoid the situation of aircraft having to change from Area VHF to MULTICOM to a discrete CTAF in short succession as they descend through Class G through A050 to the vicinity of the non-controlled aerodrome (i.e. circuit height).

In the future and not part of this NPRM, CASA may also consider extending the lower limit of Class E airspace at aerodromes servicing passenger transport operations.

There are a small number of aerodromes at higher elevation that could have circuit and instrument approach traffic not contained within the B050 height. For aerodromes whose elevation is 3,000 ft AMSL or more, CASA proposes that the CTAF area would extend to 3,500 ft above ground level (e.g. Armidale, Cooma, Glen Innes, Mount Hotham and Orange). This height is a reasonable compromise that would encompass all circuit traffic and a significant percentage of instrument approach operations at these aerodromes.

Discrete CTAF frequencies are currently allocated to non-controlled aerodromes where traffic warrants so increasing the CTAF lateral boundary at these locations will improve alerted see-and-avoid as relevant aerodrome traffic would be separated from 126.7 MHz. For other non-controlled aerodromes the MULTICOM and CTAF frequency would be the same. During implementation, the need for any additional discrete CTAF frequencies to be allocated will be considered.

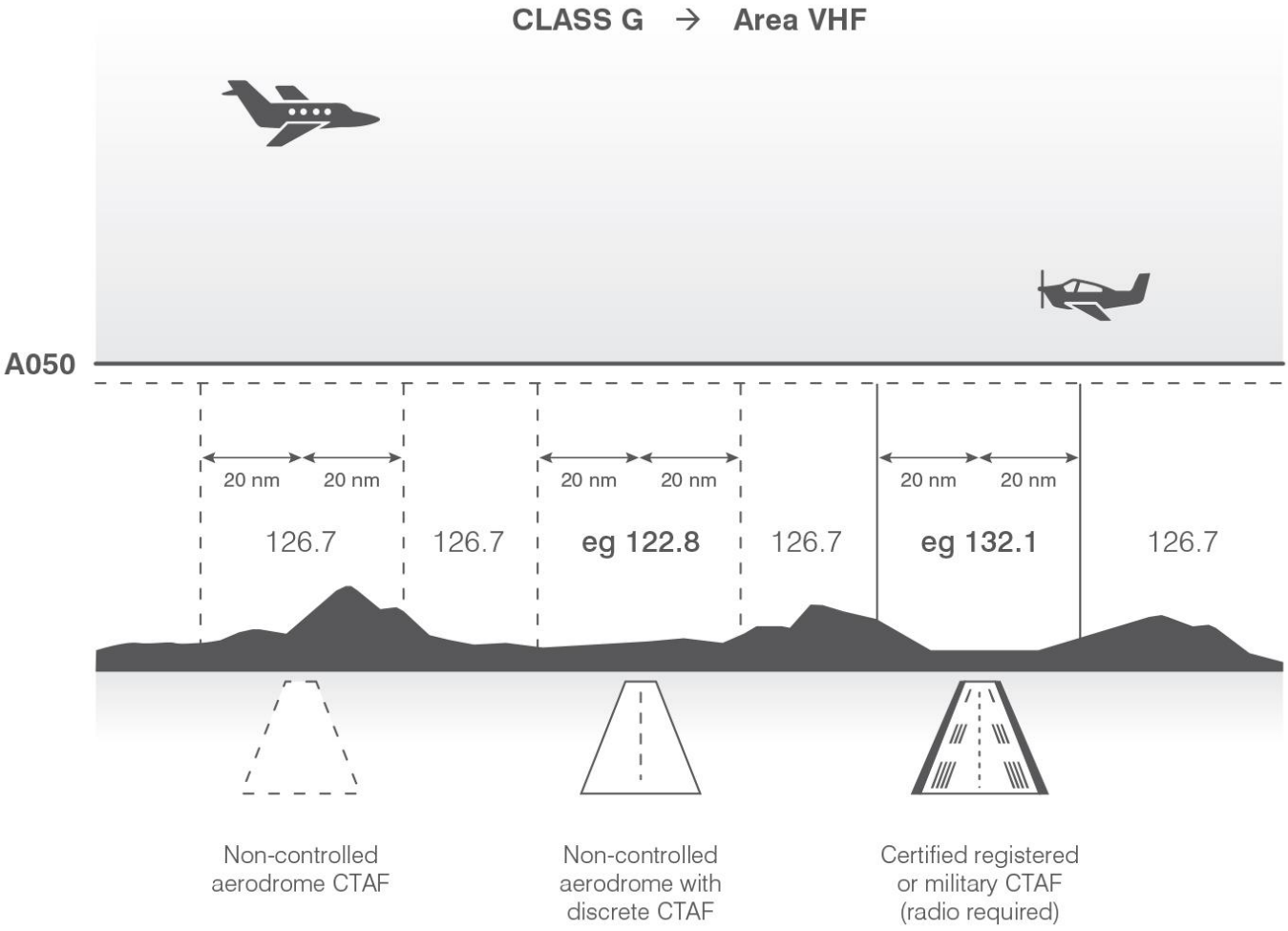


Figure 1 - MULTICOM and CTAFs below A050

Safety risk analysis

The risks identified by CASA in the DP in relation to implementing MULTICOM were primarily in relation to the lack of Flight Information Service (FIS) and the potential impact on Search and Rescue (SAR) services. In their responses to the DP, both Airservices and AMSA commented that while they could accept either option there were some disadvantages or risks associated with using MULTICOM over Area VHF. These can be summarised as follows:

- *Facilitation of SAR Alerting/FIS*

SAR alerting service is essential for aviation emergencies, being able to communicate with ATC in times of crisis will often avoid the escalation of the circumstances from an in-flight emergency response (IFER) to a SAR incident. This results in there being little or no need for Joint Rescue Coordination Centre (JRCC) involvement.

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 can provide critical information, or manage air traffic in and adjacent to an active search and rescue locations.

- *Recording of transmissions*

Radio transmissions on MULTICOM are not recorded whereas Area VHF transmissions are, creating an advantage from a SAR knowledge perspective. Often the ability to replay transmissions can provide critical information that may assist a search.

- *Difficulty of defining a probability area for searching when in a MULTICOM system*

Adjacent regions using MULTICOM do not assist in establishing a probability area for SAR operations.

- *Situational awareness of other aircraft by search aircraft operating near airfields at low level*

FIS includes information on collision hazards with other known aircraft and therefore this specific service could potentially be compromised with the introduction of MULTICOM.

An example is that search aircraft pilots like other IFR aircraft pilots are provided with traffic information in Class G airspace wherever radio communications exist. In certain areas of operation outside of ADS-B or secondary radar coverage VFR aircraft operating at low level, broadcasting on MULTICOM would be unknown to ATC and as such IFR pilots such as search aircraft descending into these low levels would be unaware of these aircraft from ATC.

The ability to hear traffic and have traffic information of all aircraft coming into such areas can give pilots context and good situational awareness.

- *Frequency congestion on 126.7 MHz*

The implementation of MULTICOM at low level in Class G airspace brings with it the potential for aircraft to hear traffic on 126.7 MHz at distant locations.

Strategies to mitigate identified risks

- *Aircraft capable of monitoring more than one frequency*

CASA will continue to require IFR aircraft and recommend that VFR aircraft capable of monitoring more than one frequency monitor the overlying Area VHF which has become increasingly easier to do with CASA-approved software apps being provided by for example, OzRunways and AvPlan. These apps, where GPS is enabled, allow pilots to track their aircraft against the appropriate aeronautical chart along with the overlying FIA frequency.

- *Aircraft capable of monitoring only one frequency*

In Class G airspace ICAO only requires IFR and VFR aircraft to be provided with a FIS on request. Current regulations do not require the carriage of radio B050 for VFR aircraft nor are VFR aircraft required to contact ATC when operating in Class G airspace.

As such within the existing regulatory framework the risk of unknown aircraft operating B050 is already present unless fitted with ADS-B Out and within ADS-B coverage, or fitted with an SSR transponder and within SSR, or primary radar coverage.

While the implementation of MULTICOM will result in the loss of FIS information on collision hazards the operational environment will still be aligned with the services required to be provided in Class G airspace internationally.

It should be noted that many single frequency radios have the functionality to select a standby frequency. CASA would recommend that the standby frequency be set to the overlying Area VHF so that pilots can quickly switch frequency and talk to ATC in the event of an emergency. This is consistent with advice from AMSA on their website:

'In the event of an emergency, a MAYDAY or PAN PAN call should be the first attempt of alerting authorities of a distress situation as verbal communications provide the most details related to the emergency and can result in an immediate response. If not operating on an ATS frequency, always have the area or overlying airspace frequency set for immediate use'.

CAR 252A requires all aircraft, with the exclusion of certain aircraft including gliders and balloons, to be fitted with an emergency locator transmitter (ELT) which aids in the provision of SAR. According to AIP, pilots are requested to monitor 121.5 MHz before engine start and after shutdown. 121.5 MHz, and the higher ELT frequencies of 243 MHz and 406 MHz, have coverage over the entire Australian continent. The position of 406 MHz ELTs can be calculated to within 3 km compared to 20 km for 121.5/243 MHz ELTs.

- *Frequency congestion on 126.7 MHz*

The issue of congestion on 126.7 MHz or Area VHF is already addressed today with discrete CTAF frequencies being allocated or Broadcast Areas (BAs) being established. The primary change with the implementation of MULTICOM at low level in Class G airspace is that aircraft will be on 126.7 MHz in the low level enroute Class G airspace environment which brings with it the potential for aircraft to hear traffic on 126.7 MHz at distant locations. This would more likely be an issue in terms of hearing non-relevant broadcasts rather than congestion due to the limited range of VHF broadcasts at altitudes below A050.

While frequency congestion is not expected to become an issue, if it does then existing processes are in place to allocate discrete frequencies. Increasing the size of CTAFs to 20 nm will provide a benefit for those aerodromes where aircraft operating on the discrete frequency will not hear transmissions on 126.7 MHz. It should be noted that approximately 50% of certified and registered aerodromes currently have 126.7 MHz allocated for their CTAF or CTAF-AFRU which will be reviewed during implementation.

- *Overlapping CTAFs*

Increasing the radius of CTAFs would lead to more overlapping CTAFs which may require assessment as to whether separate frequencies or the same frequency was appropriate. CASA has existing processes in place through the Office of Airspace Regulation and the RAPACs to review frequencies and recommend changes. As with current practice if pilots are in close proximity to different boundaries [e.g. CTAF or Flight Information Area (FIA)] CASA would expect pilots to exercise good airmanship in determining the appropriate frequency and making separate broadcasts on the respective frequencies as required. Any specific local issues will be considered during implementation.

- *Broadcast Areas*

It is important to recognise that the risk of aircraft not being on Area VHF currently exists in nearly 30 Broadcast Areas (BAs) that have been established with vertical limits extending to A050, A085 or the base of controlled airspace. These BAs were established due to frequency congestion at locations or areas where there is a high level of aviation activity.

Summary

CASA has determined that the safety of air navigation will benefit from the proposed MULTICOM arrangements when compared against current procedures and from the advantages provided by larger CTAF areas and more CTAF discrete frequencies. Therefore CASA considers the introduction of MULTICOM represents an acceptable level of safety.

An overarching principle in the consideration of the proposed changes is that pilots are required to take responsibility for and manage the risks associated with their flights. This responsibility is particularly important in uncontrolled Class G airspace.

Implementation of MULTICOM would be accompanied by a comprehensive review of information published in the AIP, CAAPs and other guidance material along with an extensive communication and education program.

This will include encouraging pilots to consider how they can mitigate risk including:

- Monitoring Area VHF whenever they are able to. Pilots who do not monitor Area VHF need to be aware of the risks and manage those risks accordingly; and
- Adopting additional safety measures such as carrying, in addition to a fitted ELT, Personal Locator Beacons (PLBs) with built-in GPS, submitting a flight notification/flight note, nominating a SARTIME and using aircraft tracking data applications (e.g. OzRunways) in-flight.

Implementation would also include a review of radio broadcast procedures around CTAFs and a determination of the need for discrete CTAF frequencies where a certified/registered aerodrome has passenger transport operations. Where an aerodrome has an instrument flight procedure that commences above A050, CASA would still require a 20 nm call for certified, registered and military aerodromes on the CTAF to alert aerodrome traffic. Additionally, CASA would review established BAs to determine if they were still required or if the vertical upper limit could be aligned with MULTICOM at B050.

The current definition of 'vicinity of a non-controlled aerodrome' does not include controlled airspace and this will be retained, therefore, for locations where the base of CTA is below A050 or lateral limits of CTA are inside the 20 nm CTAF radius (e.g. Proserpine or Class D CTA steps), all aircraft would be required to monitor and broadcast on the relevant ATC frequency when inside controlled airspace.

Regulation impact statement

There are no additional aircraft equipment mandates associated with these proposals. However, extending the size of a CTAF for certified, registered and military aerodromes may capture aircraft that are in the vicinity of the aerodrome between 10 and 20 nm radius. Aircraft operating to or from a certified, registered or military aerodrome are already required under CAR 166E to have a radio. CASA will use feedback from this consultation to conduct a regulation impact assessment and submit this to the Office of Best Practice Regulation (OBPR). It is anticipated a Regulation Impact Statement (RIS) exemption will be provided by OBPR.

Closing date for comment

CASA will consider all comments received as part of this consultation process and incorporate changes as appropriate. Comments on the draft proposals should be submitted through CASA's consultation hub by close of business 12 January 2018.

How we handle your feedback

At the end of the response period for public comment, we will register and review each comment received through the online response form. We will consider the submissions to this Notice of Proposed Rule Making (NPRM) before making any change to the regulations or other legislative instrument.