Radio frequency use in uncontrolled airspace
Discussion document

12 April 2013
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1. **Background**

Pilots operating in uncontrolled airspace rely upon other pilots complying with the Civil Aviation Rules (CARs) and the operational requirements detailed in the Aeronautical Information Publication New Zealand (AIPNZ) along with good pilot ‘airmanship’ for safety. The pilot position report and other information provided by a radio call is an essential component for pilot situational awareness and collision avoidance. This relies on the pilot using the appropriate radio frequency for the location they are flying within and for the area they are flying to.

This discussion paper reviews the issue of appropriate radio frequency in uncontrolled airspace in regard to the use of flight information service and review of common frequency zones (CFZs). Massey University raised this safety issue and has proposed a solution using a nation-wide network of CFZs. The CAA has also assessed the problem and proposes an alternative solution using the flight information service with improved coverage.

Industry is invited to provide feedback on this by **24 May 2013** to inform the CAA final decision on this safety issue.

2. **Uncontrolled Airspace - Class G**

Airspace within New Zealand that is not otherwise classified, is class G uncontrolled airspace. In uncontrolled airspace pilots are responsible for their own separation and collision avoidance.

Safe operation in Class G airspace depends on the ‘see, detect and avoid’ principle assisted by radio calls. Pilots enroute should maintain a listening watch on the appropriate flight information service communication (FISCOM) frequency (AIP New Zealand GEN 3.4) unless within a mandatory broadcast zone (MBZ), CFZ or in the vicinity of an aerodrome.

Pilots operating under instrument flight rules (IFR) are required to obtain traffic information before entering instrument meteorological conditions in Class G airspace. Air traffic control will provide IFR aircraft with traffic information on other IFR aircraft in the area. IFR aircraft are required to use this traffic information to maintain sufficient separation.

3. **Common frequency zones**

CFZs were introduced into New Zealand to assist by providing a common radio frequency at locations where several frequency areas overlap. CFZ are not mandatory and are advisory in nature. These areas are not designated airspace under Civil Aviation Rules Part 71; they are common frequencies that have been allocated in order to enhance safety. CFZs signify areas of concentrated aviation activity, generally recreational aviation.

It is not mandatory to use a radio on the specified frequency within a CFZ, but it would be very poor airmanship not to use the advised frequency and to not comply with expected local radio procedures when radio equipped to do so. As a minimum, pilots should broadcast their position and intentions on entry and exit from a CFZ.
4. **Identified safety issue**

Outside controlled airspace there are a number of radio frequencies a pilot may be transmitting on. This results in a safety hazard as pilot broadcasts, important for conflict avoidance, may not be heard by other pilots in the area if on a different frequency.

There has also been increasing use of the 119.1 MHz frequency as an enroute frequency, rather than an unattended aerodrome frequency, which it was established for. Use of the nationwide standard flight information service (FIS) that provides flight information and alerting has decreased. This may be due to confusion over Airways charging for this service.

The issue of radio frequencies was the subject of the 2012 AvKiwi Seminars. The 2012 topic was *Plane Talking*, all about using the radio, 2624 people attended 31 seminars from Invercargill to Kerikeri. Feedback from the AvKiwi was that there was confusion over which radio frequency should be used outside controlled airspace.

The CAA position has always been that the FISCOM frequency should be used and the increased use of non-FISCOM frequencies especially 119.1 MHz, is a concern.

Related issues identified at the AvKiwi seminar and from CAA feedback are:

- Emphasis on audio cues and radio at the expense of visual scan and lookout
- Frequency 119.1 MHz being used inappropriately outside the vicinity of uncontrolled aerodrome traffic areas
- Education on the use of the table of cruising levels to assist conflict avoidance
- Lack of adherence to promulgated procedures
- A high level of non-essential radio chatter
- A number of “choke points” exist where pilots could be on any one of several frequencies
- Local radio procedures not promulgated therefore not known by transiting traffic
- Reluctance to use the FISCOM frequency as there is a perception that there is a charge to do so.

5. **Massey University School of Aviation Proposal**

Massey University discussed the idea of a national network of CFZs for the country in 2010, both with the CAA and across the aviation industry. A formal request was made to the CAA in 2011 but due to staff levels and higher priority work this was not progressed and the submitter was advised. Since then, Massey University has promoted the CFZ network at various industry forums and through NZ aviation publications.

A formal letter was provided to the CAA on 5 September 2012 requesting further action on the concept. This was followed up by a CAA meeting with Massey University School of Aviation staff. At this meeting the issues were discussed as well as alternatives to address the key safety issue.
The two main Massey University concerns with the present situation are:

- High traffic density in many locations
- Ambiguity about which radio frequency to use

The Massey University proposal which contains the safety outcomes and advantages is available for review on the CAA web site at: www.caa.govt.nz/airspace/Massey_Proposal.pdf.

### 6. CAA Review of the Massey University CFZ proposal

The CAA reviewed the Massey University proposal, which has many positives but also a number of disadvantages. It is one possible solution to the identified safety issue.

Key issues that CAA identified from the paper are:

- CFZs are not enabled under CAR Part 71 and there are no associated pilot requirements under CAR Part 91. To ensure CFZs are used a rule change would be needed with associated Ministry of Transport approval for the project and time to complete.
- CFZs are a New Zealand specific type of airspace which means that overseas pilots operating here would not be familiar with them and NZ pilots would not encounter this type of airspace when operating overseas.
- Establishment of multiple CFZs require additional aviation radio frequency allocations, which reduces the available aviation radio spectrum.
- A large number of frequencies raises human factors issues if pilots continually need to change frequencies.
- Multiple CFZs and associated frequencies would be difficult to clearly depict on visual navigation charts and may increase chart clutter.
- Time required to designate the many CFZs, amend all visual charts and update all related publications.
- A CFZ has no single monitoring agency and thus offers no alerting or emergency response capability.

### 7. CAA proposed solution

The CAA air traffic services, flight operations and flight training personnel reviewed the Massey University proposal and the outcomes from the 2012 AvKiwi seminars. This review reaffirmed that the core safety issue was the ambiguity of radio frequency use.

This safety issue has arisen due to a number of factors but most importantly the inappropriate use of the 119.1 MHz frequency and decreased use of the flight information service.

A CFZ was intended to be applied at a location where multiple frequencies could be used and a mandatory broadcast zone (MBZ) was inappropriate; it was not to substitute for the
appropriate frequency where one is available, or to replace the use of the flight information service.

The CAA has continued to educate pilots on the correct use of radios through:

- the Good Aviation Practice booklet “Plane talking”;
- the 2012 AvKiwi seminars; and
- CAA Vector articles (most recent Jan/Feb 2013).

The CAA compliments Massey University for their diligent initiative regarding CFZ use but considers that the key safety issues can be addressed within the current system, in a shorter period of time and without needing to make major changes to charts or CARs.

Proposal

The proposed CAA solution is to increase coverage and use of the flight information service using FISCOM frequencies which provide the advantages sought in the nationwide CFZ network proposal by using the system that pilots should currently be using. This would also reduce the duplication of a nationwide CFZ network and a nationwide flight information service.

Accordingly the proposed solution is that pilots use the FISCOM frequency outside of controlled airspace or the aerodrome traffic zone, unless a CFZ or MBZ is in place. Appendix A denotes a schematic depiction of this concept.

To be clear, there is no cost to pilots for accessing the flight information service.

To achieve this, FISCOM channels would require improved radio coverage, the boundaries of the FISCOM areas amended to reduce complexity and frequency overlap, and be clearly defined using prominent physical features. Additional to this would be on-going training and education for pilots.

The CAA has worked with Airways on the FISCOM coverage and have been advised that Airways is supportive of increasing flight information service use. Airways is already improving frequency coverage to allow better use of the FISCOM frequency at lower altitude and over a greater area for each frequency.

Advantages

FISCOM is provided in accordance with CAR 172.93 and by Airways in accordance with Section 99 of the Civil Aviation Act. Use of the FISCOM frequency also provides monitoring for emergency action and an alerting service.

Current FISCOM chart coverage is available at: www.caa.govt.nz/airspace/GEN_3-4-17-18.pdf.

Using the flight information service means that pilots may receive updated information concerning:

(a) SIGMET;
(b) weather conditions reported or forecast, at departure, destination, and alternative aerodromes;
(c) changes in the serviceability of navigation aids;
(d) changes in the condition of aerodromes and associated facilities, including information on the state of the aerodrome movement areas when they are affected by snow, ice, or water;
(e) unmanned free balloons;
(f) pre-eruption volcanic activity, volcanic eruptions, and volcanic ash clouds;
(g) release into the atmosphere of radioactive materials or toxic chemicals;
(h) traffic to aircraft likely to be affected; and
(i) other activities likely to affect safety.

Disadvantage

The CAA is aware that increased use of FISCOM frequency may increase frequency clutter, however FISCOM areas can be redesigned to address this. Once Airways have completed upgrading the aerials and adjusting frequency coverage there will be trials to amend the FISCOM coverage areas.

FISCOM calls

The CAA is also considering whether the FISCOM frequency could have two types of calls;

- FISCOM - to communicate with the flight information service and get a reply; and
- FISCOM TRAFFIC as a traffic position report to all traffic not requiring a response from FISCOM.

The CAA will continue to look at this option and whether it can be achieved.

The 119.1 MHz frequency should only be used at aerodromes where this frequency is promulgated.

The CAA will be reviewing current CFZs as part of full airspace review commencing in 2014.

8. Position reporting requirements

Current position reporting requirements are detailed in the AIPNZ ENR 1.1 Section 6.2, which states that “below 3000 ft AGL and within 10 NM of an unattended aerodrome to use the aerodrome frequency or if none is published 119.1 MHz”.

In reviewing these requirements, the CAA is considering whether 3000 ft is still appropriate. This is on the basis of a 1000 ft circuit, 500 feet for an overhead join procedure and an additional 500 foot buffer, the CAA believes a 2000 ft AGL criteria may be more appropriate. This could further reduce the number of radio frequency changes required by transiting pilots and frequency clutter from circuit traffic.
To ensure IFR pilots have adequate coverage for an instrument approach, however it may be necessary to retain the current 3000 feet or increase this height.

The CAA would appreciate feedback on this issue.

9. Submissions

In summary the CAA wants to address the safety issue identified in section 4. The CAA is seeking feedback on three issues in regard to:

1. The Massey University School of Aviation nationwide CFZ proposal.

2. The CAA proposal to reinforce that FISCOM is to be used in uncontrolled airspace, unless within an MBZ, CFZ or the vicinity of an aerodrome. This includes increases to FISCOM radio frequency coverage and geographical areas.

3. Amending AIPNZ ENR 1.1 Section 6.2 for the broadcast area to be below 3000 ft AGL to below 2000 ft AGL as per Appendix A.

Please address submissions to:

   Group Executive Officer
   Aviation Infrastructure and Personnel
   Civil Aviation Authority of New Zealand
   PO Box 3555
   Wellington 6140
   Fax: 04-569-2024
   Email: dianne.parker@caa.govt.nz

   Reference - Radio Frequency Use Review

Closing date for submissions Friday 24 May 2013.

10. Further information

For further information contact:

   Mike Haines
   Manager Aeronautical Services
   Civil Aviation Authority of New Zealand
   Phone: (DDI) 04 560 9429
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S-D180-01/5 (DW1259145-0)
Appendix A – Appropriate Radio Frequency

Outside controlled airspace or an aerodrome traffic zone (as below), use applicable FISCOM frequency or applicable MBZ or CFZ frequency.

<table>
<thead>
<tr>
<th>Added 500ft buffer</th>
<th>Within 10 miles of uncontrolled aerodrome and at or below 2000 feet use the aerodrome frequency or 119.1MHz if appropriate.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Added 500ft overhead join</td>
<td></td>
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<tr>
<td>Circuit height</td>
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