AIM EFFECTIVENESS FOR SINGLE PILOT VFR OPERATIONS

A REPORT BY FASVIG

Version 4.0

Final

28/09/2016

FASVIG Limited, 31 Walker Avenue, Wolverton Mill East, Milton Keynes, MK12 5TW

AIM EFFECTIVENESS FOR SINGLE PILOT VFR OPERATIONS

A REPORT BY FASVIG

Introduction

1.0 The FASVIG Implementation Programme (FASVIP) contains an AIM efficiency enablers element which has significance to airspace safety and infringement reduction. FASVIG sought views from VFR stakeholders and from providers of GPS mapping devices and services commonly used by pilots flying VFR in the UK. Its objective was to identify policies that tend to make the user interface less effective than it might be and propose potential changes to improve airspace safety and support infringement reduction. As GPS mapping devices are developed the displayed AIM information and warnings are increasingly focussed and reliable pilots rely on the information and honour warnings and information messages. However, where displayed information is not relevant to the route flown or the time of flight, pilots have to make a decision to honour or ignore the information. Forcing pilots to make such decisions invites error and reduces airspace safety.

1.1 The paragraphs that follow discuss these areas by FASVIP package. This work is closely allied to other FASVIG work on Listening Squawks and Airspace Infringement reduction. Where there is overlap we indicate this in the text.

FASVIP Packages of Change

A.3.1 NOTAM Compatibility with Graphical Display

Most civil aircraft intending to operate VFR use a graphical presentation for NOTAMS, but too many NOTAMs are not fully compatible with this format. FASVIG would identify areas of issue and propose changes.

2.0 FASVIG found that over the last few years, providers of graphical mapping services had developed tools and procedures to convert NOTAM and other AIM products into formats that can be displayed effectively on a range of devices. The quality of these conversions varies and this can lead to safety issues. For example, some airspace notifications may be omitted from one system because it is not relevant to their customer but users should be aware that it may not be appropriate to use that product in another segment of aviation where that may be relevant. Where AIM products may be subject to format change in the future the principle providers of GPS mapping should be involved to maintain or improve this important product for VFR aviation.

A.3.2 NOTAMs Relevant to Time

Certain NOTAMS cover an omnibus period with the actual activity period detailed in text. This is incompatible with the majority of VFR user NOTAM interfaces and results in clutter, complexity and unnecessary funnelling of VFR traffic.

FASVIG Limited, 31 Walker Avenue, Wolverton Mill East, Milton Keynes, MK12 5TW

2.1 FASVIG found that there had been a reduction in the number of omnibus NOTAMS that were generated but was still concerned about having a Q line which covered an extended period but with text indicating activity over shorter times within the period. GPS mapping providers are able to show NOTAMS in what amounts to real time and the omnibus NOTAM can defeat that by displaying a warning based on the Q line when the activity may or may not be active. This invites pilots to choose when to avoid an area and when to ignore a warning which defeats the accuracy and the objective of such GPS mapping devices.

2.2 We propose that omnibus NOTAMS be eliminated from the system. This has an impact on airspace infringement risk.

A.3.3 NOTAMs Relevant to Route

> *As part of their definition, some NOTAMs have a geographic centre and radius specification that indicates the area affected. It is not uncommon for the area specified to be different from the actual area affected by the subject matter of the NOTAM. Recent prime examples include a NOTAM covering the whole of the UKFIR announcing the ban on flights in Ukrainian airspace and a NOTAM covering a significant part of the UK land area concerning a TMZ offshore.*
>
> *Use of the NOTAM system in this way causes information to be presented to GA pilots that is totally irrelevant to their planned route. The resultant information 'clutter' increases the chances of pilots missing important details that are relevant to their planned route. This practice should be stopped.*
>
> *It is accepted that this type of information is important for those planning flights which are affected by the true geographic area of the subject of the NOTAM. If using the true location of the affected area in the NOTAM definition is deemed insufficient, then a different method should be employed to provide general notification to those truly affected.*

2.3 Whole FIR warnings about hazardous situations beyond the FIR continues to be a concern for VFR pilots who will never be affected by them. Pilots scanning NOTAMS skip through such entries and are more likely to miss more important matters. If such notifications have to be in NOTAMS we would encourage a single short NOTAM listing all the countries with cross reference to the relevant AICs because skipping over a single entry is less likely to lead to missed entries than making multiple skips.

2.4 There have been cases of a wide area of influence being depicted when the actual area of concern is small. An example would be an offshore TMZ with a large circle of interest. Other cases occur where administrative changes at aerodromes are depicted as a NOTAM with an area of interest. In both these cases pilots are presented with a warning on their GPS device but may ignore it. They have to remember what to ignore and what to honour and that is liable to introduce error. Moreover, pilots will tend to avoid all the red circles and warnings on their GPS map even when they may not need to. Whilst this reduces the risk of error it tends to funnel traffic unnecessarily.

2.5 We propose that methods of eliminating such "false positives" be developed and deployed. This has an impact on airspace infringement risk.

FASVIG Limited, 31 Walker Avenue, Wolverton Mill East, Milton Keynes, MK12 5TW

A.3.4 Temporary Reserved Airspace Depiction for VFR Airspace User

The presentation of TRAs and other airspace notifications in the AIP and through NOTAMS tends to be set out in a way that is convenient for the author but is ineffective as a source for airspace users. This is particularly important for the VFR user where there is no intermediate service provider to translate the source data into a more useful format as is usually the case in commercial operations. This represents an airspace safety hazard.

Although significant airspace reservations which are planned well ahead are commonly depicted in the AIP the presentation is usually an IFR-type chart, centred on the airport or facility in question and showing its position from that viewpoint. However, the VFR user needs to be able to understand the reservation as viewed from outside the airspace and for the VFR pilot this increases workload and infringement risk. The VFR user is familiar with CAA topographical charts but these are rarely used to depict airspace reservations.

Shorter term airspace reservations are only described by text only NOTAMS and whilst that is legally sufficient it is of little direct value for navigation and manual plotting is difficult on plastic-surfaced charts and is prone to error.

2.6 Since FASVIG first built its packages of change, the development of GPS devices has largely overtaken paper map requirements so improving the layout of AICs in describing TRAs is perhaps less important. However, paper maps are still in use. It was clear that a depiction of a TRA in a way that is relevant to the airspace regulator and the ATS unit is not usually suitable for the VFR airspace user and plotting from what is essentially an enhanced airway chart onto a VFR chart is difficult and prone to error. If in an AIC, a TRA was depicted against the background of a standard VFR chart it would enable the user to easily and accurately transfer it to their own map which would promote TRA avoidance and deliver a user-friendly notification.

2.7 We propose that policy on graphic practice within AICs and supplements be reviewed. This has an impact on airspace infringement risk.

2.8 FASVIG also found that certain activity areas are marked on charts as "by NOTAM" when they are rarely if ever used. Because they are on the chart they are presented on GPS devices and most pilots will choose to avoid them at all times resulting in traffic funnelling and choke points as well as adding to chart and airspace complexity. Because of the capability of GPS mapping devices to depict NOTAM areas during the time they are active, where an activity area is rarely used it would be better if the symbol and area was not permanently displayed. This identifies a difference in charting requirements for paper charts and GPS moving map devices. For paper charts, users need by-NOTAM only areas displayed so they can reference them and mark up where necessary. Providers of GPS devices need to be able to display only that which is active at the time. This is already functioning in an informal way with certain user groups who manage their own data taking out items which are not relevant to their operation. This facility needs to be available to mainstream commercial GPS mapping providers and should be regularised and documented so that users know what they get from all systems and devices. A single AIM policy is no longer appropriate.

FASVIG Limited, 31 Walker Avenue, Wolverton Mill East, Milton Keynes, MK12 5TW

2.9 We propose that policy on data for paper charts and GPS devices be reviewed with a view to providing appropriate data and policies to both elements. This has an impact on airspace infringement risk.

FASVIG Other Developments

3.0 During its first year of activity FASVIG worked on a number of issues connected with airspace infringement reduction. The additional AIM related issues that were raised and developed during this work are described below.

Understanding of LARS Areas and Listening Squawks

4.0 Listening squawks and (particularly) LARS services reduce and prevent airspace infringements. However, the understanding and use of these services is poor and AIM provision is not user friendly.

4.1 LARS areas are depicted in the charts section of the UK AIP and sometimes within VFR flight guides but nowhere that is useful as a common pre-flight and en-route reference. GA pilots tend not to understand where a service is available and which unit covers which area and when; it is largely a mystery based on hearsay. LARS frequencies are listed on the VFR frequency cards North and Scotland but not South where arguably the need is greatest. LARS providers are indicated on the ½ million chart but the printing is not compelling. There is no cockpit guide to LARS areas themselves.

4.2 Listening squawks are now listed on all frequency cards but there is widespread misunderstanding of their use and the area of interest. A reference card was published in some magazines and it is available on the ASI website but it is designed like a poster and has very limited utility as a technical reference for pre-flight or cockpit use. Its use of colour is not appropriate for in flight use and it is expensive to print. The codes and frequencies are not listed together and an inappropriate look-up process has to be used.

4.3 We propose that a ready reference guide to LARS and listening squawks is published alongside frequency cards on the AIS website and issued as physical cards with ½ million charts. A publicity campaign will be required to make that effective. This has an impact on airspace infringement risk.

Frequency Reference Cards

5.0 Although the withdrawal of frequency cards issued with charts was said to be to improve the update of information, this was widely held to be a cost saving operation and FASVIG found that many pilots had never, or rarely, printed the cards published on the AIS website. Some pilots did not know of their existence. Some pilots cited the cost and availability of card and the problem with printing back-to-back on a personal printer using a document formatted for professional printing. There is no easy system for alerting pilots to changes on frequency cards and

FASVIG Limited, 31 Walker Avenue, Wolverton Mill East, Milton Keynes, MK12 5TW

providing a compelling prompt to print the new version. The frequency cards are a valuable source of operational information and need to be better promoted.

5.1 We propose that hard copy frequency cards (and other reference cards) are issued with charts and that the download facility is better publicised. This has an impact on airspace infringement risk.

5.2 We propose that a compelling prompting system for reference card updates be established. This has an impact on airspace infringement risk.

Chart Clarity

6.0 Some pilots drew attention to charting issues where markings for a CTA was more prominent than that of the underlying CTR increasing the risk of infringement by VFR aircraft flying at lower altitudes.

6.1 We propose that a user review of the marking of CAS on charts is conducted. This has an impact on airspace infringement risk.

Complexity of AIM Material

7.0 Airspace for VFR flight is much more complex than that for IFR flight and there is no universal ATS service provided in the UK to support it. Unfortunately AIM materials affecting VFR flight and areas are also complex. Moreover, whilst commercial IFR operators employ intermediaries to package aeronautical data for planning and aircrew use, recreational pilots have to use the information as published. With the advent of moving map GPS devices, providers are effectively acting as intermediaries translating published aeronautical data from multiple sources into a single user interface. Nonetheless, much data has to be reviewed by pilots in textual form and much is too complex for an individual to absorb and understand without the risk of error. Regulatory data needs to published in a form that is useable for pre-flight briefing and planning and in-flight in a single pilot aircraft.

7.1 We propose that AIM policy identifies area where the provision of ready reference material suitable for single pilot VFR operations would improve safety. This should then be delivered by the AIM process. This has an impact on airspace infringement risk.

Conclusion

8.0 FASVIG has identified a significant number of AIM areas where VFR operations are not as well supported as they might be leading to increased airspace risk and particularly to infringement risk. FASVIG proposes that the following issues be reviewed with a view to making single pilot VFR operations more efficient and safe for all airspace users:

FASVIG Limited, 31 Walker Avenue, Wolverton Mill East, Milton Keynes, MK12 5TW

8.1 Providers of moving map GPS devices for VFR operations should be represented and involved in future format and provision of aeronautical data.

8.2 NOTAM Q lines should include only the period of operation of the activity concerned to eliminate false depiction of activity.

8.3 NOTAM policy should exclude multiple overseas warnings appearing in pre-flight briefings

8.4 NOTAMs should include only the boundaries of the actual activity so it can be properly depicted on moving map GPS devices.

8.5 Temporary reserved airspace should be depicted in AIC and supplements overlaid on a background of a ½ million map to enable the boundaries to be easily understood and accurately copied onto paper maps for operational use.

8.6 A policy should be developed on data for paper charts and GPS devices with a view to providing appropriate data and policies to both elements.

8.7 A ready reference guide to LARS and listening squawks should be published alongside frequency cards on the AIS website and issued as physical cards with ½ million charts. A publicity campaign will be required to make that effective.

8.8 Hard copy frequency cards and other reference material should be issued with charts and made available on the AIS website

8.9 A system for prompting the download of changed frequency and reference cards should be created.

8.10 The clarity of CAS markings on VFR charts be subject to a user review.

8.11 AIM policy should identify areas where the provision of ready reference material suitable for single pilot VFR operations would improve safety. This should then be delivered by the AIM process.

28/9/2016

FASVIG

FASVIG Limited, 31 Walker Avenue, Wolverton Mill East, Milton Keynes, MK12 5TW