

# **BRITISH HANG GLIDING AND PARAGLIDING ASSOCIATION**

## **DRAFT POSITION PAPER – version 2 (changes in red)**

### **INTRODUCTION**

The British Hang Gliding & Paragliding Association (BHPA) has some 7,000 active participating pilot members – some 90% of the UK's pilots in the relevant activities. For over 30 years it has been the sole UK body that maintains and oversees pilot and instructor training standards, airworthiness standards, and a host of other services, providing the infrastructure within which UK hang gliding and paragliding thrive.. The quality of its work is internationally recognised to the extent that not only is it extensively consulted by the UK CAA it is also consulted by national Governments

The BHPA is committed to ensuring that hang gliders, paragliders and the powered variants operate safely and responsibly within the UK airspace environment, and with due care for public safety and the needs of other airspace users.

Due to the acknowledged technical nature and complexity of this consultation, we have suggested to our members that they consider this response, which has been made available to them on our website, and indicate to you their support or otherwise for the issues we raise. Where they do this we trust that you will not regard any abbreviated comments as a “form” response and will note the fuller consideration and arguments in this document.

### **PROPOSAL FOR AN INCREMENTAL EXPANSION OF THE USE OF SECONDARY SURVEILLANCE RADAR MODE SELECT TRANSPONDERS IN UK AIRSPACE**

#### **CONSULTATION RESPONSE**

#### **1. Executive summary**

- 1.1. The BHPA welcomes the opportunity to partake in the consultation however it believes that there are a number of fundamental flaws both in the content of the consultation and in the manner of its presentation.
- 1.2. Whilst to a cursory glance it would appear that hang gliders and paragliders will not be affected by the proposals this is far from an accurate position, both now and even more so in the future.
- 1.3. In our opinion the flaws combine in various ways to present a situation where proceeding to legislation without the provision of the required information and a further consultation would be unsupportable. Therefore we are responding with the body of this document on the Consultation as a whole, the contents of which are to be taken as applicable to all four of the Consultation's “Options”, and the full responses to the four Options in Annexes 1 to 4.

#### **2. BHPA's Electronic Visibility Policy**

- 2.1. The BHPA is not opposed to the principle of the carriage of electronic visibility equipment by GA aircraft. However that carriage must:
  - 2.1.1. Give verifiable and sustainable safety benefits with any added risks being manageable
  - 2.1.2. Be paid for by the beneficiaries in direct proportion to the benefits received
  - 2.1.3. Have costs in proportion to the benefits to those paying them, and
  - 2.1.4. Recognise the issues pertinent to the many and varied aircraft and operations being considered
  - 2.1.5. Not limit existing airspace access

- 2.1.6. Increase airspace access possibilities
- 2.1.7. Have equipment that is fit for purpose for a minimum of 10 years.

### **3. The presentation of the Consultation**

#### **3.1. "Options"**

- 3.1.1. A significant flaw in the presentation of this Consultation is the use of the word "option". When one is presented with a series of options one is usually expected to select one from them. In this consultation what is actually being presented are four separate proposals, for which the only options available are to accept or reject them.
- 3.1.2. According to the Government's "Code of Practice on Consultation" each policy proposal (or as expressed in this consultation "Option") should have the risks and consequences of doing nothing outlined, but these are not presented or considered in that format. The one global "do nothing" option is not appropriate as it only considers the whole set of "Options" taken together. For example, not doing "Option 4" will not cause airlines to relocate to Europe or cause restrictions in CAT movements as paragraph 15.1 suggests.
- 3.1.3. Therefore this consultation fails to meet the Government guidelines.
- 3.1.4. The few alternatives examined within the consultation, but not consulted upon are not really alternatives but other policies.
- 3.1.5. Due to the lack of a true set of options for each of the consultation's "Options" severe limits are placed upon the consultees. They are left to construct their own alternatives, including the do nothing option.

#### **3.2. CAA "Opinions"**

The phrase "the CAA considers" is used through out the document in support of the contention that mode S is necessary for safety, but there is no supporting evidence provided. It is unreasonable to expect stakeholders to be convinced by, or comment upon, assertions without the appropriate supporting evidence. Therefore there is a need to identify the documentary evidence that the CAA used to reach its considered opinions.

#### **3.3. Target Levels of Safety**

- 3.3.1. The consultation's Executive Summary mentions "target levels of safety" but does not quantify them. What are they?
- 3.3.2. The consultation does not consider what level of safety is currently achieved in the various situations being examined, nor what change in safety would result from each of the "Options".  
It is a fundamental of risk management that two safety levels are required BEFORE the construction of a business case. These are:
  - the existing safety level
  - the target safety levelOnly then can the achievable safety levels and the respective costs of the various options be added in. At this point it may even be discovered that something greater than the target level can be achieved.
- 3.3.3. It is interesting to note that Eurocontrol state that 5 is "The factor of collision risk reduction thanks to TCAS II in the operational world". When dealing in risks measured in the powers of ten this is pretty insignificant.
- 3.3.4. The Eurocontrol figure for an ideal world with two TCAS II equipped aircraft and everything including the pilots working as advertised is still only 80.

- 3.3.5. Without the safety level data it is impossible to produce any cost v. benefit analyses, to state whether the proposals are proportionate or not, or to subsequently measure their effectiveness.
- 3.3.6. Also apparently, "ICAO requires subscribing states to implement a safety management programme, and to establish an acceptable target level of safety. A value of  $5 \times 10^{-9}$  fatal accidents per flight hour per dimension is recommended to be used for determining the acceptability of future en-route system implemented after the year 2000."  
What does the UK work to?
- 3.3.7. Risk analysis work is absolutely basic to business management in safety critical areas. If this consultation and implementation process proceeds further without it, and another consultation based upon the results, it can but call into doubt the competence of the CAA in the fields of risk management and also running sustainable consultations.

#### 3.4. Assumptions as to what is a benefit

The consultation document is based on the need to manage the currently predicted growth in commercial air transport. That growth is stated as being a benefit. There are many people in the UK who identify the growth of commercial air transport as an operational, economic and environmental threat. Indeed the espoused public and UK Government attitude to airline travel has shifted considerably in the short time since the 2006 consultation and the predicted growth could be considerably different from that currently estimated.

## 4. Technical and practical issues

### 4.1. Mode A/C v Mode S

- 4.1.1. Firstly the lack of efficacy of Mode A only transponders is understood and accepted by virtually everyone, and so they can be discounted from further consideration.
- 4.1.2. One of the main reasons given for the mandating of Mode S has been the technical limitations of Mode C and the need to go an all Mode S environment because if the number of A/C transponders was increased to accommodate traffic growth, safety and efficiency would be compromised and the old system is already at or beyond its limits. As virtually all public transport aircraft have already changed to Mode S this consultation is almost entirely about light GA. Annex D discusses the need to operate the UK ground environment in "mixed mode" because of safety issues, that is to say, all radars interrogate in both Mode S and Mode A/C. Therefore will all Mode S transponders not also reply in both modes? **Notwithstanding your view that mixed mode will cease by the year end, we believe that ATC providers will need to operate for mixed mode for some years**, certainly until 2012, and beyond if equipment programmes are not delivered by then. **Moreover, although the number of ground based interrogators is small, there are an increasingly large number of ACAS equipped aircraft which will interrogate Mode A/C in the longer term.** If all the additional aircraft that are now proposed for Mode S fit were to do so by March 2009, wouldn't they also be responding to the mixed mode Mode A/C interrogations with the potential to overwhelm some UK ATC systems?
- 4.1.3. Annex D notes the potential for inaccurate displays due to data volume at paragraph 6, reporting high levels of mutual interference from just 1800 aircraft. This scenario would be of no great consequence to light GA as they

don't actually need to be controlled but what would the consequences be for ATC system and TCAS effectiveness?

4.1.4. Whilst not all the 20,000 plus aircraft and gliders estimated by the consultation as needing transponders will equip by March 2009, it is the CAA's intention that they should do so before March 2012 so this situation will develop as we have described. We have taken expert advice on this and our concerns have been confirmed. We have been told that TCAS overload is already occurring in busy areas such as the Los Angeles TCA and that as TCAS interrogation will continue to operate in a Mode C manner, this will be an issue even into the long term. Although this problem will be partly resolved in due course, once Mode A/C interrogations are switched off, the policies in use must cater for the interim situation in a realistic way. Indeed, if as stated, the Mode A/C system and the RF environment are already at their limit, should a large increase in transponder carriage be allowed?

#### 4.2. Available equipment and its acceptability criteria

4.2.1. The CAA has acknowledged that there is not the equipment available for the lighter end of GA operations. However there remain a number of equipment issues.

4.2.2. Beyond the fact that approved ICAO compliant transponders are acceptable the CAA has offered no indication as to who will decide, or how they will decide, when a particular transponder is deemed as appropriate to have to be carried in mandatory transponder airspace, thus rendering an aircraft capable of transponder carriage. The list of criteria that should have to be considered is long with many implications being significantly different for the various forms of GA, e.g. size, weight, mounting, possible radiation effects upon personnel and other equipment carried (including crew's medical equipment), aerial mounting, capital and annual costs relative to existing activity costs, battery life, maintenance, ruggedness, serviceability/mean time between failures, interference from/with existing aircraft electrics, efficiency at doing what it is meant to do, linked airspace/VFR issues, crash worthiness, etc., Without information on the decision process it isn't possible to comment upon the proportionality of the proposals.

4.2.3. It would appear from trial results of the LAST (sub-ICAO, EUROCAE ED115 specification) specification that it is not providing the expected benefits. We await full reports, and the CAA's comments upon them, with interest.

### 5. Operational issues

5.1. Access to mandatory transponder airspace by non-transponder equipped aircraft. Within the consultation there are a number of proposals to provide airspace access for non-transponder equipped aircraft. Whilst we welcome the apparent philosophy of the line taken, the proposals are heavy with caveats of "may", "possibly" and "could". This renders it impossible for us to fully understand any proposal because of the uncertainties introduced as to what is actually being proposed.

5.2. Letter of Agreement (LoA) access to mandatory transponder airspace. There are a number of completely successful LoAs around the UK which could well refer to airspace that under the proposals will require transponder carriage. Despite the assurances in the consultation (with caveats – see point 5.1 above) it is difficult to see how an ATC unit's lawyers could agree to continued access when the CAA has deemed transponder carriage essential to that airspace. Such a

situation is completely unacceptable to us.

### 5.3. Additional results of increased transponder carriage.

5.3.1. There are a number of possible scenarios around the boundaries of CAS where SSR carriage could result in commercial air transport aircraft (CAT) TCAS Resolution Advisories (RAs) on a GA aircraft despite both aircraft operating totally legitimately their respective sides of the CAS boundary. Airprox data indicates that this has happened already even though only a very small percentage of GA aircraft are currently SSR fitted. Therefore increased carriage is more than likely going to increase the frequency of occurrence. Reacting to such “false” RAs could, in a busy CAS, lead to reductions in safety. It should be remembered that the busiest CAS is also where the busiest Class F/G tends to be and where there is very little knowledge about the numbers of aircraft quite legitimately flying close to CAS boundaries. One solution to this could be the expansion of CAS to provide a bigger buffer around the CAT. It would be a very sorry state of affairs were CAS to be increased purely because of the short comings of technology. What work has been done to investigate this issue which was detailed in responses to the 2006 Partial RIA?

5.3.2. It is interesting to see that in Eurocontrol’s “European Mode S Station Functional Specification” edition 3.11 ([www.eurocontrol.int/msa/public/standard\\_page/modes\\_docs\\_euro\\_docs.html](http://www.eurocontrol.int/msa/public/standard_page/modes_docs_euro_docs.html)) paragraph 4.2.7.2 and Annex G there are “Target Loads”. What modelling has been carried out with respect to the effects of the proposals and the “Target Loads”?

### 5.4. Safety

The creation of mandatory transponder carriage airspace will have safety implications in that those aircraft that cannot enter them will have to route round them thus most probably leading to the creation of new choke points and the consequential increased risk of midair collisions in the surrounding area.

## 6. Environmental Issues

The creation of mandatory transponder carriage airspace will have environmental implications in that those powered aircraft that cannot enter them will have to route round them thus increasing track miles and consequently fuel burn as well as leading to noise concentrations through multiple aircraft flying round the same piece of airspace.

## 7. Costs

### 7.1. Who pays?

- 7.1.1. There is a presumption in the UK that those who gain from something should be the one to pay for it. This is usually called the “User Pays”, more accurately it should be the “Beneficiary Pays”.
- 7.1.2. The potential benefits of mandatory transponder carriage to the GA pilot are minimal, and in some parts of the country arguably nil. Therefore it is difficult to see why the GA pilot should pay for either the capital or recurring costs.
- 7.1.3. The division of cost should be in direct proportion to the benefits; the obvious beneficiaries are the airlines, the commercial airports, and the Air Navigation Service Providers (ANSP)

- 7.1.4. Any costs left to the GA aircraft owner (both capital and annual) should be proportionate to the activity. As proposed, for example, a glider pilot could have to spend an amount equivalent to the value of his aircraft both in capital and annual cost terms.
- 7.2. With the short fall in engineers identified in the CAA GA Reviews and the need for specialist equipment to carry out checks a significant part of the periodic checks could be getting the installed equipment, the testing equipment and a suitable qualified avionics engineer all in the same place.

## 8. Option 1

See Annex 1 for the full response.

- 8.1. Consultation Question 1, *“What other advantages and disadvantages could there be under Option 1 if all aircraft operating within controlled airspace used SSR?”*

See Annex 1

- 8.2. Consultation Question 2, *“Has the cost impact of Option 1 been accurately estimated? When considering your response, please provide supporting data where available.”*

This depends upon the answer to point 4.2.2 above coupled with the availability of new equipment models in the period between now and the proposed implementation.

With the existing equipment situation the equipage costs are probably reasonably accurate.

- 8.3. Consultation Question 3, *“What would be the impact of Option 1 on small businesses? When considering your response, please provide supporting data where available.”*

The response to this question is a simple matter of costs to the business, with zero benefits to show for it other than the ability to continue operating as they currently do. The more aircraft that need fitting the greater the costs. The nearer the cost to the value of the aircraft the lower the incentive. The tighter the business’s margins the greater the effect.

## 9. Option 2

See Annex 2 for the full response.

- 9.1. Consultation Question 4, *“What other issues should be taken into account within a mechanism to process and consider applications for TMZs?”*

See Annex 2

- 9.2. Consultation Question 5, *“What could be the cost to businesses and General Aviation representative associations of participating in a process for considering the establishment of a TMZ? When considering your response, please provide supporting data where available.”*

GA is typically managed by its participants, most of who are expert volunteers. Each TMZ application will be a considerable resource issue for the affected clubs and the national organisations as the specific expertise and time to participate in each Airspace/TMZ change process is limited. This will result in human resource and economic issues associated with responding to the consultations which will follow applications by commercial airport operators. These airfield operators can each fund and resource professional support for their single application; against this, national GA organisations and their clubs will be forced to challenge multiple applications so that existing rights to airspace access are maintained.

The amount of resource required by each application will vary considerably and not

least be driven by the professionalism of the applicant (how many attempts, and how long, did it take before Prestwick finally came up with a viable application for its Class D airspace!).

Until the actual process is known it is not possible to comment further upon the actual likely costs.

## 10. Option 3

See Annex 3 for the full response.

10.1. Consultation Question 6, *“What other advantages and disadvantages could arise if gliders were brought within the SSR transponder carriage regulations?”*

See Annex 3

10.2. Consultation Question 7, *“Has the cost impact of Option 3 been accurately estimated? When considering your response, please provide supporting data where available.”*

This depends upon the answer to point 4.2.2 above coupled with the availability of new equipment models in the period between now and the proposed implementation.

With the existing equipment situation the equipage costs are probably reasonably accurate.

10.3. Consultation Question 8, *“What would be the impact of Option 3 on small businesses? When considering your response, please provide supporting data where available.”*

The response to this question is a simple matter of costs to the business, with zero benefits to show for it other than the ability to continue operating as they currently do. The more aircraft that need fitting the greater the costs. The nearer the cost to the value of the aircraft the lower the incentive. The tighter the business’s margins the greater the effect.

All 90+ UK gliding clubs are small businesses which fundamentally operate as participant managed sporting clubs with associated, modest economic margins. It is not uncommon for a medium sized gliding club to make an annual surplus of less than £10K. If, by way of only a few examples, the sport gliding clubs at Ballarena in Northern Ireland, Talgarth in South Wales, Portmoak in Scotland, Shobdon in Herefordshire and at the Long Mynd in Shropshire want to continue to benefit from their unique selling point – access to lee wave cross country flying accessible to local gliding participants as well as those who travel to these areas - they would be forced to equip their entire fleet with SSR to operate in wave soaring areas above FL100 where, generally, commercial air transport does not operate. The club at Portmoak is notably unique in that considerable success has been made in exploring lee wave soaring potential throughout the far north of the United Kingdom with associated sport record breaking successes as well as wider participant development.

## 11. Option 4

See Annex 4 for the full response.

11.1. Consultation Question 9, *“Would the cost impact of Option 4 fall within the estimates for Option 1?”*

Probably for UK based aircraft transiting out of the country. There is no indication of the costs to foreign aircraft wishing to fly to the UK, or the number that would be prevented.

11.2. Consultation Question 10, *“Has the number of UK aircraft affected by Option 4 been accurately estimated? When considering your response, please provide supporting data where available.”*

Probably.

11.3. Consultation Question 11, *“What other issues should be taken into account by the CAA when considering whether or not to continue to notify a ‘Difference’ with the ICAO Annex 6 international obligations?”*

See Annex 4

## 12. “Do nothing”

12.1. Consultation Question 12, *“What would be the impact of maintaining the current status quo on your main activity?”*

The retention of the status quo would have little or no impact upon GA.

## 13. Summary

In summary, the BHPA:

13.1. understands the desirability of improved collision avoidance measures.

13.2. recognises the importance of Mode S EHS for public transport aircraft operating in CAS as it clearly increases the safety and efficiency of their operations. For this reason we support the regulatory change to mandate it in Class A airspace.

13.3. recognises that Mode A/C interrogators, both ground ATC systems and TCAS will be switched off at some time in the future leaving Mode S as the only secondary radar system in use for all airspace.

13.4. encourages the fitment and use of altitude encoding transponders in light aircraft where it is practicable, safe and cost effective and discourages the use of Mode A only transponders because of the inadequate interaction with TCAS.

13.5. believes that by far the greater collision risk for GA is with fast jets and other GA.

13.6. believes that this consultation is asking for comments upon:

13.6.1. four proposals that have no options beyond accept or reject

13.6.2. new ATC environments that do not exist anywhere yet and have not been fully modelled for the UK,

13.6.3. promised benefits to GA that are at best optimistic.

13.7. believes that there is insufficient accurate substantive information within the consultation upon which to make meaningful rational decisions.

13.8. believes that in order to be able to comment meaningfully upon the proposals at least the following is needed:

13.8.1. full risk analyses for all the proposals and their options, including the specific individual “do nothing” options

13.8.2. the methodology and results of verifiable modelling of the effects upon the UK’s ATC systems of the proposals, achievement of which may require selective flight trials

13.8.3. the methodology and results of verifiable modelling of the other individual issues posed, achievement of which may require selective flight trials

13.8.4. firm proposals as to what a TMZ will consist of

13.8.5. firm proposals as to the TMZ creation process is being proposed

13.8.6. firm proposals for the wording of all initial Exemptions/Derogations for each proposal together with examples of how they are expected to work and associated processes and procedures



- 13.8.7. a guarantee that all existing LoAs will continue as they are currently written with no requirement for transponder carriage
- 13.8.8. full details of who will decide, and how they will decide, when a particular transponder is deemed as appropriate, thus rendering an aircraft capable of transponder carriage
- 13.8.9. all proposed flight limitations for non-ICAO compliant transponder equipped aircraft
- 13.8.10. a consultation upon the LPST specification
- 13.8.11. full details of all relevant CAA processes and charges with respect to airworthiness, licensing and exemption processes
- 13.9. has sympathy with the hypothesis that new technologies might be able to offer valuable improvements in aviation safety, but only through thorough consultations, investigations and assessments prior to adopting and implementing new policies/legislation.
- 13.10. believes that the CAA proposals do not represent a proportional approach to regulation regarding mode S, particularly with respect to Option 3 and gliders.
- 13.11. is disappointed that the considerable resources from the national GA organisations that were made freely available to the CAA in order to assist in this consultation did not result in a higher quality document.

Martin Heywood  
BHPA Chairman  
30<sup>th</sup> May 2008

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**CONSULTATION RESPONSE**

**Annex 1**

**OPTION 1 -Mandate the carriage and operation of Mode S transponders on all aircraft operating within controlled airspace of classification A to E.**

1. Introduction

Whilst the BHPA understands the desire to increase transponder carriage within CAS it feels that there has been insufficient work to fully assess the implications, and until this is completed it cannot consider supporting the proposal.

2. Gliders

For the avoidance of doubt the BHPA response to this option is inclusive of all UK GA aircraft.

3. Improved access to CAS

3.1. It is not clear how the air traffic efficiencies quoted in the consultation document can be delivered, as existing controller and equipment capacities are inadequate to meet existing user needs, with transponder equipped aircraft currently being regularly refused access.

3.2. It is accepted that option 1 could contribute towards improved access to controlled airspace for all users if resourced and managed properly, but certainly not without significant investment in controlling resources.

3.3. In addition to a resource issue see the point below about the proposal's ability to change airspace capacity.

4. Reduced CAS capacity

4.1. With the use of the short term conflict alert (STCA) systems and other conflict alert tools it is easy to see how the capacity of CAS will actually be reduced thus leading to less CAS access for GA aircraft. Obviously this is all true now but with increased transponder carriage will inevitably come increased incidents.

4.2. Despite requests, the BHPA has been denied data on the algorithms used by STCA and has not had sight of those to be used in the latest NATS tool. However a study of Eurocontrol's "Specification for Short Term Conflict Alert" ([www.eurocontrol.int/safety-nets/public/standard\\_page/stca\\_01.html](http://www.eurocontrol.int/safety-nets/public/standard_page/stca_01.html)) reveals, as expected, that the criteria will probably be set to prevent aircraft impinging upon the appropriate IFR separation minima.

4.3. Therefore to avoid "nuisance alerts" (defined by Eurocontrol as "Alert which is correctly generated according to the rule set but is considered operationally inappropriate", ATC controllers will be forced to keep all aircraft apart by IFR standards.

4.4. This is fundamentally different to the separation standards currently required for VFR aircraft within Class D airspace. Each aircraft will "occupy" a considerably larger part of the CAS and so limit the overall capacity of that CAS.

- 4.5. Despite raising the matter the BHPA is unaware of any work having been done by the CAA or ANSPs on this effect of the proposal.
- 4.6. This is not just an STCA issue. As raised in responses to the 2006 Partial RIA, an Airprox in 2005 highlighted that it is possible for a VFR aircraft to trigger an RA on a TCAS aircraft when both are in Class D, flying perfectly safely and according to the rules. The ATC unit said that it was going to review its policies and procedures and it is easy to see that the only thing available to them is to increase separation to IFR standards.
- 4.7. Should the proposal go ahead the BHPA reserves the right to seek a review of each and every piece of Class D airspace as each will effectively have changed classification.

## 5. Proportionate action

The proposal appears to take the position that all CAS is equally busy and so warrants the compulsory transponder carriage. It is self evident from the CAA's own airfield data that some places are considerably busier than others and could well justify the mandatory carriage

## 6. Safety

6.1. Where are the safety cases and risk analyses for this proposal?

6.2. For example will the effective closing of CAS to some aircraft increase choke points?

## 7. World first?

We believe this proposal represents a "World's first", and not necessarily one to be proud of as it stands at the moment. The significant point is that if it is indeed a first then we believe that considerably more work is required, and if it isn't then what were the lessons learnt by those that have gone before us? Does this environment exist anywhere else?

## 8. Conclusion

8.1. The CAA is seeking to mandate transponder carriage in all CAS.

8.2. We support this in the all IFR environment of Class A airspace.

8.3. We believe that there are a number of negative to GA aspects of the proposal with respect to other CAS that have not been fully examined. We acknowledge that some of what we find as negative the ANSPs will probably deem to be an advantage as it will limit capacity and so ease their load.

8.4. We believe that the proposal is not proportionate.

8.5. Until the reduced airspace capacity issues have been resolved we cannot consider supporting this proposal.

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**Annex 2**

**OPTION 2 - Implement a formal process to support applications for 'Transponder Mandatory Zones' (TMZs) outside of controlled airspace.**

9. Introduction

9.1. The CAA is asking for a mandate to implement a formal process to establish a form of airspace that has yet to be fully examined, this is unacceptable

10. TMZ definition.

10.1. Currently there is no UK definition of what a TMZ will consist of beyond what its name can be taken to imply.

10.2. At the moment all UK TMZ airspace is within existing CAS and so there is no experience within the UK of how an Open FIR TMZ would work. What are the operational pros and cons of TMZs for all stake holders?

10.3. What are the environmental pros and cons of TMZs for all stake holders?

11. Safety

11.1. Where are the safety cases and risk analyses for TMZs?

11.2. For example will TMZs not reduce the size of the true open FIR, thus increasing choke points?

12. On going CAA work on TMZs

In Annex G para 3.2 the consultation says, "The CAA's 'Maps and Charts Working Group' is examining the issues [of TMZ depiction] ...." A member of the CAA's 'Maps and Charts Working Group' assures us that no such work has even been placed on the agenda. The agenda is currently blank and the Group hasn't met or considered anything in years now.

13. Consultations

The GA community is already struggling to find sufficient appropriate resources to staff the existing Airspace Change Process consultations. To add any more consultations, particularly when they are a new and untried process for something that is deemed to be a quick route to an end will obviously be severely detrimental.

14. The wording of the "Option"

14.1. Quotes from the consultation::

"Implement a formal process to support applications for 'Transponder Mandatory Zones' (TMZs) outside of controlled airspace."

"Therefore, the aim is to adopt and promulgate a standardised mechanism to support any applications from stakeholders for the establishment of TMZs."

"It is intended that once a process has been developed and promulgated, it would be effective immediately."

"The CAA just wishes to seek the views of stakeholders on what overall future mechanism should be used to process applications for TMZs."

14.2. We note that there are no mentions or indications of consulting as to what this process or "overall mechanism" will contain.

14.3. "Current CAA thinking is that the process should be a subset of the existing Airspace Change Process that is set out in the Airspace Charter and in CAA Publication (CAP) 725."

There are significant doubts about how parts of the ACP currently work without producing an "ACP-lite".

14.4. How can approval be legitimately sought for something that is not defined?

#### 15. Letter of Agreement (LoA) access to a TMZ

As this is not CAS a conventional ATC entry clearance cannot be sought therefore the only route for non-transponder aircraft is via an LoA. Surely an LoA permitting non-Mode S equipped aircraft to access an Open FIR TMZ would immediately negate the purpose of the TMZ? Therefore we believe that any Class F/G TMZ will be more restrictive than Class D airspace.

#### 16. Conclusion

16.1. The CAA is asking for a mandate to implement a formal process. There is no indication as to what that process will consist of beyond saying "that current thinking" is that it could be a sub-set of the existing Airspace Change Process, i.e. a quicker and less thorough version of something that doubts are being expressed about. Also there are no statements that the contents of this process will be consulted upon. Whilst there is no doubt that if any TMZs are to be established in Class F or G airspace there has to be a formal (preferably mutually agreed) process, it is unacceptable to be asked to agree to something that is not defined.

16.2. In the consultative material there are no indications as to what a Transponder Mandatory Zone will consist of beyond what the name implies, neither is there any indication of work carried out as to what the implications would be of TMZs outwith CAS for all stakeholders. Where are the generic TMZ risk analyses, impact assessments, etc? The UK has no direct experience of Class F & G airspace TMZs. Until this investigative work is completed it isn't possible to produce a meaningful process for applications to follow.

16.3. For the preceding reasons the GA Alliance does not agree with Option 2 as it stands, but can see ways in which it could become acceptable.

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**CONSULTATION RESPONSE**

**Annex 3**

**OPTION 3 - Include gliders in the SSR transponder carriage regulations.**

17. Introduction

This “option” could be said to be effectively three different ones depending upon the outcome of options 1 and 2:

- Mandate glider transponder carriage above FL100 – the existing legislation
- Mandate glider transponder carriage in CAS if Option 1 of the consultation goes ahead
- Mandate glider transponder carriage in TMZs created as a result of Option 2

In order to limit the potential for confusion this part of our response will limit itself to those matters pertinent to glider transponder carriage above FL100. Issues to do with the other two cases have been dealt with in the responses to Options 1 and 2.

18. Proportionate proposal?

18.1. The potential for issues between gliders and CAT are so low that no-one has been able to cite a single relevant incident, thus pointing at the existing risk mitigation actions being effective

18.2. When outwith CAS CAT transits through the subject airspace at significant vertical rates and so limits the risks

18.3. The principle areas of this airspace that are of interest to gliders are of little if any interest to CAT

19. Inappropriate proposal?

19.1. The consultation states, “This option would improve .... the efficiency of ATC within the busiest portions of UK airspace by making the transponder carriage regulations apply to all aircraft categories.”

19.2. In actual fact these are probably some of the least busy portions of UK airspace.

19.3. Eurocontrol’s publications are very clear that TCAS is not to be used for self separation:

ACAS II bulletin No 4. “Pilots must maintain a good look out, not relying on TCAS to prevent an unsafe situation from developing. TCAS provides last resort collision avoidance, not normal separation standards.”

ACAS II bulletin No 6. “Manoeuvres initiated solely on the information shown on the TCAS traffic display have often degraded flight safety. Therefore, pilots must not attempt to self-separate nor to challenge an ATC instruction based on the information derived solely from the TCAS traffic display.”

ACAS II bulletin No 10. “TCAS II does not attempt to achieve ATC separation. It is the last resort collision avoidance safety net.”

19.4. Therefore should not a part of this proposal be the mandating that all CAT must use a radar service when outwith CAS?

## 20. Levels of Safety

- 20.1. The consultation states, "This option would improve safety levels ...."
- 20.2. From what level to what level?
- 20.3. It is interesting to note that Eurocontrol state that 5 is "The factor of collision risk reduction thanks to TCAS II in the operational world" When dealing in risks measured in the powers of ten this is pretty insignificant.

## 21. Conclusion

- 21.1. The BHPA believes that the CAA proposal to increase the carriage of transponders by gliders is disproportionate and the requirement is at best, as Scots law says, "not proven".
- 21.2. The BHPA believes that a sustainable approach would be to analyse the UK for those areas of airspace above FL100 where a demonstrable risk actually exists, or even might develop in the immediate future, and then implement appropriate risk mitigation measures specifically for these areas.

**BRITISH HANG GLIDING AND PARAGLIDING ASSOCIATION**  
**PROPOSAL FOR AN INCREMENTAL EXPANSION OF THE USE OF SECONDARY**  
**SURVEILLANCE RADAR MODE SELECT TRANSPONDERS IN UK AIRSPACE**  
**CONSULTATION RESPONSE**

**Annex 4**

**OPTION 4 -Mandate the carriage and operation of Mode S transponders on all powered aircraft conducting international flights.**

1. Introduction.

Effectively the sole reason given to enact this option is one of bureaucratic tidiness, this is unacceptable.

2. ICAO.

- 2.1. The consultation states that the proposed change is needed so that the UK can become compliant with one ICAO SARP.
- 2.2. In common with all other European states, and as stated in the consultation, the UK has filed a difference on this. Indeed we understand that the UK has over 600 differences filed, so why is there a need to go to the considerable expense of starting the “work with neighbouring States to set up bilateral application of the Annex 6 requirements across mutual international airspace boundaries.”?
- 2.3. As taxpayers we are requesting the cost v. benefit analysis of this work, and believe that this analysis will show it to be a total waste of money.
- 2.4. Should this proposal go ahead it will more than likely be impossible to co-ordinate simultaneous implementation with all our neighbours, so there is bound to be a period when it will be perfectly legal to fly up to a border from either side and yet not cross it whilst in the air.
- 2.5. The Air Navigation Order defines some powered aircraft as gliders and the CAA’s has stated that they would continue to be so defined for all of the proposals contained within the consultation. Therefore there would probably still need to be an ICAO difference filed.

3. Safety.

- 3.1. The ICAO SARP was designed to increase safety in parts of the world where adjacent countries’ ATC systems do not speak to each other and commercial flights have to arrange their own handover and separation. The Eastern Mediterranean, the Middle East and Central Africa are just some examples of this where transponders are critical to safety. A light aircraft flying VFR to or from France or Ireland is not relevant to this and we believe that the ICAO recommendation was never intended to be interpreted in this way.
- 3.2. The suggestion that special corridors for non-transponding aircraft could be established is ill considered as such corridors would do little more than greatly increase the risk of mid-air collisions over the sea.
- 3.3. The only time that transponder carriage should be mandatory for an international border crossing is when entry is being made into an SSR mandatory area (which was hopefully established for safety reasons following due consultation!) on the other side.
- 3.4. We can see no safety benefit in the implementation of this option.

4. Conclusion.

As there is no safety case and no business case for this “Option” and it is just an



administrative issue we cannot support it and recommend it is deleted from further consideration.